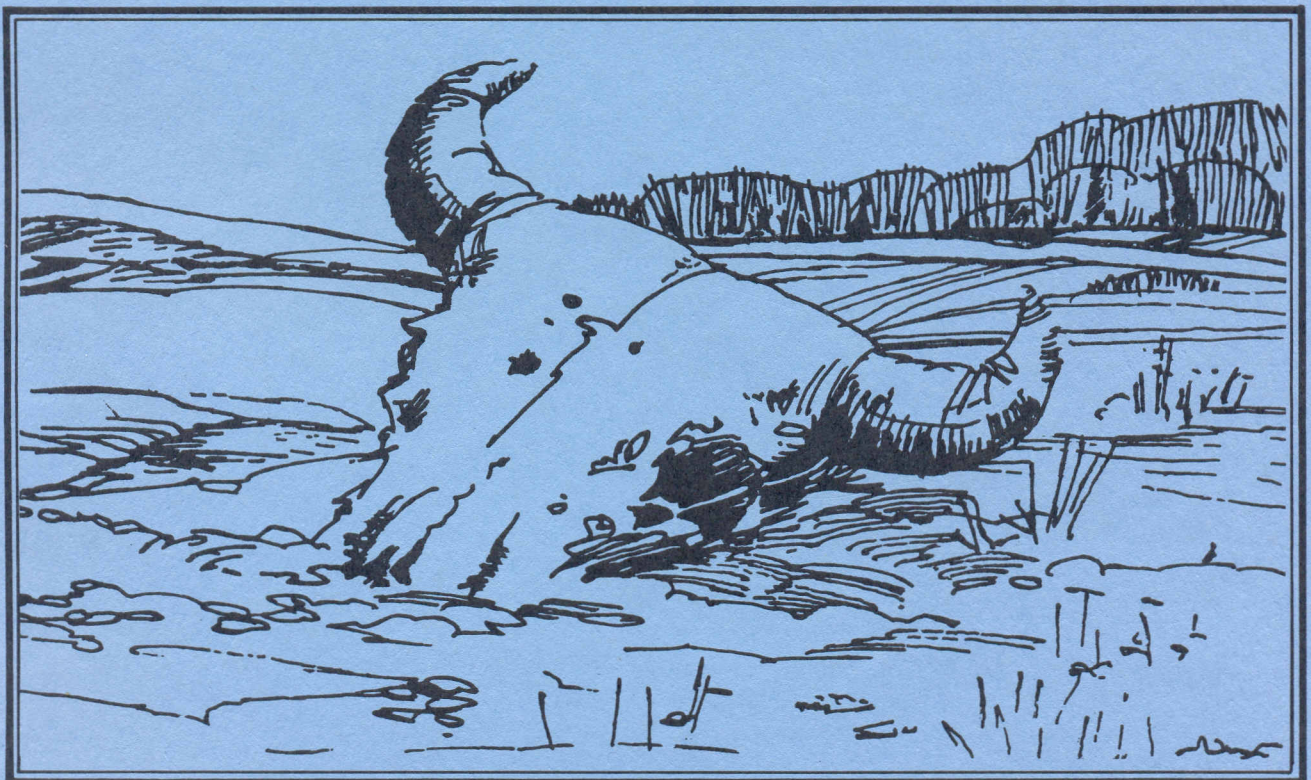


ARCHAEOLOGICAL
SURVEY
OF
ALBERTA

ARCHAEOLOGY
IN ALBERTA
1980

Occasional Paper
No. 17
1981

Jack Brink



Alberta
CULTURE
Historical Resources

ARCHAEOLOGY IN ALBERTA, 1981

Compiled by
Jack Brink

Archaeological Survey of Alberta
Occasional Paper No. 17

Prepared by:
Archaeological Survey
of Alberta

Published by:
Alberta Culture
Historical Resources Division

OCCASIONAL PAPERS

Papers for publication in this series of monographs are produced by or for the four branches of the Historical Resources Division of Alberta Culture: the Provincial Archives of Alberta, the Provincial Museum of Alberta, the Historic Sites Service and the Archaeological Survey of Alberta. Those persons or institutions interested in particular subject sub-series may obtain publication lists from the appropriate branches, and may purchase copies of the publications from the following address:

Alberta Culture
The Bookshop
Provincial Museum of Alberta
12845 - 102 Avenue
Edmonton, Alberta
T5N 0M6
Phone (403) 452-2150

Objectives

These Occasional Papers are designed to permit the rapid dissemination of information resulting from Historical Resources' programmes. They are intended primarily for interested specialists, rather than as popular publications for general readers. In the interests of making information available quickly to these specialists, normal production procedures have been abbreviated.

TABLE OF CONTENTS

	<u>Page</u>
TABLE OF CONTENTS.....	ii
LIST OF TABLES.....	iv
LIST OF FIGURES.....	v
Forward, Archaeology in Alberta: 1980	
Paul F. Donahue.....	viii
Archaeological Investigations at the Strathcona Science Park Site (FjPi-29), Permit 80-74	
Heinz W. Pyszczuk.....	1
Alberta Highways South Survey, Historical Resources Assessment Programme 1980, Permit 80-96-C	
Roderick J. Heintzmann, John Priegert and Shirleen J. Smith.....	12
Pembina River and Rocky Mountain House Gazing Reserves, Permit 80-107-C	
Sheila J. Minni.....	26
Slave River Hydro Feasibility Study, Task Area 5: Archaeological Studies, Permit 80-90	
Roderick J. Heitzmann and John Priegert.....	32
Historical Resources Inventory, Borden, Whitney, Laurier and Ross Lakes Park, Permit 80-119-C	
Gloria J. Fedirchuk.....	38
Archaeological Investigations at the Ross Site, D1Pd-3, Permit 80-103	
J. Roderick Vickers.....	45
Historical Resource Mitigation, FaPn-38, Dickson Reservoir, Permit 80-120-C	
Gloria J. Fedirchuk.....	53
Highway Mitigation Program: 1980, Permit 80-126-C	
J. Michael Quigg.....	61
1980 Archaeological Investigations at the FM Ranch Site, EfPk-1, Permit 80-167	
J. Roderick Vickers.....	76

Historical Resources Impact Assessment, Lesser Slave Lake Provincial Park, Permit 80-178-C	
Gloria J. Fedirchuk.....	84
Preliminary Report, Historical Resources Impact Assessment, Highway Construction Projects North 1980, Permit 80-101-C	
Edward J. McCullough.....	89
1980 Archaeological Investigations DkPi-2, Permit 80-53	
Stanley Van Dyke and Bea Loveseth.....	103
Archaeological Investigations at Carson-Pegasus Provincial Park, Permit 80-169	
Brian M. Ronaghan.....	115
Birch Mountain Archaeological Study, 1980, Permit 80-80	
John W. Ives.....	127
Report on the Archaeological Field Work in the Sibbald Flat Area, Alberta, Permit 80-114-C	
Eugene M. Gryba.....	139
Archaeological Investigations in the Lesser Slave Lake Area, 1980, Permit 80-98	
Raymond J. LeBlanc.....	152
An Archaeological Reconnaissance of the Middle and Lower Peace River, Permit 80-78	
John W. Ives.....	160
Archaeology at a Fur Trade Site, GePn-1, Permit 80-63	
Michael R.A. Forsman.....	168
Scoring in Archaeology: The Process of Evaluating Site Significance	
Gerald T. Conaty.....	187
BIBLIOGRAPHY.....	195

LIST OF TABLES

<u>TABLE</u>	<u>PAGE</u>
1. 1980 Project Permits Issued by the Archaeological Survey of Alberta.....	iv
2. Summary of Alberta Highways South Survey 1980.....	15
3. Site Densities of Biogeographic Zones, Highways Survey South.....	24
4. Preliminary Results, Archaeological Survey of Borden, Whitney, Laurier and Ross Lakes Park.....	44
5. Preliminary Analysis, Cultural Material from FaPn-38.....	57
6. Cultural Debris from 74 test Locales, FM Ranch.....	77
7. Preliminary Results, Lesser Slave Lake Provincial Park, Archaeological Survey.....	88
8. Proposed Highway Construction Projects North.....	91
9. Historical Resource Sites Identified, Highway Survey North.....	95
10. Artifact Inventory from FePn-1.....	183

LIST OF FIGURES

<u>FIGURE</u>	<u>PAGE</u>
1. Archaeological investigations, 1980.....	xxv
2. Location of the Strathcona Site (FjPi-29).....	3
3. Strathcona Site grid system, excavations, and permanent datums.....	6
4. Unit FjPi-29.6 showing: A. Two-dimensional artifact/faunal distributions; B. Mode artifact/faunal frequency histogram.....	8
5. Strathcona Site boundary showing test pit locations.....	10
6. Locations of surveyed highway projects in Southern Alberta.....	13
7. Material eroding from DhOm-2.....	18
8. Site EgPa-2, near Finnegan, looking southeast.....	18
9. Site EdPp-21 on Canyon Creek, looking west.....	20
10. Site EdPp-19 on the Sheep River, looking west.....	20
11. Project 80-107c location.....	27
12. FePq-1. View to the southwest.....	30
13. FePp-2. View to the southeast.....	30
14. Location of study area, Permit 80-119c.....	39
15. Site locations, Permit 80-119c.....	43
16. Location and plan of the Ross Site.....	46
17. View southwest of Ross Site.....	47
18. View south of river cutbank and strata.....	47
19. View east of cultural layer III, XV-B.....	51
20. View west of cultural layers III and II, XV-B.....	52
21. Miscellaneous artifacts from DiPd-3.....	52
22. Location of study area, Permit 80-120c.....	54
23. Location of excavated sites within Southern Alberta.....	62
24. View of DiPo-1 during excavations.....	66

25. Projectile points from excavated sites.....	66
26. General view of terrace containing EcPp-24.....	68
27. Block excavations at EfPq-2.....	68
28. View along centre line, EfPq-4.....	71
29. EfPq-6 during excavation.....	71
30. Location of FM Ranch Site.....	79
31. Tests and distribution of cultural material.....	80
32. View northeast of FM Ranch Site.....	81
33. View west of auger testing.....	81
34. Location of Lesser Slave Lake Provincial Park.....	85
35. Proposed Highway Project North locations.....	90
36. Projectile Points from Highway Survey North projects.....	97
37. DkPi-2 location map.....	104
38. Orthograph of DkPi-2 showing 1980 test area.....	105
39. View west, excavation of DkPi-2.....	107
40. View south of DkPi-2.....	107
41. Profiles of Tests 3 and 4.....	108
42. View east of Occupation 4, Test 4.....	108
43. Vertical view of hearth, Test 1.....	112
44. View south of hearth profile.....	112
45. Projectile Points, DkPi-2.....	113
46. Artifacts, DkPi-2.....	114
47. Historical Resource Sites in Carson-Pegasus Park.....	119
48. Artifacts, Project 80-169.....	121
49. Artifacts, Project 80-169.....	122
50. Profiled excavation unit, GbPw-7.....	123
51. Historic Site GbPw-11.....	123
52. The Eaglenest-Clear Lake drainage system.....	129
53. Distribution of stops throughout study area.....	132
54. Distribution of sites within the study area.....	133
55. View west toward the south end of Eaglenest Lake.....	135
56. Excavation at HkPa-11.....	135
57. Small Bifaces.....	137

58. Sampling for a radiocarbon date, HkPa-13.....	137
59. Site map of EgPr-2.....	143
60. Sample of gravers and points from EgPr-2.....	146
61. Lesser Slave Lake study area.....	154
62. View west of Hidden Creek Site.....	156
63. Artifacts from Hidden Creek Site.....	156
64. View of the Slump Site.....	158
65. Pit feature in leve 3 at the Slump Site.....	158
66. Location of the study area in north central Alberta.....	161
67. Peace River looking east from Vermilion Falls.....	161
68. Testing at the mouth of the Wabasca.....	164
69. Sites at the mouth of the Mikkwa River.....	165
70. Community of Little Red River.....	166
71. Location of Pembina River.....	171
72. Portion of D. Thompson's 1814 map.....	173
73. Location of GePn-1.....	175
74. Map of site features and test units.....	177
75. Wet screening activity.....	179
76. View of site area.....	179
77. Fireplace rocks, unit 2K8.....	180
78. Fireplace rocks, unit 2V17.....	180
79. Plan view of unit 2K8.....	181
80. Lead shot and gunworm.....	184
81. Beads.....	184
82. Silver brooch fragment.....	186
83. Bone bodkin.....	186

FORWARD
ARCHAEOLOGY IN ALBERTA: 1980
Paul F. Donahue
Archaeological Survey of Alberta

This past year has been one of change at the Archaeological Survey. Dr. W.J. Byrne, Director of the Survey since 1974, was appointed Assistant Deputy Minister, Historical Resources Division, Alberta Culture, in November 1980. The organization of the Archaeological Survey, a branch of the Historical Resources Division, has not changed in that there exists the Director's position; the individual who is responsible for managing the staff and resources, developing policies pertinent to archaeological resources, and determining the direction in which the survey staff and resources are headed; and two sections: Resource Management and Research.

The former section is responsible for monitoring development projects within the province in order to ensure that historical resources are preserved or conserved. Generally, this is accomplished by instituting referral mechanisms by which development data can be collected for review by the Research Section, maintaining site data and archaeological excavation permit records, and operating the branch library. A minimum of 5,000 development projects are received and reviewed yearly by Resource Management staff. In 1979/80, 753 of the referral projects required further action because of the potential impact development could have on historical resources. These consisted of 180 industrial developments, 337 subdivisions, 98 highway transportation projects, and 99 planning programs. A vast majority of the 193 (Table 1) excavation permits issued in 1980 were related to energy resources developments (66 or 34%) and subdivisions (71 or 37%). Other projects directed at exploitation of a natural resource or development of a recreation facility are represented by 42 permits

TABLE 1: 1980 PROJECT PERMITS ISSUED BY
THE ARCHAEOLOGICAL SURVEY OF ALBERTA

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-1	James Calder	Calgary Power Transmission line, Carseland - Blackie
80-2	John Pollock	Bruyer Partnership, Water reservoir Kaskitayo
80-3	Douglas Schnurrenberger	Test excavations, Caribou Island Site Gb0s-100, Bonnyville
80-4	Ian Wilson	AMOCO, Pipeline, Markerville - Innisfail
80-5	James Calder	United Management Ltd., Subdivision, Calgary
80-6	Ian Wilson	AGTL (Alaska Project Division), Stockpile, Compressor station, meter station sites, Southern Alberta
80-7	Bruce Wright	BURNCO Ltd., Gravel Pit, Calgary
80-8	James Calder	Gulf Canada Resources Inc. Pipeline, West of Coronation
80-9	G. Fedirchuk	Esso Chemical Canada, Fertilizer plant, Redwater
80-10	G. Fedirchuk	Marlo Properties, Industrial subdivision, Gibbons
80-11	John Brumley	Hudson's Bay Oil and Gas, Water pipeline Red Deer River North of Brooks
80-12	G. Fedirchuk	Subdivision, St. Paul
80-13	B.O.K. Reeves	Calgary Power Ltd., Power transmission line, Lethbridge
80-14	PROJECT CANCELLED	
80-15	J. Pollock	Turbo Properties, Industrial Park, Edmonton

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-16	J. Pollock	Vellor Holdings Ltd., Subdivision, Parkland
80-17	B.O.K. Reeves	Cirrus Land Corporation, Subdivision, Calgary - Riverbend
80-18	J. Fromhold	Calmat Engineering, Subdivision, Lac La Biche
80-19	J. Fromhold	Calmat Engineering, Subdivision, Lac La Biche
80-20	R. Heitzmann	Daon Midwest, Subdivision, Bonnyville
80-21	R. Heitzmann	Grovec Development Ltd., Subdivision, Spruce Grove
80-22	Ian Wilson	Calgary Power, Coal Mine extension, Gainford
80-23	Stan Van Dyke	IBI Group, Subdivision, Cold Lake
80-24	J. Pollock	Canadian Engineering Surveys Co., Subdivision, Drayton Valley
80-25	J. Pollock	Canadian Engineering Surveys Ltd., Subdivision, Drayton Valley
80-26	J. Pollock	Rockliff Partnership, Subdivision, Gibbons
80-27	J. Pollock	Suvan Fettig & Associates Ltd., Subdivision, Donatville
80-28	J. Pollock	Suvan Fettig & Associates Ltd., Subdivision, Lac La Biche
80-29	J. Pollock	J.N. Polonuk Dev't Planning & Research Subdivision, Rich Lake (Hamlet)
80-30	Ian Wilson	AGTL (Alaska Project Division) STockpile Sites, Pekisko

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-31	G. Fedirchuk	Town of Devon, Industrial Park & Sub-division, Devon
80-32	G. Fedirchuk	Lombard North Group, Subdivision, Edson
80-33	Ed McCullough	Pan Canadian Petroleum, Pipeline Gathering System, Bassano
80-17	B.O.K. Reeves	Cirrus Land Corporation,
80-34	B.O.K. Reeves	Calgary Power, Power Line ROW, Brooks
80-35	Brian Apland	AGTL (Alaska Project Division), Pipeline Southern Alberta
80-36	Bruce Wright	Markborough Properties, Subdivision Calgary
80-37	Bruce Wright	Canadian Western Gas, Pipeline, Calgary
80-38	Ian Wilson	BC Forest Products, Mill Site, Grande Cache
80-39	Ian Wilson	Shell, Pipeline, Fort Saskatchewan
80-40	B.O.K. Reeves	Costain Ltd., Subdivision, Calgary
80-41	Stan Van Dyke	Daon Development Corp., Gravel Pit, Calgary
80-42	B.O.K. Reeves	Phillips Petroleum Canada Ltd., Sour gas gathering system and plant, Ghost-Bow River
80-43	B.O.K. Reeves	Subdivision - preliminary planning, Lethbridge
80-44	Ed McCullough	AGTL/Husky Oil, Pipeline, Lloydminster/Cold Lake
80-45	Bruce Wright	Alldritt, Subdivision, Edmonton

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-46	B.O.K. Reeves	Sundance Oil, Pipeline, gathering system, well sites, Wintering Hills
80-47	PROJECT CANCELLED	
80-48	John W. Ives	Parks, Campground, Dillberry Lake (north shore)
80-49	Barry Newton	Akley Design, Subdivision, Vermilion
80-50	John W. Brink	Alberta Transportation, Gravel quarry, Longview
80-51	John W. Brink	Alberta Forest Service, Forestry Campground, Eastern Slopes
80-52	John W. Brink	Alberta Provincial Parks, Recreation areas, Eastern Slopes
80-53-C	Stan Van Dyke	DkPi-1,2 Mitigation, Highway Fort Macleod
80-54	Ray LeBlanc	Alberta Forest Service, Hines Creek
80-55	J. Michael Quigg	Petrocanada, Pipelines ROW's, Medicine Hat
80-56	John Pollock	Subdivision, Hughendon
80-57	Alan Bryan	Nu-West Homes, Subdivision, Edmonton
80-58	G. Fedirchuk	Gosling Holdings Ltd., Subdivision, Caslan, Alberta
80-59	John Pollock	Western Shelter, Subdivision, Gibbons
80-60	James Calder	Gulf Canada Ltd., Pipeline, Carstairs
80-61	Ian Wilson	Petrocanada, Coal Mine (KIPP), Lethbridge

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-62	James Calder	Gulf Canada Ltd., Pipeline, Edmonton
80-63	Michael Forsman	Historic fur trade sites, Westlock
80-64	Stan Van Dyke	Mitigation EfPm-103, 104, Calgary
80-65	Barry Newton	Miron Home Builders, Subdivision, Cold Lake
80-66	John W. Brink	Transportation, Highway, Water Valley
80-67	Ian Wilson	Water pipeline, Coal Lake, east of Leduc
80-68	Ed McCullough	Heavy oil plant, ROW, Well sites, Cold Lake
80-69	John Pollock	Subdivision, Millwoods
80-70	Barry Newton	St. Albert Developments Ltd./Viscount Invest. Subdivision, St. Albert
80-71	B.O.K. Reeves	Calgary Power, DjPf-83, 84, 85, 87, Magrath
80-72	B.O.K. Reeves	AGTL, Pipeline, Holden/Travers
80-73	PROJECT CANCELLED	
80-74-C	Heinz Pyszczyk	Excavations, FjPi-29 (Strathcona Site) Edmonton
80-75	Bruce Wright	Alberta Power, EiOw-20, 21, 22 (Sheerness)
80-76	Bruce Wright	Canadian Occidental Petroleum, Sour Gas Pipeline, Okotoks
80-77	Barry Newton	Sewage treatment plant, Chauvin
80-78	John W. Ives	Reconnaissance, Fort Vermilion

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-79	John W. Ives	Alberta Forestry, Campground/parking lot, Anzac
80-80	John W. Ives	Preliminary, assessment of drainage basin, Fort McKay
80-81	G. Fedirchuk	Joh-Al Holdings Ltd., Subdivision, Vermilion
80-82	PROJECT CANCELLED	
80-83	John W. Brink	Burial, Okotoks
80-84	Sheila Minni	Thompson/Baldwin, Subdivision Beach Corner
80-85	Ian Wilson	AGTL, Stockpile Sites, Chain Lakes
80-86	G. Fedirchuk	Jon-Al Holdings Ltd., Subdivision, St. Paul
80-87	E.J. McCullough	Shell Canada, Pipeline, Gordondale
80-88	E.J. McCullough	Marketplace Properties, Subdivision, Calgary
80-89	Rod Heitzmann	Century 21, Subdivision, Athabasca
80-90	Rod Heitzmann	Environment, Hydro dam feasibility study, Fort McMurray
80-91	Brian Ronaghan	Alsands, Townsite, utility corridor, airport, surface mine, Fort MacKay
80-92	Ian Wilson	B.C. Forest Products, Hinton
80-93	E.J. McCullough	AGTL, Pipeline, Hussar
80-94	Ian Wilson, AGTL	Stockpile, South of Oldman River
80-95	PROJECT CANCELLED	
80-96-C	R. Heitzmann	Transportation Contract, Highway Survey, Southern Alberta

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-97	Michael Kelly	Dome Petroleum, Pipeline, Beaverlodge to Obed
80-98	Ray LeBlanc	Inventory Prehistory of Lesser Slave Lake
80-99	G. Fedirchuk	Neil Achtem, Subdivision, Mission Beach
80-100	G. Fedirchuk	Nu-West Development Corp., Subdivision, Cold Lake
80-101-C	Ed McCullough	Transportation, Highway Survey, Northern Alberta
80-102	James Calder	Alberta Power, Powerline, Hanna
80-103	Rod Vickers	Test Excavation D1Pd-3 (Ross Site) Coaldale
80-104	Bruce Wright	Inter-Provincial Pipelines, Bistcho Lake
80-105	D.N. Steer	Hudson's Bay Oil & Gas, Pipeline, Hoadley
80-106	B.O.K. Reeves	Edmonton Power, Burn Test Pits, Genesee
80-107-C	Sheila Minni	ENR Contract, Grazing Reserves, Rocky Mountain House/Pembina River Grazing Reserves
80-108-C	John Brumley	Parks, Campground/boat launch/parking lot, Elkwater
80-109	John Pollock	Calgary Power, Transmission Line, Fort Saskatchewan
80-110	Mike Wilson	Marketplace Prop. Subdivision, Calgary, EgPn-180
80-111	B.O.K. Reeves	Meren Holdings & Dev't Ltd., Basement extension (mona Lisa Site), Calgary

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-112	B.O.K. Reeves	Granklin Development, Condominium Apt., (Mona Lisa Site) Calgary
80-113	James McCormick	Pipeline - Excavation EhPo-36 tipi ring, Cochrane
80-114-C	Eugene Gryba	Transportation, Highway, Excavation EgPr-2, Sibbald Flats - Jumpingpound Creek
80-115	Sheila Minni	Nortco Construction Ltd., Subdivision, Lac La Biche
80-116	Sheila Minni	Lakes Ranch Ltd., Subdivision, Ashmont
80-117	Stan Van Dyke	Turbo Resources Ltd., Refinery, Balzac
80-118	Barry Newton	Regatta Realty (Buddy Dupres) Subdivision, County of Thorhild
80-119-C	G. Fedirchuk	Parks, Campgrounds, Whitney, Ross, Laurier, Borden, Elk Point
80-120-C	G. Fedirchuk	Environment Mitigation, FaPn-38, Dickson
80-121	Sheila Minni	N.N. Bentley, Subdivision, Lawrence Lake
80-122	James McCormick	Luscar/Sterco, Strip mining coal project, I.D. 24 Foothills area
80-123	G. Fedirchuk	Nu-West Development, Subdivision, Cold Lake
80-124	G. Fedirchuk	Stanley Associates Engineering Ltd., Sewer pipeline, Strath., county/Clover Bar
80-125	Bruce Wright	Genstar, Subdivision, Calgary
80-126-C	Mike Quigg	Transportation, DiPo-1; EcPp-24; EhPc-3; EfPq-2,4,5,6, Cataract Creek

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-127	Don Steer	Mercon Eng., Ltd., Water Supply pipeline, Travers Reservoir (E of Champion)
80-128	John Pollock	Fort Industry Management, Industrial Subdivision, Fort Saskatchewan
80-129	Sheila Minni	Fuhr Farms Ltd., Subdivision, Spruce Grove
80-130	Marc Stevenson	Slave, Athabasca Rivers
80-131	James McCormick	Shell Canada, Gas gathering system, Moose Mtn., W of Bragg Creek
80-132	Bruce Ball	Forest Land Use Branch, Boat launch/campsite/day use, Calling Lake
80-133	Ed McCullough	AGTL - Petro Can., Drilling pads/access roads NE of Fort McKay
80-134	John Pollock	Luscar Ltd., Pipeline, Round Hill - Camrose
80-135	B.O.K. Reeves	Gregg Metallurgical, Coal Mine, Luscar
80-136	John Pollock	Subdivision, Fort Saskatchewan
80-137	Bruce Wright	Nova, Pipeline, W of Claresholm
80-138	Brian Apland	AGTL, DkPm-22 mitigation, Bellevue
80-139	Brian Apland	AGTL, Eastern Leg mitigation, EeOu-5; EeOm-15, Patricia/McNeil
80-140	G. Fedirchuk	Square Four Developments, Subdivision, Morningside
80-141	PROJECT CANCELLED	
80-142	PROJECT CANCELLED	

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-143	James Calder	Gulf Canada Resources, Gas gathering system, Munson
80-144	John Pollock	Carma, Subdivision, St. Albert
80-145	Ian Wilson	Shell Canada Resources Ltd., Refinery Mitigation (FkPg-37,39), Fort Saskatchewan
80-146	Jon Driver	U of C, Grande Valley Creek, Cochrane
80-147	G. Fedirchuk	AGTL (Nova) Pipeline, Kirby Lateral
80-148	Bruce Ball	Alberta Forest Service, Campground expansion, EgPq-3, Jumpingpound
80-149	Brian Apland	Nova, Pipeline, Edson-Grande Prairie
80-150	Ed McCullough	Pan-Canadian, Pipeline, Duchess
80-151	Rod Heitzmann	Integrated Bldg., Corp., Ltd., Subdivision, Edmonton
80-152	John Pollock	Nova, 3 Pipelines, Grande Prairie area
80-153-C	Ian Wilson	Provincial Park, Notikewin
80-154	Timothy Losey	Pomona Holdings, Subdivision, Devon
80-155	G. Fedirchuk	Esso, Gd0o-16, Cold Lake
80-156	Michael Kelly	BC Forest Products, Sawmill site, Knight
80-157	B.O.K. Reeves	Consolidation Coal Co. of Canada, Coal test mine, Rought Creek/Clearwater Forest Reserve
80-158	Stuart Baldwin	DhPh-47, Cardston
80-159	Donald Steer	Nova Pipeline, Drumheller

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-160	Bruce Wright	Triple 5, Subdivision, Edmonton
80-161	Barry Newton	Melcor, Subdivision, Spruce Grove
80-162	G. Fedirchuk	Petro-Canada, Road, airstrip, plant, camp, Conklin
80-163	Stan Van Dyke	Alberta Power, Pipeline, Cordel-Sheerness
80-165	Jennifer Hunt	Alberta Power, Pipeline, railspur, pumphouse, Sheerness
80-165	Jennifer Hunt	Amoco, Plant, gas wells, pipeline, Peace River
80-166-C	Timothy Losey	Transportation, Hg0v-29, (Beaver Creek Quarry Site Fort MacKay
80-167	Rod Vickers	FM Site EfPk-1, SE of Calgary
80-186	PROJECT CANCELLED	
80-169-C	Brian Ronaghan	Parks & Recreation, Carson-Pegasus, Whitecourt
80-170	Stan Van Dyke	Texaco Canada Resources Ltd., Plant sites, drill sites, access roads, Fort McMurray
80-171	Barry Newton	Nova, Pipeline, Grace Creek
80-174	M. Kennedy	Nova, Pipeline, Battle River/Wainwright
80-175	James Calder	Nova, Pipeline, Beaverlodge
80-176	M. Kennedy	Nova, Pipeline (Lonebutte Lateral) Drumheller
80-178-C	G. Fedirchuk	Parks, Lesser Slave Lake P.P., Lesser Slave Lake
80-179	Jennifer Hunt	Carma, Subdivision, Calgary

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-180	G. Fedirchuk	North Peace Gas Co-op, Pipeline, Hines Creek
80-181	M. Kennedy	Meadow Land Properties, Gravel mining/Subdivision, Cochrane
80-182	Barry Newton	Reid Crowther & Partners, Subdivision, Legal
80-183	Ed McCullough	Pan-Canadian, Pipeline, Rimbey
80-184	Jennifer Hunt	Melcor, Subdivision, Nisku
80-185	Barry Newton	McElhanney, Subdivision, Nisku
80-186	G. Fedirchuk	Dale Realty, Subdivision, Saint Paul - Lac Sante
80-187	G. Fedirchuk	Subdivision, Lloydminster
80-188	Sheila Minni	Subdivision, Bashaw/Ponoka
80-189	Sheila Minni	Trac Dev., Corp., Ltd., Subdivision, (7 acres), Spruce Grove
80-190	Barry Newton	Subdivision, Elk Point
80-191	Sheila Minni	Perch Cove Estates, Subdivision, Boyle
80-192	Sheila Minni	Trac Dev., Corp., Devt., Ltd.,/Gary Brior Ind., Subdivision, Spruce Grove
80-193	Brian Ronaghan	Home Oil (Calgary), Pipeline, Calgary
80-194	Don Steer	Nova, Pipeline, Buffalo, Alberta
80-195	Brian Ronaghan	Sundance Oil, Gas gathering system, Drumheller/Dorothy
80-196	Jennifer Hunt	Carma, Subdivision, Calgary

PERMIT NO.	ARCHAEOLOGIST	PROJECT
80-197	Mike Quigg	Hat Development, Subdivision, Medicine Hat
80-198	James Calder	Nova, Pipeline (Hythe Lateral), Grande Prairie area
80-199	Don Steer	Nova, Pipeline, Morrin
80-200	Don Steer	Nova, Pipeline, Starland, M.D.
80-201	B.O.K. Reeves	Gulf Canada Resources, Pipeline, Magrath

(22%). 'Pure' research projects, so necessary to a better understanding of Alberta prehistory, are represented by 13 (7%) of the permits.

The Research Section is responsible for reviewing all development projects brought to its attention in order to ascertain whether or not there is any real potential for impacting historical resources, to review and decide upon applications for excavation permits, to review and evaluate all historical resource impact assessment reports in order to determine if further investigation is necessary and, if so, to review and evaluate the mitigation report. Archaeological Research Officers are also responsible for undertaking long-range research projects of their own design. Ostensively, the object of all archaeological investigations (i.e., both development and research initiated) is to lead to an increased knowledge of Alberta's prehistory, both for public information and enjoyment, and to enable the location and identification of sites which warrant long-term protection.

In an effort to increase the return, so to speak, on archaeological investigations, a number of projects were initiated to aid in the definition and prioritizing of specific provincial and regional research problems that could be approached in a scientific manner; to develop ways of achieving greater resolution and manipulation of the data base, and to improve upon the present methods for the technical analysis of data. To this end, a two-day meeting of all professional archaeologists in Alberta was hosted by the Archaeological Survey in order to (a) resolve some of the current operational problems, and (b) obtain a consensus of what the major and minor cultural resource management/research objectives should be for the next five years. While no resolution of objectives was forthcoming--nor could be expected in this initial meeting--ample progress was made and a follow-up meeting has been scheduled. Once

objectives have been selected it will be easier to develop criteria for evaluating significance and altering site and artifact data input forms so that the data recorded can both address the objectives and be amenable to electronic data processing. A review of all residential subdivision archaeological investigations was also undertaken in order to determine what environmental variables may be indicative of high historical resource potential. As well, a sampling of approximately 12,000 sites in the site data file was begun to investigate significant site locational variables and to suggest standardized terminology and variables for site forms. As these and other projects come to fruition, alterations to the present operation can be initiated and a more refined system for sieving development projects can be put in place. This would aid staff archaeologists in that only the most problematic development projects would need be reviewed by them. Within this past year three other technical service-oriented projects have been started; namely, a comprehensive comparative osteological collection is being compiled over the next five years to facilitate the identification and analysis of archaeological faunal remains; herbarium and modern pollen comparative collections are being obtained in order to allow for the analysis of palaeoenvironmental situations; and assessments of what artifact data should be recorded and what artifacts should be collected from sites as well as in what manner is being considered in order to avoid the problem of curating material that has little informational or interpretive value.

The annual review of archaeology in Alberta provides only a limited glimpse of what actually took place each preceding year. The following 18 papers, 17 of which focus on 1980 permits, address provincial government contract projects done for or managed by the Archaeological Survey of Alberta (Figure 1). The first by Heinz Pyszczyk discuss his investigations at the Strathcona Science Park Site; an archaeological site being researched for its informational and interpretive potential. Located outside the east edge of the city of

Edmonton, this site is part of a larger public interpretive facility that opened this past summer. It is the only ongoing prehistoric archaeological investigation in Canada that is open to the public on a daily basis during summer months. The site has proven immensely attractive to the public and many visitors have returned a number of times to view the on-site excavations, interpretive exhibit, and laboratory facility. Papers written under permits 80-53, 96, 101, 114, and 126) were mitigative programs that came about as an outgrowth of previously accomplished impact assessment studies and for situations in which there was no way to circumvent the sites to be impacted. Three papers (permits 80-119, 169, and 178) focus on investigations of provincial parks in Alberta, one on an historical resources impact assessment of a grazing reserve (80-107) and another (80-120) on the mitigation of a site to be impacted by construction of a reservoir. Project 80-90, the preliminary archaeological study of possible impoundment areas and transmission line routes associated with damming of the Slave River near the Northwest Territories boundary, is significant both for the size and location of the sites to be affected vis-a-vis archaeological resources and for the fact that it is being done by one consultant through the co-operation of Alberta, Northwest Territories, and federal archaeologists responsible for the management of cultural resources in the area. Two projects undertaken by Rod Vickers (permits 80-103 and 167) were directed at securing further data to delimit the boundaries of the Ross and FM Ranch sites; both sites are scheduled for designation as Provincial Historic Resources under the Alberta Historical Resources Act. Three northern Alberta research projects by Ray LeBlanc (80-198) and John Ives (80-78 and 80-80) were designed to obtain objective data on site locational variables in three vastly different environmental contexts; namely the west end of Lesser Slave Lake, the lower Peace River, and the Birch Mountains. Lastly, is Gerry Conaty's paper "Scoring in Archaeology: the process of evaluating site significance", and outgrowth of his investigations of a large tarsands development project northeast of Fort McMurray on the

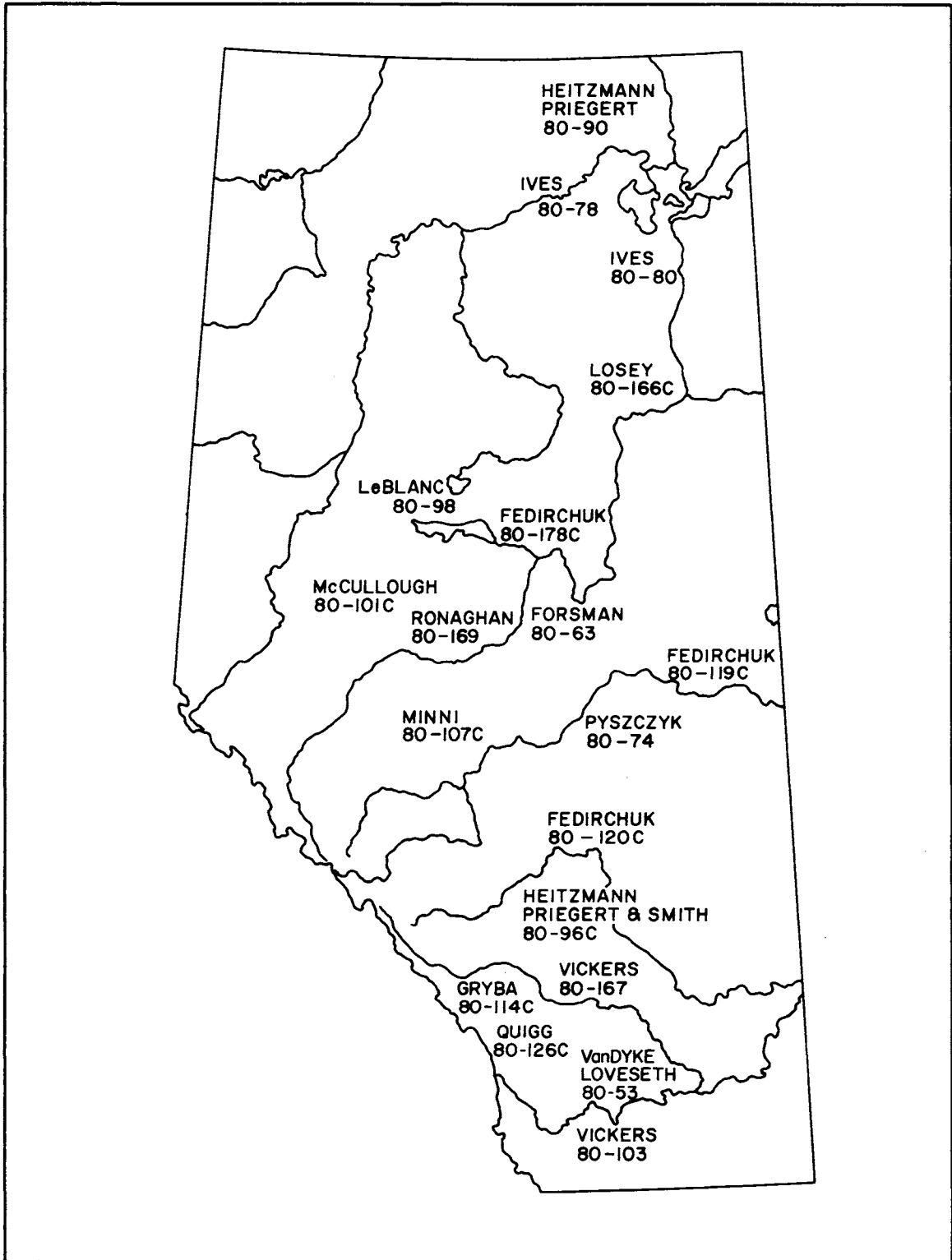


Figure 1: Archaeological investigations in Alberta, 1980

Athabasca River. This final paper represents the direction it is anticipated future annual reviews will take, i.e., longer, more analytical papers highlighting significant investigations or discoveries, along with very brief descriptive papers or abstracts of all archaeological projects accomplished each year in the province.

Archaeology in Alberta has come a long way since 1974. In large measure this can be attributed to the very significant provincial legislation incorporated in the Historical Resources Act and the support the government of Alberta has provided the archeologists and managers responsible for the resources. It is also largely due to the expertise and hard work of the people who put the 'Survey' together and nurtured it for so many years. Archaeology in Alberta is on a firm footing and should only improve with age.

**ARCHAEOLOGICAL INVESTIGATIONS AT THE STRATHCONA
SCIENCE PARK SITE (FjPi-29)**

Permit 80-74

**Heinz W. Pyszczyk
Simon Fraser University**

INTRODUCTION

Archaeological investigations were conducted at the Strathcona Science Park Site from June 15 through September 6, 1980 under the direction of the author, assisted by Gabriella Prager, with a field crew composed of Lan Chan, Guy Trott, and Heather Dumka. Research was made possible by a contract and funding awarded by the Archaeological Survey of Alberta, Alberta Culture.

This prehistoric lithic workshop has been developed into an archaeological interpretive center by Alberta Culture. The public were invited to watch our field crew excavate, record, and analyse recovered prehistoric remains. As well, a newly constructed research laboratory/interpretive facility housed displays on archaeological laboratory procedures, North American culture history, and aboriginal tool manufacturing techniques. Thus, this unique archaeological setting was very beneficial to Albertans and our field crew who had an opportunity to dispense with some misunderstandings that the public often have concerning archaeological research. To slightly revise an old proverb--one excavation unit certainly is worth a thousand words.

In addition, the Strathcona Site served to assess some relatively new research techniques and provided data on Alberta's culture history and prehistoric lithic technology. The following is a description of research objectives and methods. Preliminary results may be subject to revision as more extensive analysis is conducted.

BACKGROUND

The site is located in Strathcona County, immediately east of the Edmonton city limits, on the east terraces of the North Saskatchewan River in the newly-constructed Strathcona Science Park (Figure 2). The area was nearly destroyed when park facilities were being erected but was finally protected as a cultural resource by the Archaeological Survey of Alberta. Initial reporting of the site by ARESCO Limited in 1976 was followed by test excavations and surface collection in 1978 (Newton and Pollock 1979). Proposed construction of a laboratory/interpretive facility, walkway, and a platform overlooking the North Saskatchewan River resulted in further salvage excavations during the late summer and fall of 1979 by John Ives of the Archaeological Survey of Alberta.

Investigations by Newton and Pollock led them to report that the site was a single component Oxbow lithic workshop. Research by Ives and Newton (1980:39) indicated that FjPi-29 was a multicomponent site containing:

1. Early twentieth century coal mining activities along the North Saskatchewan River.
2. A Late Prehistoric component as evidenced by cord-marked pottery (A.D. 1000 - 19th century).
3. A Late Prehistoric component represented by a Besant projectile point (300 B.C. - A.D. 700).
4. A Middle Prehistoric component represented by Duncan and McKean lanceolate points (2500 B.C. - 1500 B.C.).
5. A Middle Prehistoric component represented by an Oxbow projectile point (3000 B.C. - 1500 B.C.).

These results showed that FjPi-29 served as an important lithic extraction/reduction area and temporary habitation site throughout the Middle and Late Prehistoric. To date 15,000 artifacts have been recovered.

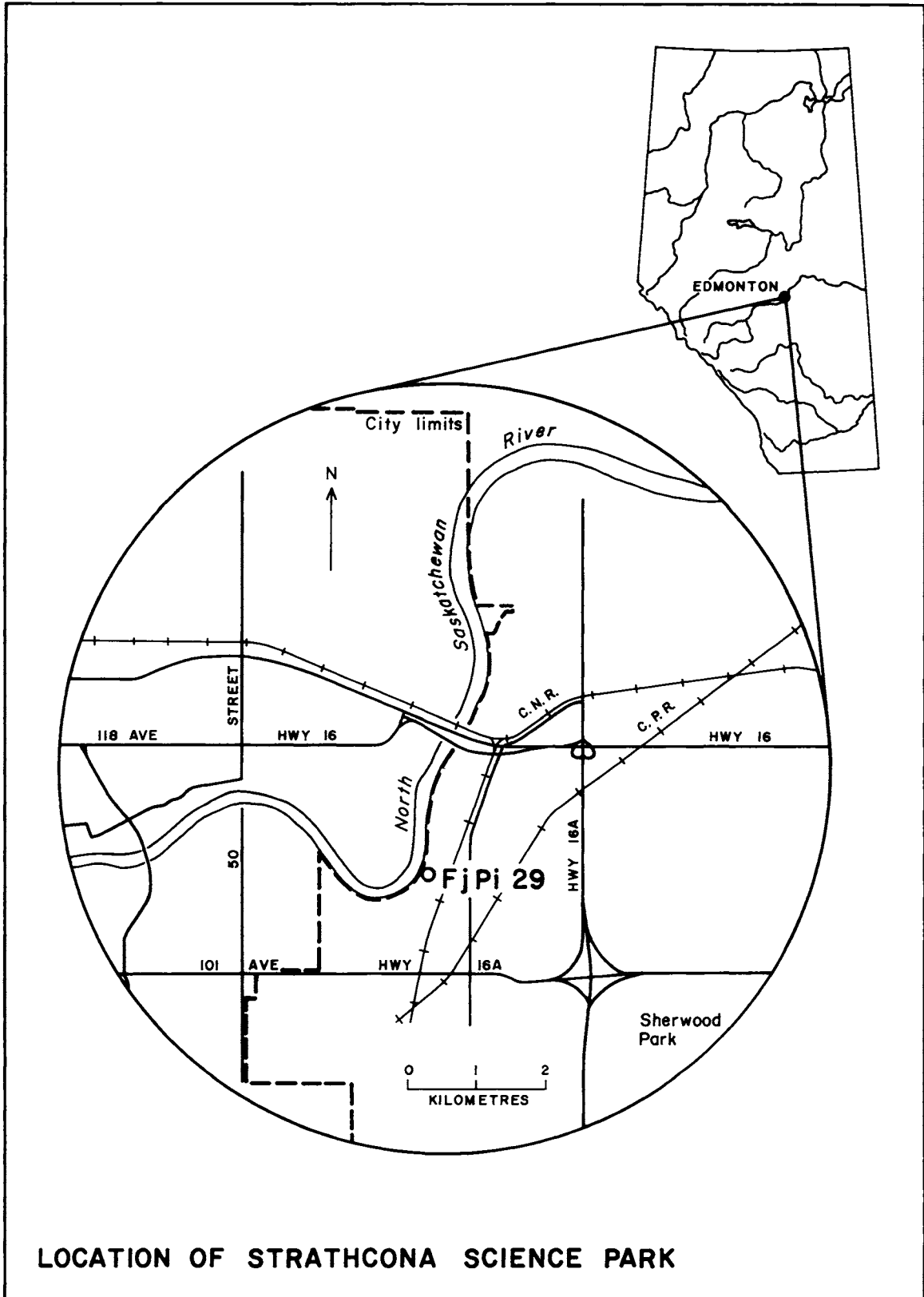


Figure 2: Location of the Strathcona Site (FjPi-29)

RESEARCH OBJECTIVES AND PROCEDURE

Uniqueness of the Strathcona Site as an archaeological interpretive center required that research objectives fulfill public as well as academic interests. Furthermore, previous research by numerous archaeologists resulted in lack of excavation and analytical consistency. Subsequently, research objectives were directed toward answering some basic questions and completing unfinished work:

- A. Completion of four previously unfinished excavation units was necessary (Newton and Pollock 1979).
- B. Implementation of a more permanent grid system and a detailed topographic map of the site and surrounding area were required. This work was carried out by professional surveyors from the Northern Alberta Institute of Technology.
- C. Assessment of a proton magnetometer survey that was previously conducted on portions of the site (Gibson 1979). Gibson's research attempted to locate hearth features by detecting high magnetic readings.
- D. An attempt was made to separate the various prehistoric components by carefully mapping all artifacts three-dimensionally.
- E. A systematic site boundary survey was necessary before any longterm research or sampling design could be employed.
- F. Excavating units for display and providing general information to the public on the nature of the site and the activities of its past inhabitants.

Excavations were carried out by trowel. All matrix was screened through a 0.5 cm mesh and five percent bulk samples from the one meter units were fine-sorted. Units were excavated in five or ten cm arbitrary levels and all artifacts and faunal remains were mapped three-dimensionally. The permanent grid system was laid out by first

clearing brush along north-south and east-west lines, spaced 20 meters apart. Grid stakes and permanent datums were then positioned by the N.A.I.T. surveyors. Gibson's proposed hearth features were gridded off and all potential anomaly-producing features (charcoal, fire-cracked rock, metal objects, and depressions) from these excavation units were carefully noted. Also, soil samples from anomalies were collected for Gibson to conduct chemical analysis for iron content. A total of 233 pits (roughly 30 cm in diameter) were dug on slopes and lower terraces by shovel to define site boundaries.

RESULTS

A total excavated area of 29 square meters yielded approximately 5000 artifacts, consisting mainly of quartzite debitage and some faunal remains. Two previously absent projectile point types (Pelican Lake and Avonlea) were found and reinforce the supposition that FjPi-29 served as an important lithic manufacturing site numerous times throughout the Middle and Late Prehistoric.

Unfinished excavations were completed with relatively few problems. Three two by two meter units (FjPi-29. 2, 3, and 4) contained high flake concentrations which diminished in frequency towards the north (Figure 3). Approximately 20 cm of the upper soil profile were stripped off by a bulldozer from these units. The other uncompleted two by two meter unit (FjPi-29.1) contained the highest lithic frequencies, some pottery, and the Pelican Lake projectile point (Figure 3).

The permanent grid follows the Alberta County and Township Grid System where the equator and 114th meridian act as the east-west and north-south baselines respectively. The upper terrace of the site was gridded off into 20 meter squares whose corners were staked by wooden pegs driven completely into the ground. Two permanent cemented iron

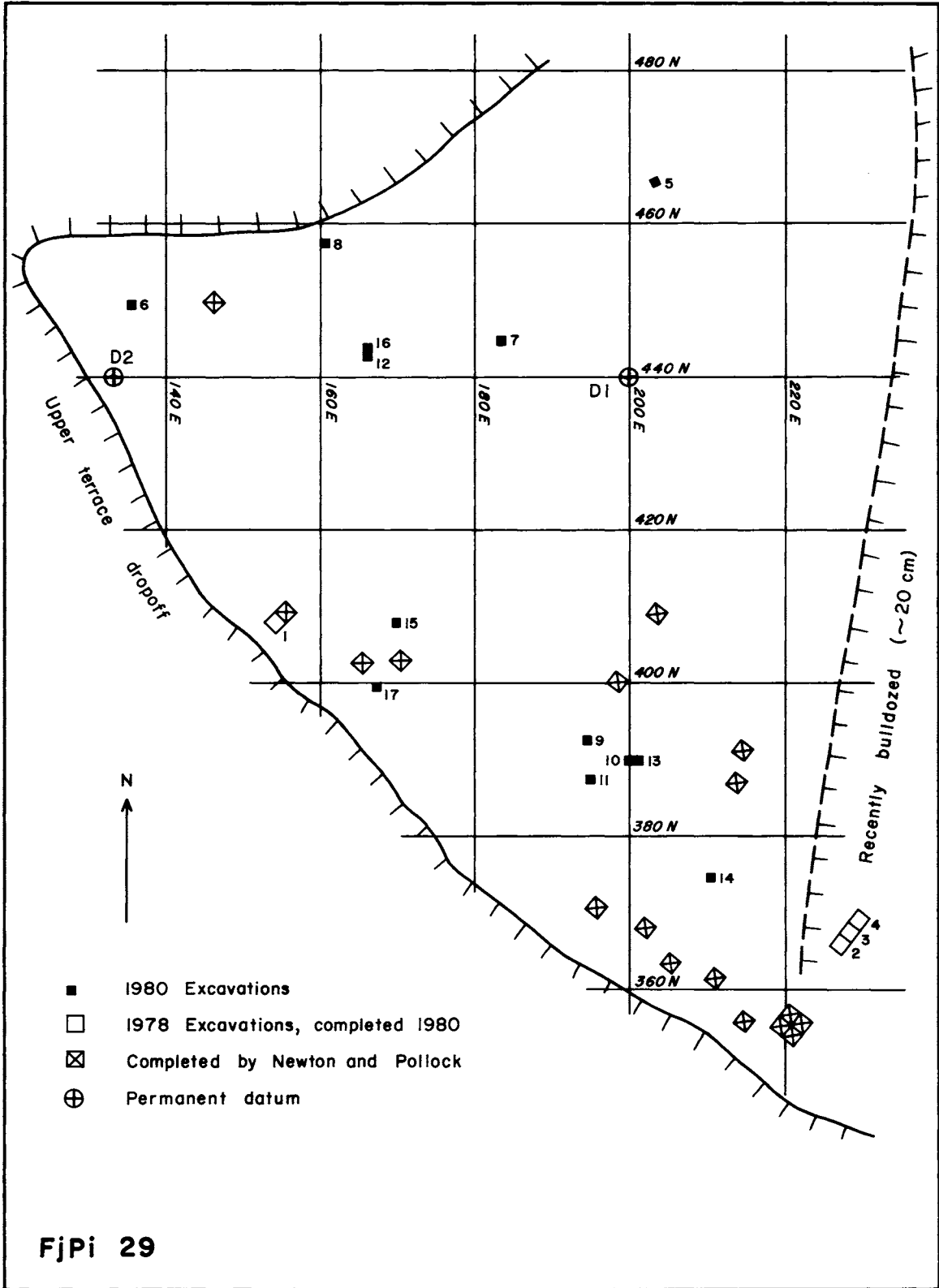


Figure 3: Strathcona Site grid system, excavations, and permanent datums.

datum stakes are located near the center and west end of the site (Figure 3). All old unit coordinates were recalibrated to the new grid. A topographic map of the site and surrounding area is currently being completed.

Results from assessing Gibson's proton magnetometer survey were discouraging. Seven anomalies were examined but no hearth features were present. Quite conceivably, hearths occur some distance from anomalies although other factors can also cause high magnetic readings. In fact, a .22 calibre metal cartridge was found in one test unit, and a one meter-long barbed wire fragment occurred near another anomaly. Other test units yielded shallow depressions, surface burning, or no discernible anomaly-producing features or artifacts.

A thorough stratigraphic analysis has currently not been completed, although preliminary results do not look promising. In part such a study is hampered by a very minimal cultural depositional rate (40 cm - 50 cm) that spans a relatively long period of time. To complicate matters more, a black/grey chernozemic soil predominates, thus a high clay content causes frost heaving which results in upward artifact movement. These setbacks, coupled with the fact that the upper segments of the site are disturbed (Dr. Pawluk, Department of Soil Sciences, The University of Alberta, personal communication) make such an analysis exceedingly formidable, if not impossible.

Consequently, inter-unit depth comparisons or artifact cluster correlations become difficult. Numerous analytical techniques exist which might potentially resolve this problem and range from very simple two-dimensional plots to more sophisticated statistical methods. For example, two-dimensional plots of all artifacts and faunal remains and a simple mode frequency histogram from a one meter square (FjPi-29.6) show that two artifact clusters exist (Figure 4). These data are difficult to interpret. Artifact peaks may imply that two separate

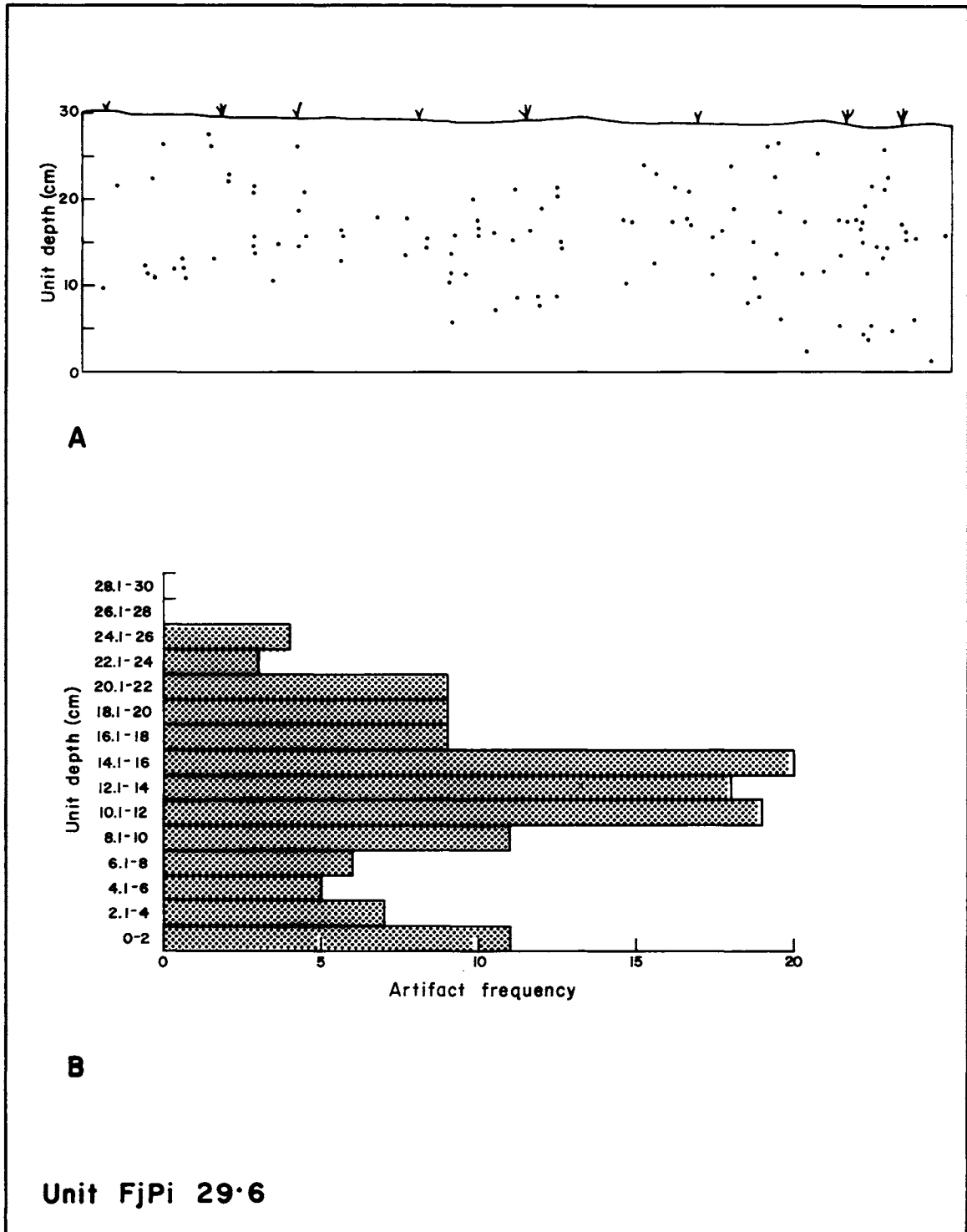


Figure 4: Unit FjPi-29.6 showing: A. Two-dimensional artifact/faunal distributions; B. Mode artifact/faunal frequency histogram.

occupations occurred with those artifacts existing between peaks representing vertical displacement by trampling or frost action. Conversely, artifact peaks may simply indicate more intensive human activity during almost continual annual site use. At this time cultural depositional rates are difficult to measure since no experimental data are currently available for comparison.

The next step in finding a solution to this aggravating problem is to conduct similar plots for other excavated units, then compare the results to determine whether any inter-unit similarities exist. A lack of significant trends would suggest that additional statistical techniques (possibly cluster or regression analysis) should be carried out.

A site boundary survey shows that cultural material is primarily concentrated on the upper terrace (Figure 5). Relatively large faunal concentrations occur on a lower terrace south of the site and either represent an associated kill site or isolated faunal remains which have washed downstream from a presently unknown source. Occurrence of lithic debitage on lower terraces suggests that some primary river cobble decortication may have taken place nearer lithic sources. This survey shows that artifact/faunal ratios rapidly decline as distance from the upper terrace increases (Figure 5). Such a ratio allows researchers to approximate the percentage and range of cultural material missing if only the upper terrace is tested.

Few diagnostic artifacts were recovered. Two projectile points include a complete petrified wood Avonlea variant (1000 B.P. - 1100 B.P.) and a chert retouched Pelican Lake projectile point fragment (Byrne, personal communication). Other tool types include quartzite bifaces and unifaces, end and side scrapers, borers, retouched primary and secondary flakes. Two ceramic fragments probably represent the Late Prehistoric Period (Byrne, personal communication). The remaining

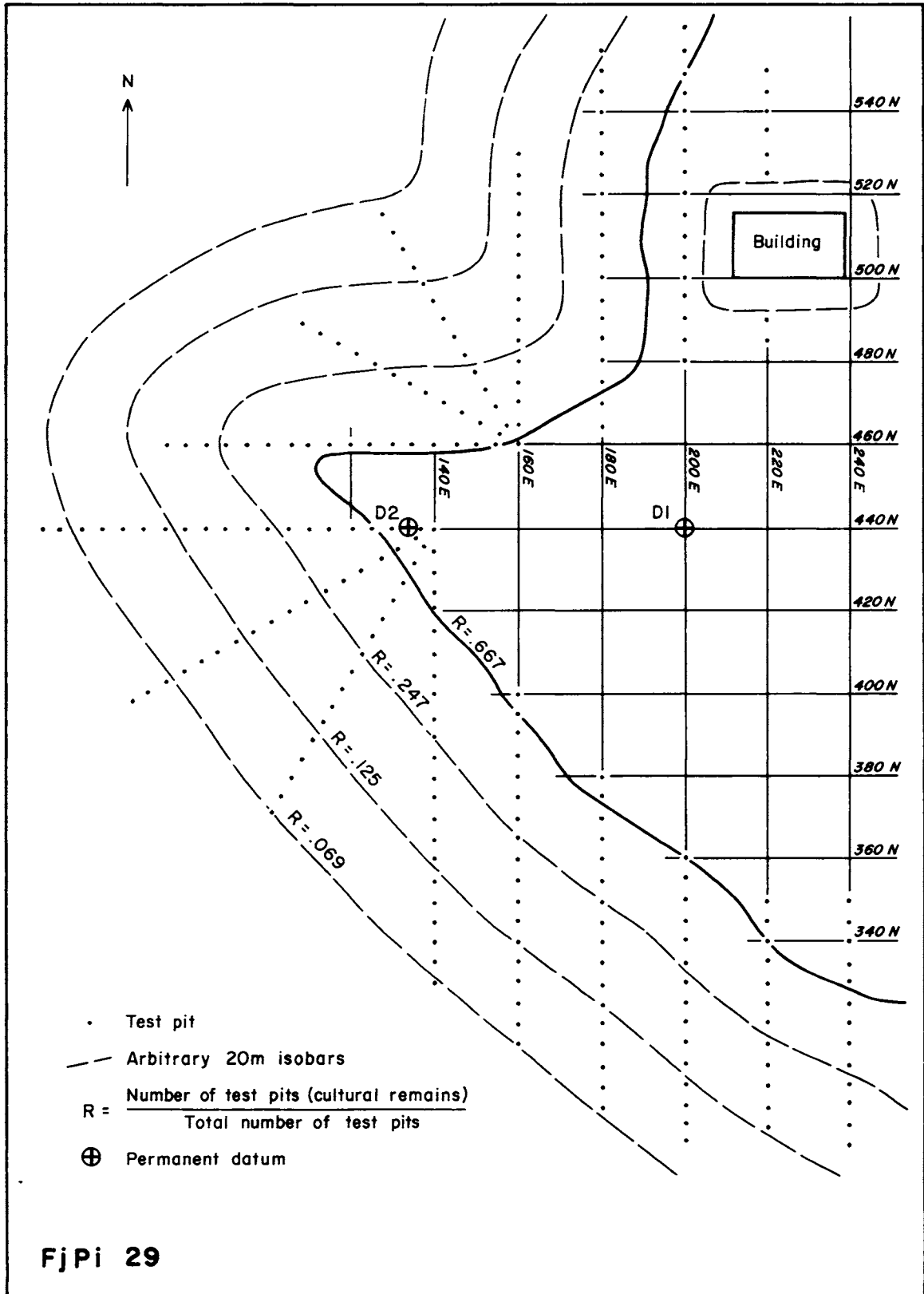


Figure 5: Strathcona Site boundary survey showing an index (R) of test pits containing cultural remains to total test pits in each arbitrary isobar area.

artifacts consist primarily of quartzite or petrified wood debitage. The majority of debitage is comprised of primary and secondary flakes which were removed either by hard or soft hammer percussion. Other reduction methods include pressure flaking, and a bipolar technique used to split large quartzite river cobbles or smaller chert and calcareous mudstone pebbles.

SUMMARY

To briefly reiterate, investigations at FjPi-29 were directed toward fulfilling academic and public interests. Greater research consistency in the future was ensured by completing all unfinished excavation units, establishing a permanent grid system, and defining site boundaries. In addition, future refinement of new archaeological techniques, such as proton magnetometer surveys, will be forthcoming when results are thoroughly investigated and current methodological problems are corrected. Attempts to delineate site stratigraphy have been aggravating and must await further analysis. Recovery of nearly 5000 artifacts yielded two previously absent point types. Clearly, FjPi-29 was an important extraction and tool manufacturing site throughout the Middle and Late Prehistoric where preforms, blanks, as well as finished tools were made.

To conclude, the Strathcona Archaeological Complex has appreciably aided Albertans to better understand archaeological field/laboratory techniques. In the future, organized tours for students at various levels of education will enable instructors to more explicitly explain Alberta prehistory as it is being unearthed. Additional flintknapping displays, replicating lithic reduction techniques used at the site, will also help the public appreciate the craft and sophistication of various North American aboriginal technologies.

**ALBERTA HIGHWAYS SOUTH SURVEY
HISTORICAL RESOURCES ASSESSMENT PROGRAMME 1980**

Permit 80-96-C

Roderick J. Heitzmann, John Priegert

Shirleen S. Smith

Heitzmann Consulting Ltd.

INTRODUCTION

Eleven proposed Alberta Transportation Projects in Southern Alberta were included in Alberta Highways South Historical Resources Assessment Project 1980 (Figure 6). Each of the proposed construction routes was examined to locate prehistoric and historic sites in order to assess their significance, and to make recommendations on their proper management.

THEORETICAL APPROACH

This study has one basic goal of locating prehistoric and historic sites located along the proposed construction routes. Once located these can be assessed and recommendations for proper site management can be formulated.

Beyond recording and assessing historical and archaeological sites, this project also sought to obtain data on locational characteristics of historical resources sites. Such data are important because they can provide a) an indication of specific locational and environmental preferences of people, b) information on specific characteristics of historical resources sites, and c) data on locations that can be used to assess and evaluate the potential of specific areas for containing historical resources.

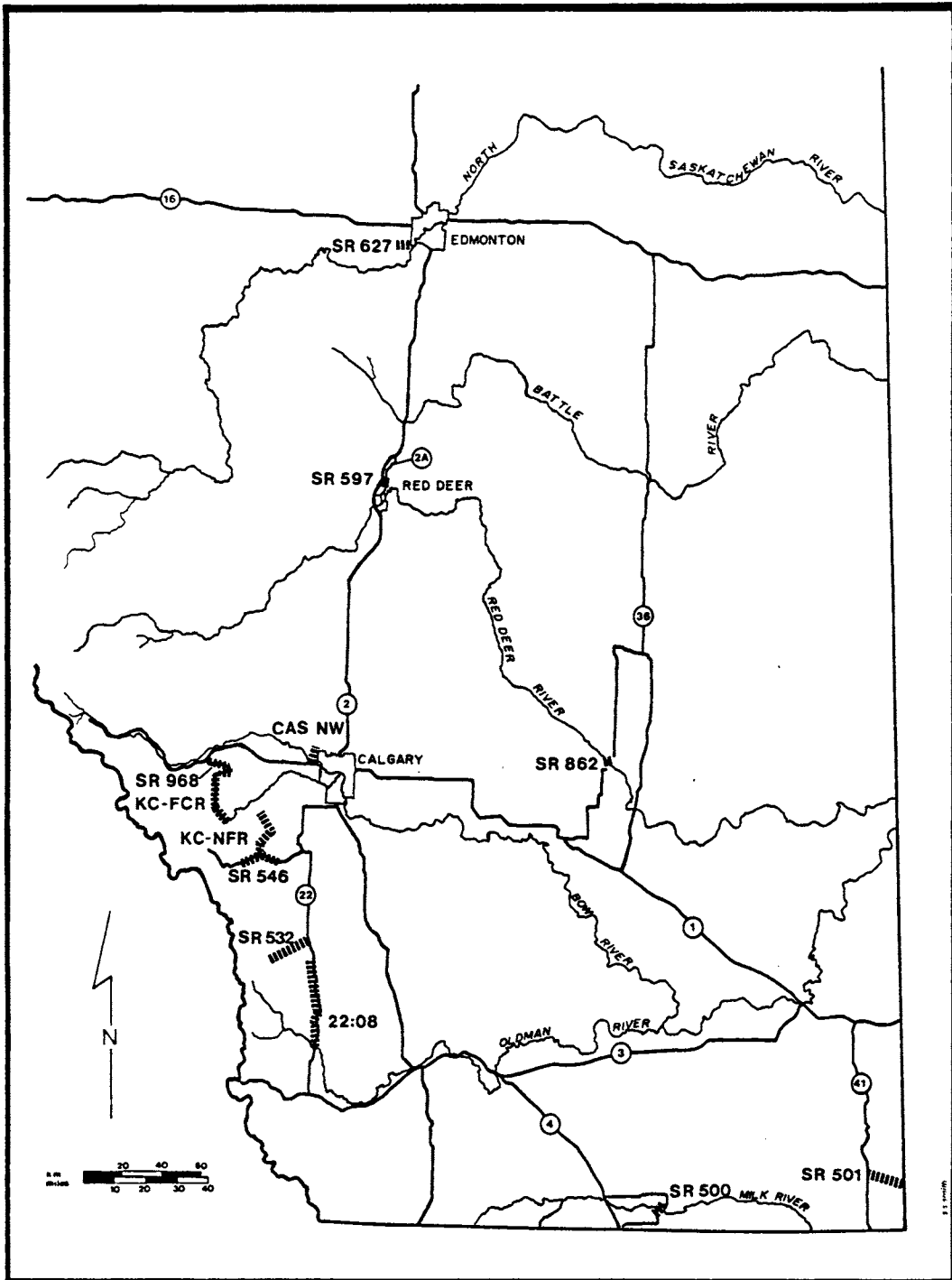


Figure 6 : Location of surveyed highway projects in southern Alberta.

PROPOSED HIGHWAY CONSTRUCTION PROJECTS IMPACT

The eleven proposed construction projects examined will have varying degrees of impact (Table 2). The Calgary Ring Road (CAS NW), and SR 597 are the only projects where roadways or improvements have not previously existed. Considerable modification of the land surface will result from these projects.

For other projects, the scale of construction will result in a lesser amount of surface modification. Such projects include widening of the roadways, minor and major curve revisions and realignment of bridges and their approaches.

Potentially all projects could have destroyed historical resources sites. That sites were or were not located on any particular construction project is largely a reflection of a number of uncontrollable variables, such as choice in prehistoric or historic times, recent disturbance and right of way locations.

PROJECT DESCRIPTIONS

Each project examined is located in one of four physiographic zones of Alberta (Anonymous 1976:8).

Eastern Alberta Plains

Three projects are located in this zone: SR 501, SR 627 and SR 862. These projects are widely separated with SR 627 located west of Edmonton, SR 862 located on the Red Deer River and SR 501 located south of the Cypress Hills.

TABLE 2: Summay of Alberta Highways South Survey 1980

Project Number	Project Location	Km	Type of Construction	Number of Sites (All Categories)	Previously Recorded Sites	Historic Sites Located	Prehistoric Sites Located
22:08	Oldman River to south of Willow Creek	55.00	widening, re-alignment	8	DIPm 7, DIPm 8 DIPm 9, EaPm 1, EaPm 2, EaPm 3	DIPm 8	DIPm 12, DIPm 11
SR 500	Milk River Weir Bridge	1.19	bridge and approaches	2	DgOw 12		DgOw 34
SR 501	Jct Hwy 41 to Sask. boundary	10.00	upgrading & re-alignment	4	0		DhOm 1, DhOm 2, DhOm 3, DhOm 4
SR 532	Jct Hwy 40 to Jct SR 922	21.70	upgrading	2	EbPo 3		EbPo 4
SR 546	Sheep Road, Blue Rock to Forest Reserve Boundary	25.10	upgrading & re-alignment	7	EdPp6, EdPp 11, EdPp 16, EdPp 18, EdPp 19		EdPp 11, EdPp 19, EdPp 21, EdPp 22
SR 597	Jct Hwy 2 to Jct Hwy 2A	3.50	new road	0			
SR 627	Jct hwy 60 to Jct Edmonton Ring Road	6.40	upgrading	3			FIPj 66, FIPk 34, FIPk 35
SR 862	Red Deer River Crossing at Finnegan	2.20	bridge and approaches	5		EgPa 5	EgPa 2, EgPa 3, EgPa 4, palaeon- tological site
SR 968	Jct Hwy 40 to Sibbald Flats	14.03	upgrading, day-use sites, pull offs	3	EgPr 5	EdPr 6	EgPs 44

TABLE 2: Continued

Project Number	Project Location	Km	Type of Construction	Number of Sites (All Categories)	Previously Recorded Sites	Historic Sites Located	Prehistoric Sites Located
KC NFR	North Fork Rd. Jct Sheep Rd. to Fisher Creek	33.10	upgrading	2			EdPq 14, EePp 1
KC FCR	Jct Elbow Road to Sibbald Flats	34.50	upgrading	1			EfPr 1
CAS NW	Calgary Ring Road, Jct Hwy 1 North of Jct Hwy 1A	10.40	new road	7	Alberta Ice Company historic site		EgPn 215, EgPn 216 EgPn 217 EgPn 218 natural site
	Total	217.12					

Together they involve 18.6 kilometres of construction. Twelve historical resources sites were located on these routes.

Four sites located are of significant value. Site Dh0m 2 is located on a low terrace adjacent to an unnamed tributary creek south of the Cypress Hills (Figure 7). Several prehistoric hearths, and associated chipping and flaking debris were found in quantity here. The base of a broken McKean point suggests that this site dates to the Middle Prehistoric period. This site has high potential for yielding historic data. On discussion with the project engineer the roadway construction was rerouted to avoid the site.

Site EgPa 2 is located on a terrace on the north side of the Red Deer River at Finnegan. The site consists of two components: one located at the surface in a ploughed field and one buried at a depth of 45 centimetres. This site is extensive and is spread as much as one kilometre along the terrace. Construction of bridge approaches will impact the site. Because the site has moderate potential to yield further information, it is recommended that archaeological investigations occur here before road construction (Figure 8).

Site EgPa 4 is located on a high terrace approximately one kilometre east of Finnegan and well off the proposed road construction project. The site appears to be multiply stratified to a depth of 3 metres. The site has considerable potential for yielding archaeological information.

A palaeontological site, containing fossil ammonites, was also located along this section. This site is being referred to a palaeontologist for recommendations.

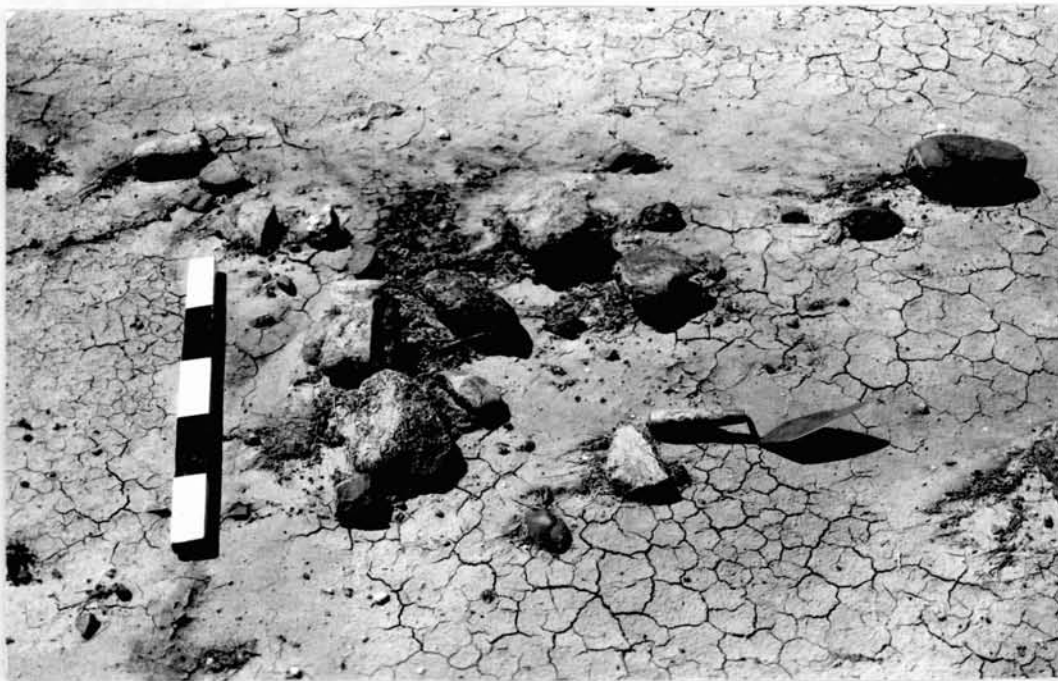


Figure 7: Material Eroding from Dh0m-2



Figure 8: Site EgPa-2, near Finnegan, looking southeast.

Three other sites located along these sections are of insufficient value to warrant further research.

Milk River Ridge

One project, SR 500, consists of a new bridge and approaches proposed at the Weir bridge crossing of the Milk River. This project is 1.19 kilometres long. One new site, Dg0w 34, and one previously recorded site, Dg0w 12, were located along this section. Neither of these is of sufficient value to warrant further research.

Rocky Mountain Foothills

The majority of highway sections surveyed are located in the Rocky Mountain Foothills. Projects 22:08, SR 532, SR 546, SR 968, KC NFR, and KC FCR crossed 183.43 kilometres of Rocky Mountain Foothills. Thirteen historical resources sites had been previously recorded along these routes. Ten additional sites were located as a result of this project.

One site, EdPp 21, (Figure 9), is located on a high terrace overlooking the Sheep River Valley and is adjacent to Canyon Creek. Stratified materials were located ranging in depth from just below the surface to approximately 45 centimetres. Excavations of this site prior to roadway widening are recommended to determine cultural affiliation, dating and usage.

Adjacent to SR 968, two sites are recommended for further research. EgPr 5, located by Gryba in 1979 (1980d), was found to extend onto the lower terrace which will be affected by the junction of SR 968 and the Ford Creek Road. Excavations along the lower terrace



Figure 9: Site EdPp-21 on Canyon Creek, looking west.



Figure 10: Site EdPp-19 on the Sheep River, looking west.

edge should provide useful archaeological data as several flakes and fire broken rock fragments were recovered from test units.

In this same locality, ranch building foundations (ca. 1890 - 1910) constructed by Frank Sibbald were reported to the survey team by Harry Sibbald. This site has been designated EgPr 6 and is located on the same terrace proposed for the junction of SR 968 and Ford Creek Road. A corral area, a stone foundation, and a possible log building outline are located in this area. It is recommended that this area be tested for historic building remains and that preliminary historical research be undertaken.

Site EdPp 19, on the top of the valley scarp of the Sheep River, has yielded two isolated finds (Figure 10). Two biface fragments, one discovered in 1972 by Rogers (1972), and one by this survey in 1980, were located. No additional material was revealed on the surface or in subsurface tests, and no further work is recommended.

Other sites located on these projects are not recommended for further work.

Western Alberta Plains

Two projects, Calgary Northwest Ring Road, CAS NW, and SR 597, proposed Blackfalds interchange, consists of 13.5 kilometres of construction rights of way. Seven historical resources sites were located along CAS NW. No sites were located on SR 597.

One natural site as defined under the Alberta Historical Resources Act (1973) was located on the south bank of the Bow River. This is a stand of large Douglas Fir Trees.

One tree on the right of way is 3.10 metres (10+ feet) in circumference at its base. It is recommended that these trees be left undisturbed as they could be of considerable age. If this is not possible, these trees should be cored to obtain a tree ring sequence which may prove useful to environmentalists or dendrochronologists.

One standing historic building, the Alberta Ice Company warehouse, is located adjacent to this right of way. It is recommended that road construction avoid this building.

Other sites located on this project are not recommended for further work.

SITE LOCATION ANALYSIS

All mosaics and construction plains were categorized following the bio-geographic zone system developed by Heitzmann and Priegert (1979) which recorded all areas surveyed by three locally observable factors: local geographic setting, surficial geology and vegetation. Slight modification was done to this system in the categories 4, 5 and 6. The code used was as follows:

<u>Geography</u>	<u>Surficial Geology</u>	<u>Vegetation</u>
A. river margin	a. till	1. trees
B. creek margin	b. outwash sands and gravels	2. shrubs
C. lake margin	c. aeolian	3. grasslands
D. valley bottom	d. sand dune	4. agricultural - low visibility
E. low terraces (1st and 2nd)	e. lacustrine	5. agricultural - moderate visibility
F. high terraces (3rd & up)	f. alluvium	6. agricultural - high visibility
G. valley scarp	g. slope wash	7. marsh/muskeg
H. rolling uplands	h. bedrock	8. unvegetated
I. depression	i. scree	9. urbanized
J. ridge/hill		
K. pass		
L. slope		

The 217.12 kilometres surveyed crossed 72 different bio-geographic zones, of which 20 possessed historical resources sites (Table 3). The site densities are presented on the same table. Of course, some areas crossed are very small which can bias site densities within these areas.

The overall site density for 217.12 kilometres is 0.20 site/km or one site every 4.93 kilometres. As shown in Table 3, highest site densities were located in Fb3, high terraces, outwash sands and gravels, grasslands, Ff6 high terraces, alluvium, agricultural - high visibility and Fh1, high terraces, bedrock, trees. Lg1 - slope, slopewash, trees contained the most kilometres surveyed, and contained five sites.

HIGHWAYS SOUTH SURVEYS EFFICIENCIES

How do the site recovery rates for Highways South Surveys Projects for the last six years compare? Each of these projects examined a wide variety of ecological zones located in different areas of Southern Alberta. The results can be summarized:

Year	Sites recorded or inspected	Kilometres surveyed	Site density per km	Reference
1980	44	217.12	.20	this study
1979	34	115.00	.30	Gryba 1980
1978	55	200.72	.27	Heitzmann & Priegert 1979
1977	45	159.88	.28	Finnigan 1978
1976	63	238.00	.26	Brumley 1977
1975	68	420.51	.16	Poole & Anderson 1976
A11	309	1351.23	.23/km	

TABLE 3: Site Densities of Biogeographic Zones

Zone	Km Surveyed	Sites Located	Site Density (per km)	Zone	Km Surveyed	Sites - Located	Site Density (per km)
Af2	.2			Ha4	1.9		
Bb2	.3			Ha5	.5		
Bf1	7.2	EfPr 1	.14	Ha6	4.9	EgPn 217	.20
Bf2	7.2			Ha9			
Bf3	3.4			He1	.3		
Bf4	3.3			He4	1.9		
Bf7	.7			He5	1.0		
Bf8	.1			He6	2.2	FIPk 24,25 FIPj 66	1.36
Bg1	.1			Hf2	.2		
Bh1	.2			Hf3	.4		
Da3	14.8	DIPm 12,13	.14	Hf7	.1		
Df1	1.2			Hg1	1.1		
Df2	.5			Hg7	.3		
Df3	4.3			Ja3	.4		
Df4	8.0			Jb3	.4	EgPn 216	2.5
Df7	.6			Jg1	.5		
Dg1	.5			Jh1	.2		
Ea3	1.8	DhOm 2, EgPa 5	1.11	Kf7	.1		
Ef1	2.8	EdPq 14	.36	Kh1	.2		
Ef2	3.8			Lb8	.5		
Ef3	2.7	EdPp 18, EgPr 5,6	1.11	Lg1	56.8	EbPo 3, EePp 1, EaPm 1,2 DIPm 9	.09
Ef4	.9			Lg2	3.2		
Ef8	.2			Lg3	10.1	DIPm 8 EdPp 6,11, 22	.40
Fb1	.4			Lg4	4.8	DIP1 7, EaPm 3	.42
Fb3	.2	EgPn 218, historic	10.00	Lg7	.3		
Fb4	.2			Lg8	.2		
Fb8	.6			Lh1	15.7		
Fe1	.2			Lh3	2.7		
Ff1	7.7	EbPo 4	.13	Lh8	1.2		
Ff3	5.7	EdPp 19, EgPn 215, Alta Ice Co, DgOw 12,34, EgPs 44	1.05	LI1	.9		
Ff4	.4						
Ff6	.4	EgPa 1,4	5.00				
Fg3	.3						
Fh1	.2	EdPp 21	5.00				
Fh3	.6	Paleonto- logic, EgPa	3.33				
Ga3	3.9						
Gb1	.4	natural	2.5				
Gg3	.4	EdPp 16	2.5				
Gh1	.5						
Ha1	2.4						
Ha2	1.0						
Ha3	13.8	DhOm 1,3,4	.22				

Total kilometres surveyed: 217.1

From the above it can be noted an amazing consistency of results in Southern Alberta over the last six years. Similar data for Highways North Projects indicates a mean of .13 site/km over the last five years, typically half of the density for Highways South projects.

Our figures for 1980 are slightly lower than three of the previous four years. This is probably due to the higher percentage of mountainous terrain crossed by the majority of our projects. Most hill or mountain areas are not suitable as site locations.

CONCLUSIONS

The Alberta Highways South Survey Project 1980 has located and assessed a number of historical resources sites to be affected by highway construction projects. From the preliminary analysis it appears that historical resources sites occur at a lower density in mountain slope areas than in level areas. This is probably a function of unsuitability of slopes as camping locations.

This project confirms the value of historical resources inventories and assessments in advance of highway and road construction.

**PEMBINA RIVER AND ROCKY MOUNTAIN HOUSE
GRAZING RESERVES**

Permit: 80-107-C

Sheila J. Minni

INTRODUCTION

During September, 1980, the author undertook an archaeological overview of the Pembina River Grazing Reserve (P.R.G.R.) and an archaeological survey of the Rocky Mountain House Grazing Reserve (R.M.H.G.R.). The object of these investigations was to locate, evaluate the significance of and suggest protective measures for historical resources sites which may be affected by proposed grazing reserve development. The Pembina River overview covered an area of approximately 78 sections and included more intensive survey in an 11 section area identified by the Archaeological Survey of Alberta (Figure 11). Direct impact by grazing reserve development (i.e., the clearing of brush and trees) will affect approximately one third of the reserve area. The Rocky Mountain House survey was limited to four specific areas (approx. 23 linear km) of the proposed reserve which had been identified by the Archaeological Survey of Alberta. These four survey areas were generally located in non-development sections and would not be directly impacted by grazing reserve development.

The topography of the P.R.G.R. was generally characterized by low, swampy areas along with flat to gently rolling land. Land of higher elevation was generally limited to drainage systems and occurred adjacent to several small creeks which passed through the grazing reserve areas and along the Pembina River which formed the southern boundary of the grazing reserve. The overview of the P.R.G.R. was

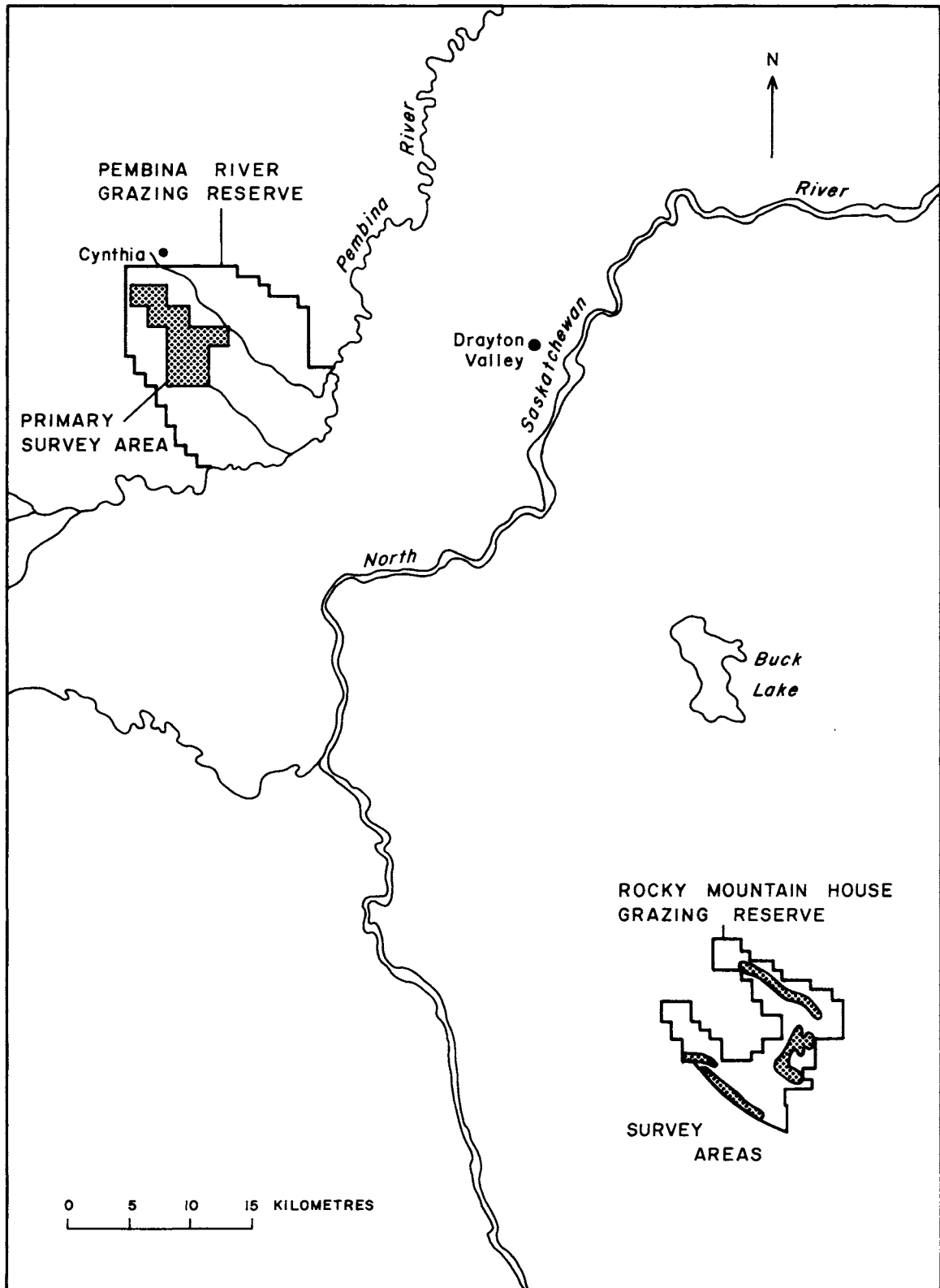


Figure 11: Location of study area.

carried out by vehicle with foot survey in areas of surface exposure. The grazing reserve was located within the Pembina oil fields and consequently numerous surface exposures had been created by well sites, gas plant facilities and access roads. All accessible surface exposures were visited within the primary overview area (11 sections) and additional surface exposures were visited throughout the rest of the P.R.G.R. Shovel testing was conducted in all areas with high potential for the location of historical resources.

The topography of the four survey areas in the R.M.H.G.R. was considerably varied. Two of the survey areas bordered or contained creeks and were typical of knob and kettle terrain with extensive tracts of wetland areas. The remaining two survey areas contained high ground and ridges with limited wetland areas. The archaeological survey was carried out by foot and supplemented by shovel tests in areas with high to moderate potential for the location of historical resources.

SURVEY RESULTS

Pembina River Grazing Reserve

The P.R.G.R. overview located one prehistoric archaeological site (FhPu-1) and identified several areas within the reserve which evidenced high potential for the future location of historical resources. FhPu 1 consisted of an area of sand dunes which had been extensively disturbed by transmission, pipeline, road and access road right-of-ways. Surface exposures yielded two quartzite flakes and one piece of quartzite shatter from the top of the ridge. Four shovel tests exposed no further evidence for the site.

Aerial photo analysis and review of historical resources located adjacent to the grazing reserve area indicated that the high ground along the north shore of the Pembina River along with higher ground beside several of the creek systems would be likely places to locate prehistoric archaeological sites. Although several of these areas were checked during the overview and minimal testing was conducted no additional historical resources were located.

Rocky Mountain House Grazing Reserve

The R.M.H.G.R. archaeological survey located one prehistoric site (FePq 1) and one historic site (FdPq 2) within the limits of the identified survey areas. An additional prehistoric site (FePp 2) was located just outside of the grazing reserve boundary. FePq 1 consisted of one piece of quartzite shatter located from a road cut through one survey area (Figure 12). The site was located on top of a high knoll which was adjacent to a creek as well as several sloughs. FdPq 2 consisted of two rectangular dugout depressions located on a knoll overlooking Open Creek. Artifactual remains were not located at this site. FePp 2 was located on a levelled area overlooking a small creek (Figure 13). The ground surface had been exposed through grazing activity and one basal fragment from a Hanna point was located. Shovel testing at all three of the above sites exposed no further cultural remains.

CONCLUSIONS

The archaeological overview of the P.R.G.R. located one extensively disturbed prehistoric site and identified several areas with good potential for the location of historic resources. These areas with potential were located along the north shore of the Pembina



Figure 12: FePq-1. Site located on top of knoll. Cultural Material recovered from the exposed road cut. View to the southwest.

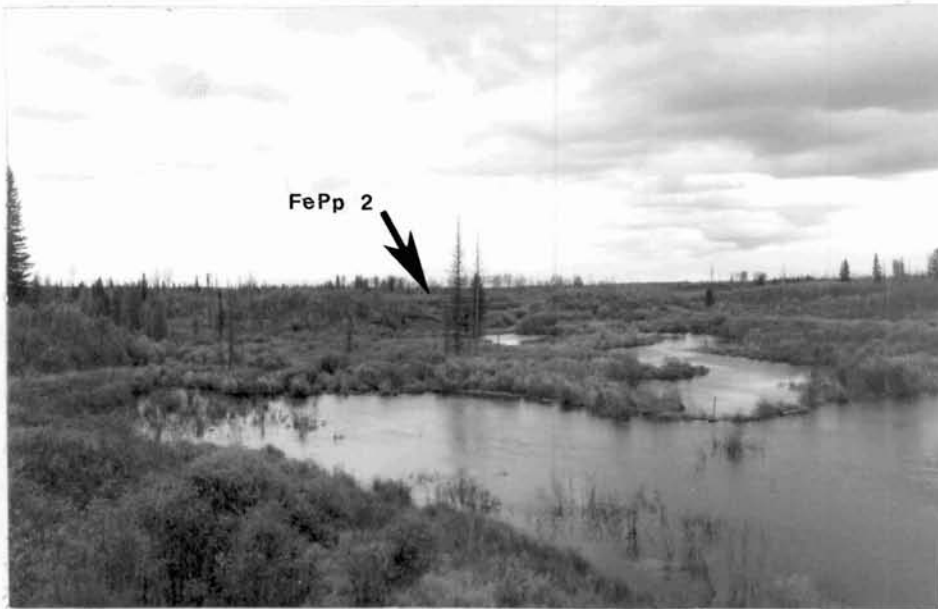


Figure 13: FePp-2. Site located on a level area overlooking the creek. View to the southeast.

River and along two creeks which drain through the grazing reserve area. All of the areas with potential were located in portions of the grazing reserve which had been allocated as non-development areas (C₁ and C₂) on the Pembina Integrated Management Plan prepared by the Department of Energy and Natural Resources. These areas were considered to be environmentally sensitive and would not be directly impacted by grazing reserve development. Should future grazing reserve development threaten areas adjacent to the Pembina River and the creeks, an historical resources impact assessment is considered necessary for land along the north shore of the Pembina River and the high ground along each of the two creeks which pass diagonally through the grazing reserve area.

The one prehistoric site located in the grazing reserve area was too limited and disturbed to require more detailed investigations.

The survey of the R.M.H.G.R. located two archaeological sites within the reserve area and one site adjacent to the reserve. The two sites within the reserve (FePq-1, FdPq-2) were located in non-development areas which would not be directly impacted by proposed grazing reserve development. As the sites were limited in nature and would not be directly impacted, no further investigations are considered necessary.

**SLAVE RIVER HYDRO FEASIBILITY STUDY
TASK AREA 5: ARCHAEOLOGICAL STUDIES
Permit: 80-90**

**Roderick J. Heitzmann and John Priegert
Heitzmann Consulting Ltd.**

INTRODUCTION

Preliminary determination of the effects of hydroelectric development on historical resources was the subject of Task Area 5, Archaeological Studies, Slave River Hydro Feasibility Study. This project, sponsored by Alberta Environment, began Phase I of examinations of the feasibility of constructing a hydroelectric facility on the Slave River Rapids near the Alberta - Northwest Territories boundary, south of Fort Smith, N.W.T.

OBJECTIVES

The principal questions to be answered in the course of the archaeological feasibility study are:

- i. What historical resources problems may result from this project?
- ii. What mitigative measures could be used, and what are their cost implications?
- iii. What historical resources impacts may not be mitigated?

STUDY AREA

The study area can be divided into 3 major areas:

1. the dam sites and reservoir
2. downstream of the damsite to Great Slave Lake.
3. transmission line routes from the damsite to the Fort McMurray area.

1. Dam Sites and Reservoir

Four alternative dam sites located in the Slave River Rapids area were examined. None of these would create a reservoir level that exceeds Lake Athabasca historic maximum level, 209 m asl. The area of the proposed reservoir is approximately 1100 km².

2. Downstream of the dam site to Great Slave Lake

Temporary decreased river flows and altered river regimes can be expected to occur downstream of the dam site. This would affect erosional patterns and so this section of the Slave River was also included as part of the study area.

3. Transmission Line Routes

Several alternate transmission line routes and designs are under consideration. These run from the Slave River Rapids to the Fort McMurray area.

HISTORICAL RESOURCES PERSPECTIVE

The area under consideration for this study is huge, extending from Great Slave Lake in the North to Fort McMurray in the south. Knowledge of historical resources in this area is limited to a few isolated areas. Most important of these are Pollock's study of parts of the Slave River and Dog River (1978), Wright's studies on Lake Athabasca (1975) and the concentrated work in the tar sands area adjacent to Fort McMurray (Aresco 1979, Conaty 1980, Donahue 1976,

Reeves & McCullough 1978, Sims 1975, 1976, Syncrude 1973, 1974). Outside the tar sands area there are large gaps in the archaeological research.

METHODOLOGY

The dam sites were individually inspected on both sides of the Slave River, using foot traverses and shovel testing. The impoundment area was examined by using a stratified random sample strategy. Sixteen quadrats, each a kilometre square and drawn from five strata, were inspected by foot traverses and utilizing selective shovel testing. The area downstream of the impoundment area was examined from the air for archaeological potential, with one selected touchdown and on-ground inspection.

The transmission line routes were subjectively spot checked at areas of high potential to contain archaeological materials.

In all cases, notes were made on environmental parameters which govern the placement of historical resources sites, in order to establish criteria of extrapolation and prediction.

RESULTS

Dam Site and Impoundment Area

The proposed dam sites are each located on a different section of the Slave River Rapids. These rapids are of high historical interest because of their effects on river born transportation during the nineteenth and twentieth centuries. Any hydro construction would unavoidably affect the historic and aesthetic nature of the Slave River

Rapids. Although not completely satisfactory, detailed recording of the historic trails and portage routes could be undertaken as a mitigative measure should development occur.

The impoundment area would affect an estimated 1100 km² adjacent to the Slave River between Fort Smith and the junctions of the Peace River and Riviere des Rochers. In this area, a stratified random sampling strategy was utilized to identify areas of historical potential. Less than 1% of the area was examined in 1980 resulting in the location of twelve sites. Major localities utilized by prehistoric peoples are low bedrock outcrop ridges adjacent to the Slave River. Work by Pollock (1978) along the Dog River also recorded sites on similar bedrock outcrops. Other localities that contain historical resources sites were adjacent to smaller streams and on sand dunes and ridges.

Downstream to Great Slave Lake

Examination of the Slave River revealed that, in general, the river is eroding the east bank and depositing on the west bank. The archaeological implication is that sites which had existed along the higher east bank have been destroyed by progressive erosion. Sites on the west bank can therefore be only as old as the stabilized sediments upon which they might occur.

The west banks of the Slave River are lower than those on the east banks, and, being heavily vegetated in willows, they would have been non-preferred locations for prehistoric peoples.

A single touchdown and inspection of the east bank yielded one eroded archaeological locality.

Transmission Line Routes

Several proposed transmission line routes from the dam site to the Fort McMurray area are under consideration. Principal routes run

- a) west of Lake Claire and then across to Birch Hills with an alternate west of and parallel to the Athabasca River.
- b) west of the Slave River, crossing Lake Athabasca near Fort Chipewyan and then south along the east side of the Athabasca River.
- c) east of the Slave River, crossing Lake Athabasca to near Old Fort Point, and then south along the east side of the Athabasca River.

Sixteen helicopter touchdowns were selected along these routes at locations believed to have moderate to high potential to contain historical resources sites. At four of these locations cultural materials were actually found.

DISCUSSION

The pattern of historic and prehistoric usage of the entire north eastern portion of Alberta is not well understood. Much of the area, being water saturated muskegs and deltas, is not suitable for human habitation. Any prehistoric peoples who utilized this area would face difficult transportation and subsistence problems.

Basic to our understanding of the prehistory of this region is the contrast between areas utilized and those not utilized. Boats or canoes would greatly affect transportation and access. The extent to which Lakes Athabasca and Claire were geographic and cultural barriers is as yet unknown. Similarly the seasonal round of cultural exploitation is but poorly understood. Answers to these and many other questions of historical and archaeological interest can only be found through more research.

CONCLUSIONS

From our preliminary examination of the area several tentative conclusions can be formulated:

1. The Slave River Rapids area is historically significant because of its role in transportation and settlement. Mitigation of the historical aspects of the rapids will not be a simple task as detailed recording will be required.
2. Historical resources adjacent to the Slave River would be affected by the impoundment. Based on our preliminary sampling more than 468 historical resources sites will be located in the impoundment area. An estimated 27% (125 sites) will require mitigation in the form of archaeological investigations.
3. The effects downstream will be, in general, minimal due to the rapid erosional/depositional sequence of the river. Immediately downstream of the Rapids of the Drowned is an area of nineteenth century cabin foundations which will require further work.
4. The majority of areas crossed by the transmission lines do not contain historical resources sites. In cases where sites are located, the transmission lines should be routed around them. If the route proposed to cross the Peace River at Peace Point is chosen, considerable difficulties could be encountered, because of the large and important prehistoric site located there.

**HISTORICAL RESOURCES INVENTORY
BORDEN, WHITNEY, LAURIER AND ROSS LAKE PARKS
Permit 80-119-C
Gloria J. Fedirchuk
Archaeological Heritage Consultants Ltd.**

INTRODUCTION

An historical resources inventory was undertaken on lands located in Township 56, Range 4, West of the 4th Meridian in the vicinity of Borden, Whitney, Laurier and Ross Lakes located south of Frog Lake, Alberta (Figure 14). The objective of the inventory was to collect information on site locations which would be used as a data base in defining archaeologically sensitive areas for future park planning. The major focus of the inventory was the lake edges, comprising some 35 kilometres of shoreline.

The study area lies within the Eastern Alberta Plains. Hummocky ground moraine composed of till deposits are underlain by Lea Park Cretaceous sediments. Landforms range from low and poorly drained areas adjacent to lakeshores to gently rolling uplands to steep sided knolls and lenticular ridges. Four major lakes, Borden, Whitney, Laurier and Ross lakes, comprise the predominant drainage features. The North Saskatchewan River touches the extreme southwest corner of the study area whereas Middle Creek drains the western portion. A number of creeks drain into the lakes. Vegetation consists predominantly of poplar and spruce, characteristic of a Boreal Forest environment.

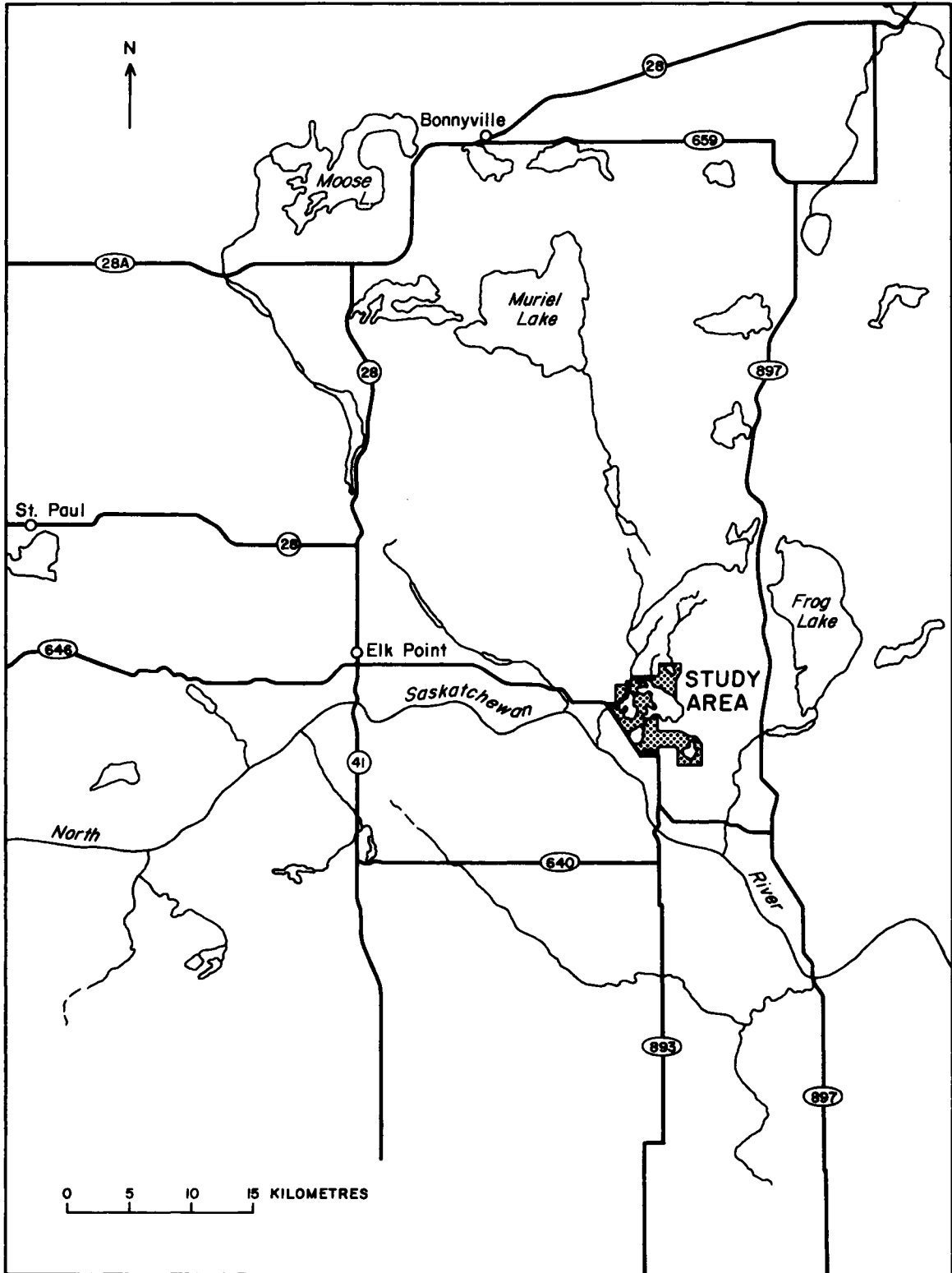


Figure 14: Location of Study area.

HISTORICAL RESOURCE BACKGROUND

Relatively little was known about this portion of Alberta's prehistory. Four archaeological sites had been recorded in the Borden block pertaining to the project area. Material observed and collected by Doll in 1973 (site files at the Archaeological Survey of Alberta) indicate that known occupation dates from at least 3000 B.C. on the basis of the Oxbow projectile points identified. Later point types, Pelican Lake and side-notched varieties, are also present. A historic camp and possible burial were recorded in 1976 by T. Losey on the western shore of Frog Lake and is probably associated with Cree occupation. With the exception of the latter site, the other sites recorded in this area are all within two kilometres of the North Saskatchewan River, on sandy knolls or uplands.

However, extrapolating from elsewhere in northeastern Alberta, we can speculate that occupation occurred approximately 10,000 years ago. Supporting evidence was found near Vilna, to the west of the project area, in the form of a Clovis point. Agate Basin points have been collected from the shore of Lac La Biche and near Ethel Lake as well as Cold Lake. Later, "plains-adapted" cultures such as Oxbow and McKean are also represented in the Cold Lake area. The late prehistoric occupants are thought to have been typically Boreal Forest adapted, relying primarily on fish and hunting of moose and deer for subsistence.

The early trail from Fort Edmonton to Fort Pitt ran along the north side of the North Saskatchewan River through the study area. First used by the fur traders and native occupants, it also served as a major artery to the numerous lakes in the study area (Mounted Police Patrols 1886). Maps from the 19th century indicate that two major tributary trails branched off from Fort Pitt just east of Ross Lake. Hector, of the Palliser Expedition, made a geological reconnaissance of

the region between Edmonton and Fort Pitt in the fall of 1858 along this trail. This area of Alberta is also historically significant for the setting of the Frog Lake massacre instigated by Big Bear's band in 1885.

METHODOLOGY

The objective of the research design was to test the hypothesis that prehistoric settlement patterns were intimately related to lake shore situations. In order to test this hypothesis, the study required data on prehistoric site distribution along the lake shores as well as in situations removed from the lake shores and streams. Using this design, 40 quarter sections of land abutting onto the lake shores were identified for survey. Intensity of survey within each full quarter section averaged ten traverses along which a minimum of five shovel tests, approximately one-quarter metre square, were excavated. Traverses were aligned approximately parallel to the contours of the lake shores. Because of the intensive current recreational use in this area, extensive exposures existed which were visually inspected to supplement the subsurface testing program. A total of 763 test units were excavated exclusive of those associated with sites.

As the object of the project was to locate sites, no extensive level of effort was expended in delimiting site boundaries or identifying contents. Three shovel tests were excavated at each site located to provide some measure of relative potential on which to base recommendations.

RESULTS

Fifteen prehistoric archaeological sites were discovered by the survey (Figure 15). Table 4 provides preliminary summarized analysis of the results. Three were located outside of the boundaries of the park as provided in late August, 1980. All but one were found in existing exposures. Two of the total are located at distances greater than one-half mile from the current lake shore. None of these sites contained more than five artifacts.

RECOMMENDATIONS

Despite the extensive surficial disturbance and consequent exposure, all sites located displayed a surprising paucity of cultural materials. Only one site, FkOp 3, contained a significant finished tool which would imply a base camp occupation and consequently a relatively substantial site. However, the scraper and associated flake were collected from an old trail paralleling the lake and additional disturbance in the area consisted of an excavated garbage pit and an old well. All three of the subsurface tests excavated at this site were culturally sterile.

On the basis of the survey results and the nature of the 15 sites located, no further investigation is recommended.

SUMMARY

Fifteen archaeological sites were located in the proposed park. All are comprised of relatively limited remains and only one was found in an undisturbed context. No further investigations are recommended.

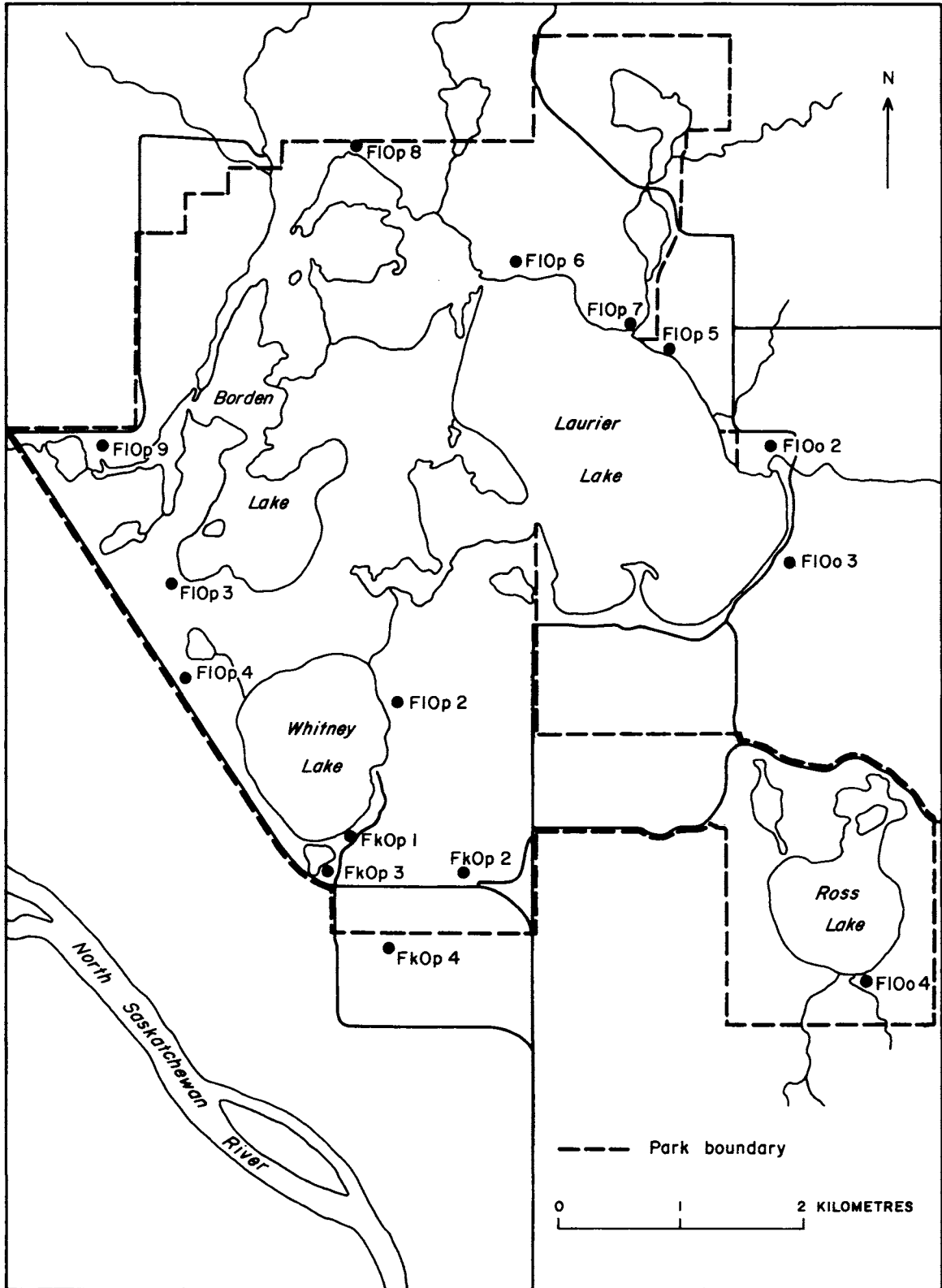


Figure 15: Site locations within study area.

TABLE 4 PRELIMINARY RESULTS, ARCHAEOLOGICAL SURVEY OF BORDEN, WHITNEY, LAURIER AND ROSS LAKES

SITE NO.	ASSOCIATED LAKE	ENVIRONMENTAL ASSOCIATION	STATUS	CULTURAL REMAINS
F10o 2	Laurier Lake	500 feet from lake shore	disturbed	fragment quartzite shatter
F10o 3	Laurier Lake	150 feet from lake shore	disturbed	quartzite bifacial core
F10o 4	Ross Lake	immediate lake shore	disturbed	two quartzite flakes
F10p 2	Whitney Lake	ridge/lake shore	disturbed	secondary quartzite decortication flake
F10p 3	Whitney Lake	ridge/lake shore	disturbed	five quartzite flakes
F10p 4	Whitney Lake	knoll/slough	undisturbed	two retouch flakes; chert, quartzite
F10p 5	Laurier Lake	creek/lake shore	disturbed	retouched quartzite core tablet
F10p 6	Laurier Lake	500 feet from lake shore	disturbed	quartzite primary decortication flake
F10p 7	Laurier Lake	creek/lake shore	disturbed	quartzite retouched flake
F10p 8	Laurier Lake	750 feet from lake shore	disturbed	quartzite core
F10p 9	Borden Lake	650 feet from lake shore	disturbed	quartzite flake
FkOp 1	Whitney Lake	immediate lake shore	disturbed	four quartzite flakes; one chert flake
FkOp 2	Whitney Lake	1.25 mi from lake shore	disturbed	bifacial quartzite core
FkOp 3	Whitney Lake	immediate lake shore	disturbed	quartzite scraper; flake
FkOp 4	Whitney Lake	1 mi from lake shore	disturbed	two quartzite flakes

**1980 ARCHAEOLOGICAL INVESTIGATIONS
at the ROSS SITE, D1Pd-3
Permit 80-103
J. Roderick Vickers
ARCHAEOLOGICAL SURVEY OF ALBERTA**

INTRODUCTION

The Ross Site, D1Pd-3, is situated on the south bank of the Oldman River in SE1/4, S.33, T.10, R.19 W4 (UTM Grid Reference: 12UUL 905243, Figures 16, 17). The site was first investigated by Dr. Richard G. Forbis in 1957 (Forbis 1960, 1970; Wormington & Forbis 1965). Among the artifacts recovered from three well-separated strata were ceramics, various stone and bone tools, shell and bone beads, pendants, inisk'im (ammonite septa termed "buffalo stones" by the Blackfoot and regarded as fetishes), and hair brushes of plant fibre. All material was representative of the Late Prehistoric Old Woman's Phase. Forbis (1960:159) estimated an occupation span from about AD 1400 or 1500 to about AD 1600 or 1700.

Since the 1957 excavations, the Ross Site has been subject to erosion from the Oldman River. The River Engineering Branch of Alberta Environment estimates the rate of erosion to be 2 to 5 feet per year. Thus, in the 23 years since the initial investigation, between 46 and 115 feet (ca. 14 to 35 m) of culture-bearing deposits may have been destroyed. In order to determine if sufficient deposits remain to warrant designation of the site under the provisions of the Alberta Historical Resources Act, Section 18(1), the Archaeological Survey of Alberta, Alberta Culture, undertook a testing program at the Ross Site in August of 1980. This document is a brief preliminary report of the results of that investigation.

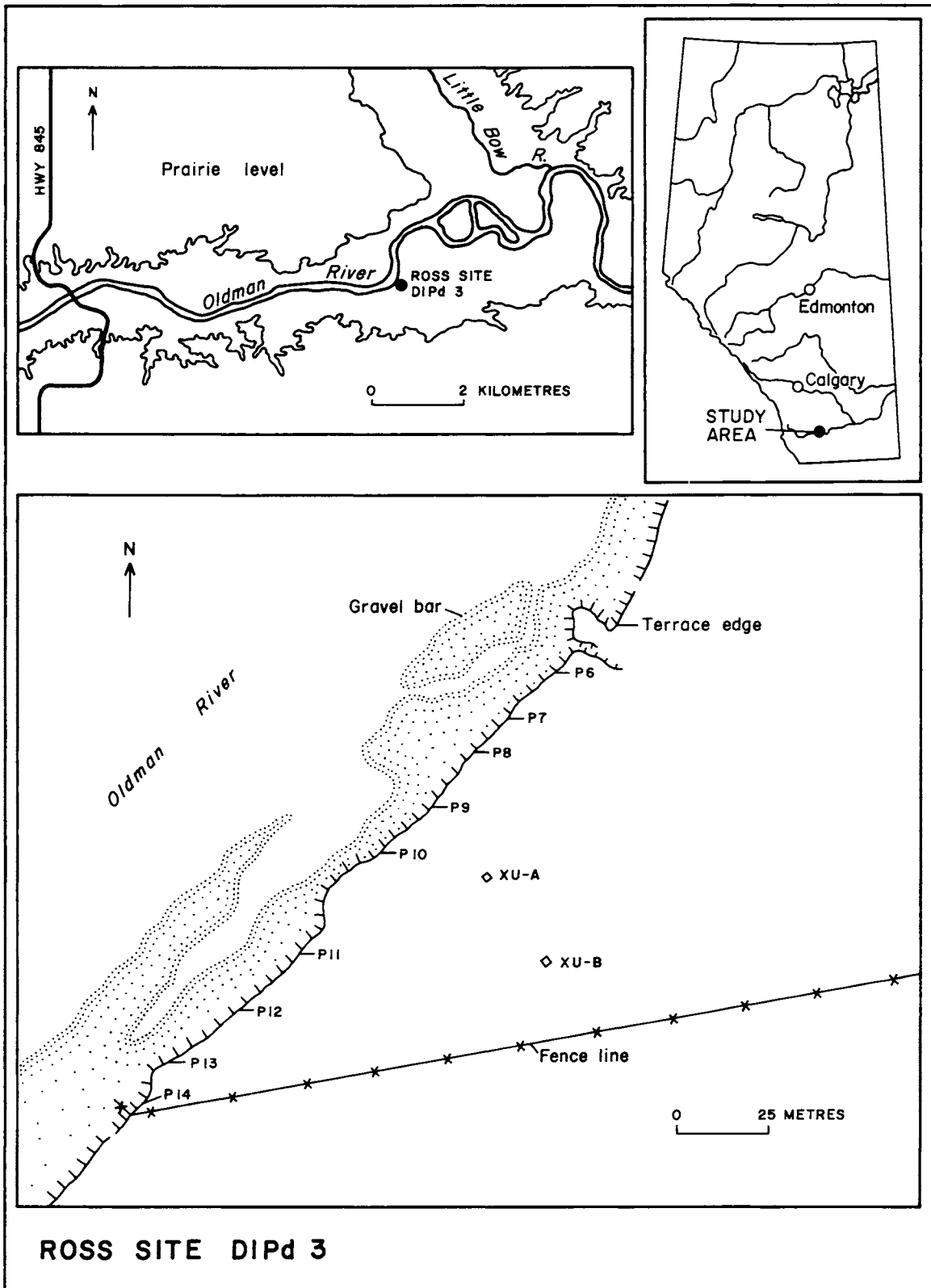


Figure 16: Location and plan of the Ross Site.



Figure 17: View southwest of the Ross site.



Figure 18: View south of river cutbank and strata.

DESCRIPTION

The state of the Ross Site in 1957 was described by Forbis (1960:119):

Substantial undercutting of the bank exposed three occupation layers containing hearths, faunal remains, and cultural debris. The top layer runs continuously some 670 feet (204m) along the cutbank; while the lower two layers, not so darkly stained, are intermittent and less extensive.

Forbis (1960:121) further notes that the upper occupation layer (Layer III) was capped with about 1.20 m of unconsolidated stratified sands and gravels which he considered recent. The strata below the clayey silt bed which constitutes cultural Layer III, were noted to be composed of sand or silt.

During the 1980 field project, nine 50 cm wide sections were cleaned at intervals along 170 m of cutbank; these were designated P6 to P14 from east to west (Figures 16, 18). In addition, two 2X2 m excavation units were dug southeast of P9 in a line perpendicular to the centre of the cutbank exposure. These were situated at 22-24 m (XU-A) and 48-50 m (XU-B) southeast of the river. No evidence remained of the 1957 excavation units; these were apparently situated between P10 and P11 but were further north in a portion of the site which has since eroded.

The main cultural stratum, designated Layer III by Forbis, was present in all cutbank sections except P6. This layer dips markedly towards the east in P7 and it appears that a channel existed east of P7 at the time of occupation. Two other declivities, between P9 and P11, and west of P11, were also present at the time Layer III was occupied. The stratum, however, continues without interruption across the

undulating surface to the western section, P14. As in 1957, Layer III continues to be a well-defined black zone with hearths, faunal remains and cultural debris present in quantity.

Four old soil horizons are intermittently present above the Layer III occupation zone. These have been partially removed by the erosional/depositional events which deposited gravels in the area of P10. These layers are particularly well-defined to the west of P11 and contain sporadic evidence of occupation. The upper layers were not present in the area of the 1957 excavations and were replaced by the stratified sands and gravels noted by Forbis.

Forbis's lower cultural layers (Layers II and I) are also present in the 1980 riverbank sections, but are less defined than Layer III. The lower layers could be traced intermittently from P7 to P13 and faunal or cultural material was collected from all section cuts except P8. The lowest level, Layer I, was quite rich in faunal remains. Hearths were also present in both layers.

No significant cultural material was noted in the cutbank east of P6 although sporadic finds have been reported from this area by Judith Nickol. Examination of the area in 1980 revealed only occasional bone occurrences; these appear to be stream-deposited and not associated with living floors. To the west of P14, the main occupation stratum (Layer III) dips low in the profile and is obscured by slumping. Examination of the occasional exposures, the slump blocks, and the beach did not reveal more than a light scatter of cultural debris. It appears that the main part of the Ross Site is located between P6 and P14. This is consistent with the site limits defined by Forbis in 1957 (R. G. Forbis, Personal Communication).

Evidence of occupation was also noted in both excavation units; the site thus extends at least 50 m southeast of the current river

bank. Although a few small bone fragments were noted 10 cm below surface in XU-B, the highest and most recent occupation was indicated by portions of a large mammal skeleton (probably bison) located about 1 m below surface. The skeleton was situated within and at the base of a gravel deposit; no clear evidence of a living floor was present. The battered nature of the bones in the gravel suggests river deposition although an articulated vertebral segment may indicate that the material was but little displaced. This level may be better represented in XU-A, although variations in deposition prevent a certain correlation of the upper stratigraphy between the two excavation units. In XU-A, a dark soil layer is present about 90 cm below surface. Faunal and cultural material were sparse, but two features were present in the layer. One was a shallow hearth and the other was a small, bone and cobble filled pit. The cutbank exposures suggest the layer may be better defined toward the west.

The main occupation, Layer III, is well represented in both excavation units. In XU-A, a living floor with a dense scatter of bone was exposed. Ceramics, including two rimsherds, utilized flakes, and debitage were recovered. The faunal material appears to represent bison, canid (probably dog) and perhaps deer. In XU-B, the layer contained two hearths and a large bone and cobble filled pit (Figures 19, 20), side-notched projectile points, bone and shell beads, ochre, and obsidian resharpening flakes were among the cultural material recovered (Figure 21). Although XU-B is 50 m back from the river, Layer III showed no signs of "fading" and was still suggestive of a dense occupation.

SUMMARY AND CONCLUSIONS

To summarize, the results of the 1980 investigations at the Ross Site demonstrate that much of the site is still present. The cultural

deposits extend along 170 m of river cutbank and to at least 50 m southeast of the river. In both the profile sections and the excavation units, the occupation layers are rich in artifactual and faunal material and features such as hearths and pits are common. Although the ultimate southern extent of the site is unknown, the presence of bone fragments in the cultivated field to the south suggests the occupation beyond 50 m may be extensive. Regardless of the latter, the known extent of the site, the richness of the deposits, the good segregation of the strata, and the potential of the material to answer problems of culture change within the Old Woman's Phase, are sufficient to warrant designation and protection.



Figure 19: View E of cultural Layer III, XU-B.



Figure 20: View west of cultural layers III and II, XU-B.



Figure 21: Miscellaneous artifacts from D1Pd-3.

HISTORICAL RESOURCE MITIGATION
FaPn 38 DICKSON RESERVOIR
PERMIT 80 - 120-C
Gloria J. Fedirchuk
Archaeological Heritage Consultants Ltd.

INTRODUCTION

An archaeological testing programme was undertaken at the request of Alberta Culture on behalf of Alberta Environment at site FaPn-38 to be impacted by flooding of the Dickson Dam Reservoir. It is located on the left bank of the Red Deer River, south of Dickson, Alberta (Figure 22).

FaPn-38 was located in 1978 (Fedirchuk 1978) at which time a limited surface collection was made and site size was estimated on the basis of visual surficial remains. On the basis of the three small shovel holes excavated at that time, no information was recovered which indicated that subsurface materials were present. Recommendations for further work at this site were made on the basis of artifact distribution, nature of remains discovered and the pending impact by dam construction. In the subsequent year, Kelly (1980: 10-11) conducted four 1 by 1 meter unit excavations and 15 shovel tests in the site area. The results of this programme were inconclusive and raised some questions as to the nature and distribution of cultural remains. There was some reason to believe that undisturbed portions of the site still remained. Secondly, the disparity in quantity of cultural remains between units excavated required further investigation and explanation and had some relevance to the remainder of the site and possibly lack of subsurface materials in that area.

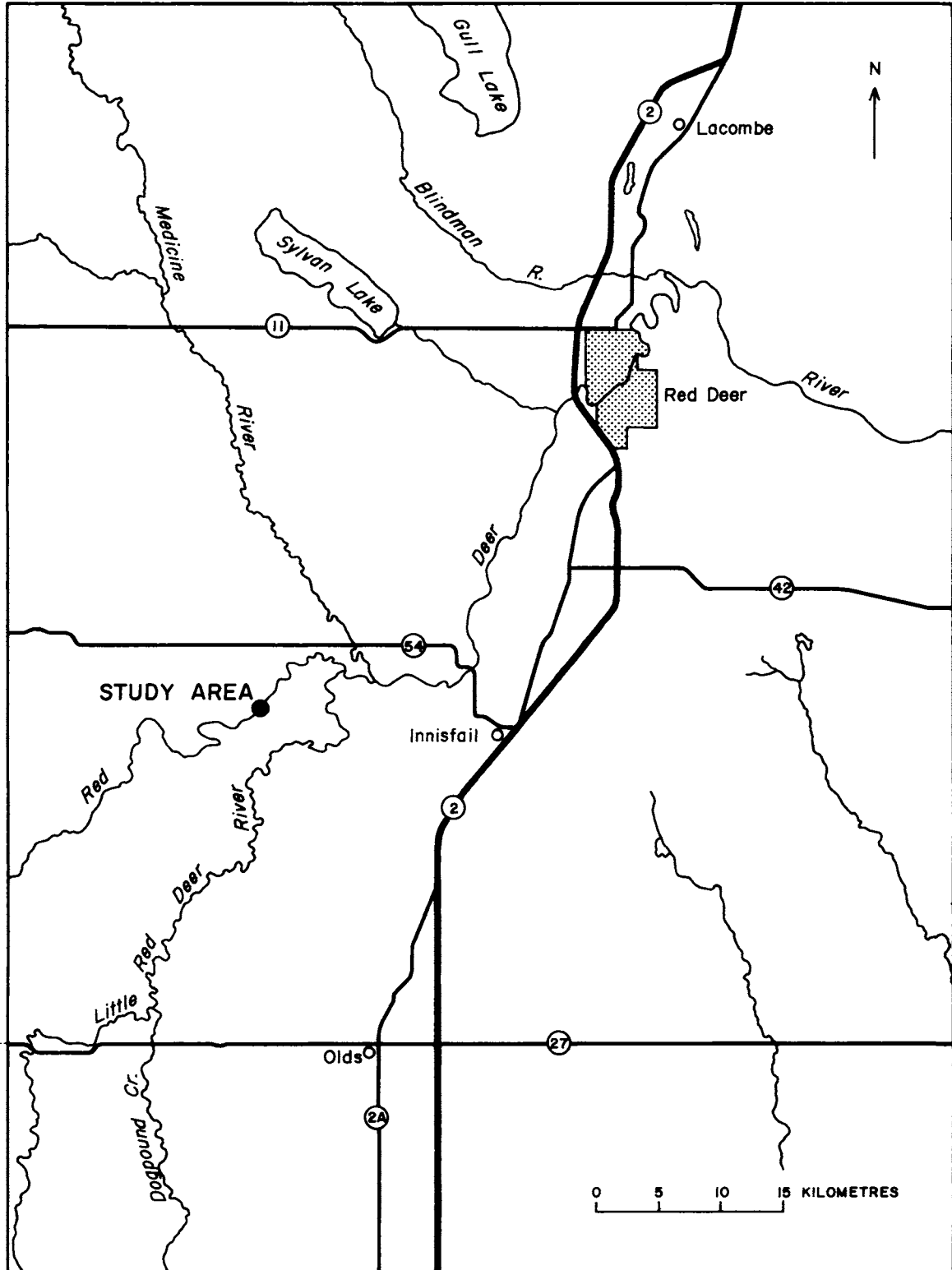


Figure 22: Location of study area.

OBJECTIVES

The object of the project was to determine the nature and extent of the prehistoric occupation at site FaPn 38. Within the term 'nature', it was proposed to investigate whether or not any undisturbed cultural materials were present at the site, whereas the definition of extent was related to vertical and horizontal distribution of subsurface materials.

METHODOLOGY

The research design was developed on the basis of personal experience in the Dickson Dam area and information provided by Kelly (1980: 10-11). The hypothesis tested was that the original cultural concentration, assuming it to be consistent with the other sites discovered in 1978, might now exist at the edge of the present forested terrace. If supported, this situation would explain the relatively few artifacts recovered from the cultivated area north of the pasture (Fedirchuk 1978; Kelly 1980). Location of artifacts in units 1 and 2 (Kelly 1980: 10-11) in the pasture appeared to support this proposition. If the hypothesis was not supported, the research design provided for excavations in the vicinity of the latter units.

In order to test the hypothesis, twelve one-by-one metre units were excavated parallel to the edge of the terrace at intervals of ten metres. Cultural materials in these units were exceedingly sparse except for unit 8, located at the extreme eastern edge of the terrace. It contained 17 flakes. Information suggested by the soil profiles as to possible previous disturbance was inconclusive. An additional four one-by-one units were excavated adjacent to unit 8 but yielded a total of 11 flakes and no further information pertaining to undisturbed cultural materials. Due to the relative paucity of materials in these

units, the remaining 24 one-by-one metre units were excavated around those excavated in 1979 in attempt to define both horizontal and vertical extent of this cultural concentration.

RESULTS

Table 5 represents a preliminary analysis of the cultural materials recovered from FaPn 38. On the basis of the soil profiles observed in the region of Kelly's excavation in comparison with the profiles revealed in the units along the river, it has been determined that: 1) At one time the entire terrace was ploughed, including the currently forested area; and 2) The soil 'zone' identified by Kelly (1980) as an 'interface' of ploughed soils and undisturbed soils, is in reality an undisturbed soil horizon which contains cultural materials. The upper plough zone is approximately 15 to 20 centimetres deep and consists of silty sands; the underlying undisturbed zone is distinct in texture and consists of fine yellow sand of varying depth. The basal material is a heavy clay.

Cultural materials occurred in all test units excavated along the terrace over a distance of 110 metres paralleling the river bank. The most productive units were those excavated adjacent to Kelly's units 1 and 2 all of which contained undisturbed cultural stratum. On the basis of the single projectile point fragment recovered, the occupation is tentatively related to Avonlea period, 200 to 700 A.D.

TABLE 5: Preliminary Analysis of Cultural Material from FaPn-38.

unit	level cm.	flakes			finished tools	material	bone	# FBR
		Qtzite	Chert	Other				
1	10 - 20 20 - 30		1				long bone frag. fragment	1
2	0 - 10				bifacially ret. core	f lake chert chert		
3	10 - 20	2					fragment	
4	20 - 30	2						
5	0 - 10	1						
6	20 - 30	2			core fragment	quartzite		
7	30 - 40				graver ?	quartzite		
	undisturbed	1						
8		17			rubbing stone pounding stone core	sandstone quartzite quartzite		
9	10 - 20	1						
11	20 - 30	1						
13	0 - 10	12	4		2 small cores	chert		
	10 - 20	3	4		biface fragment	quartzite		
	10 - 20	15	6		end scraper	chert	(found in cluster)	
	undisturbed (19 cm.)	117	65		2 bifaces bifacial core unifacial core	quartzite chert quartzite		5
	undisturbed	3	3					
14	0 - 10	2	7					
	10 - 20	8	3					
	undisturbed	16	3					
15	0 - 10	4						
	10 - 20	8	5				fragment	
	undisturbed	25	6		biface end scraper	quartzite chert		

TABLE 5: (continued)

unit	level cm.	Qztite	flakes Chert	Other	finished tools	material	bone	# FBR
16	plough (0 - 10) undisturbed	7 3	2 5		uniface	chert		1
17	plough undisturbed	12 25	5 19		retouched flake end scraper	quartzite chert	3 small frag.	
18	plough undisturbed undisturbed	12 14 10	4 16	39	retouched flake	quartzite	2 fragments	
19	plough undisturbed	4 9	3 3		biface fragment	quartzite		
20	plough undisturbed	12 14	3 5				2 fragments 2 small frag.	
21	plough undisturbed	3 3	3 2				1 fragment	
22	plough undisturbed	15 11	1 7		retouched flake	chert		
23	plough undisturbed	8 27	2 21	1	retouched flake end scraper	quartzite chert		
24	plough undisturbed	6 43	3 1	58	bipointed biface	quartzite		
25	plough						2 fragments	
26	plough undisturbed	1 2					1 fragment	
27	plough	1						
28	plough undisturbed	1 6					3 fragments	

TABLE 5: (continued)

unit	level cm.	Qtzite	flakes		finished tools	material	bone	# FBR
			Chert	Other				
29	plough	11			retouched flake	chert		1
	undisturbed	8						
30	plough	6	1		core	chert		
	undisturbed	13	1	6				
31	plough	1			core	chert		
32	plough	3	1		core	chert		
33	plough	1	2					
	undisturbed	2						
34	plough		2		unifacial core	quartzite		
	undisturbed	4	1		denticulate tool	quartzite		
35	plough	8						
	undisturbed		1					1
36	plough	3	2					
	undisturbed	2						
37	plough	3						3
	undisturbed	64	20		retouched flake	quartzite		
38	plough	44	37		end scraper	chert		
	undisturbed	2	4		retouched flake	quartzite		1
39	plough	9	3					
	undisturbed	25	9					
40	plough	9	2					
	undisturbed	8	4		projectile point	chert		2
surface					bifacially retouched	cobble sandstone		
Total		716	302	104	37		20	15

RECOMMENDATIONS

Based on the number of artifacts recovered (1159) from the relatively limited area excavated and the existence of undisturbed cultural deposits at FaPn 38, it will be recommended that additional excavations be conducted at the site prior to flooding by the Dickson Dam.

**HIGHWAY MITIGATION PROGRAM: 1980
PERMIT 80 - 126-C**

**J. Michael Quigg
Ethos Consultants Ltd.**

INTRODUCTION

This project involved archaeological excavations undertaken through an agreement with Alberta Culture and Ethos Consultants Ltd. at seven prehistoric sites endangered by proposed highway construction. The author directed a crew of four during September and October 1980 in conducting these investigations. Excavated sites were located in the foothills and mountains of southwestern Alberta and on the plains of south-central Alberta (Figure 23).

The agreement with Alberta Culture called for a minimum of 145 m² to be excavated at the seven sites and for a methodology which stressed rapid retrieval of cultural material. Generally, 15 m² were to be excavated at each site except EcPp-24 and DiPo-1 where 30 m² and 40 m², respectively, were recommended.

These excavations were intended to provide an evaluation of each site in order to make final recommendations to the Archaeological Survey of Alberta. Gryba (1980d & e) conducted initial investigations at all sites except EcPp-24 during 1979.

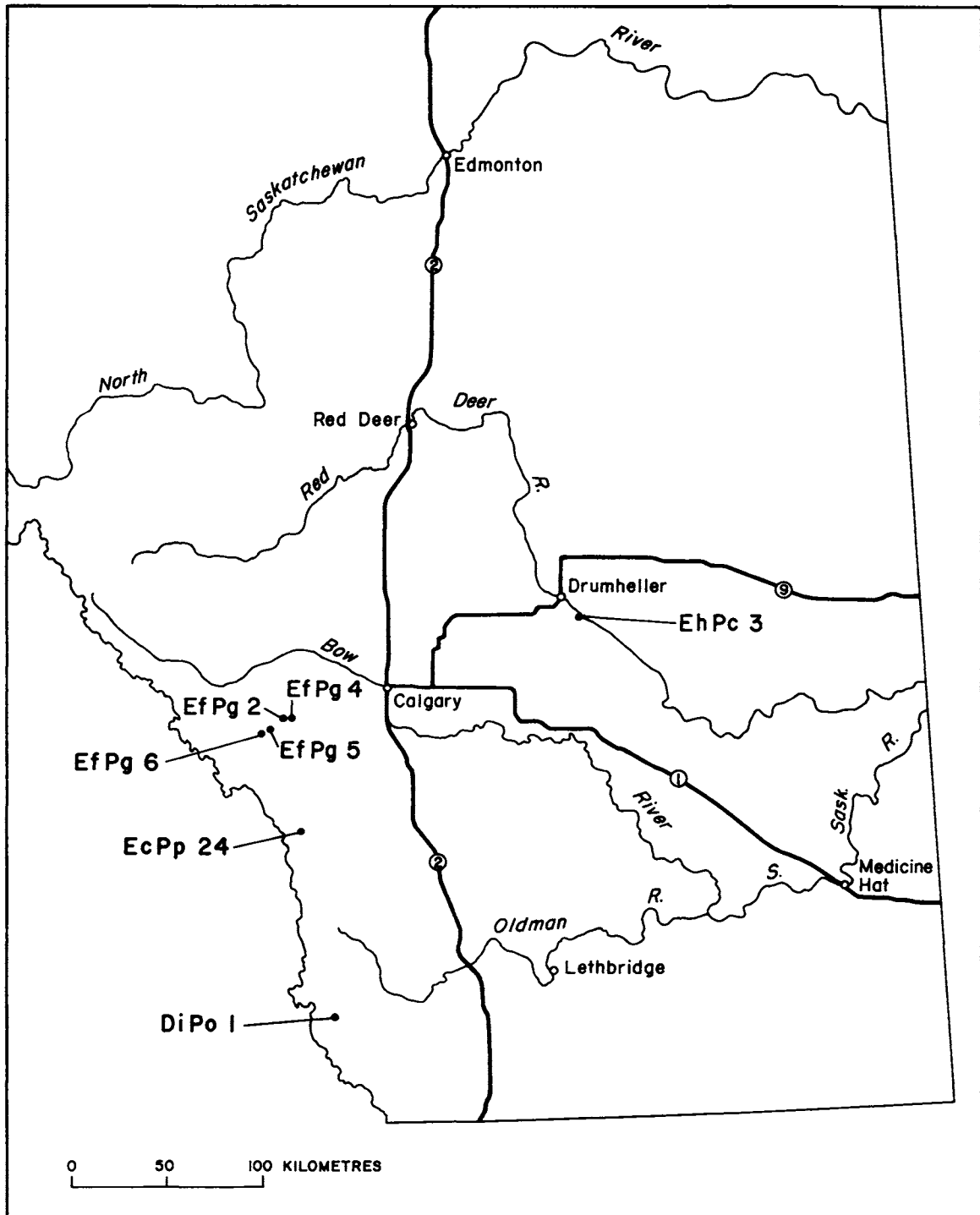


Figure 23: Location of excavated sites within southern Alberta.

GENERAL PROCEDURES

Investigations at each site followed the same basic procedures with the use of 1 x 1 meter squares for horizontal control incorporated within a grid system. The location of each grid was guided by previous productive test holes or excavations, and the limits of the marked right-of-ways. Vertical control was maintained by the use of 10 cm arbitrary levels aided in some instances by soil horizons. All deposits removed were passed through a 6 mm mesh screen followed by the bagging of all cultural material. Materials recovered consisted of fire-broken rock, bone fragments, lithics and tools. Level records were maintained for every level excavated with pertinent information being recorded after completion of each level. Observed features, concentrations of cultural material and stains were trowelled and individually recorded on feature forms.

Site specific maps were drawn showing the relationship of the more important site aspects such as the grid system, the proposed center line, open and forested areas, existing roads, creeks, and so on. A representative stratigraphic site profile was drawn which indicated soil horizons, and location of cultural material.

Photographs of the general site locality were taken from a number of directions and excavation areas were also photographed.

DiPo-1

This site is situated in the southwestern foothills, on the third terrace overlooking the Carbondale River (Figure 24). Spruce and pine cover the terrace which is situated roughly thirty meters above the river.

DiPo-1 was initially sampled in 1979 by Gryba (1980d) through shovel tests and excavation of 67 m² of the approximately 1350 m² of site area. This work resulted in the recovery of 549 flakes along with

44 tools and cores. In addition, "a quantity of fire-broken rocks and burnt and unburnt bone scraps were collected" (Gryba 1980e:79). Recognizable tools recovered by Gryba (1980b) included sixteen points, four end scrapers, twenty-four retouched flakes and one pecked stone pestle. Gryba (1980e: 79) interprets the site as a Pelican Lake occupation dating around 500 BC. Site function was assessed as follows: "DiPo-1 may represent a way camp or disembarking station for hunters moving further out on the Plains through the Carbondale River drainage system" (Gryba 1980e:93). From these findings Gryba recommended an additional 30 to 40 square meters be excavated, as the site appears to represent a single cultural component and most of the site would be destroyed by highway construction.

Ethos' work in 1980 consisted of excavating 40 m² contiguous to Gryba's main excavation area at the north end of the site resulting in a total block excavation of 82 m². This was done in hopes of being able to better define and interpret the prehistoric activities which took place.

These excavations resulted in a higher artifact production than observed by Gryba. We recovered approximately twelve projectile points and point fragments, five end scrapers, four unifaces and fifteen retouched flakes. In addition a considerable amount of fire-broken rock and an estimated 40-50 small calcined bone fragments. No recognizable features were discovered. Charcoal was plentiful but apparently represented previous forest fires and not cultural activities.

Lithic material types represented are quite interesting and should prove significant in the final analysis. Obsidian, Kootenay Argillite, Top-of-the World Chert, Montana Chert and Avon Chert are all present.

A cursory examination of projectile points recovered (Figure 25 f-1) indicates they are primarily corner notched (Pelican Lake), with one side notched (Late Plains), 2 stemmed (Hanna) and a couple of forms not identified as yet.

I presently agree with Gryba's (1980e) interpretation that the site represents a Pelican Lake cultural group even though the Hanna points are present. Numerous other sites have showed this same association of projectile points. Support for the Pelican Lake identity is the utilization of obsidian and other non-local lithic materials by these peoples which is characteristic of the Pelican Lake Culture.

The age of occupation as well as seasonality will probably not be determined due to the minimal quantity and types of faunal remains recovered.

No further excavations are recommended at present as a representative sample of the occupation is felt to have been recovered.

EcPp-24

This site lies in the Rocky Mountains along a creek terrace just north of the Highwood River (Figure 26). This gravel terrace has an alluvium cap and will be utilized for its gravel in proposed road construction. Southern and eastern portions of the site have already been destroyed by gravel operations and construction of the present road.

Previous work at the site consisted of fourteen shovel tests (50 cm wide) excavated in two rows across the site by Brink (personal communications). These investigations revealed a few flakes, burned and unburned bone fragments and fire-broken rock. Based on the results



Figure 24: View of DiPo-1 during excavations.

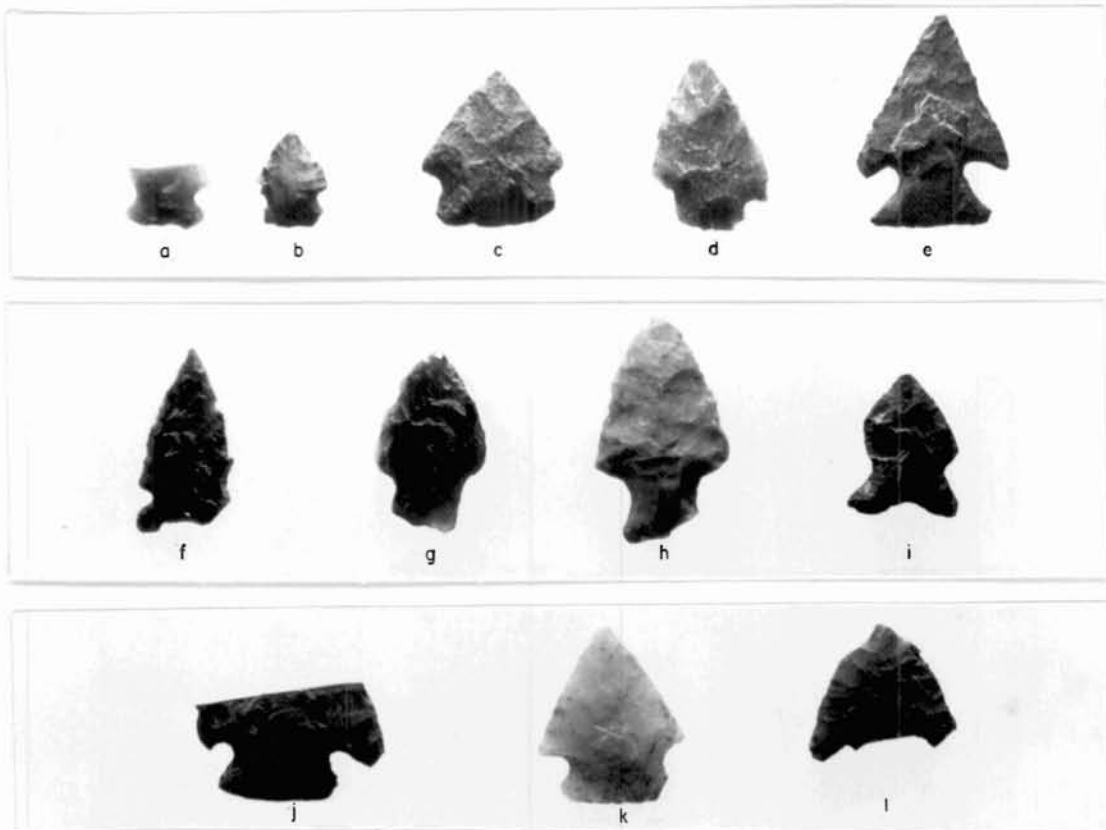


Figure 25: Select Projectile Points from excavated sites: a and b - EhPc-24; c - EfPq-5; d - EfPq-2; e - EfPq-6; f-l - DiPo-1.

of this examination, 30 m² were recommended for excavation.

Our excavations consisted of thirty-one 1 x 1 m units in a block sample located towards the middle of the southern end of the terrace, adjacent to two of Brink's productive shovel tests.

The cap of alluvium covering the terrace gravels varies from six to twenty-seven centimeters in extent. Cultural material was encountered from roughly 4 cm below the surface to 4 or 5 cm into the gravels. It is believed that all cultural material represents a single occupation and that roots and frost action have caused this vertical displacement.

Two very small side-notched points were recovered (Figure 25a,b) along with one end scraper, one biface, one uniface and three or four retouched flakes. The artifact yield per unit varied considerably from four to five pieces of lithics to nearly 30 per unit. Fragments of bone were recovered in sufficient quantity to obtain a radiocarbon date. Bison and deer were both represented by faunal remains. Hopefully a young deer mandible recovered will allow us to suggest seasonality of the occupation for EcPp-24.

Lithics were primarily of local materials consisting of dark cherts and silicious siltstone. These are believed to be small resharpening flakes, with platforms and overhanging lips present.

Thus far these cultural materials suggest to the author a small hunting camp utilized by a Late Prehistoric group of peoples. It seems to be a single component site with cultural material vertically dispersed through natural causes. Although not that productive in terms of finished tools, further excavations would undoubtedly provide a larger sample of the tool assemblage thus enabling a more complete and substantiated interpretation for this site. Consequently further excavations are recommended if possible.



Figure 26: General View of Terrace Containing EcPp-24.



Figure 27: Block Excavations At EfPq-2.

EfPq-2

EfPq-2 as well as the following three sites, is located along the Elbow River in the foothills west of Bragg Creek. All sites lie adjacent to small creeks which have cut through valley terraces to join the river. The terraces which these sites occupy are covered in aspen and grasses with a scattering of spruce and brush. Each site will be directly impacted by proposed road construction with most sites being nearly totally destroyed.

Shovel testing at EfPq-2 by Gryba (1980d) produced six flakes from four 50 x 70 cm units. We excavated sixteen 1 m² units in a block (Figure 27) with mixed results. A number of units were sterile, while others yielded roughly 20-25 pieces of cultural material. Two small fire-broken rock piles were discovered along with concentrations of flakage within a two meter radius. Material was dispersed through the first 15 cm of the soil. The only finished tool recovered was a quartzite projectile point (Figure 25d) located away from the features. Seven or eight chert cores, an estimated 130 chert and siltstone flakes and numerous fire-broken rocks were also recovered in association with the two features but there was very little bone material. Most of the latter consisted of tiny calcined fragments.

The nature of the material recovered and its shallow depth suggests a single cultural component with activities centered around small features distributed across the terrace. The chert cores and debris indicates that a lithic source was present in the vicinity and that initial tool manufacturing took place at the site.

Unfortunately, seasonality and the age of the site are questions which cannot be answered with the present data, however, the lithic manufacturing processes evidenced at the site is of considerable value. No further work is presently recommended at EfPq-2.

EfPq-4

This site lies just north across a deep creek valley from EfPq-2. Again Gryba (1980e) had excavated four productive test holes along the center line of the proposed road. Six flakes and thirty-six burned bone scraps were recovered by Gryba from just below the surface.

We excavated 1 x 1 m units in a block between two of Gryba's productive tests (Figure 28) with minimal results. Only 30-35 flakes were recovered with the majority being located adjacent to two small fire-broken rock features. Small calcined bone, unburned bone fragments and a scattering of fire-broken rocks were also present. The only recognizable tool was the tip of a projectile point. Cultural material was again dispersed from just below surface to roughly 35 cm B.S.

I have tentatively interpreted the recovered material as representing a short term campsite. There is no evidence of site age or seasonality. Cultural material is too sparse to warrant further site investigations.

EfPq-5

Located on the east side of Canyon Creek overlooking the Elbow River to the south, the site occupies a high terrace sheltered on the north by a ridge. Five productive tests by Gryba (1980e) produced ten flakes and 235 burned bone fragments. An unknown percentage of the site has been previously destroyed by the existing road. The proposed road improvements will totally obliterate the remaining portions of the site.



Figure 28: View Along Center Line with Excavation Block in EfPq-4.



Figure 29: EfPq-6 During Excavation.

Eighteen 1 m² units were excavated ranging in depth from 30 to 37 cm below surface and spread over the site area. The intent was to locate dense areas of cultural materials. These units contained roughly 100 pieces of lithics, including one Besant point (Figure 25c), three end scrapers, two unifaces and six or seven retouched flakes. The greatest percentage of material was of siltstone, with some cherts also present. Quantities of fragmented bones, both burned and unburned, were recovered along with a few identifiable bison elements. One portion of a bison mandible should allow us to suggest the season in which the site was occupied. Quantities of fragmented rocks, probably fire-broken, were scattered throughout the excavations. One such concentration of fire-broken rock was designated a feature. A pattern was apparent in the distribution of cultural material, with bone being concentrated in one area along with recognizable tools and fire-broken rock in other areas.

Although cultural material is dispersed over 30 cm in the soil horizons, the uniformity in lithic types, consistency of other cultural material plus the single projectile point type would indicate a single occupation. Considerable prehistoric activity took place at this site over a large area, and, although the tool and lithic recovery rate was not exceedingly high, EfPq-5 appears to warrant further excavations. The eighteen units excavated were not sufficient to retrieve a representative sample of material or answer all major questions needed for interpreting the site.

EfPq-6

This site lies on the last remaining portion of a terrace which has been disturbed by construction of the existing road, to the west of EfPq-5 in the Canyon Creek valley. Four productive tests by Gryba (1980e) in 1979 revealed thirty-one flakes and twenty-nine burned bone scraps. Our fifteen units (Figure 29) yielded mixed results, with five or six units containing little in the way of cultural material, while

the remaining units were quite productive. The site is similar to EfPq-2 in that dense concentrations of cultural material can be found directly associated with fire-broken rock concentrations. Yet, three or four meters removed from these concentrations materials become quite sparse. Productive units yielded up to forty flakes, a few pieces of fire-broken rock and some tiny calcined bone fragments. In total, roughly 300 flakes were recovered along with one Pelican Lake point (Figure 25e), one end scraper, one uniface and several retouched flakes. The bone recovered consists of very small calcined pieces and is not sufficient for obtaining radiocarbon date. Six or seven units produced a moderate amount of fire-broken rock.

Presently EfPq-6 is believed to consist of a single component, representing a Pelican Lake occupation. The distribution and frequency of lithics and tools is suggestive of a small transitory group. Further excavation would increase the sample size and possibly help answer a few fundamental questions. Consequently, additional excavations at EfPq-6 are recommended.

EhPc-3

EhPc-3 occupies a terrace on the south bank of the Red Deer River. Considerable recent historic activities have damaged portions of this terrace and the presumed site area. Four of five tests by Gryba (1980e) were productive. Cultural material in the form of petrified wood, quartzite, chert pebbles, bone fragments and fire-broken rocks were recovered from just beneath the sod during his investigations.

Our 1980 excavation of sixteen square meters revealed roughly 85 pieces of debitage, one projectile tip, unburned bone fragments and a few scattered pieces of fire-broken rock. In addition, assorted historic items such as glass, plastic and sheet metal were recovered.

No features or areas of concentration of material were discovered in our block excavations.

The material types and point tip is suggestive of a Late Prehistoric occupation. The low density of cultural material as well as the lack of recognizable tools indicates the site does not justify additional excavations.

SUMMARY

In total, 148 square meters were excavated in seven sites to be impacted by various highway construction projects. We recovered diagnostic projectile points from all but two sites, EhPc-3 and EfPq-4. Diagnostic materials indicated the sites are attributable to the Late Prehistoric (EcPp-24), and the Late Middle Prehistoric (EfPq-2, 4 and 5, DiPo-1). Sufficient bone material for radiocarbon analysis was recovered from EcPp-24, EfPq-5 and EhPc-3. The sparse faunal samples recovered will only allow seasonality to be suggested at two sites -- EcPp-24 and EfPq-5. Bone was the most abundant cultural material at one site (EfPq-5).

Fire-broken rock is moderately represented at the sites where concentrations (features) were recognized: EcPp-24(1); EfPq-2(2); 4(2); 5(1) and 6(1). The actual frequency and comparative status of fire-broken rock to other types of cultural material will have to await subsequent analysis.

Flakes and shatter recovered were not always plentiful with averages per unit varying from three to ten pieces.

Presently I believe we are seeing single components represented at all seven sites. Thus, even though the cultural material may not be

prolific at some sites, we have an opportunity to examine specifics about individual cultural groups. Such opportunities are not often available. Consequently these sites may be considered more significant than some other sites in Alberta. This is especially true for EfPq-5, and 6 and EcPp-24 which warrant additional excavation. While EfPq-4 and EhPc-3 are not culturally mixed and also represent single occupations, the scarcity of cultural material and lack of formed tools at these sites makes further excavation unwarranted. We have sufficient cultural material from DiPo-1 to allow the highway construction to proceed.

**1980 ARCHAEOLOGICAL INVESTIGATIONS AT THE
FM RANCH SITE, EfPk-1**

Permit 80-167

**J. Roderick Vickers
Archaeological Survey of Alberta**

INTRODUCTION

The FM Ranch Archaeological Site, EfPk-1, is a buried camp located on a low terrace on the southwest side of the Bow River about 19 km southeast of Calgary (UTM Grid: 12UUM019358, Figures 30, 31, 32). The site, apparently associated with a near-by bison jump (EfPk-2), was first investigated by Dr. Richard G. Forbis in 1959. In 1974, J.L. Rogers and J.A. Fromhold excavated a number of test units at the southeast end of the terrace (Figure 31). In February 1980, portions of the site were designated a Provincial Historic Resource pursuant to Section 18, (1) of The Alberta Historic Resources Act. In October 1980, the Archaeological Survey of Alberta undertook a field program to determine the limits of the site; this document is a brief report on the results of that investigation.

DESCRIPTION

The 1974 excavations revealed seven main cultural components buried to a maximum depth of c. 1.50 m below surface (Rogers & Fromhold 1975). All layers which contained diagnostic artifacts were assigned to the Old Woman's Phase and were estimated to date c. A.D. 1000-1650 (Rogers & Fromhold 1975:13). The lowest component was assigned to the Avonlea Phase and a date of c. A.D. 745 was estimated. Unfortunately, no diagnostic artifacts were recovered to substantiate this conclusion

Table 6 CULTURAL DEBRIS FROM 74 TEST LOCALES

	N	%
Buried and/or surface material	63	85.1
Buried material (total)	41	55.4
Surface material (total)	57	77.0
Tests with both surface and buried material	35	47.3
Tests with surface material only	22	29.7
Tests with buried material only	6	8.1
Tests with no material noted	11	14.8

Although the 1974 investigations indicated the presence of rich cultural deposits at the southeast end of the terrace, no data regarding the site limits were obtained. R. G. Forbis (Personal Communication) noted that a test unit situated near the point at the northeast end of the terrace in 1959 was highly productive of ceramics and other camp-related artifacts. In order to estimate the extent of cultural material in the terrace, the 1980 field project employed a power auger to probe the subsurface deposits (Figure 33).

A main transect line, oriented parallel to the Bow River and extending from the 1974 excavation units northward to the point, was established (Figure 31). This line, 580m long, was flagged at 20 m intervals to produce 29 test locations. Five perpendicular transects, extending from the river inland toward the base of the valley wall, were laid out at 100 m intervals along the main transect line. The spacing of test locations along the subsidiary transects was variable; 20 m intervals were used on the two southern lines as well as the eastern leg of the northern transect whereas 50 m and 100 m intervals were selected for the long northern lines. In all, 74 test locales were flagged.

(Rogers & Fromhold 1975:13). Bone was apparently common in most levels, but over 85% of the artifacts were recovered from the upper three cultural components; that is, in the upper c. 0.40 m of deposits (Rogers & Fromhold 1975: Table 6).

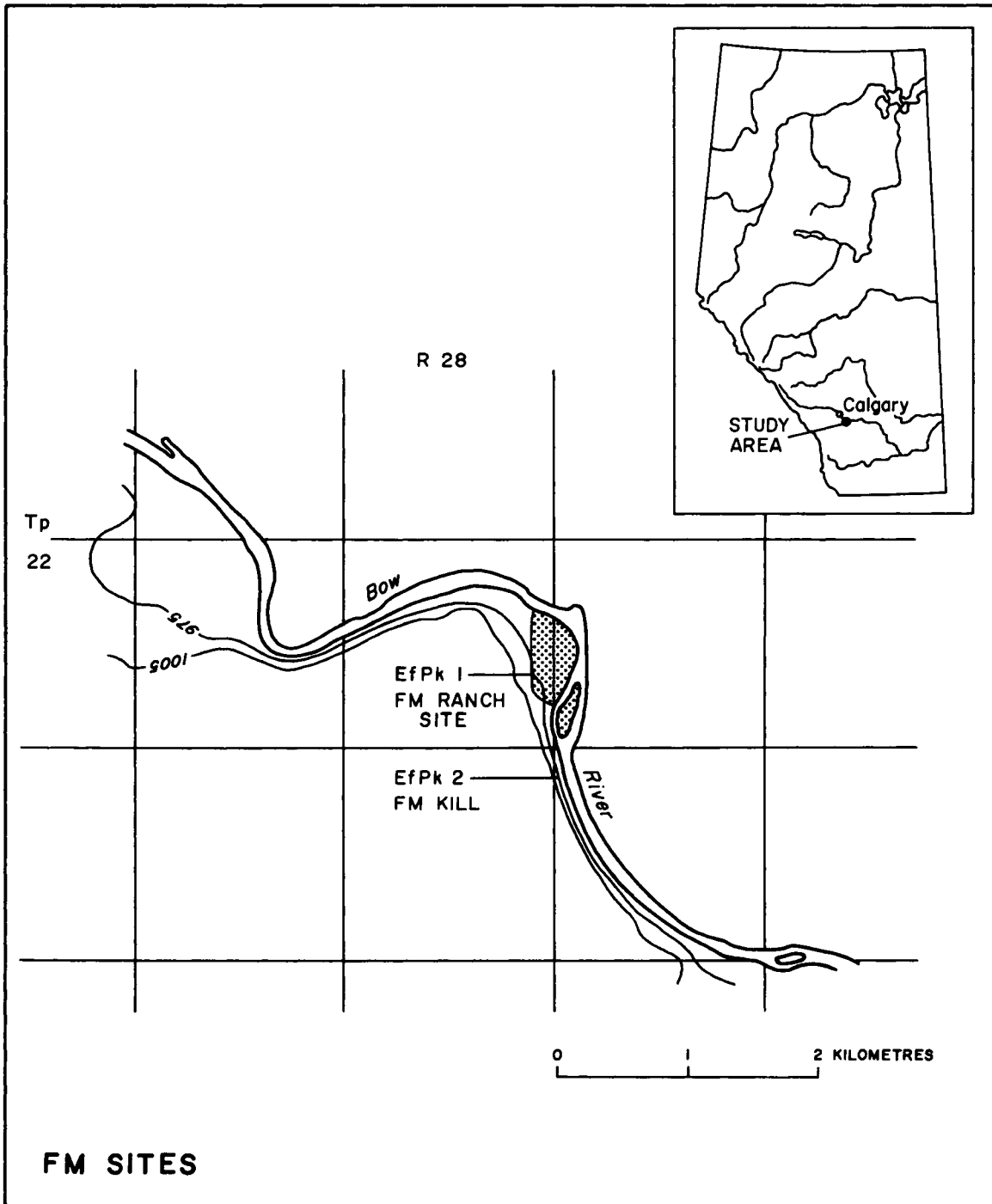


Figure 30: Location of FM Ranch Sites.

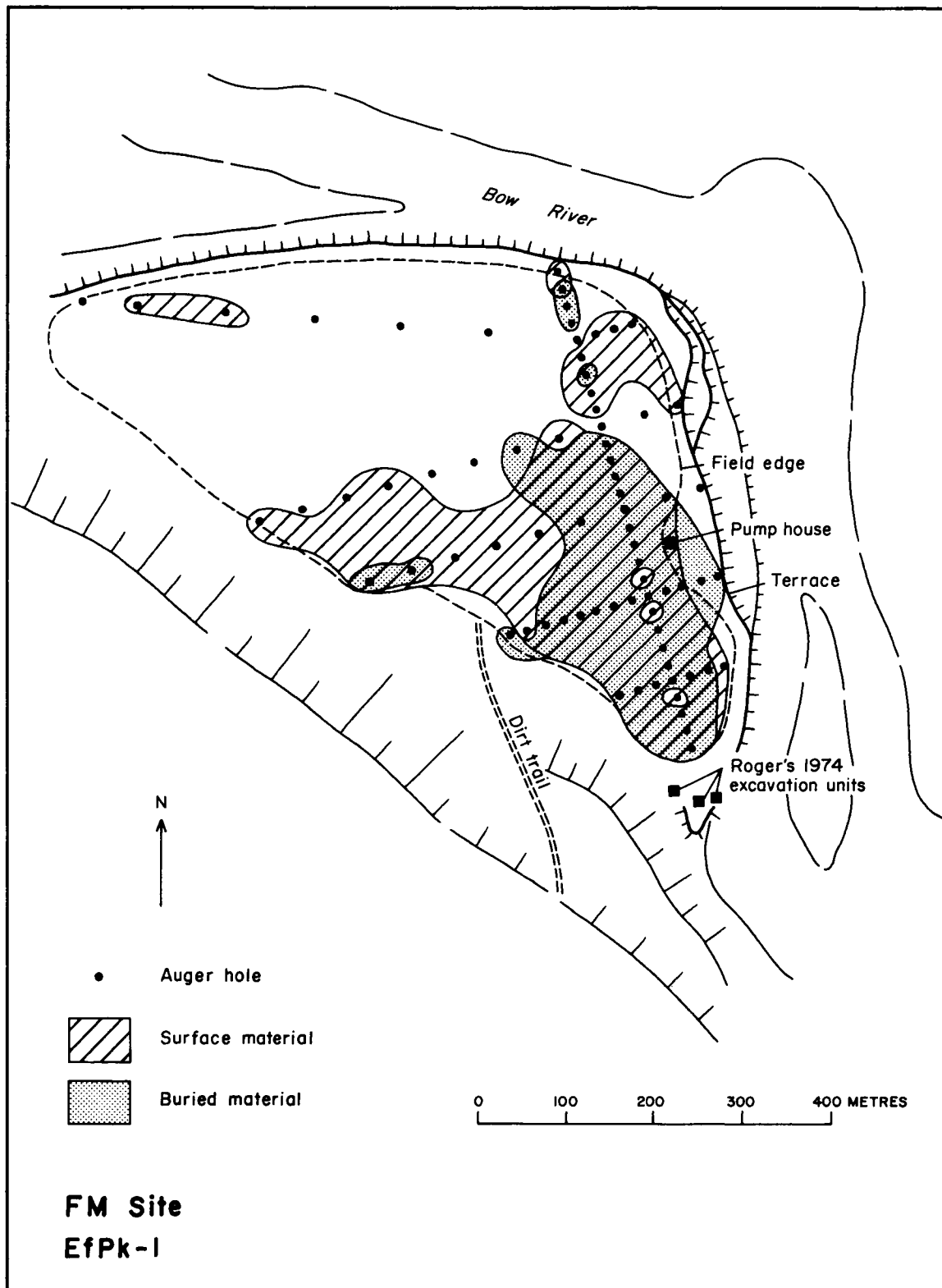


Figure 31: Tests and distributions of cultural material.



Figure 32: View northeast of FM Ranch Site.



Figure 33: View west of auger testing.

At each test locale, the presence or absence of surface cultural material within a 5 m radius was first noted; when present, this material was most commonly bone or fire-broken rock. A test hole, 1 m deep and 25 cm in diameter, was then excavated with the auger and the extracted soil examined for cultural debris; when present, this was invariably bone. The distribution of both surface and buried specimens was then plotted on a site plan and the positive test results linked to produce a distribution estimate (Figure 31).

Cultural material was noted at 63 (85.1%) of the 74 test locales (Table 6). At 41 (55.4%) of the tests, buried cultural debris was recovered, while 57 (77.0%) cases of surface scatter were recorded. Thirty-five (47.3%) locales contained both surface and buried material, 22 (29.7%) had surface material only and 6 (8.1%) produced buried material only. Eleven (14.8%) of the tests yielded no material at all.

Surface scatter was noted over most of the south half of the terrace, in two clusters near the northeast end, and in an isolated pocket at the northwest corner of the flat (Figure 31). Buried material was present in the south half and in the northeast area of the terrace. As well, an isolated area near the base of the valley wall also produced buried cultural debris. The decrease in material in the northwest portion of the terrace is partly a function of sampling but may also be related to the distance from the bison kill site to the south. The surface material recovered at the northwest end includes a potsherd and possible projectile point fragment; this and Forbis' recollection of large ceramic quantities from the test unit at the northeast end, suggest this area may be rich in artifactual material although the faunal material may be less well-represented.

SUMMARY AND CONCLUSIONS

The 1980 investigations at the FM Ranch Archaeological Site, EfPk-1, indicate that rich cultural deposits underlie much of the low terrace between the Bow River and the valley wall. The deposits, at least in terms of faunal material, appear to be concentrated in the east and south parts of the terrace. There are, however, indications from artifactual material that the northwest quarter of the terrace was also occupied. It is therefore recommended that the complete terrace area be designated a Provincial Historic Resource pursuant to Section 18, subsection (1) of The Alberta Historic Resources Act.

**HISTORICAL RESOURCES IMPACT ASSESSMENT
LESSER SLAVE LAKE PROVINCIAL PARK**

Permit 80 - 178-C

**Gloria J. Fedirchuk
Archaeological Heritage Consultants Ltd.**

INTRODUCTION

On behalf of Alberta Parks and Recreation, an historical resources inventory and impact assessment was conducted on Lesser Slave Lake Provincial Park (Figure 34). The general objective of the project was the location and assessment of historical resources in the park with special emphasis on proposed facility areas and the existing lake shore. Specifically, survey coverage was required along the total lake shore, to a maximum of 50 metres inland, all proposed park development areas, and all other areas identified by the consultant as moderate or high in historic resource potential.

Lesser Slave Lake Provincial Park is situated in the Lesser Slave Lowland and is bounded on the northeast by the Pelican Mountains. The southeastern portion of the park is characterized by irregular sand dunes bordering Lesser Slave Lake behind which lies low-lying poorly drained terrain. In the main area of the park to the north, a discontinuous sandy bench forms the immediate lake shore behind which topography rises irregularly to Marten Mountain. Several creeks originate on the mountain and empty into Lesser Slave Lake. Vegetation is typically poplar and spruce forest with willow in the low-lying areas.

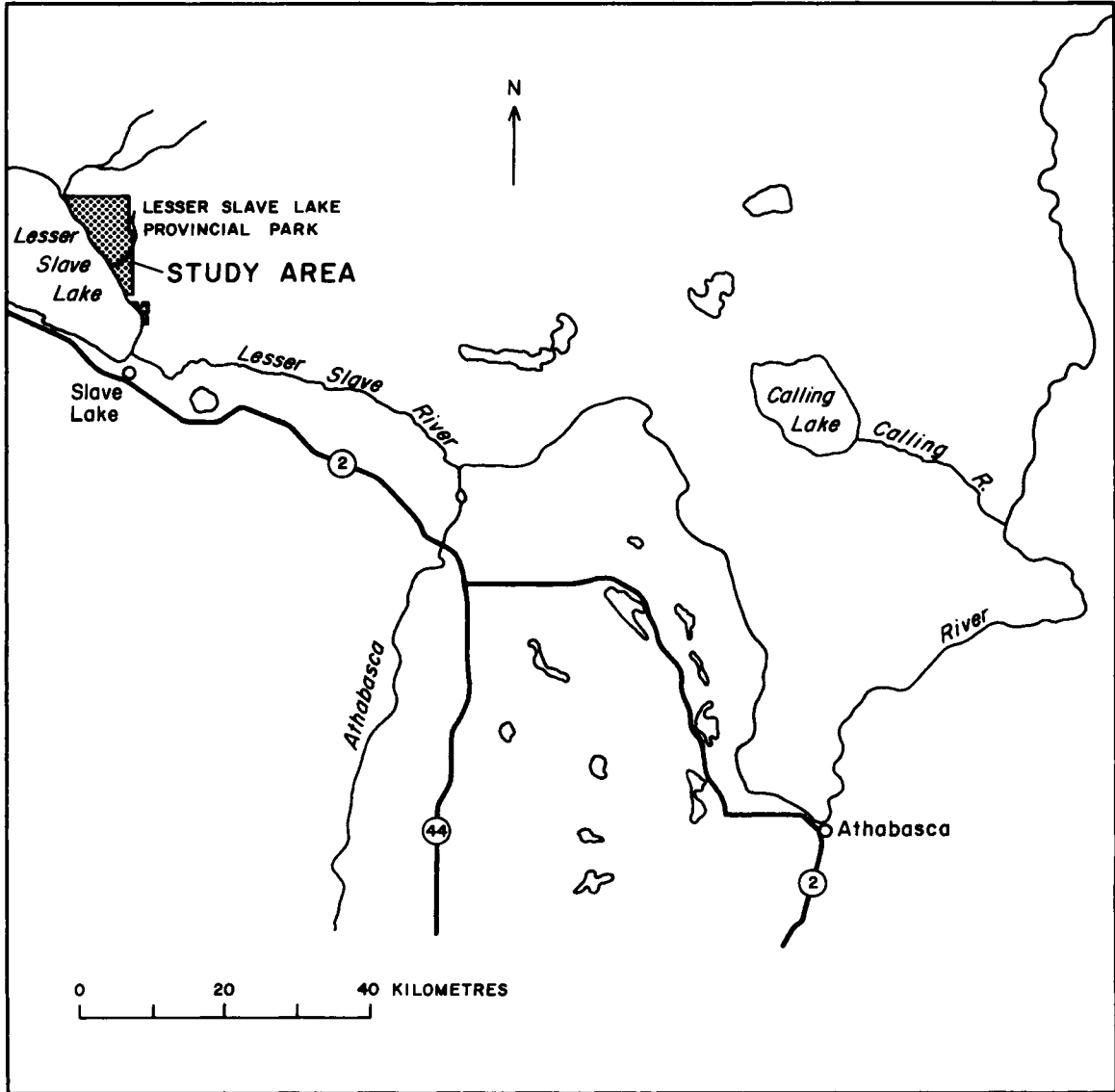


Figure 34: Location of Lesser Slave Lake Provincial Park.

HISTORICAL RESOURCE BACKGROUND

No clearly defined archaeological sequence is currently available for the project area. Seven sites have been recorded in Borden block Island; four are prehistoric sites containing no diagnostic cultural material; whereas the remaining site reportedly contains both historic and prehistoric components. The distribution of these known sites is interesting in that all of the prehistoric sites are located away from the lake shore. Three are located on a narrow lenticular ridge approximately two miles from the current lake shore (French 1979) whereas the remaining two of similar relative age are located on sand dunes close to the river. Borden block GiPq contains one site. It is located approximately 5.5 miles north of the Lesser Slave River in a situation similar to those in Borden block GhPq.

METHODOLOGY

The methodology was designed to test hypotheses concerning preferential landform utilization and temporal versus task specific prehistoric occupations. On that basis, intensive subsurface testing and visual inspection of existing exposures were conducted along the lake shore to a distance of one-half mile inland. Only three facilities, the lookout point on top of Marten Mountain, the Lily Creek campground and a day-use area, were located beyond this limite. These areas were also subsurface tested and visually inspected. Nearly 1,200 test units, approximately one-quarter metre square, were excavated. Numerous areas existed in which existing facilities, recreational use, old trails, roads, gas wells, and cutlines provided excellent exposures for visual inspection. When a site was located eight subsurface tests of similar size to those excavated for site discovery, were conducted. Each site was photographed, plotted on maps of suitable scale and appropriately documented in the field.

RESULTS

Six prehistoric archaeological sites were discovered and one previously recorded site relocated. Table 7 provides a preliminary summary of results. Two were found in subsurface tests whereas the other four were found in surficial exposures. One site was found at Lily Lake which is to be developed as a primitive campground.

RECOMMENDATIONS

GiPr 16 on the shore of Lesser Slave Lake, contained undisturbed subsurface materials in two of the eight shovel holes excavated. Although no similar undisturbed deposits were encountered at GiPr 15 and 15, these sites are located on the same high sandy terrace overlooking Lesser Slave Lake and potentially also contain undisturbed materials. It will be recommended that further investigation be conducted at these three sites.

TABLE 7 PRELIMINARY RESULTS, LESSER SLAVE LAKE PROVINCIAL PARK, ARCHAEOLOGICAL SURVEY

SITE NO.	ENVIRONMENTAL SITUATION	STATUS	CULTURAL REMAINS
GIPz 3	Lesser Slave Lake shore; old trail	disturbed	two flakes
GIPr 13	High terrace; Lilly Lake	disturbed	two split pebbles, secondary flake
GIPr 14	Lake shore; trail/transmission line	Disturbed/undisturbed	17 items; flakes and one core/chopper
GIPr 15	Lake shore; trail/transmission line	Disturbed/undisturbed	8 items; flakes
GIPr 16	Lake shore; trail/transmission line	Disturbed/undisturbed	13 items; chopper and flakes
GJPr 3	Upland/creek	undisturbed	laterally retouched flake

**PRELIMINARY REPORT
HISTORICAL RESOURCES IMPACT ASSESSMENT
HIGHWAY CONSTRUCTION PROJECTS NORTH 1980**

Project 80-101-C

**Edward J. McCullough
McCullough Consulting Ltd.**

INTRODUCTION

McCullough Consulting Ltd., under contract to Alberta Culture, conducted an Historical Resources Impact Assessment (HRIA) of fourteen highway construction projects scheduled for development by Alberta Transportation in central and northern Alberta (Figure 35). One of the projects, Jerry Creek Campground, is areal in nature and consists of a planned campsite facility on approximately 36 hectares. The remaining thirteen projects are linear and consist of approximately 221 kilometers of highway rights-of-way. Development within the rights-of-way varies from new road construction and realignments to widening and grading of existing rights-of-way (Table 8).

STUDY OBJECTIVES

The primary objectives of the Historical Resources Impact Assessment of Highway Construction Projects North 1980 were:

- 1) To inventory palaeontological, historic, and prehistoric sites within the proposed development zones;
- 2) to evaluate the significance of individual sites identified;
- 3) to forecast the nature and magnitude of site-specific impacts, and

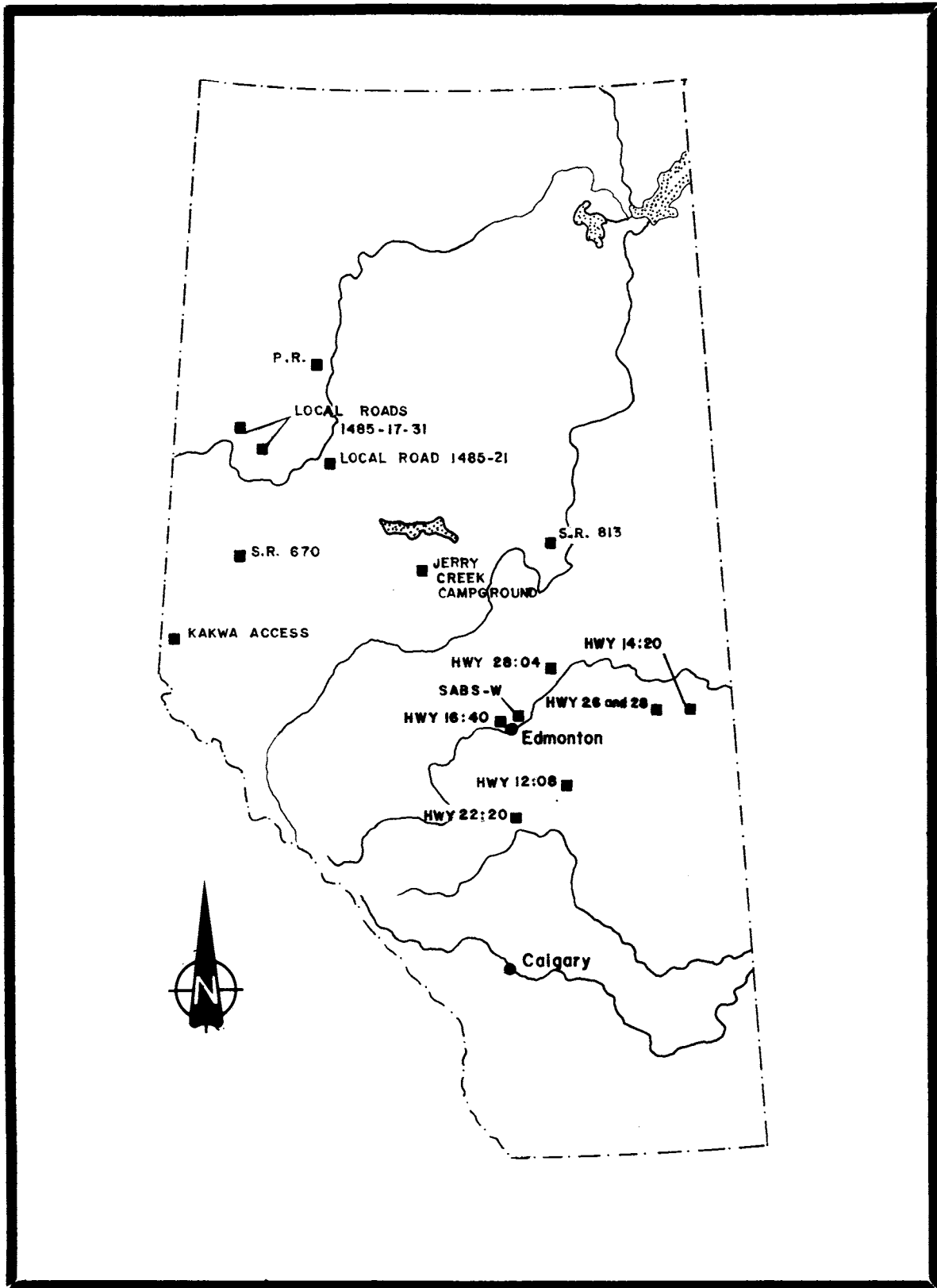


Figure 35: Proposed Highway Project North locations.

TABLE 8: Proposed Highway Construction Projects North

Project Number	Project Location	Type of Construction	Construction Year	Construction Kilometers	Prehistoric Sites located	Historic Sites Located
Hwy. 12.08	Jct. Hwy. 20 - east of Gull Lake	New road, railway relocation	1981	22.50	3	0
Hwy. 16:26 and 28	West of Innisfree - east of Mannville	Widening and realignment	1982	35.76	10	1
Hwy. 22:20	Jct. Hwy. 27, west of Sundre - Jct. Hwy. 54, east of Caroline	New road	1982-4	33.30	1	3
Hwy. 28.04	Jct. SR 651 - south of Egremont	New Alignment	1982-3	19.64	0	0
S.R. 670	East of Grande Prairie	Upgrading	---	7.40	0	0
S.R. 813	Calling Lake area	New alignment	---	17.45	4	0
SABS-W	St. Albert West Bypass	New road	---	12.00	5	0
P.R.	Notikewin Park Access road	New road	1981	4.80	0	0
Local road 1485-17-131	Local roads in I.D. 17-131 (Peace River)	Grading	1980-1	13.50	2	0
Local road 1485-21	Local roads in I.D. 21	Grading	1980-1	12.90	0	0
Campground	Jerry Creek campground on Hwy. 33	New campground	1980	section (given 1.5 km)	0	0
Hwy. 16X:40	Jct. 16 - W.C.L. Edmonton	New and widened road alignment, interchanges	1980-3	24.00	0	0
Kakwa P.P. Access Road		Widening, upgrading existing trail	1981-2	14.50	0	0
Hwy. 41.20	N. of Vermillion - Jct. Hwy. 45	Re-alignment, widening	1981	3.20	0	0

- 4) to recommend an acceptable site-specific mitigation program which would significantly reduce or eliminate adverse impacts to identified sites prior to construction.

METHODOLOGY

Prior to the commencement of field studies, a search of the site survey records maintained by the Archaeological Survey of Alberta and the Historic Sites Service of Alberta, Alberta Culture was conducted to determine whether previously recorded sites were situated within the planned development zones. The ground reconnaissance was conducted by a two-man field party intermittently over a period of two months.

The planned area project, Jerry Creek Campground, was systematically traversed on foot, using the linear transect method. Eight transects spaced at approximately 50 meter intervals were initiated across the development area. The transects generally maintained an east-west bearing, however, minor deviations were necessary to accommodate significant topographic features such as ridges and coulee systems. Shovel tests (.09 m²) were implemented every 50 meters.

The ground reconnaissance of the proposed linear projects consisted of an intensive foot traverse of the entire lengths of the impact zones. Man made and natural exposures within the rights-of-way were inspected for historical resource sites. In the absence of suitable fortuitous exposures a judicial subsurface testing program, utilizing .09 m² units at 50 meter intervals, was implemented to discover concealed sites in those areas considered to be of moderate to high potential (e.g., stream and river crossings and lake margins).

Historical resource sites identified during the ground reconnaissance were documented on the appropriate site forms in accordance with the guidelines issued by the Historic Sites Service of Alberta and the Archaeological Survey of Alberta. All prehistoric sites encountered within the proposed development zone were shovel and complexity were also recorded. Specimens were collected only if they aided in site evaluation or if their collection mitigated impact (e.g., isolated finds). Artifacts collected were bagged as distinct provenience units. Each site was photographed in black and white.

RESULTS

Twenty-nine (N = 29) historical resource sites were identified within six of the planned development projects. Four of the sites recorded are historic and twenty-five are prehistoric (Table 9). No palaeontological sites were recorded.

Historic Sites

Two of the historic sites are farmsteads (No. 2 and No. 4), one is a false front store (No. 3), and one is a homestead (No. 1). Site No. 4, a farmstead, was recorded in conjunction with Project 16:26 and 28. The remaining three sites (Nos. 1, 2, 3) were recorded in conjunction with Project 22:20 (Table 9). All of the sites have been abandoned and are succumbing to the effects of chemical and mechanical erosion. The sites lie outside the planned development zones and will not be subject to primary impact. The sites are judged to be of limited value and no further study is recommended.

Prehistoric Sites

Seventeen prehistoric sites located within Projects 12:08, 16:26 and 28, SABS-W, SR 813, ID 131 and 22:20 have been judged to be completely visible and of limited value. Eight of these sites (FcPm-21, FiOu-1, FhOt-2, FhOt-3, FhOt-4, FhOt-5, FhOt-6, PaPq-5) are isolated finds and nine (FcPm-20, FcPl-8, FiOv-6, FiOv-7, FiOv-8, FhOt-1, FjPk-8, HaOi-10, HaOi-1) are surface scatters (Table 9). These sites are all small, ploughed, and lack archaeological context below the plough zone. The cultural material recovered from the sites was too sparse or ambiguous to draw inferences about the activities which were carried out. No further study is recommended. The photographic documentation, recording, and collection of the artifacts from the surface have mitigated impact.

The remaining eight sites (FjPj-13, FjPj-14, FjPj-19, FkPk-6, GhPh-6, GhPh-10, GhPh-11, GhPh-12) are campsites of significance (Table 9). Four of the sites (FjPj-13, FjPj, 14, FjPj-19, FjPk-6) were previously recorded (Baldwin 1978). These sites will be intercepted by the proposed St. Albert West By-pass (Project SABS-W). FjPj-19, the Sturgeon River Site, is the largest of the sites and is situated along the left bank of Sturgeon River near the Big Lake outlet.

A large side notched projectile point (Figure 36), recovered from the site, resembles forms diagnostic of the Besant Phase (ca. 1 A.D. - 250 - 750) (c.f., Reeves 1970: Fig. 11, Nos. 12 - 16). The specimen, however, does not compare exactly and lacks basal grinding, a trait which is seemingly characteristic of Besant (J. Driver, Personal Communication). Given the fact that this site is situated along the forest edge, it is conceivable that a closer analysis of a larger sample of points, combined with chronological control, would result in the definition of a new point type indicative of a forest edge-parkland adapted group.

Table 9: Historical Resource Sites Identified.

PREHISTORIC SITES										
Site Number	Site Type	NTS Map Ref.	UTM	Legal Description	Phytogeographic Region	Local Setting	Visibility	Highway Project	Recommendation	
FcPm-20	Surface scatter	83B/8	11UPJ995150	Lsd 3-22-40-1	W4M Parkland	Blindman River	Ploughed field	Hwy. 12:08	No further study	
FcPm-21	Isolated find	83B/8	11UQJ029152	Lsd 3-24-40-1	W4M Parkland	knoll	Ploughed field	Hwy. 12:08	No further study	
FcPl-8	Surface scatter	83A/5	12JTP971151	Lsd 4-21-40-28	W4M Parkland	south of Gull Lake	Ploughed field	Hwy. 12:08	No further study	
F10v-6	Surface scatter	73E/5	12UVQ622153	Lsd 6-9-51-11	W4M Parkland	adjacent slough	Ploughed field	Hwy. 16:26 & 28	No further study	
F10v-7	Surface scatter	73E/5	12UVQ638139	Lsd 11-3-51-11	W4M Parkland	knoll	Ploughed field	Hwy. 16:26 & 28	No further study	
F10v-8	Surface scatter	73E/5	12UVQ655133	Lsd 4-2-51-11	W4M Parkland	adjacent Birch Lake	Ploughed field	Hwy. 16:26 & 28	No further study	
F10u-1	Isolated find	73E/6	12UVQ669131	Lsd 4-1-51-11	W4M Parkland	knoll	Ploughed field	Hwy. 16:26 & 28	No further study	
FhOt-1	Surface scatter	73E/6	12UVQ784076	Lsd 16-13-50-10	W4M Parkland	intermittent creek	Ploughed field	Hwy. 16:26 & 28	No further study	
FhOt-2	Isolated find	73E/6	12UVQ803078	Lsd 13-17-50-9	W4M Parkland	dune	Road cut	Hwy. 16:26 & 28	No further study	
FhOt-3	Isolated find	73E/6	12UVQ832088	Lsd 9-21-50-9	W4M Parkland	flat plain	Ploughed field	Hwy. 16:26 & 28	No further study	
FhOt-4	Isolated find	73E/6	12UVQ846093	Lsd 15-22-50-9	W4M Parkland	flat plain	Ploughed field	Hwy. 16:26 & 28	No further study	
FhOt-5	Isolated find	73E/6	12UVQ857094	Lsd 14-23-50-9	W4M Parkland	flat plain	Ploughed field	Hwy. 16:26 & 28	No further study	
FhOt-6	Isolated find	73E/6	12UVQ862093	Lsd 15-23-50-9	W4M Parkland	flat plain	Ploughed field	Hwy. 16:26 & 28	No further study	
FjPj-19	Campsite	83H/12	12UUQ241441	Lsd 4-32-53-25 Lsd 5-32-53-25	W4M Parkland	Sturgeon River	Ploughed field	SABS-W	Collect/test excavate	
FjPj-13	Campsite	83H/12	12UUQ239446	Lsd 12-32-53-25	W4M Parkland	Big Lake	Ploughed field	SABS-W	Collect/test excavate	
FjPj-14	Campsite	83H/12	12UUQ238444	Lsd 8-31-53-25 Lsd 5-32-53-25	W4M Parkland	Big Lake	Ploughed field	SABS-W	Collect/test excavate	
JfPk-6	Campsite	83H/12	12UUQ235445	Lsd 9-31-53-25	W4M Parkland	Big Lake	Ploughed field	SABS-W	Collect/test excavate	
JfPk-8	Surface scatter	83H/12	12UUQ232456	Lsd 2-6-54-25	W4M Parkland	Big Lake	Ploughed field	SABS-W	No further study	
GhPh-6	Campsite	83P/3	12UUS001187	Lsd 11-32-72-21 Lsd 14-32-72-21	W4M Boreal forest	Calling River	Road cut	SR 813	No further study relative to project	
GhPh-10	Campsite	83P/3	12UUS597182	Lsd 21-32-71-21 Lsd 5-32-71-21	W4M Boreal forest	Calling Lake	Road cut	SR 813	No further study relative to project	
GhPh-11	Campsite	83P/6	12UUS564295	Lsd 5-1-73-22	W4M Boreal forest	Calling Lake	Shovel test	SR 813	Test excavate	
GhPh-12	Campsite	83P/3	12UUS602190	Lsd 5-5-72-21 Lsd 14-32-71-21	W4M Boreal forest	Calling River	Borrow pit	SR 813	Test excavate	
HaO1-10	Surface scatter	84C/3	11WMN788141	Lsd 1-3-82-22	W5M Boreal forest	flat plain	Ploughed field	ID 131	No further study	

TABLE 9: (continued)

HISTORIC SITES

Site Number	Site Type	NTS		Legal Description	Phytogeographic		Visibility	Highway Project	Recommendation	
		Map Ref.	UTM		Region	Local Setting				
Ha01-11	Surface scatter	84C/3	11MN788141	Lsd 8-10-82-22	W5M	Boreal forest	flat plain	Ploughed field	ID 131	No further study
FaPq-5	Isolated find	83B/2	11UPH599668	Lsd 8-29-35-5	W5M	Parkland	intermittent creek	Ploughed field	Hwy. 22:20	No further study
No: 1	Homestead	820/15	12UPH609462	Lsd 8-20-33-5	W5M	Parkland	ridge	N/A	Hwy. 22:20	No further study
No: 2	Farmstead	820/15	12UPH607556	Lsd 8-20-34-5	W5M	Parkland	James River	N/A	Hwy. 22:20	No further study
No: 3	False front store	83B/2	12UPH601665	Lsd 1-29-35-5	W5M	Parkland	intermittent creek	N/A	Hwy. 22:20	No further study
No: 4	Farmstead	73E/6	12UVQ721083	Lsd 1-20-50-10 Lsd 8-20-50-10	W4M W4M	Parkland	flat plain	N/A	Hwy. 16:26 & 28	No further study

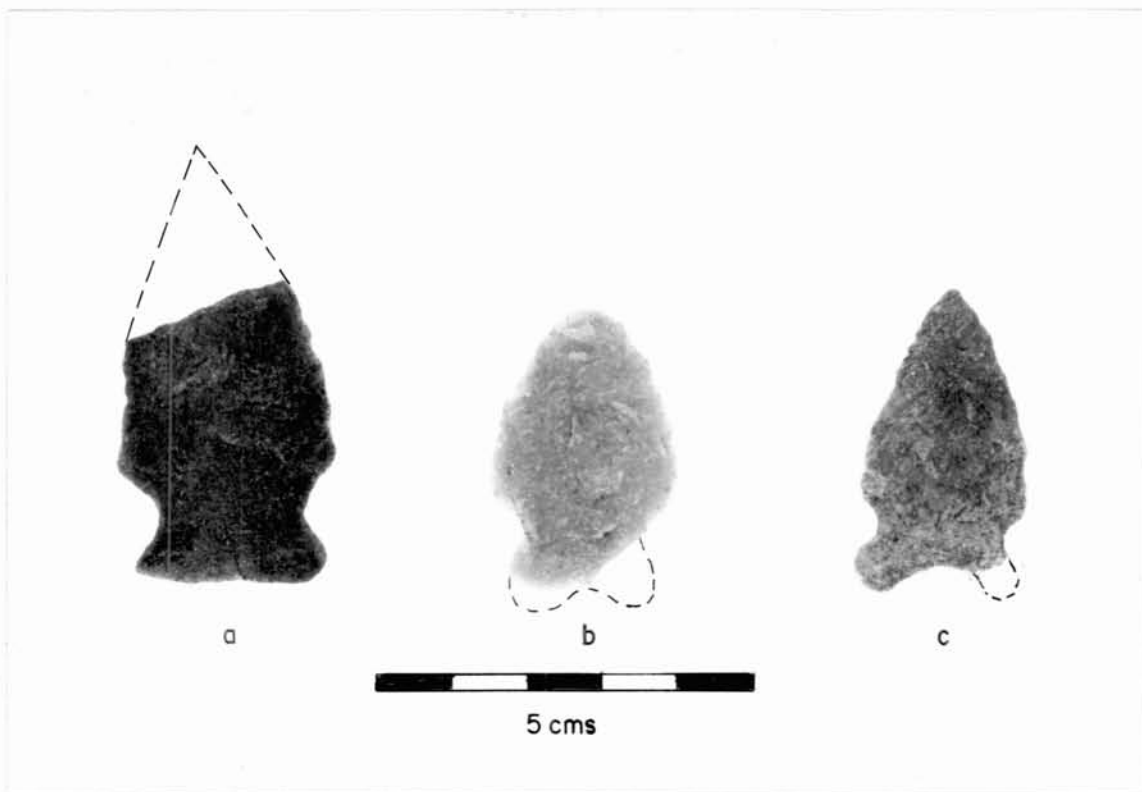


Figure 36: Projectile Points from Highway Survey North projects.

FjPj-19 has been disturbed by ploughing. Shovel tests revealed no evidence of buried cultural remains, suggesting the site is contained wholly within the plough zone. Items representing the full range of aboriginal products [e.g., projectile points (N = 1), grooved mauls (N = 1), bifaces and biface fragments (N = 9), retouched flakes (N = 4), and unretouched flakes (N = 31)] were observed on the surface of the site. A scattering of firebroken rock and butchered bison bone was also observed.

In addition, 17 bifaces, 4 choppers, 2 scrapers, 2 cores, 28 retouched flakes, and 65 flakes were randomly collected from the site in the course of a previous historical resources impact assessment (Baldwin 1978). This artifact assemblage suggests the site may be a base campsite of considerable import. It is recommended that FjPj-19 be systematically collected and a series of 1 x 1 meter units placed along the planned right-of-way to confirm the results of the shovel testing program and maximize the artifact yield. It is further recommended that the artifacts collected in the course of the previous study be analyzed and incorporated into the report.

FjPj-13, FjPj-14, and FjPk-6 are less extensive sites situated in a ploughed field immediately north of FjPj-19, FjPj-13 is a Middle Prehistoric Period site. Diagnostic artifacts of the Oxbow Phase (ca. 3500 - 1500 B.C.), McKean Phase (ca. 2500 - 1500 B.C.), and Duncan Phase (ca. 2000 - 1500 B.C.) previously collected from the site indicate southern Plains affiliations (Baldwin 1978).

Boreal forest affinities, on the other hand, have been envisioned for FjPj-14, on the basis of a stemmed projectile point recovered from the site. Similarities are seen between this projectile point form and specimens of the Frank Channel Complex (ca. A.D. 1300 - 1500) of the Taltheilei Shale Tradition. No diagnostic artifacts were recovered from JfPk-6 (Baldwin 1978).

The above sites were variously described as a large scatter of lithic artifacts, flakes, firebroken rock, and bison bone (FjPk-13); a scatter of lithic artifacts, firebroken rock, and bison bone (FjPj-14); and a small scatter of artifacts and firebroken rock (FjPk-6). The previous surface collection of FjPj-13 yielded 2 projectile points, 4 bifaces, 6 retouched flakes, 2 flakes, and 12 pieces of bison bone and teeth. FjPj-14 yielded 1 projectile point, 3 bifaces, 6 retouched flakes, 1 core fragment, 1 flake, and 5 pieces of bison bone, and FjPk-6 yielded 1 large chopper, 3 retouched flakes, 1 core, 4 flakes, 1 core, 4 flakes, and 23 pieces of bison bone. Testing and surface collection were recommended for FjPj-13 and FjPj-14. No further study was recommended for FjPk-6 (Baldwin 1978).

Universal Transverse Mercator (UTM) grid refernces place the sites within 300 meters of each other. During the subsequent re-examination of the sites it was not possible to isolate distinct site boundaries. A light scatter of cultural debris (approximately 30 flakes and firebroken rock and bone) was observed between and within the designated site locales. The nature and sparseness of the cultural debris represented at the sites suggests they may represent the remains of task-specific activities, possibly linked to FjPj-19, the Sturgeon River Site.

While these more ephermeral manifestations of human behaviour frequently go undetected if concealed by vegetation and recent sedimentation they represent a unique part of a broader subsistence-settlement pattern which is poorly understood. Highly visible sites of this nature readily permit the examination of nearly the total preservable remains of various task-specific activities. These sites are viewed as significant to the understanding of the potential of such sites to yield the requisite data necessary to reconstruct the various activities conducted at the site. It is

therefore recommended that the portion of the site transected by the proposed right-of-way be systematically collected with the primary goal being the evaluation of the usefulness of the data contained within these and similar small sites in reconstructing past behavioural systems. A series of 1 x 1 meter units along the right-of-way is also recommended to confirm the results of the shovel tests, as well as to maximize the artifact yields and isolate possible discrete activity areas.

Four campsites (GhPh-6, GhPh-10, GhPh-11, GhPh-12) recorded during the assessment of Project SR 813 lie within a narrow environmental zone which borders Calling Lake. This zone appears to have been a relevant sphere of prehistoric man's exploitive territory. Two of the sites, GhPh-6 and GhPh-10 lie south of the proposed project. GhPh-10 is situated 500 meters south of the proposed project. GhPh-10 is situated 500 meters south of the beginning of the proposed new alignment. A side basally notched projectile point indicative of the Oxbow Phase (ca. 3500 - 1500 B.C.) (Figure 36) was collected from a cart trail. Cultural debris (flakes and fireborken rock) was observed within the various cart trails which transect the site area. The site is situated on old beach sands and gravels and is considered to be significant. No further study relative to the proposed project is recommended unless the site area is to be distrubed by ancilliary construction activities (e.g., borrow sources).

GhPh-6 lies along the left bank of Calling River, approximately 150 meters south of the beginining of the new alignment. The site was previously recorded by Gruhn (1964) and was described as "scattered flakes and artifacts on both sides of the main road and in the driveways east and west of the road. All on the south side of the river...." Re-examination fo the site revealed approximately 20 - 30 pieces of chipping detritus exposed in road cuts and along the river bank. The site is considered to be significant. No further study

relative to the proposed project is recommended unless the area is to be disturbed by ancilliary construction activites.

GhPh-10 is situated immediatey north of Calling River and extends from the Calling River bridge for a distance of approximately 500 meters along the porposed right-of-way. An Oxbow projectile point (Plate 36) was also recovered from this site. GhPh-10 is located on old beach sands and gravels and has been badly distrubed by previous gravel extraction operations. The site lies approxmately 200 meters east of the present water line; however, much of the cultural debris is waterworn indicating the lake levels have risen and fallen since the formation of the site. Intact surfaces of the site occur within the right-of-way and should be test excavated. Some 75 - 100 artifacts were observed along both side sof the existing right-of-way.

GhPh-12 also occurs along the edge of Calling Lake. The site was discovered by shovel testing and yielded 15 items. The porposed right-of-way will impact a large area of intact site surface. Test excavations, follwed by an excavation program if necessary, are recommended. The remaining site area should be clearly marked to insure that it is not inadvertently used as a gravel source.

CONCLUSION

No significant historical resource sites were encountered within twelve of the fourteen planned highway constructon projects. Based on the results of the Historical Resources Impact Assessment it is recommended that Alberta Transportation Projects 12:08, 16:26 and 28, 22:20, 28:04, SR 670, Notikewin Park Access, Local Road 1485-21, Local Road 1486-17-131, Jerry Creek Campground, 16X:40, Kakwa Park Access, and 41:20 be granted historical clearance by the Archeological Survey of Alberta, Alberta Culture.

Significant archaeological resource sites were located within proposed projects SABS-W and SR 813. Four sites (FjPj-13, FjPh-14, FjPj-19, FjPk-6) within Project SABS-W and two sites (GhPh-11, and GhPh-12) within Project SR 813 have been recommended for further study prior to the commencement of construction activities.

It is also recommended that ancillary construction areas such as gravel and borrow sources be assessed once design plans are finalized. Because Projects SABS-W and SR 813 both transect environments favoured by prehistoric populations (i.e., lake margins) such an assessment is particularly necessary to ensure that sites are not disturbed.

1980 ARCHAEOLOGICAL INVESTIGATION

DiPi-2

Permit Number 80-53

Stanley Van Dyke and Bea Loveseth

Lifeways of Canada Limited

INTRODUCTION

DkPi-2, situated at the Highway 2-3 Interchange, on the south side of the Oldman River, two kilometers west of Fort MacLeod, is a large, well known archaeological locale, characterized by a series of small bison kills and processing camps (Figures 37, 38). During the interchange reconstruction in the spring of 1980, four buried occupations, characterized by rock filled hearths, bone and artifacts, were freshly exposed in existing road cuts on the terrace flats; and on the prairie level adjacent to Highway 3 to the south, a large rock filled hearth was uncovered (Figure 44).

Construction was ongoing when the cultural features were found by B. Reeves during a "pit stop" at the junction Texaco station. Construction schedules were altered when they were exposed, so that a ten day evaluative test excavation program could be undertaken by late May 1980. The eruption of Mounts St. Helen's subsequently further delayed schedules and hampered the excavations.

The studies, carried out by a seven to nine person crew, were designed to evaluate the buried archaeological components in DkPi-2 in the area which would be removed by highway widening, and excavate the large rock filled hearth exposed to the south.

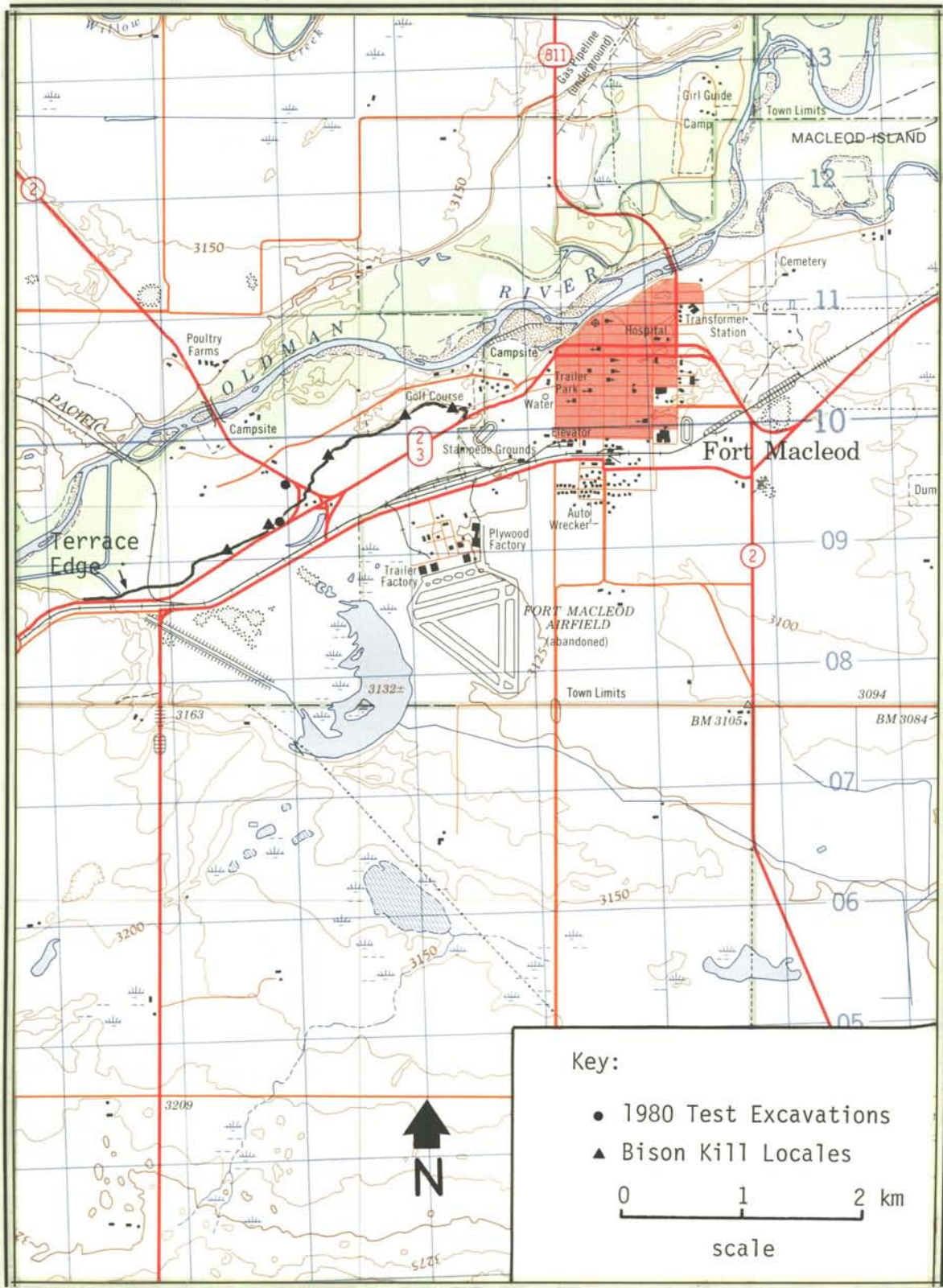


Figure 37: DkPi-2 location map showing 1980 tests and bison kill locales.

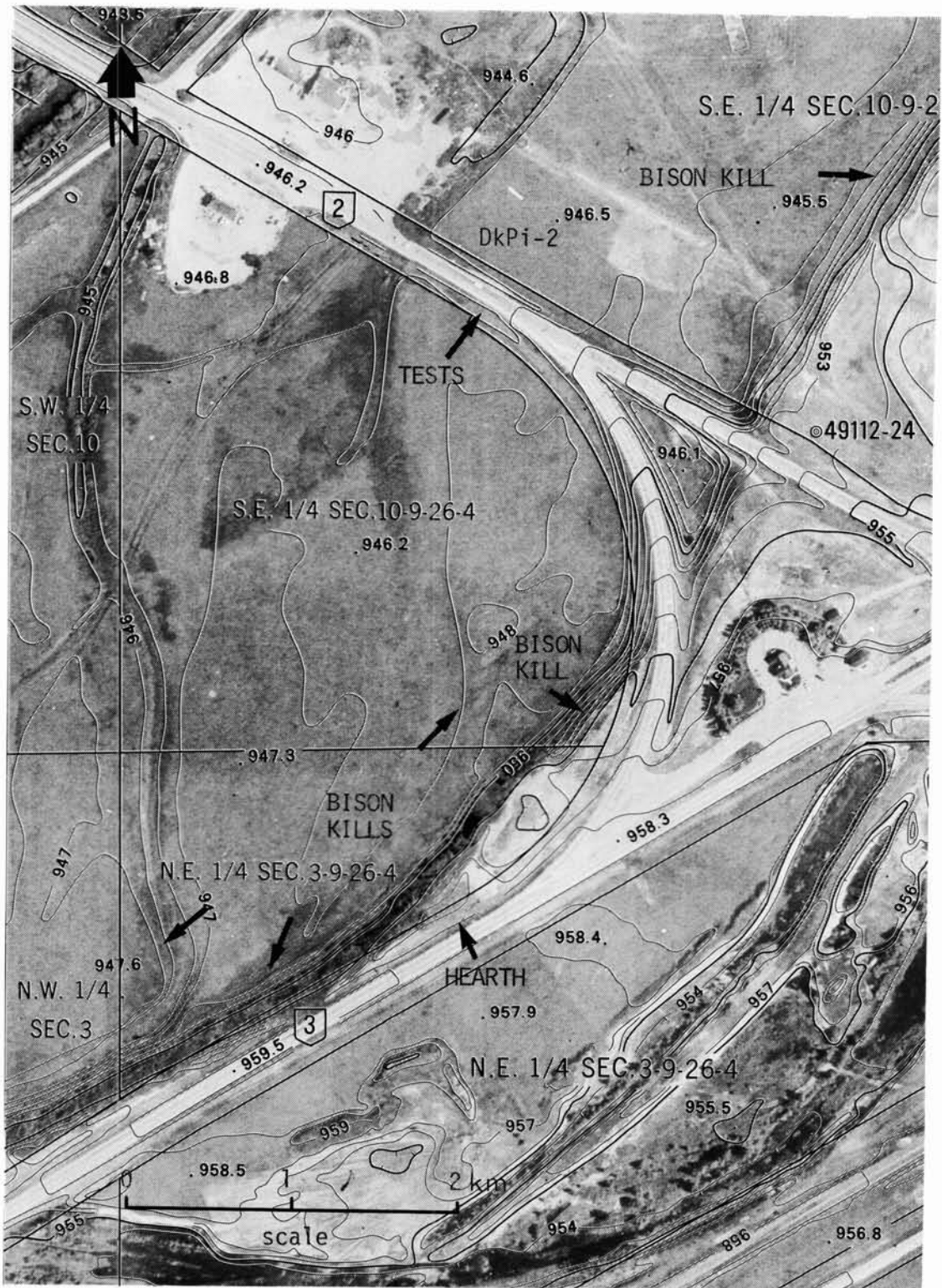


Figure 38: Orthograph of DkPi-2 showing 1980 test area, hearth feature and kill locations.

PRAIRIE LEVEL HEARTH (Figure 44)

Three, two meter square units were excavated in the feature, which had been exposed and partially destroyed by a haul road. The hearth, 90 cm in diameter and 30 cm deep, contained 44 kg of fire stained and broken rock, charcoal and bison rib fragments, debitage, retouched flakes, and a perforator. Avon chert from near Helena, Montana was recovered.

The hearth, a large bone boiling pit, was most probably the isolated remnant of a prairie level campsite, destroyed in the 1920's and 1940's by the initial road and interchange construction. The site is Late Middle Prehistoric in age.

DkPi-2

DkPi-2 is a large, deeply stratified bison processing campsite located within the four meter terrace of the Oldman River. A series of small bison kills lie at the back of the terrace to the south, over a distance of four kilometers (Figures 37, 38). Some were bone mined during the First and Second World Wars and pot hunted until the 1960's. The processing campsite, first recorded in 1958, in the Fort MacLeod golf course parking lot, 2 km east, where Besant points were found, has been detrimentally affected by varying land uses (Figure 37). No previous on site studies have been done. Drive lanes, apparently, existed on the prairie level until the construction of the golf course during World War II.

Excavations consisted of the removal of two blocks of two meter units on the west side of the highway (Figures 39, 40). A backhoe was initially used to vertically face the roadcut to expose the stratigraphy and to select the areas for hand excavation. Over 12 rock filled boiling pits were exposed during hoeing on the edge.



Figure 39: View west of "buggy" cut in foreground; excavation of DkPi-2 in progress. The hearth feature was located on the upper terrace (extreme left edge of picture) where earth moving equipment is located.



Figure 40: View south of DkPi-2 with backhoe cut in central portion of photograph.



Figure 41: View west of stratigraphic profile of Tests 3 and 4 of DkPi-2.

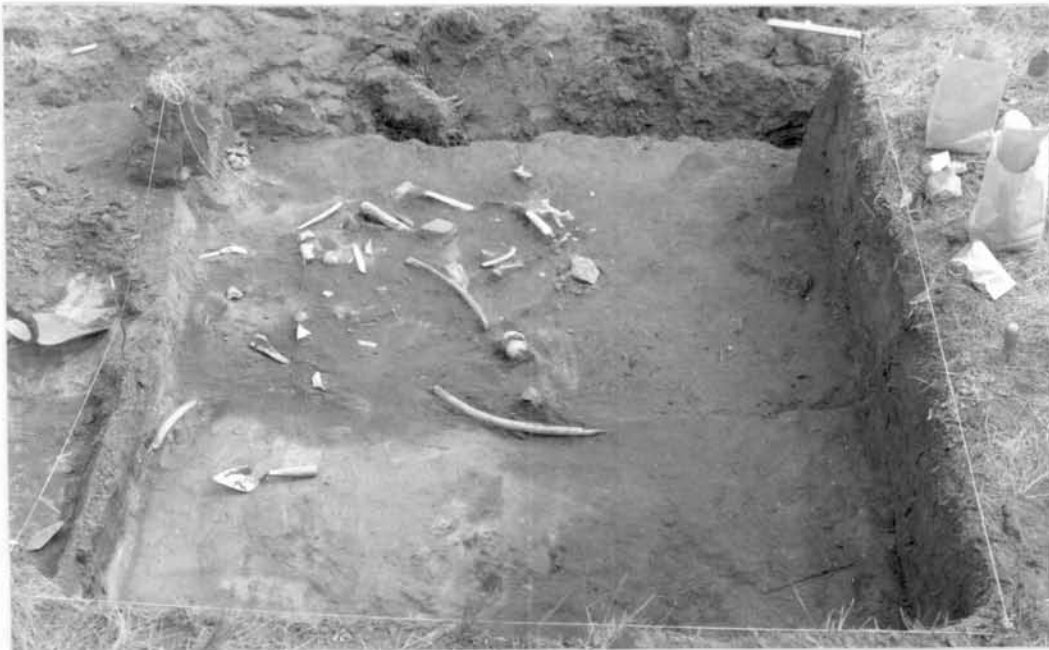


Figure 42: View east of occupation 4 (bone on floor), Test 4, north-east quadrant.

Test excavation objectives were to evaluate the stratigraphy. Eight thin Ah-like horizons, developed in overbank fine grained silts, six of which were culture bearing, were exposed in the cut (Figure 41). Vertical control was maintained by natural levels; horizontal control by one meter quadrants maximum. Moraine depth was 165 cm.

Occupation 1

The latest occupation is in the present sod, 40-8 cm. Potsherds, flakes and fragmented bones were recovered. While no cultural diagnostic materials were retrieved, near surface occurrence suggests a very recent age, ca. A.D. 1700 - 1800.

Occupation 2

Occupation 2 occurred at 17-24 cm. and was the most intensive of those samples in this area of DkPi-2. Ceramics, stone tools and debitage, bone tools, butchered bone, and fire cracked rock were common. Late Plains side notches points were recovered (Figure 45), suggesting a date of A.D. 1500-1700, and association with Old Women's Phase. No hearths or other features were found.

Occupation 3

Occupation 3 lay at a depth of 35 cm. It contained a number of formed tools, including Late Plains side notched points (Figure 45), suggesting a date of ca. A.D. 1200-1500. Scattered fire cracked rock and butchered bone and lithic debitage were present. Features were absent.

Occupation 4

This is the second most intensive occupation and lay at a depth of 45 cm. It was characterized by a large number of bone piles, surface

hearths and bone boiling pits (Figures 41, 42). The latter, quite large, ranging up to two meters in diameter and one meter deep, were filled with fire reddened and cracked rock, charcoal, charred wood, and bones. Tools, retouched flakes, bifaces and side notched points, were common. The points suggest a late Avonlea Phase occupation, ca. A.D. 800-1200.

Occupation 5

Occupation 5, at one meter below the surface, consisted of a light scatter of stone artifacts, considerable fire cracked rock, with a large amount of butchered bone. No cultural diagnostics were recovered. It is probably Middle Prehistoric in age.

Occupation 6

Occupation 6 consisted of scattered butchered bison bones at 165 cm below the surface. No lithics were associated.

SUMMARY AND ASSESSMENT

DkPi-2 consists of a series of bison kills and associated processing campsites distributed along the four meter terrace of the Oldman River, over a four kilometer distance. Test evaluations in the area of the site, impacted in Highway 2-3 Interchange reconstruction, indicates a very significant, intensive record of repeated native utilization over the past 2000 years.

Mammals represented, in addition to bison, included other ungulates and fur bearers. The area is a "nodal" locality for winter bison driving/camping activity in this section of the Oldman River, as

similar sites/locales are not known up or downstream on the river until Pincher Creek (the Kenny site locale) or the Belly (Kipp locale) are reached.

DkPi-2's stratigraphy is of excellent quality and, combined with excellent artifact, butchered bone and activities area/feature yield and preservation (charred wood is very rare), will permit fine time/cultural "resolution" and interpretation of the Late Avonlea and Old Women's Phases. It should assist in resolving some of the problems of interphase interrelationships. Fortunately, Highway 203 reconstruction had a minimum impact on the extant site area[s], which extend off an unknown distance to the east and west. Opportunities for significant future site investigations have not been precluded.

DkPi-2 qualitatively ranks with the Ross and Kenney sites, the two highest ranked stratigraphic campsites in Southern Alberta. It is an historical resource of provincial significance. Lying within a very intensive land use area, it is extremely fragile and could easily be lost. We recommend it be considered for designation under the Alberta Historical Resource Act, and that a major program of intensive site study be undertaken, to sample and interpret its cultural and land resource use record. Both are very significant to the interpretation of the last 1500 years of Southern Alberta Prehistory and the Head-Smashed-In Bison driving complex, ten kilometers to the west.

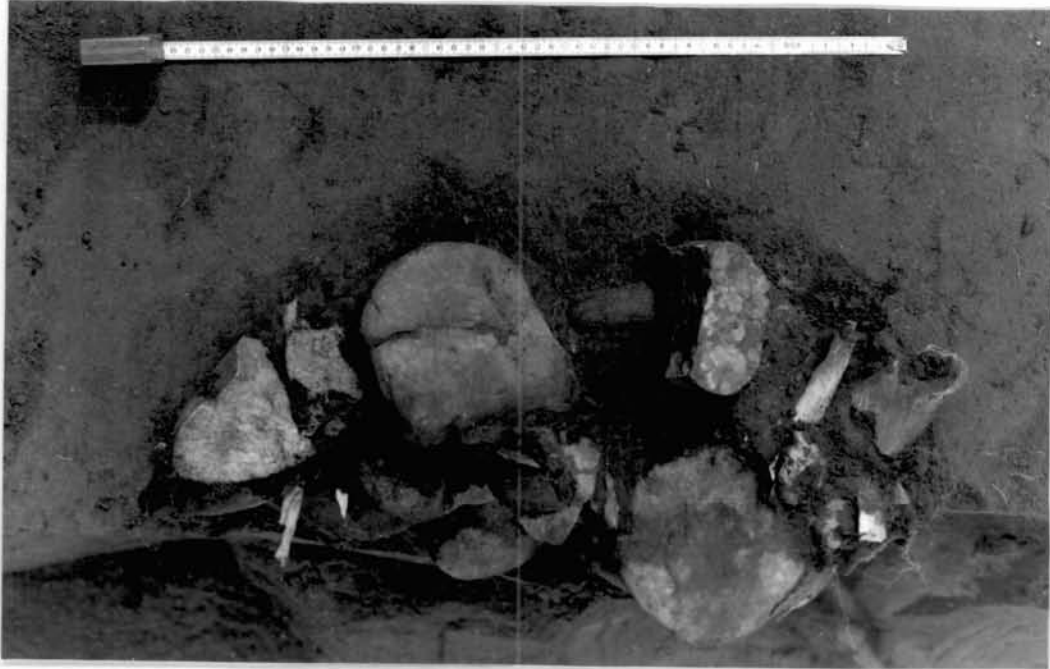


Figure 43: Vertical view of hearth, Test 1, DkPi-2.



Figure 44: View south of hearth profile in road cut, upper terrace.

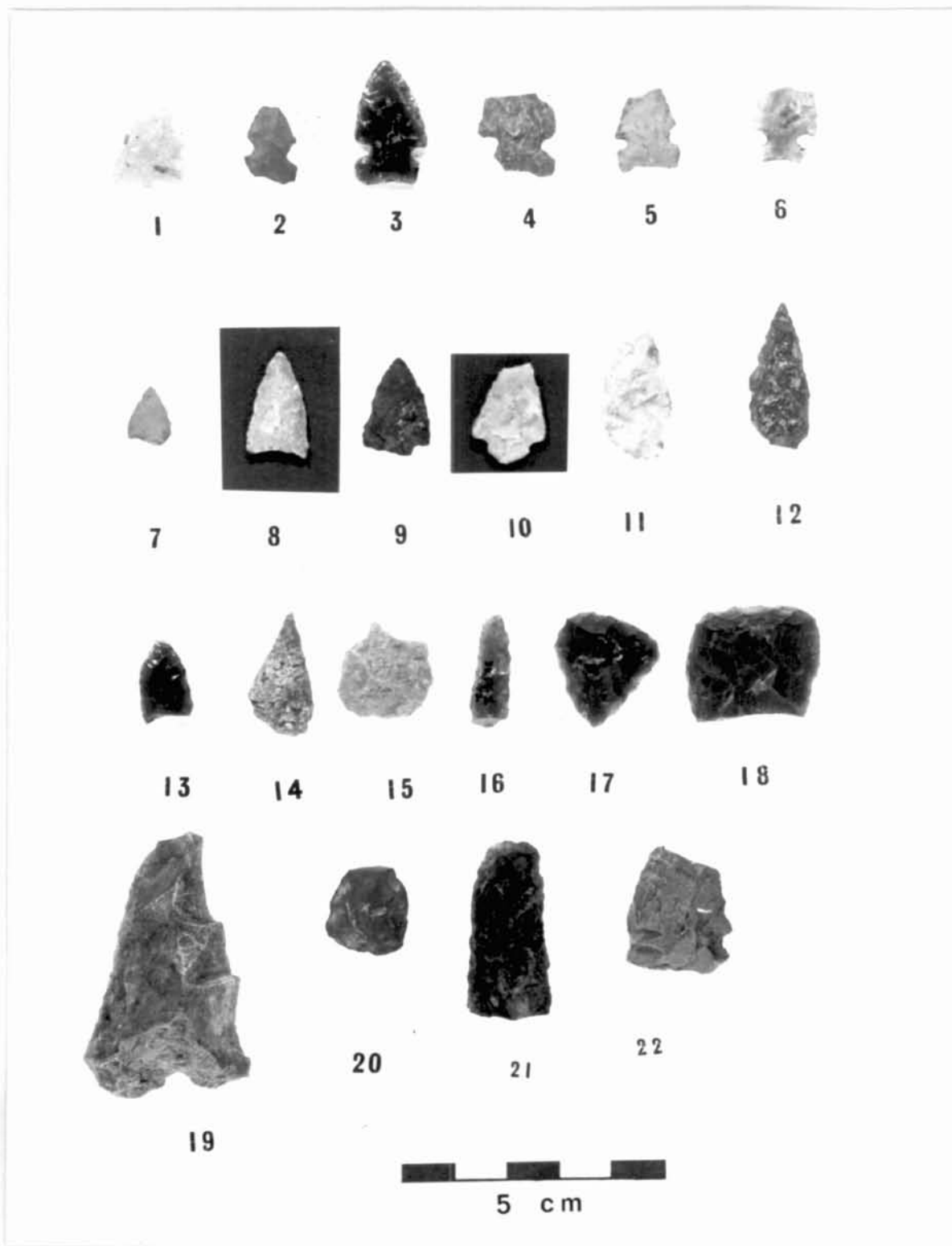


Figure 45: (1-6) Plains side notched; (7) side notched triangular; (8) Avonlea triangular; (9-12) Avonlea (Timber Ridge side notched); (13) projectile point fragment; (14-15) perforators; (16) drill; (17-18) end scrapers; (19) side scraper; (20-22) biface fragments.

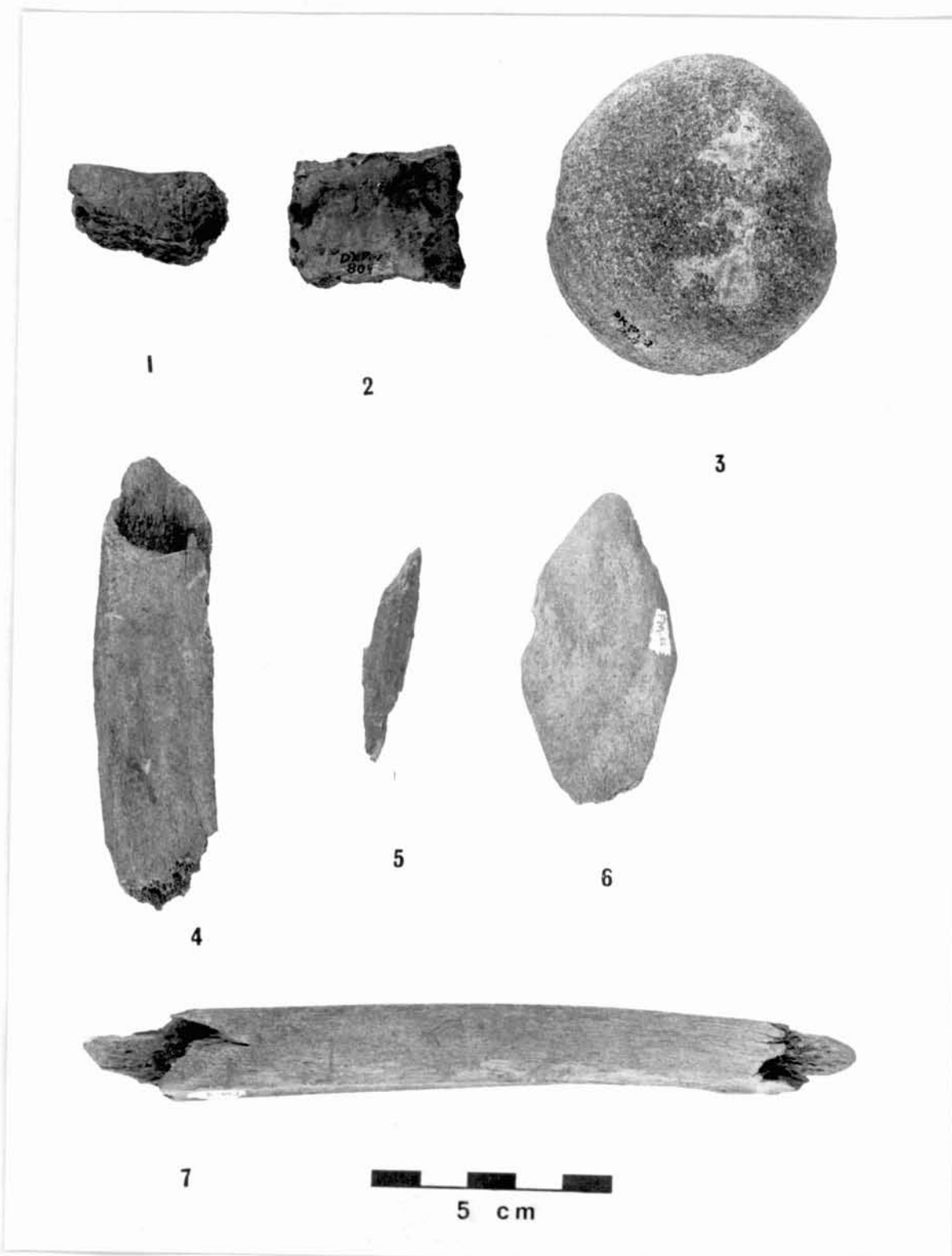


Figure 46: (1) incised rim sherd; (2) incised neck sherd; (3) grooved maul; (407) bone tools - 4. haft (rib fragment), 5. punch (unidentifiable element), 6. scraper/burnisher (unidentifiable element), 7. punch (rib fragment).

**ARCHAEOLOGICAL INVESTIGATIONS AT
CARSON-PEGASUS PROVINCIAL PARK**

Project Number 80-169

**Brian M. Ronaghan
Lifeways of Canada Ltd.**

INTRODUCTION

In November of 1980 under contract with Alberta Culture, Lifeways of Canada Limited undertook archaeological investigations of a proposed provincial park in the Carson-Pegasus Lakes area of north central Alberta. Due to a fish stocking program Carson Lake is one of the major rainbow trout lakes in this area and is under a great deal of recreational pressure. The Department of Recreation and Parks plans a major expansion of the current facilities here. The following briefly discusses the nature and results of the studies undertaken to assess the historical resources in this area.

ENVIRONMENTAL SETTING

Situated in the Whitecourt Forest, Carson and Pegasus Lakes are small, deep, water filled depressions, probably the result of disintegration of large ice blocks during glacial recession. Each lake is ringed with a series of high narrow ridges which continue into the hinterlands but in less dramatic fashion. These also would appear the result of glacial recession. Terrace edges are generally minimal except in areas where small drainages enter the lakes. Isolated areas of bog dot in hinterlands around the lakes where low spots are encountered.

Vegetation is primarily a very mature aspen-spruce community which has been subject to logging activities in the past. Moose and especially deer are the common big game in the area.

PROJECT DESCRIPTION

Under the terms of reference for this permit provided by Alberta Culture, studies at Carson-Pegasus Provincial Park were designed to fulfill three major objectives. Firstly, to locate and assess historical resources within the entire proposed park boundaries; secondly, to intensively examine ten proposed park facilities wherein impact on possible historic resources would be extensive; and thirdly, to undertake evaluative test excavations at the single previously discovered prehistoric site within park boundaries.

METHODOLOGY

In order to fulfill the first objective of locating and assessing historic resources within the park boundaries, pre-field studies were undertaken using aerial photographs and topographic maps in which the park was stratified environmentally into zones of high, moderate and low archaeological potential.

Subsequently, a two stage field study program was implemented. High and moderate potential areas which, as a result of a traditionalists' paradigm of site location, tended to cluster around the two major lakes and the intervening area, were examined judgementally through the employment of shovel testing and visual examination of fortuitous exposures.

The second stage of this aspect of field studies involved the use of systematic shovel testing techniques along linear, environmentally stratified transects. Transects were designed prior to field operations to intersect as many moderate potential zones as possible. Ten east-west transects were walked in this phase with shovel testing at minimum intervals of 100-200m on environmentally suitable

landforms. In the field, shovel testing intensities often exceeded these minimums. Fortuitous exposures were also examined during this stage.

The second objective of intensive examination of proposed park facilities was accomplished through a judgemental shovel testing program employed in designated areas. Several of these areas overlapped with those slated for examination under the first phase of field operations as they tended to cluster near the lake edges. Some problems were encountered during this phase as facilities size and location were being changed during the period of field operations both at the planning and construction level. Construction had already begun on facilities and roads as the archaeological studies were being conducted.

The final objective of evaluation of the previously identified site (GbPv-1) was accomplished with a combination of systematic shovel testing and judgemental placement of seven 1 x 1 m test excavations. Shovel tests were generally 50 x 50 cm and were excavated to the A/B soil profile or underlying glacial deposits. One by one meter test excavations were excavated with shovel and trowel; sediments were passed through a 1/4 inch mechanical screen.

SUMMARY RESULTS

Evaluation of GbPv-1

This site is located on a large spit which almost bisects Carson Lak. Shovel testing of the area was conducted systematically, running four transects down the length of the spit with tests at intervals of 20 m. Fourteen of the 85 shovel tests produced artifacts. Cultural materials appeared distributed intermittently on the higher ground

toward the centre of the linear axis of the spit with the greatest concentrations near its northerly end. Artifacts generally came from the A horizon ca. 10-25 cm below surface.

Seven 1 x 1 m excavations were placed judgementally at various places along the length of the spit, primarily adjacent to shovel tests which produced artifacts.

A total of 105 lithic artifacts were recovered in tests at GbPv-1. The vast majority of these were quartzite flakes of a coarse-grained, pinkish material. The presence of rounded cortex suggests a glacio-fluvial source. Cherts were minor components of the assemblage and were present in red, black, and mottled forms. Several pieces of silicified siltstone were also present.

No time diagnostic tools were recovered. The only formed tools were one siltstone end scraper and one large unifacially worked cobble chipper. Artifact analysis is incomplete at this time.

Facilities and Judgemental Park Survey

Four historic and 23 prehistoric sites were identified in the judgemental shovel testing program employed in high and moderate potential zones around and between the lakes and in specific facilities locations (see Figure 47).

The historic sites consist of three abandoned log cabins of unknown age (GbPv-3, GbPw-8 and 11, Figure 51), and debris relating to previous logging operations in the area (GbPv-3).

Prehistoric sites when identified by shovel testing were evaluated as to extent, depth and density with further adjacent shovel testing. A minimum of four shovel tests were excavated at each site.

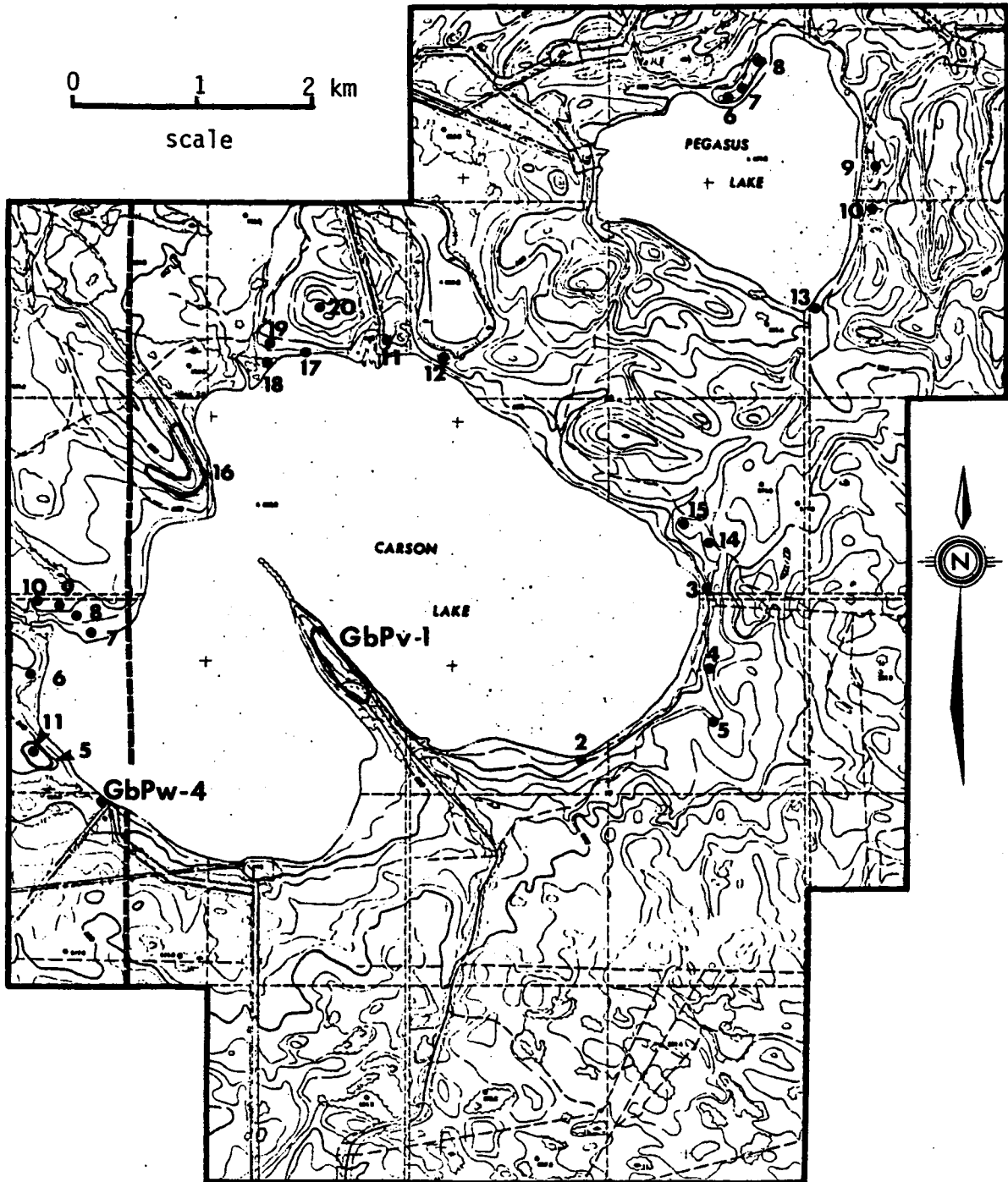


Figure 47: Historical resource sites in Carson-Pegasus Park.

Prehistoric sites all clustered around the lake edges with some on high ridges and others on low lake terrace edges. Sites ranged from isolated finds of one to two lithic artifacts to quite large campsite/workshops (Figures 48, 49).

Two sites produced diagnostic artifacts. An enigmatic flake point of probable middle prehistoric age was identified at GbPv-7 (Figure 48(4)). A McKean point, which dates on the northern plains between 2500 and 1500 B.C., was recovered from GbPw-7 in a buried soil (Figure 50) ca. 20 cm below surface (Figure 48(7)). Both of these sites are small, a maximum of 20x30 m.

Two, potentially three, large sites were identified in the survey (GbPw-5, GbPv-16 and possibly GbPv-20). These range in size up to 200 m along a lake terrace edge (GbPv-16).

Transect Survey Through Park Hinterlands

No prehistoric or historic sites were identified in the transect survey conducted in the medium to low potential areas which form the remainder of the park.

PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

While analysis is not yet complete at this time, it is possible to draw some general conclusions regarding the results of the historic resource assessment conducted at the proposed Carson-Pegasus Provincial Park.

With regard to the test evaluation of the previously discovered site, GbPv-1, a number of inferences can be made. The site was originally described as a surface scatter campsite on the basis of

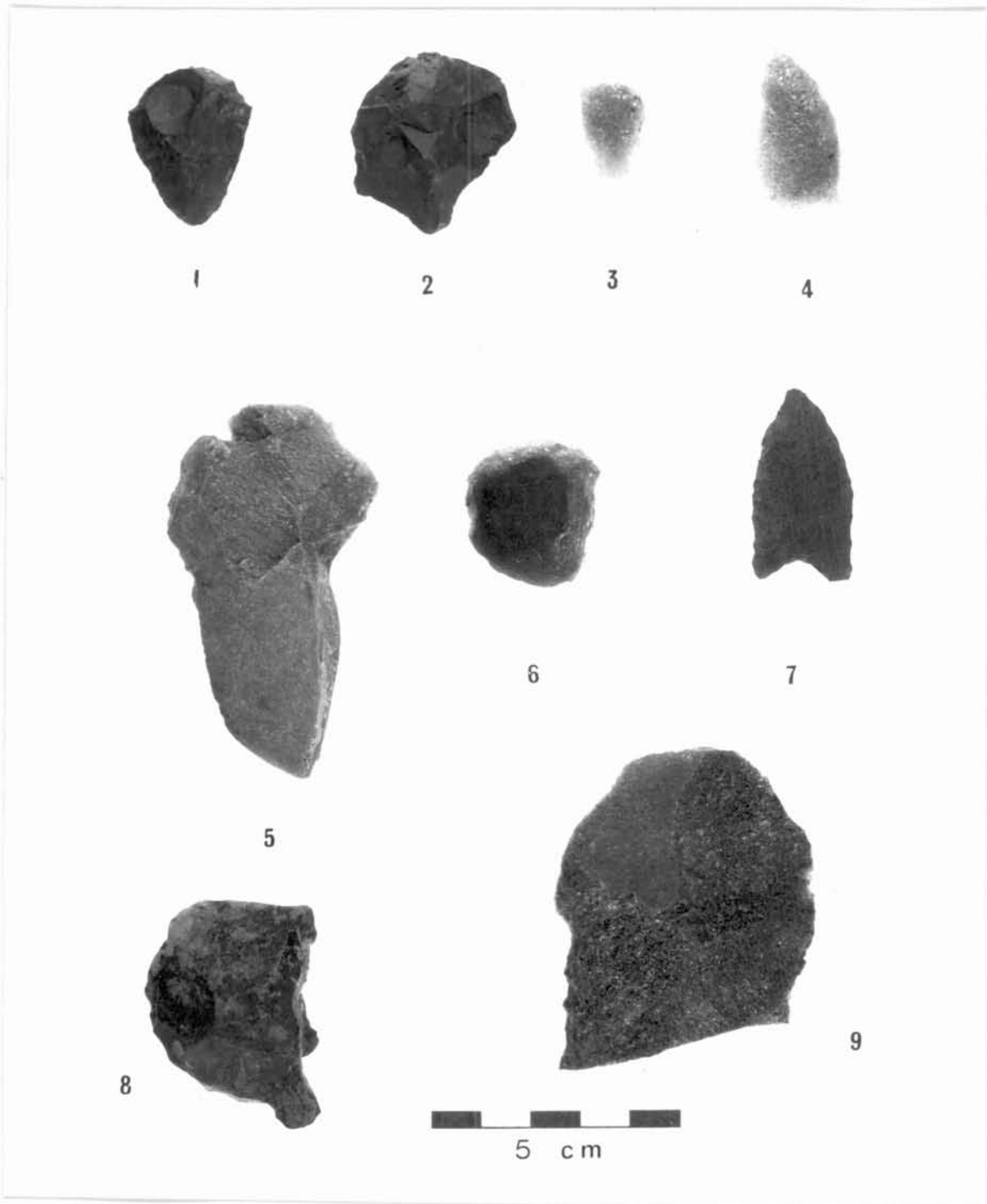


Figure 48: (1) end scraper, GbPv-1; (2) siltstone flake, GbPv-1; (3) end scraper, GbPv-4; (4) flake point, GbPv-7; (5) retouched flake scraper, GbPw-5; (6) split pebble scraper, GbPv-11; (7) McKean point, GbPw-7; (8) biface fragment, GbPv-15; (9) retouched flake, GbPv-6.

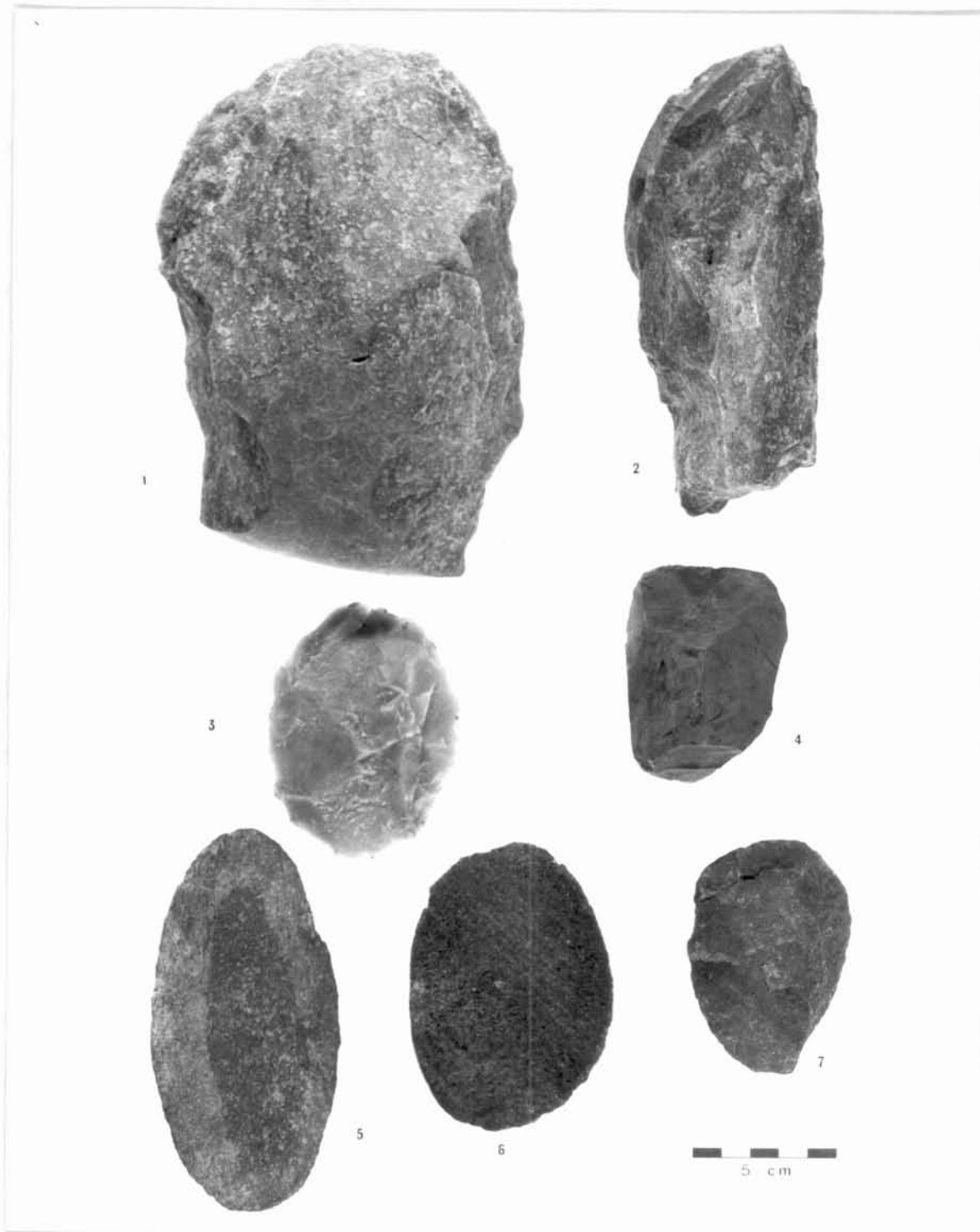


Figure 49: (1) chopper, GbPv-1; (2) core, GbPv-1; (3) chert core biface, GbPw-5; (4) core, GbPv-12; (5) chi-thos, GbPv-16; (6) chi-thos, GbPv-17; (7) chi-thos, GbPw-6.



Figure 50: Profiled excavation unit at GbPw-7; note buried soil in lower left.

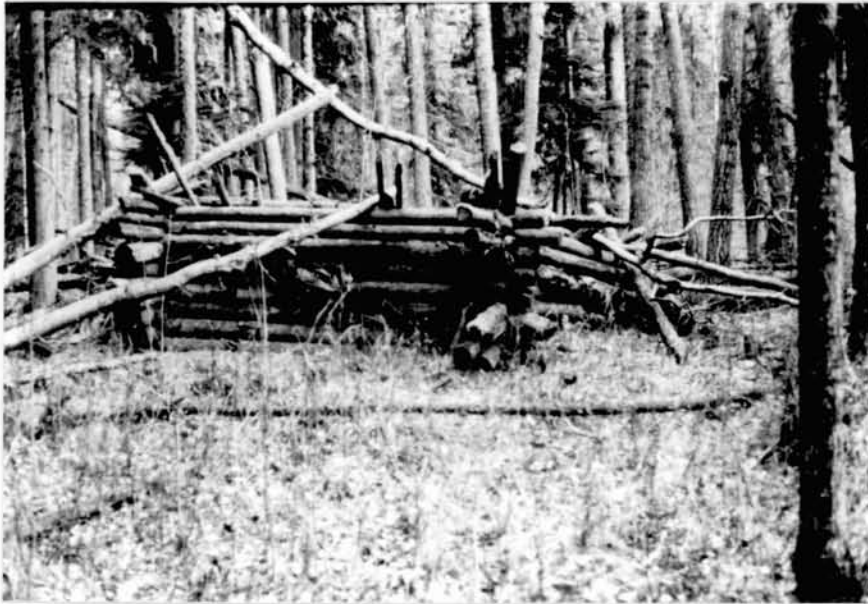


Figure 51: Historic site GbPw-11.

visual examination alone. The program instituted here indicates that the majority of the site is buried with major concentrations near the end of the lake spit. Cultural materials are discontinuous along the length of the spit and probably represent a large number of occupations of very small and short duration for a number of years. It is not possible to indicate the cultural affinities of these scatters due to the absence of diagnostic artifacts and the likelihood that datable materials have become contaminated by forest fire at varying times in the past.

Considerable disturbance of the site currently exists for over half the length of the spit. Further mitigation of this site may be necessary if facilities expansion moves north along the spit. In any case, further erosion of the site as a result of foot traffic will be unavoidable.

The shovel testing program instituted in high and moderate potential areas near the lakes proved highly successful in identifying prehistoric sites. All prehistoric sites were located by excavating shovel tests; none were identified through examination of fortuitous exposures. Tree throws provided considerable numbers of exposures because of the extreme maturity in some portions of the forest. It is felt by the author that judgemental shovel testing of high potential areas is a very useful component of any historical resource assessment in northern forested regimes.

No archaeological sites were identified by shovel testing along transects through the hinterlands of the park. It is believed that the utility of a widespread adoption of this technique in fulfilling the goals of H.R.I.A.s (i.e., discovery of all historic resources in a specified area) may be questionable, especially in areas where topographic diversity exists.

While considerable data has been obtained bearing on prehistoric occupation of the Carson-Pegasus Lakes area with regard to site size and distribution, a number of significant questions will require further archaeological investigations. Sites identified suggest a variety of localities were utilized by varying group sizes. However, to more fully understand settlement patterns in this area, it will be necessary to ask questions as to whether the diversity seen can be attributed to temporal differences or whether it is more related to seasonal or site functional differences. It may be possible to develop a settlement pattern model which may be applicable to other small lakes in the region.

Additionally, the culture history of the southern mixed forest area is somewhat poorly understood. The presence of a point type generally associated with the plains indicates that further investigation at sites in the Carson-Pegasus area may help fill in some of the culture history for the general area during a time period of environmental change at the termination of the Altithermal.

Most of the prehistoric sites identified in the survey of the park are in pristine condition with at least two existing in buried soils. For this reason and for reasons, some of which are detailed above, we make the following recommendations:

1. Sites of value in areas which will be impacted by planned construction of park facilities should be excavated with local and regional research goals in mind.
2. The Carson-Pegasus Lakes area be considered for a major research project by government agencies. Because of the likely intensive recreational use of the area in the future and the potential, which the sites in this area have for contributing to major area research goals, it is felt that

such a program would be highly desirable. It would provide an opportunity for investigation of a variety of site types within a localized environment, especially a number of small sites, and integration of the findings into a large local or regional context. An additional benefit of this work would be the opportunity to develop a public awareness program with the provincial parks department; and thereby, return some of Alberta's historical resources to the people who subsidize their preservation.

BIRCH MOUNTAIN ARCHAEOLOGICAL STUDY, 1980

Permit Number 80-80

John W. Ives

Archaeological Survey of Alberta

INTRODUCTION

In recent years, the highest intensity of archaeological research in northern Alberta has taken place in the oil sands region of the Clearwater and Athabasca lowlands. While the body of information from this area has steadily grown, it has not yielded a coherent prehistory for northeastern Alberta. There are several reasons for this state of affairs. Given the continued absence of a cultural chronology developed within the region, we have only recently reached the threshold of sufficient data to allow for comparative studies. In addition, there is a critical problem in that much of the present archaeological knowledge comes from the field of consulting; studies conducted in this sector must of necessity pertain directly to areas specific to project development. Yet, many aspects of our knowledge of hunter-gatherers and the historical record draw us to the conclusion that various parts of the landscape in northern Alberta were subject to differential seasonal use. It is most desirable, then, that some archaeological research in this part of the province have its focus outside those areas most directly impacted by development. In conjunction with this aim, I have undertaken a research programme in the Birch Mountain uplands northwest of Fort McMurray. My intent is to articulate information from this area with aspects of the archaeological record of the Clearwater and Athabasca lowlands. By this means, it should be possible to formulate subsistence settlement systems for different time periods in this portion of the Boreal Forest.

NATURAL SETTING

Although referred to as the Birch Mountains, these uplands are simply erosional remnants of Late Tertiary Plains in Alberta and are underlain by poorly consolidated Late Cretaceous deposits (Bayrock 1961). The uplands do rise some 525 meters above surrounding lowlands. Soils of the luvisolic, brunisolic, gleysolic and organic orders occur throughout the study area. Van Wass (1974) described two major physiographic regions: the Birch Mountain Upland Plains and the Central Birch Mountain Depression (*ibid.*). The study area, the Eaglenest and Clear Lake drainage system, falls within the latter category (Figure 52). Glacial fluting and hummocky disintegration moraine are typical terrain in the study area. A series of ridges tangential to glacial fluting may derive from glacial drift over underlying bedrock. Numerous sites are located on these features.

The Birch Mountains fall within the Mixedwood Section (B.18a) of the Boreal Forest (Rowe 1972). Vance (1980) identified two main vegetative types in the study area. The great majority of archaeological sites occurred on well drained knolls which support jack pine, lodgepole pine, aspen, white spruce and some paper birch and black spruce. Ground cover in these circumstances consists largely of mosses, lichens, and ericoids. The familiar black spruce-Labrador tea-sphagnum moss muskeg is by far the most extensive vegetative community. The mammalian fauna of the Birch Mountains area includes black bear, beaver, moose, woodland caribou and the woods bison X plains bison hybrid. Lake whitefish, Arctic grayling and northern pike are among the species of fish present in Eaglenest and Clear Lakes.

Ethnohistoric accounts directly relevant to the study area are sparse. Jenness (1963:382-384) indicates that the Beaver Indians occupied the district around Lake Claire and the Valley of the Athabasca at about the middle of the eighteenth century. They are the

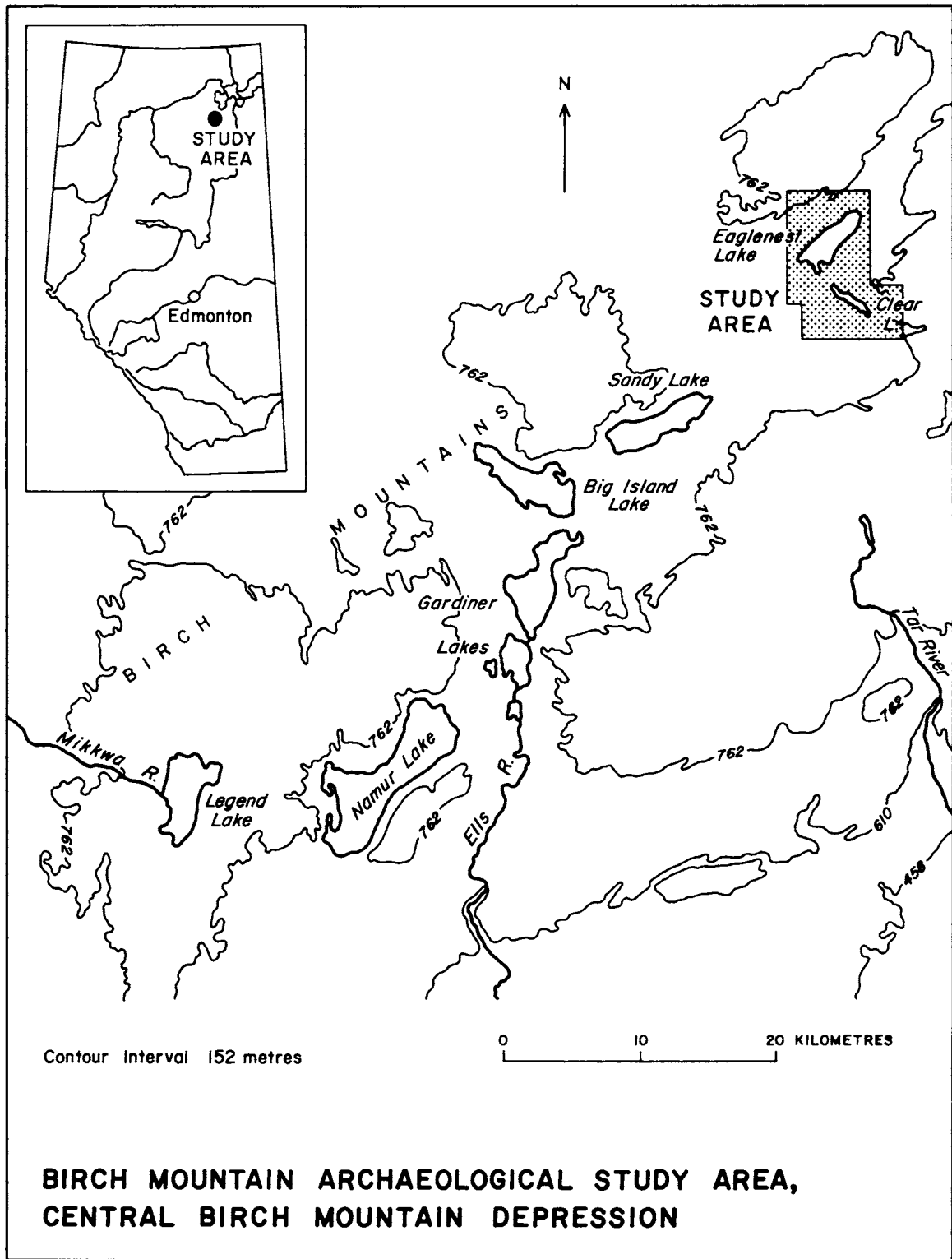


Figure 52: The Eaglenest-Clear Lake drainage system located at the northeast end of the Central Birch Mountain Depression.

likely late prehistoric occupants of the area, apparently being displaced by the Cree in protohistoric and historic times (Bryan 1969:37). Goddard's (1916) reconstruction of Beaver cultural ecology stresses the hare and beaver as important food resources, besides moose, elk, bison, and caribou hunting. There are no details of a seasonal round, although bands are known to have resorted to fish lakes when game failed.

PREVIOUS INVESTIGATION

Sims (n.d.) initiated work in the Birch Mountain uplands in the summer of 1975. During a survey of Namur and South Gardiner Lakes, he located the especially productive Gardiner Lake Narrows Site (HjPd-1). Later in that field season, Donahue (1976) completed an extensive survey which touched upon each of the major lakes in the Central Birch Mountains Depression save Namur and South Gardiner. This survey resulted in the discovery of 49 sites. In the subsequent field season, Sims (1976b) excavated nearly 1,000 stone implements and thousands of items of debitage from the Gardiner Lake Narrows Site. Among the implements were projectile points, and scrapers, side scrapers, bifaces, chi-thos, net weights, hammerstones, anvils, cores and choppers. Ives (1977) excavated the Eaglenest Portage Site (HkPa-4) which is situated between Eaglenest and Clear Lakes. The assemblage of 6,721 artifacts contained similar implements to the Gardiner Lake Narrows Site.

More recently, Heitzmann (1980) undertook a reconnaissance of the Legend Lake area west of Namur Lake. HiPf-1, was discovered on a terrace near the outlet of the Mikkwa River on the west side of the Lake.

In just three brief periods of exploration, the major lakes of the Birch Mountain uplands have produced over 75 sites. The authorship of the prehistoric occupation of the Birch Mountains has remained less than clear. Speaking strictly for the Birch Mountains, there seem to be enigmatic traces of artifacts which share formal similarities with typically Plains specimens. The bulk of the diagnostic items recovered thus far appear most similar to artifacts described for Lake Athabasca, the central District of Mackenzie and the Fisherman Lake area (cf. Ives, in press). The relative cultural independence of areas such as the Birch Mountains is obviously a key question in the prehistory of northern Alberta.

METHODOLOGY

Because of limited ground visibility, survey took the form of systematic shovel testing at selected stops (Figure 53). A stop could be represented as a single point on the terrain, or as a linear physiographic feature such as a ridge. Two stops were comprised of systematic testing along cutlines traversing variable terrain. A total of 71 stops were made during the 1980 field season. Shovel tests at each stop were on the order of 0.30 x 0.30 metres. At season's end, 775 shovel tests had been conducted. Shovel tests were applied both in site discovery and in preliminary assessment of site extent.

RESULTS OF THE 1980 BIRCH MOUNTAIN ARCHAEOLOGICAL STUDY

Twenty five new sites (HkPb-4 and HkPa-13 through HkPa-36) came to light as a result of the survey testing (Figure 54). Altogether, 12% of the shovel tests were productive. The largest portion of our attention involved better drained knolls, ridges and terraces located at strategic points along lakes and water courses (Figure 55.). As a

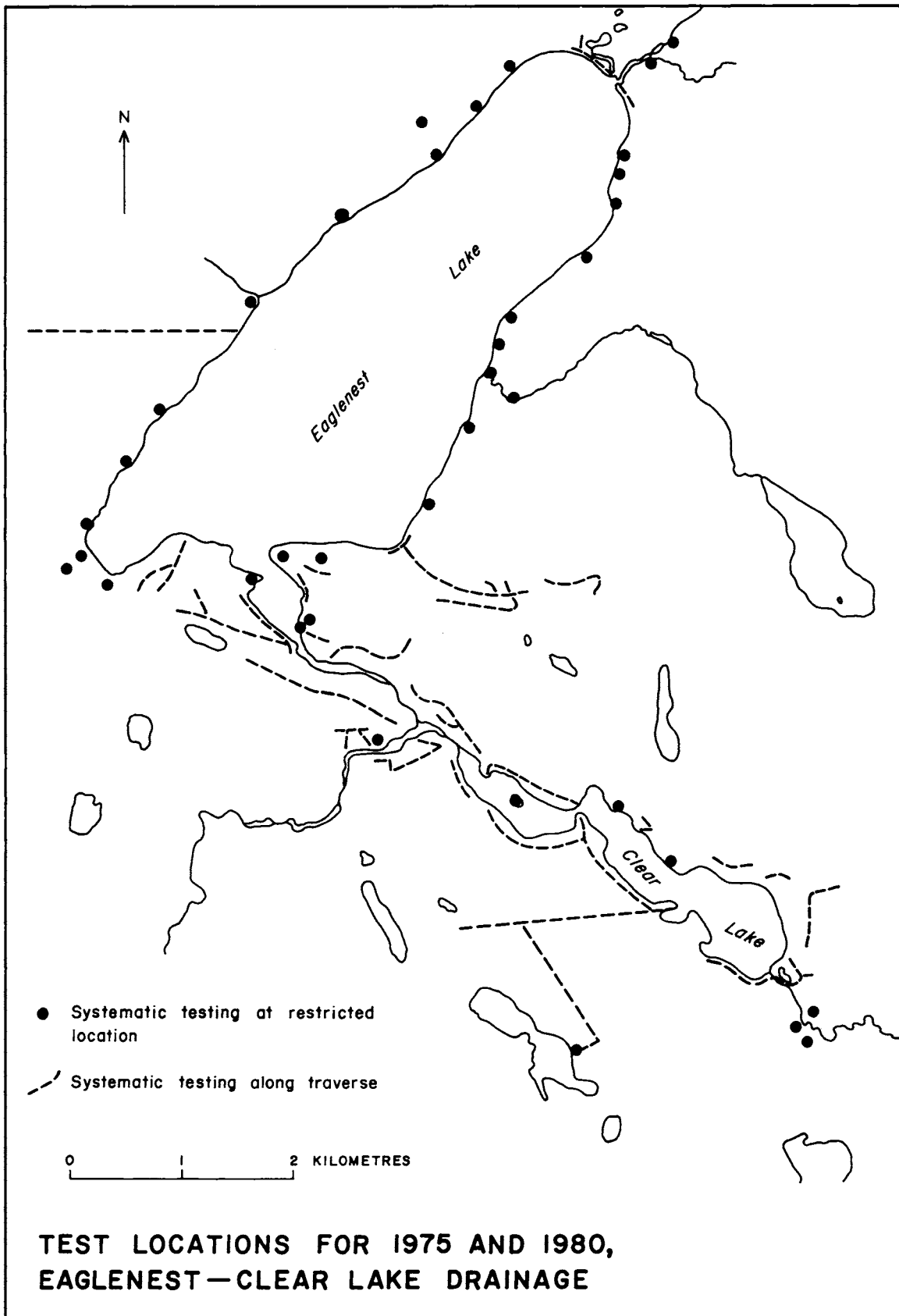


Figure 53: Distribution of stops throughout study area.

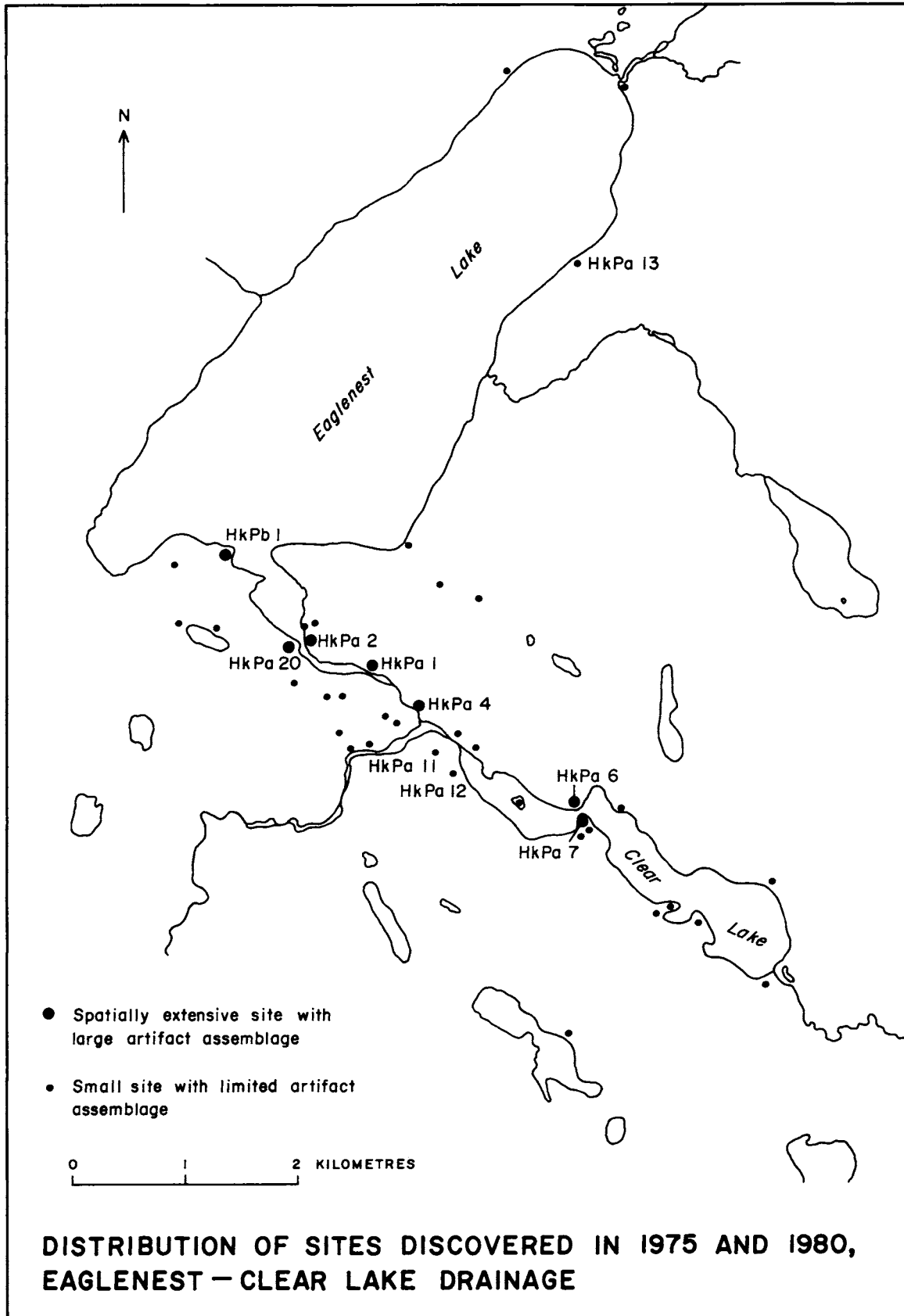


Figure 54: Distribution of archaeological sites within the study area. The Borden numbers are for sites referred to in the text as well as larger, more productive sites.

consequence, 79% of all shovel tests occurred in moderate to well-drained circumstances. Not wishing to rely exclusively on results obtained in this fashion, 21% of our pits were placed in poorly drained situations not believed to be conducive to intensive prehistoric use, that is, bogs and muskeg.

Only one shovel test in a poorly drained location yielded cultural material. This test, however, produced a site in almost completely unexpected surroundings. The Tumaxale Site (HkPa-13) was located on the southeast shore of Eaglenest Lake. It consisted primarily of quartzite bifacial thinning flakes and was discovered on a mineral substrate below a layer of peat. The area was bordered by permafrost underlying muskeg. Debitage was tightly concentrated about one locus where excavation was conducted. Other excavations (4 square metres) were carried out at the Eaglenest Portage Site to complete the recovery of an unusual concentration of large artifacts initially discovered late in the 1976 field season. Eighteen square metres were excavated at the Mamowechiwun Lookout Site (HkPa-11) to determine the nature of small sites which occur frequently on knolls and ridges in the study area. (Figure 56).

The 40 sites now known within the study area do show distinct trends in distribution. Almost half our effort has been directed toward surveying Eaglenest Lake. In spite of this, sites are sparse. Relatively speaking, Clear Lake has a moderate density of sites. The highest number of sites are concentrated in the confluence area between the two lakes. We were unable to locate any sites on cross-country transects running away from the main bodies of water. One small site (HkPa-36) was located to the south of Clear Lake on an unnamed body of water. Although analysis is only now getting underway, there would appear to be a dichotomy between large, extensively occupied sites with diverse artifact assemblages and small sites characterized by limited assemblages with few artifact types.



Figure 55: A view looking west toward the south end of Eaglenest Lake. The North Eaglenest Narrows Site (HkPa-2) is at the centre peninsula in the foreground.



Figure 56: Excavation getting underway at the Mammowechiwun Lookout site (HkPa-11).

Since excavation was minimal, the 1980 field season contributed relatively few diagnostic items. One shouldered specimen (Figure 57a) is quite reminiscent of Gordon's (1977) Early Taltheilei tradition forms which he dates between 500 B.C. And A.D. 150. Another fragmentary specimen (Figure 57e) is marked by a basal concavity and lateral constriction similar to that seen on some McKean and Oxbow complex projectiles. Debitage is the main constituent of artifact assemblages, although tools such as edge modified flakes, end scrapers, chi-thos and the tip fo a drill-like implement (Figure 57a) were also recovered. A vitreous gray quartzite was again preponderant in raw materials. Minor porportions of Beaver River Quarry quartzite and black and other cherts were noted.

Three radiometric age determinations have been received. The basal layer of the peat deposit at the Tumaxale Site (HkPa-13) has been radiocarbon dated at 2030 ± 105 years B.P. (S-1973) (Figure 58). Since artifacts were found on the sand surface immediatey below the organic deposit, this date is a terminus ante quem for the occupation of the site. During a return visit to HkPa-12, an artifact was recovered below a pocket of charcoal. While this result is less secure in its significance, the charcoal itself has been radiocarbon dated at 865 ± 75 years B.P. (S-1982). The final radiocarbon date, 1280 ± 95 years B.P. (S-1974), came from the Pelican Beach Site (HkPa-14), a stratified site reminiscent of the Wentzel Lake Site (IfPo-1) in the Caribou Mountains. An organic lens, 36 centimeters below the surface produced charcoal for the date. In an organic lens immediatey above this (33 centimeters below surface), lithic debitage was recovered. Various levels closer to the surface also yielded artifacts. Stratigraphic separation exists at this site, but artifacts are found in low densities. While evidence from absolute dating is scant, both it and external comparisons of artifacts seem to indicate a more intensive occupation of the study area during the last 2500 years.



Figure 57: Small bifaces recovered during 1980 Birch Mountain Archaeological Study.



Figure 58: Sampling the basal peat layer for a radiocarbon date at the Tumaxle Site (HkPa-13).

Intensive archaeological fieldwork is planned for the study area in 1981. Our 1980 explorations indicated that the east basin of Clear Lake appears quite suitable for coring and pollen analysis. Coring is slated for early 1981. It is hoped that the results will have an important bearing on dating the onset of deglaciation in the Birch Mountains and in determining shifts in post-glacial vegetative communities.

ARCHAEOLOGICAL FIELD WORK IN THE SIBBALD FLAT AREA, ALBERTA

Permit 80-11-C

Eugene M. Gryba

INTRODUCTION

Between August 2 and November 8, 1980 the writer supervised salvage archaeological excavations at site EgPr-2 and test excavations of sites EgPr-5 and EgPr-6. These sites are situated in the Foothills 45 miles west of Calgary along the north side of Sibbald Creek just upstream from its confluence with Jumpingpound Creek. A total of 234 man-days were devoted to site EgPr-2 and an additional 20 to sites EgPr-5 and EgPr-6. Since much of the field work at these sites was carried out at the end of the summer and at the start of the academic year the crew size and composition were quite variable. In all, eighteen people, most of whom were drawn from the University of Calgary, assisted the writer. Other help came from the local market and, on weekends and holidays, from Parks Canada employees. Towards the end of the field project seven members of the Calgary Center of the Archaeological Society of Alberta provided voluntary assistance on several occasions.

The findings at the site EgPr-2 were particularly encouraging. Perhaps the most significant discovery here was evidence of a Fluted Point Tradition component in stratigraphic context below other Paleo-Indian artifacts, and later Prehistoric and Historic Period materials. In contrast, testing of site EgPr-5 revealed only a sparse scattering of prehistoric materials throughout the terrace. The results from site EgPr-6, were, similarly, disappointing. At this site, which was located along the banks of Sibbald Creek, the deposits were shallow. The quantity of prehistoric material was low, and no traces of the Sibbald ranch buildings were encountered.

Because of the fact that Early Paleo-Indian material occurs at site EgPr-2, and the realization that the major part of this will be totally impacted by back-sloping, more salvage excavations are recommended for it. In regards to the other two sites, no further testing is warranted. However, it is suggested that site EgPr-5 be monitored during or following the borrow pit activities which are planned for the area in the summer of 1981.

SITE EgPr-2: INTRODUCTION

Site EgPr-2 was first recorded by J. Brink in 1978. During the survey of SR 554 in 1979 under Permit 79-68 the writer extended the coverage along the bench to the west of the area covered by Brink. This led to the discovery of the productive part of the site. Although the site occurred outside the highway right-of-way the possibility existed that EgPr-2 might be impacted by back-sloping resulting from highway construction. With the prospect that clearing of the right-of-way would commence during the winter of 1979-1980 recommendations for the testing of the site were made and in 1979 the writer returned with a small crew and sampled 17 square meters of EgPr-2 (Gryba 1980b:162-166). This initial testing yielded promising returns. With the potential for pre-Oxbow components high, it was strongly recommended that further testing of the site be considered. The amount of work suggested was, of course, contingent upon the degree to which the site would be impacted (Gryba 1980a:38). At this time no highway design plans were yet available.

The design for the new highway was approved by Alberta Transportation in February, 1980. According to the design, in the area where SR 554 (now Highway 968) descended into Sibbald Flat a tremendous amount of down-cutting and back-sloping was required and could not easily be avoided. The consequences of this action was that the central and most productive portion of EgPr-2 would be destroyed.

In late July, 1980, two weeks before the clearing of the right-of-way was to start, the writer was approached by the Archaeological Survey of Alberta with the task of salvaging 80 to 100 meters, or about 10 percent, of the site. To achieve this objective 80 man-days of work were suggested. Salvage excavations commenced on August 2. The project coordinator for the highway construction, Mr. V. Mulloy of Torchinsky Consulting Ltd., was kept informed on the pace of the salvage work and the nature of the discoveries. When Paleo-Indian (Agate Basin and, subsequently, Fluted Point Tradition) material was encountered and the full significance of the site comprehended, the highway construction plans were revised. Instead of starting at the junction of the Ford Creek Road, a half a mile west of EgPr-2, and proceeding to the east, construction was rescheduled to begin at the eastern end of the project and proceed to the west. This was to allow sufficient time for completing the salvage work at EgPr-2. Funds for an additional 100 man-days of work at site EgPr-2 were made available. During the 1980 field season a total of 234 man-days was spent at site EgPr-2. To this can be added the help provided by the members of the Archaeological Society of Alberta. In all, 198 square meters of the endangered part of the site were salvaged during the past summer. Freeze-up saw highway construction completed to a point just west of Bateman Creek, a spot only a mile and a half east of site EgPr-2. Highway construction will likely resume once the frost is melted.

SITE EgPr-2: OBJECTIVES AND METHODOLOGY

The basic objective of the 1980 excavations at site EgPr-2 was to obtain through controlled excavations as much of the archaeologically productive and informative part of the site as possible within the time and funds allotted. The two factors which figured important in the type of strategy employed were the realization that the most productive

part of the site would have to be destroyed by back-sloping and the awareness that the actual highway construction was quite immediate. Some idea of the vertical and horizontal limits of the deposits were already known from the previous year's work. The data gleaned from the November, 1979 test excavations was used initially in selecting areas for salvaging. When workshop detritus associated with the fluted point component was encountered, trenches, and in several instances, isolated units, were opened up in an effort to determine the horizontal distribution of the cultural material. By the end of the season a large area of contiguous units had been excavated (Figure 59).

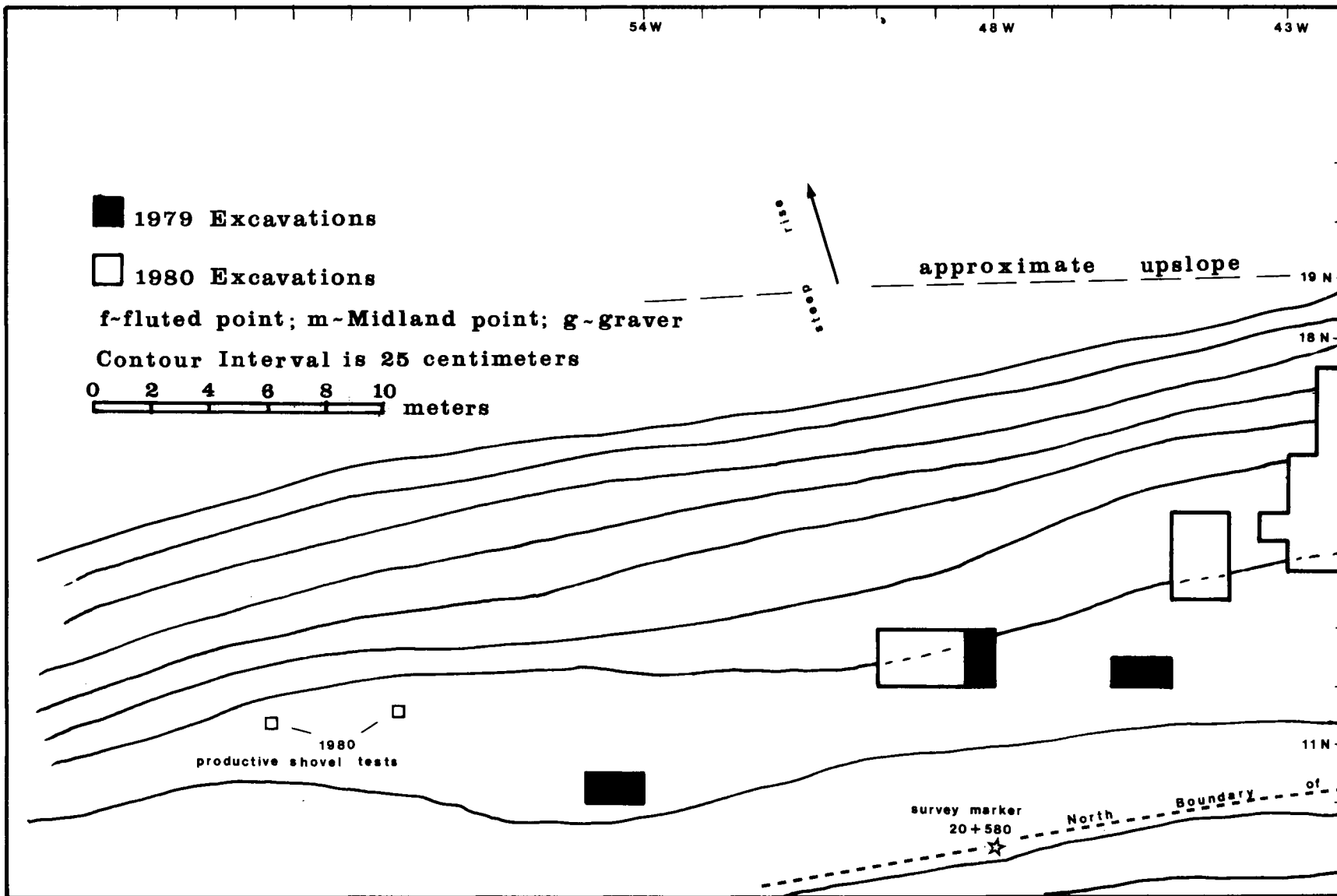
Because there was a lack of visible vertical separation, each unit was excavated in five centimeter levels. Horizontal provenience was recorded to a square meter. Two square meters of what is thought to be part of the workshop area relating to the fluted point component were uncovered with trowels in order to obtain a better understanding of the nature of the occurrence of the cultural material at this depth. The large block excavation may provide a good basis for reconstructing and interpreting the campsite layout for some of the cultures.

The matrix was examined for traces of pollen but was found to be negative. A graduate student from the Department of Anthropology at the University of Alberta has undertaken the task of carrying out a particle size analysis of the sediments from site EgPr-2. Burnt bone fragments have been recovered from most of the levels and some of these samples will be submitted for radio-carbon dating.

SITE EgPr-2: RESULTS AND INTERPRETATIONS

The 198 square meters excavated during the 1980 season, plus the 17 square meters exposed in 1979, represent around a third of the endangered portion of the site. Traces of cultural material have been

Figure 59: Site map of EgPr-2. West half.



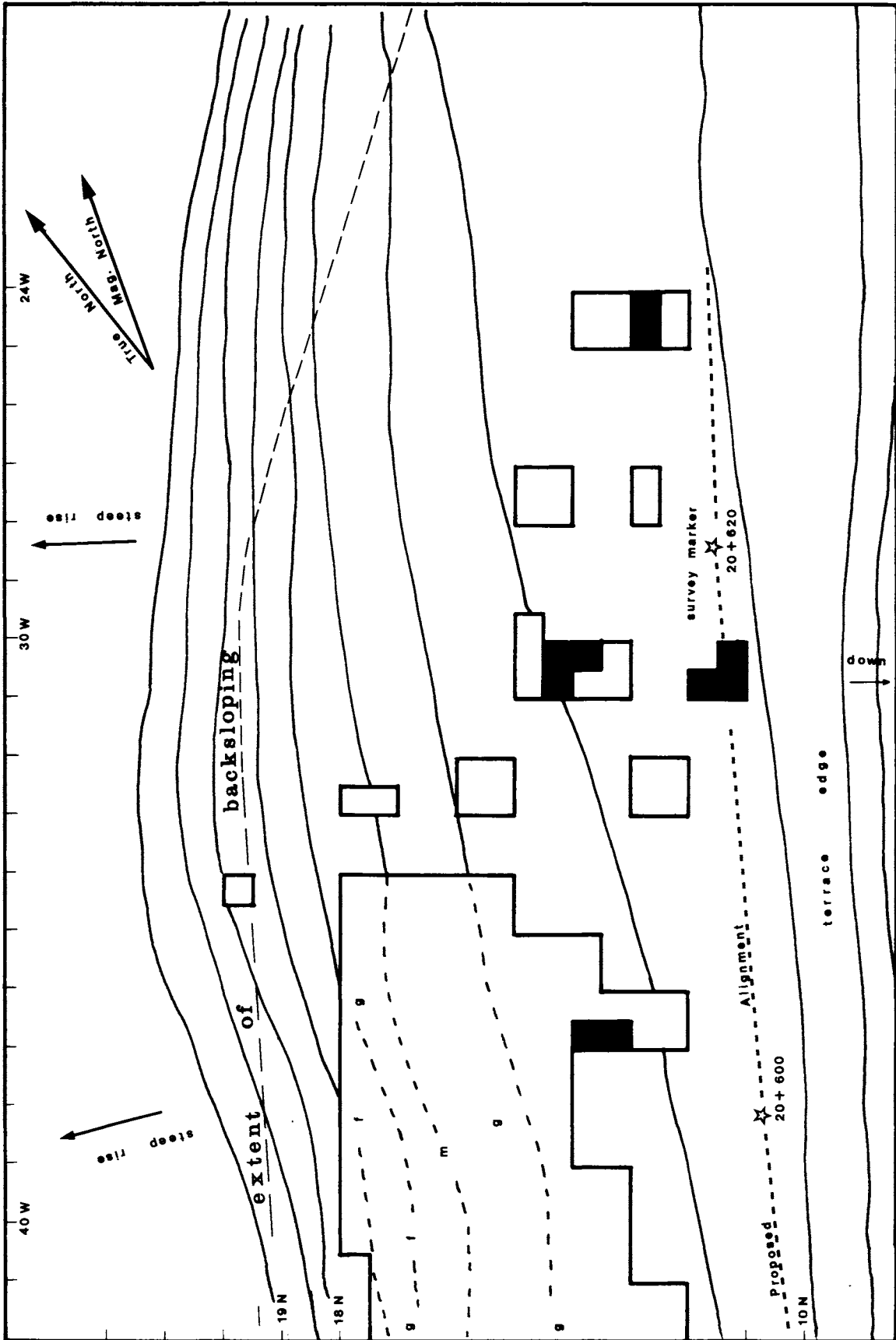


Figure 59: Site map of EgPr-2. East half.

recorded beyond the endangered zone, but these occurrences are very sparse and the culture-bearing deposits frequently less than a decimeter deep. Much of the endangered part of the site, by comparison, contained deposits which reached almost a half a meter deep.

Processing of the data has barely begun, hence, the quality of the available information is largely of a general nature. The general observations presented after the 1979 excavations (Gryba 1980b:166) were reaffirmed by the data gleaned during the 1980 season. Distinctive clay trade pipes, beads, and containers recovered in 1980 from the humus layer may make it possible to narrow the time of Metis or Indian occupation here during the last century to within a few decades.

Significant 1980 finds relating to the prehistoric occupation of site EgPr-2 include the recovery of Native ceramics in association with small side-notched points and obsidian, and the identification of three, and possibly four, other components located stratigraphically below the Oxbow level. These deeper, older, components are suggested by the occurrence of small corner-removed, convex-base points reminiscent of the Mount Albion style (Benedict and Olson 1978:Figure 38), a possible base from a Scottsbluff point, several lanceolate point bases, and a couple of fluted points represented by a reworked specimen and a base portion. The base of a small, parallel-sided, concave-base point was recovered in the vicinity and at the same depth as the fluted points. It has fine marginal lateral edge retouching such as that sometimes displayed by Midland and Folsom points.

Some of the Early Paleo-Indian material is shown in Figure 60. The writer has not yet undertaken any detailed analysis of the fluted points. However, the initial impression is that they appear to be, formally as well as technologically, distinct from the Clovis and Folsom types. A relatively good sample of workshop detritus and tools

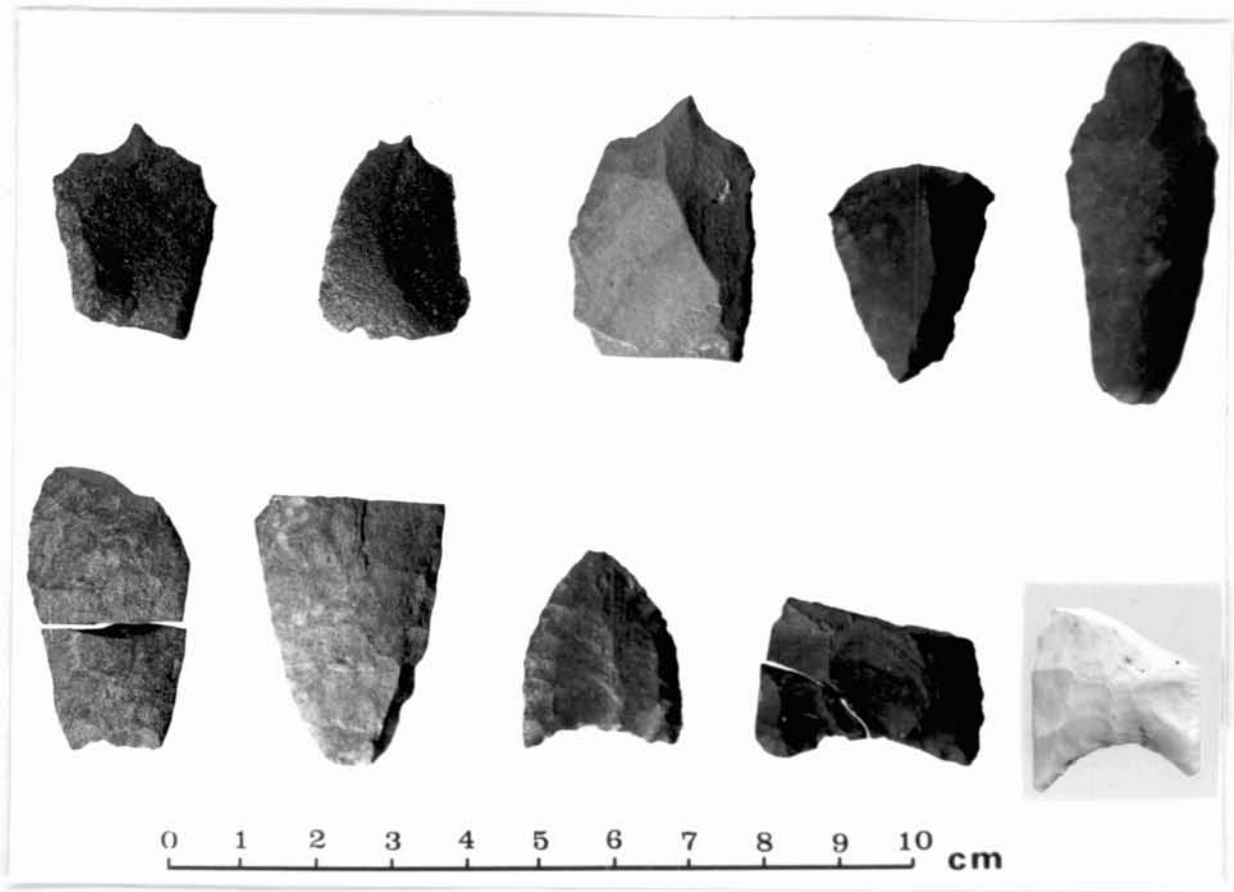


Figure 60: Sample of gravers and Paleo-Indian Points from EgPr-2.

was recovered from the same level as were the fluted points. Included in the sample were a number of gravers and denticulates. A few of the gravers are presented in Figure 60. The information from site EgPr-2 might be sufficient to permit the definition of a distinctive regional complex within the Fluted Point Tradition. Once defined, on-going research could contribute towards clarifying the spatial and temporal distributions of this unique complex.

The reasons that prehistoric hunters and their families were attracted to the site EgPr-2 ever since Early Paleo-Indian times were, undoubtedly, those that related to basic human survival; the need for food, water, shelter and protection, and a supply of raw materials for tools and weapons. The geographic position of the site, near avenues of travel into the mountain interior, was also probably an important factor. Full appreciation of the groups' selection of the site location could best be comprehended by experiencing first-hand some of the common elements (particularly weather) that affected the every day life of the past inhabitants.

The site is located on a bench nested against the south-facing side of a high hill. The hill offers excellent protection from the cold north and northwest winds. The bench offers a good view of the grazing lands of Sibbald Flat and is within a kilometer of smaller meadows that are located to the northwest of the hill. Sibbald Creek flows along the north side of the valley and within a hundred meters of the bench. The gravel deposits that one sees along the steep, southern aspect of the meltwater channel could have been exposed even during the winter months and may have served as a source of lithic materials.

Sibbald Flat, a broad valley at the junction of Sibbald and Jumpingpound Creek carved out by a glacial meltwater, was certainly the primary factor which attracted grazing mammals and, consequently, hunters, into the area. Had it been an open grass land, this valley

would have provided a 320 acre (800 hectare) grazing range for bison. For hunters coming out on the Plains from the mountain interior by way of Jumpingpound Creek or Sibbald Creek valleys, Sibbald Flat was one of the first of the large meadows that they would have encountered. Conversely, for those groups moving into the high Foothills from the Plains, Sibbald Flat would have represented, locally, the last of the big meadows for immediately to the west rose the high forested peaks with their steep, narrow valleys.

SITE EgPr-2: RECOMMENDATIONS

Further salvage excavation of site EgPr-2 is deemed to be of utmost importance. It is the only site in western Canada known to contain Fluted Point Tradition artifacts in relatively good stratigraphic context. Most of the productive part of the site will be impacted by back-sloping activities during highway construction. Highway construction has now reached to within a mile and a half of the site. While the deadline for completing the remaining portion of the highway to the Ford Creek Road junction has been set for July 1, 1981 it is certain that highway construction will resume once weather conditions permit.

Approximately one-third of the productive section of the site has now been excavated (Figure 59). The areas located to the "west", and particularly to the "north" and "east" of the large block excavation, should be considered for salvaging. What is believed to be an up-slope extension of the fluted point occupation zone was intersected in the NE 1/4 of 19N 34W. Along the "southern" edge of the site in the vicinity of the 11N and 12N lines the deposits, while fairly abundant in cultural refuse, are somewhat shallower than the area up-slope and, thus, the problems stemming from mixing of the various components here are greater. In the central and "northern" (i.e., up-slope) sections

of the site the fluted point component occurred in the 40 - 45 cm and the 35 - 40 cm levels, respectively. It was here that the separation on the Paleo-Indian material from the later debris was best developed. Any further salvage excavations should be located in this area.

SITES EgPr-5 AND EgPr-6: OBJECTIVES AND METHODOLOGY

A part of the work carried out under Permit 80-114-C was the evaluation of the archaeological potential of sites (EgPr-5 and EgPr-6). These two sites occurred about a half a mile west of site EgPr-2. Both were expected to be impacted by highway construction; site EgPr-5 by borrow pit activities and site EgPr-6 by the construction of the Ford Creek Road access. A total of 20 man-days of work was allocated to the task of determining the archaeological potential of these two sites.

Site EgPr-5, discovered the previous summer (Gryba 1980c:64:Figure 25), was situated on an open, south-facing terrace that measured approximately 50 by 250 meters. It extended outside, but parallel with, the north boundary of the highway alignment. A total of thirteen selectively placed square meter units was excavated throughout the terrace.

Site EgPr-6 had been identified by Heitzmann as the former location of Frank Sibbald's ranch outpost buildings. This site was situated immediately to the south and across the highway from site EgPr-5 and extended along the north bank of Sibbald Creek. Prehistoric material was also reported from site EgPr-6. Close to 10 square meters were excavated here with the objective being the evaluation of the nature of the prehistoric component and determination of whether any structures relating to the Sibbald ranch lay preserved below the surface.

SITES EgPr-5 AND EgPr-6: RESULTS AND INTERPRETATIONS

A very dismal return of prehistoric cultural material was reported from the test units at site EgPr-5. Soil depth varied from almost a meter near the base of a small alluvial fan at the western end of the terrace to between 30 and 65 centimeters near the eastern end. The culture-bearing deposits displayed considerable rodent activity. Indeed, the matrix appeared to be uniform grey almost down to the underlying glacial till or gravels. Bone recovered at a depth of 95 centimeters from one of the test units near the western end might be submitted for radio-carbon dating.

The returns of cultural material from site EgPr-6 were, similarly, very low. The valley floor gravels occurred within a decimeter of the surface. A small quantity of chert and quartzite flakes and an Oxbow point were recovered from the tests. The tests, however, failed to reveal the presence of any foundations or flooring relating to the historic buildings. What appears to be a decomposed manure pile was intersected in the eastern-most trench. Mr. Mackenzie, the Range Patrol Officer, had witnessed the ranch buildings in use during the 1920's and mentioned that a corral had been located in the area where the eastern trench was excavated.

The poor showings of prehistoric materials encountered at sites EgPr-5 and EgPr-6 probably reflect more the fact that here prospective campsite locations were not restricted to a confined area as was the situation at site EgPr-2. Any part of the terrace or the bank of Sibbald Creek may have served as a habitation or workshop area. It is quite likely that some of the groups that occupied site EgPr-2 may have camped at these two lower sites during a specific time of the year.

In terms of the Sibbald ranch buildings, the absence of subsurface remains suggests that these recent historic features were of a sort of

impermanent nature. Ms. E. Sibbald informed the writer that the buildings were more a summer way station rather than a permanent year-round place of residence.

SITE EgPr-5 and EgPr-6: RECOMMENDATIONS

No further archaeological testing is recommended for either site EgPr-5 or EgPr-6. The project coordinator for the highway construction has been informed of the findings. It was suggested to him that the narrow, eastern section of the terrace be used as a source of earth fill. The top soil was not as thick here as it was at the western end and the test units less productive than those located in the central or western part of the terrace. It is, however, suggested that the borrow pit activities be monitored or the area checked again after highway construction has been completed.

**ARCHAEOLOGICAL INVESTIGATIONS IN THE LESSER
SLAVE LAKE AREA, 1980**

Permit 80-98

Raymond LeBlanc

ARCHAEOLOGICAL SURVEY OF ALBERTA

INTRODUCTION

During the months of July and August, 1980 a crew from the Archaeological Survey of Alberta began a programme of archaeological survey in the western region of Lesser Slave Lake. The fieldwork was preliminary in nature and was conceived as a part of a more detailed study of the prehistoric occupation of the lake and the surrounding area.

The survey was accomplished using a combination of vehicle and boat support and was undertaken in an intensive and extensive fashion. The former was carried out along the north shore of Lesser Slave in the vicinity of Shaw Point and on high terraces overlooking Buffalo Bay and the South Heart River west and slightly north of the lake. The latter was performed using a boat to examine a number of locations between Shaw Point and the Narrows on the north shore of the lake, and vehicle support to spot check areas accessible by road along the south shore, as far as the Narrows. Other brief visits on which sites were found were also made to Gift Lake and Utikumasis Lake north of Lesser Slave, and Marten Mountain and Mitsue Lake to the east. This short statement will briefly summarize some of the results of this field reconnaissance.

RESULTS

Survey on Lesser Slave Lake and in areas to the west resulted in the recording of 56 new sites (Figure 61). Those which were classified as disturbed surface scatters (N=38) or isolated finds (N=3) were located in the heavily used tourist area of Shaw Point and in agricultural areas around Buffalo Bay and the South Heart River. A further 15 sites were found which were partially disturbed (N=5) or completely buried and undisturbed. The latter were exclusively found by means of shovel testing techniques in areas along the shores of Lesser Slave Lake. Such an approach was mandatory because of the complete lack of exposures along the heavily wooded north shore of the lake.

With time being a factor, only two of the sites on the lake could be more intensively tested. The first of these, Hidden Creek (GjPx-6), is located on a terrace bench at the mouth of a small unnamed creek, east of the existing camping area in Hillard's Bay Provincial Park (Figure 62). The terrace is 4.3 m above lake level (July 1980) and approximately 20 m from the shore. The lake is quite shallow in this area with weeds extending from 30 to 100 m offshore. The site is covered with a dense stand of poplar which extends down the terrace face to the lake edge where willow dominates. An overgrown portion of the historic Grouard Trail is located to the north of the site, about 15 m from the edge of the terrace.

Cultural materials were found 15 m east and west of the creek and from 1 to 5 m from the terrace lip. Formal test excavations (5m²) were confined to the west side. Preliminary sorting of the collection, which amount to some 28 specimens, indicates very few finished lithic implements (3 end scrapers). Lithic raw materials include a high proportion of cherts (41.5%), with vitreous or glassy quartzites (30.2%), other low grade quartzites (29.2%) and traces of other

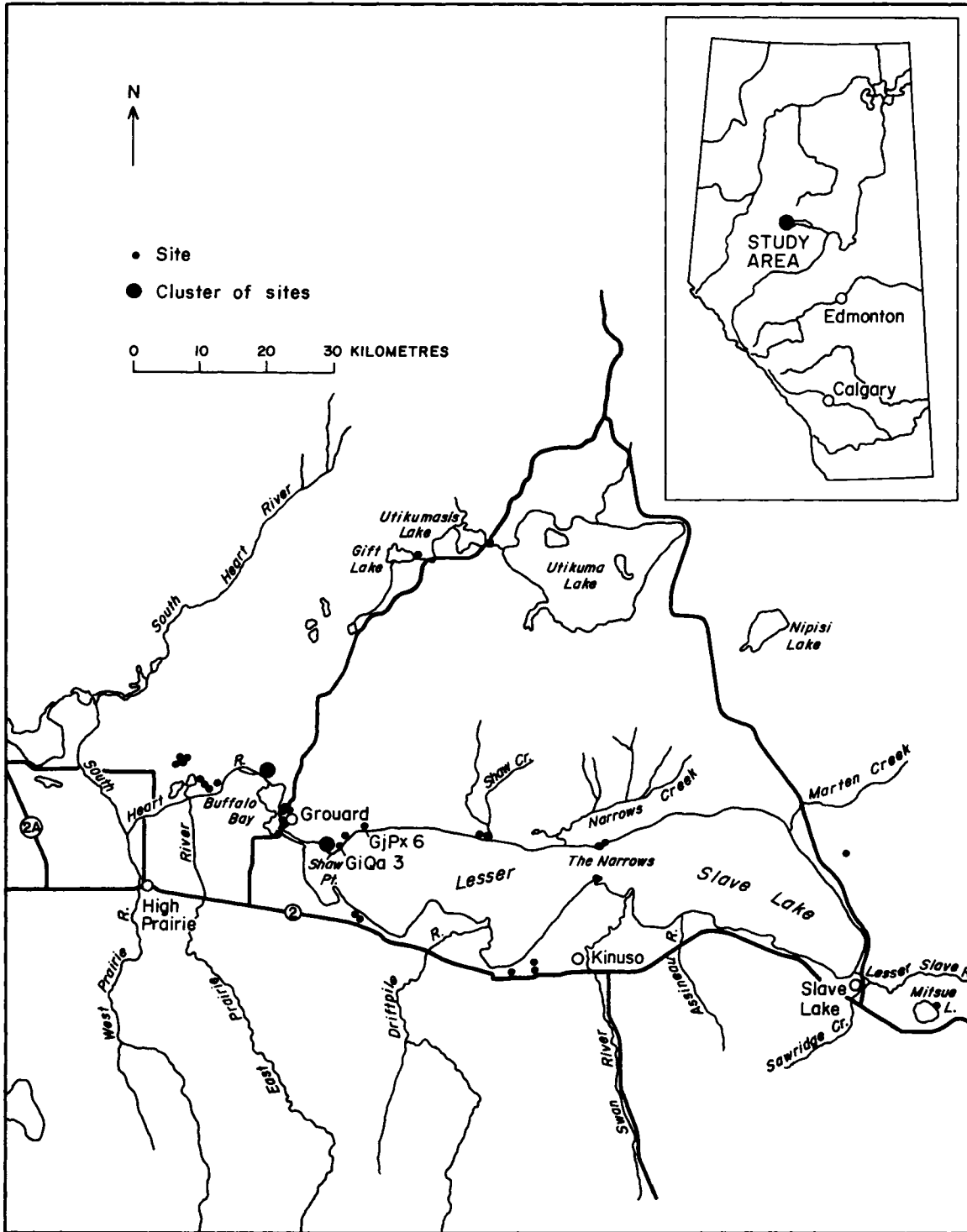


Figure 61: Lesser Slave Lake study area.

materials (4%) making up the remainder. The source of the cherts and glassy quartzite is unknown; the other quartzites could have been obtained locally from the cobble beaches which border the lake shore. Besides the lithic debris, there were 3 fragments (2 of which fit together) of a unilaterally barbed antler point and the distal end of an antler flesher found at about 15-20 cm below surface (Figure 63); all were well preserved. In addition to the prehistoric artifacts, a fragment of a Euro-canadian comb was found in the litter indicating the presence of an historic component as well. Finally, faunal remains were fairly common and appear to include a significant proportion of fish bone and lesser amounts of large mammal.

The Slump site (GiQa-3), which is about 6 km southeast of Hidden Creek, was so-named because of the presence of a large slump block feature east of the areas where buried cultural deposits were found. It is situated on the top of a terrace at about the same elevation as Hidden Creek but it immediately overlooks the lake. Because of the exposed position of the terrace it is subject to wave action during periods of high water and it is therefore currently undergoing rapid erosion (Figure 64).

Testing of the site involved hand excavation of 10.5m² in an area parallel to and 2 - 3 m from the edge of the terrace. Artifacts were found in each of three natural levels, although the majority were recovered from the lower 2 levels at between 15 and 30 cm below ground surface. Preliminary sorting of the 2000 odd specimens indicates that approximately 96% of the materials found were of quartzite. The majority of pieces are identified as flakes and shatter, although there are 2 large bifaces (1 complete, 1 broken), at least 21 cores, 2 end scrapers, and 1 small (20.5 cm long), rather amorphous, stemmed flake point. Chert and other raw materials such as petrified wood and



Figure 62: View of the Hidden Creek Site (GjPx-1) from the top of the creek bank looking west along the edge of the terrace.

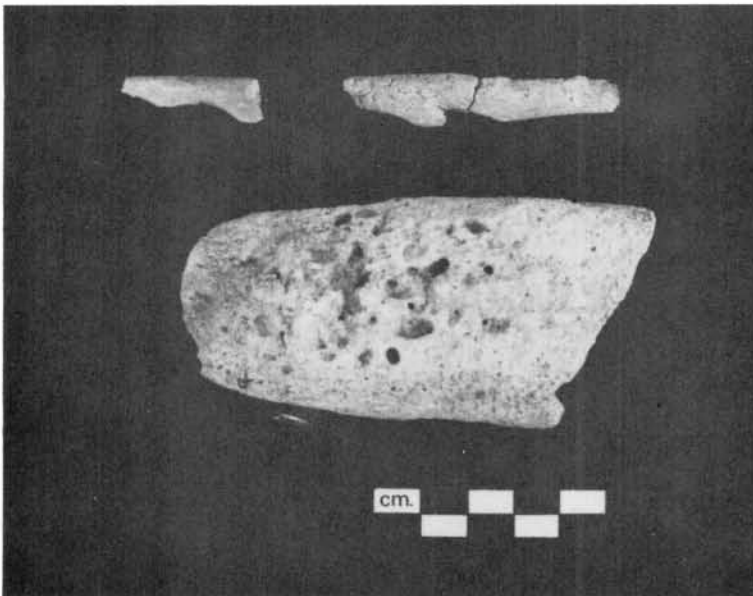


Figure 63: Antler flesher (a), and unilaterally barbed point fragments (b) from Hidden Creek (GjPx-6).

siliceous siltstone account for the remaining 4% of the lithic debris recovered, a significantly different situation than that observed at Hidden Creek.

In addition to the artifact sample, two features were observed. The first was found in level 2 and consisted of a concentration of firecracked rock, interspersed with quartzite debitage; it appears to be midden related. The second is a pit feature in level 3. It attained a maximum depth of about 50 cm below surface and contained a jumble of small (ca. 5 cm in diameter) pieces of firecracked rock. Approximately 80% of this material exhibited bulbar areas and discrete platform remnants thus suggesting that it was intentionally broken, apparently after being subjected to heat. The function of this pit is unknown (Figure 65).

CONCLUSION

In conclusion, the 1980 field survey programme in the Lesser Slave region was quite successful in locating a range of site in differing environmental circumstances. Particularly interesting are the sites on the lake itself. Many of these are in undisturbed contexts and a number warrant additional, more intensive investigation. Testing at two of these sites, for example, has indicated a marked variability in lithic raw material usage between sites that are separated by as little as 6 km. At present we do not know what this differentiation might imply; it may be temporal in nature or could have a functional explanation. It is conceivable that other sites in the immediate area will also show a similar pattern and it is hoped that further field work will help resolve these questions.



Figure 64: View of the Slump Site (GiQa-3) showing the eroding face of the exposure.

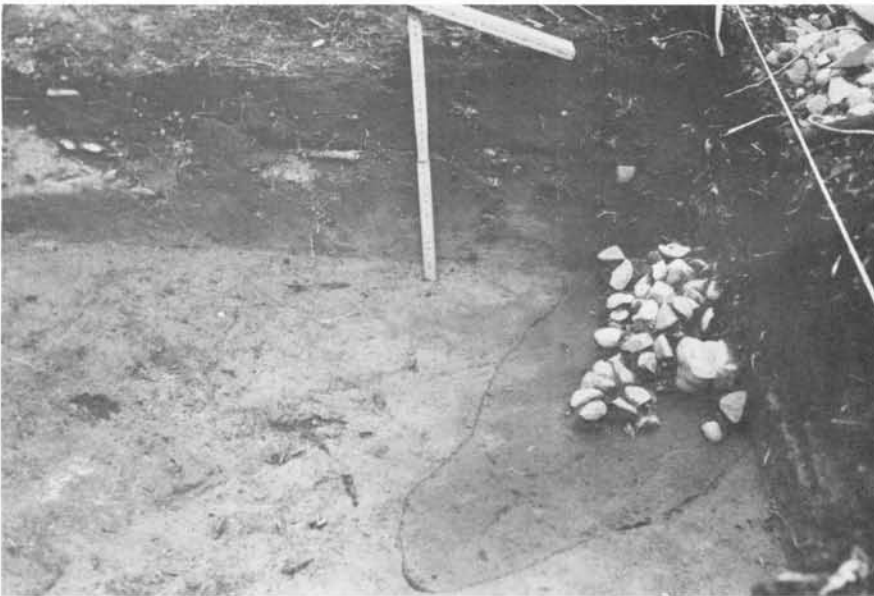


Figure 65: Pit feature in level 3 at the Slump Site (GiQa-3).

In addition to the aspect of variability, both sites have excellent potential in terms of technological studies. Hidden Creek, for example, has produced 2 antler implements and will undoubtedly yield many more. Tools made of antler, as well as bone, are rare in northern Alberta and further excavation at this site may provide insights into the technological pattern involved in the processing of these raw materials. The Slump site has produced a range of quartzite debitage which can be profitably used to study patterns of core reduction and biface production.

Finally, on a more general level, future field work will enable us to address questions of chronology and cultural affiliation. Answers to these are necessary to the understanding of the long term prehistoric occupation of the lake.

AN ARCHAEOLOGICAL RECONNAISSANCE OF THE MIDDLE AND LOWER PEACE RIVER

Permit No. 80-78

John W. Ives

Archaeological Survey of Alberta

INTRODUCTION

One of the most pressing problems in our increasing understanding of northern Alberta prehistory has been the lack of a deeply stratified and productive site suitable for excavation. Consequently, there does not exist a basic chronological framework for the prehistory of the region. This difficulty has a great deal to do with the lack of stratified sites in the Boreal Forest. Both natural and cultural causes seem to have created the situation. Many settings, such as upland lakeshores or knolls surrounded by organic terrain, are essentially non-depositional environments. Occupations of these sites have led to little or no stratification. At the same time, our every impression of Athapaskan and Algonkian Boreal Forest economies has been that of low population densities and highly mobile societies. These features tend not to favour the re-occupation of sites.

Neither of these propositions are exclusively true. Active depositional environments exist in northern Alberta, and certain sites have been repeatedly inhabited. The solution to this dilemma is therefore to make a systematic search of settings where both factors were involved. Since most of the archaeological record from the Boreal Forest will always be embodied in thinly stratified sites, a sound chronological framework developed within the region can make great contributions. To help overcome this deficit, I undertook a brief reconnaissance of the transition area between the middle and lower Peace Rivers in June of 1980 (Figure 66).

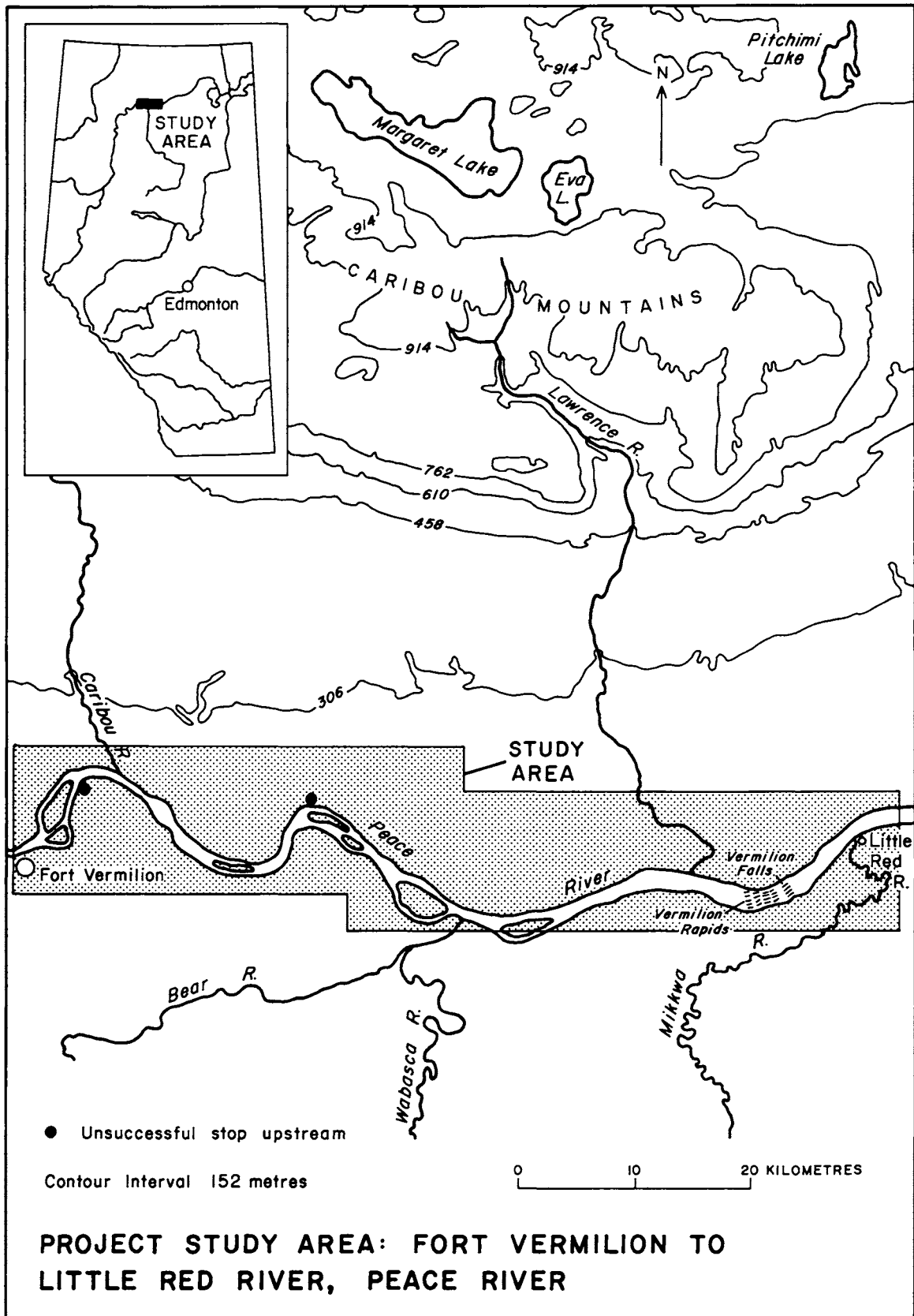


Figure 66: Location of the study area in north central Alberta. The greatest intensity to effort involved the area from the Wabasca to Mikkwa Rivers.

NATURAL SETTING

The Vermilion Chutes mark an important change in the character of the Peace River (Figure 67). Comprised of the Vermilion Rapids upstream and the Vermilion Falls downstream, the Chutes are created by ledges of Devonian limestone and dolomite (Norris 1963). While the Peace River becomes very broad below the Vermilion Falls, Devonian outcrops become common features at river's edge. These conditions were particularly favourable to the study undertaken. As Schweger (personal communication) has suggested, bedrock defences below which alluvial deposition is protected from erosion provide a situation in which stratified sites could be created. The lower reaches of the Mikkwa River are especially suitable in this regard. The study area, shown in Figure 66, is also an area of some strategic importance, a factor I believed might have attracted intensive prehistoric settlement. Both the Wabasca and Mikkwa Rivers, which drain large portions of archaeologically uncharted northern Alberta, have outlets on this stretch of the Peace. The Vermilion Chutes might themselves have created a situation for repeated occupation by impeding river travel.

Topography throughout the study area is remarkably similar and consists of alluvial flats bordered by low benchlands and terraces which make a transition to rolling uplands such as the Caribou Mountains. Rowe (1972) classifies the study area within the Upper Mackenzie Section (B.23a) of the Boreal Forest. White spruce and balsam poplar form the principal cover types on alluvial flats bordering the Peace River; balsam fir and birches are also present (ibid.). The modern mammalian fauna of the lower Peace River involves species such as the black bear, varying hare, beaver, deer, woodland caribou and the woods bison X plains bison hybrid. Among the species of fish present in the Peace River are northern pike, walleye, goldeye and various suckers.

Sometime before 1760, the Cree confined the Beaver Indians to the basin of the Peace (Jenness 1963). According to Mackenzie, this caused the western Beaver to displace the Sekani towards the Rocky Mountains (Lamb 1970). The Beaver Indians were likely the initial historic occupants of the study area.

METHODOLOGY

Successful completion of the survey required a canoe trip of just under 100 kilometres down the Peace River in a two week period. The distance from Fort Vermilion to the mouth of the Wabasca was travelled quickly. A similar approach was applied throughout the trip: any locality which we stopped and examined was regarded as a "stop". Since the survey was exploratory in nature, once a site was discovered by shovel testing, further assessment was limited. No excavations were conducted.

RESULTS

A total of 22 stops were made; 7 sites were discovered. Two of these, IcPt-1 and IcPu-1 were located during the initial portion of the survey above the Vermilion Chutes (Figure 68). Both sites were isolated finds associated with recent camps. Although the mouth of the Wabasca River had several highly promising settings which were tested, not a single artifact was discovered. An 8 kilometer traverse on the right bank of the Vermilion Chutes also gave negative results. The remaining 5 sites, IcPq-1 to IcPq-5, occurred on the lower reach of the Mikkwa River (Figure 69). Now badly disturbed, IcPq-1 was associated with the now-abandoned historic community of Little Red River (Figure 70). IcPq-3 was discovered on a trail on the opposite side of the Mikkwa. Surface collecting produced the largest assemblage-41 artifacts. IcPq-2, IcPq-4 and IcPq-5 are all very small sites.

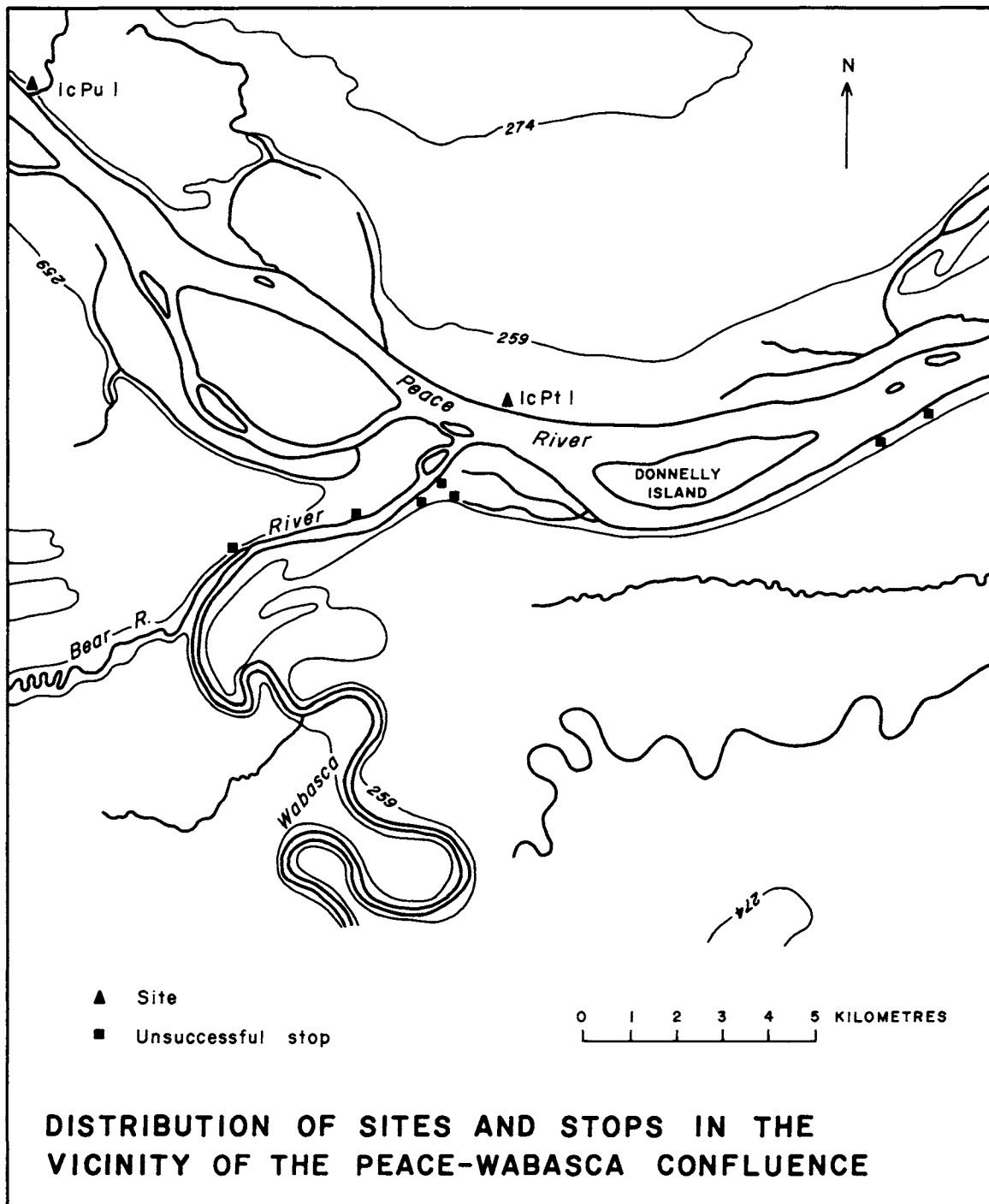


Figure 68: Testing at a number of promising locations at the mouth of the Wabasca did not produce sites.

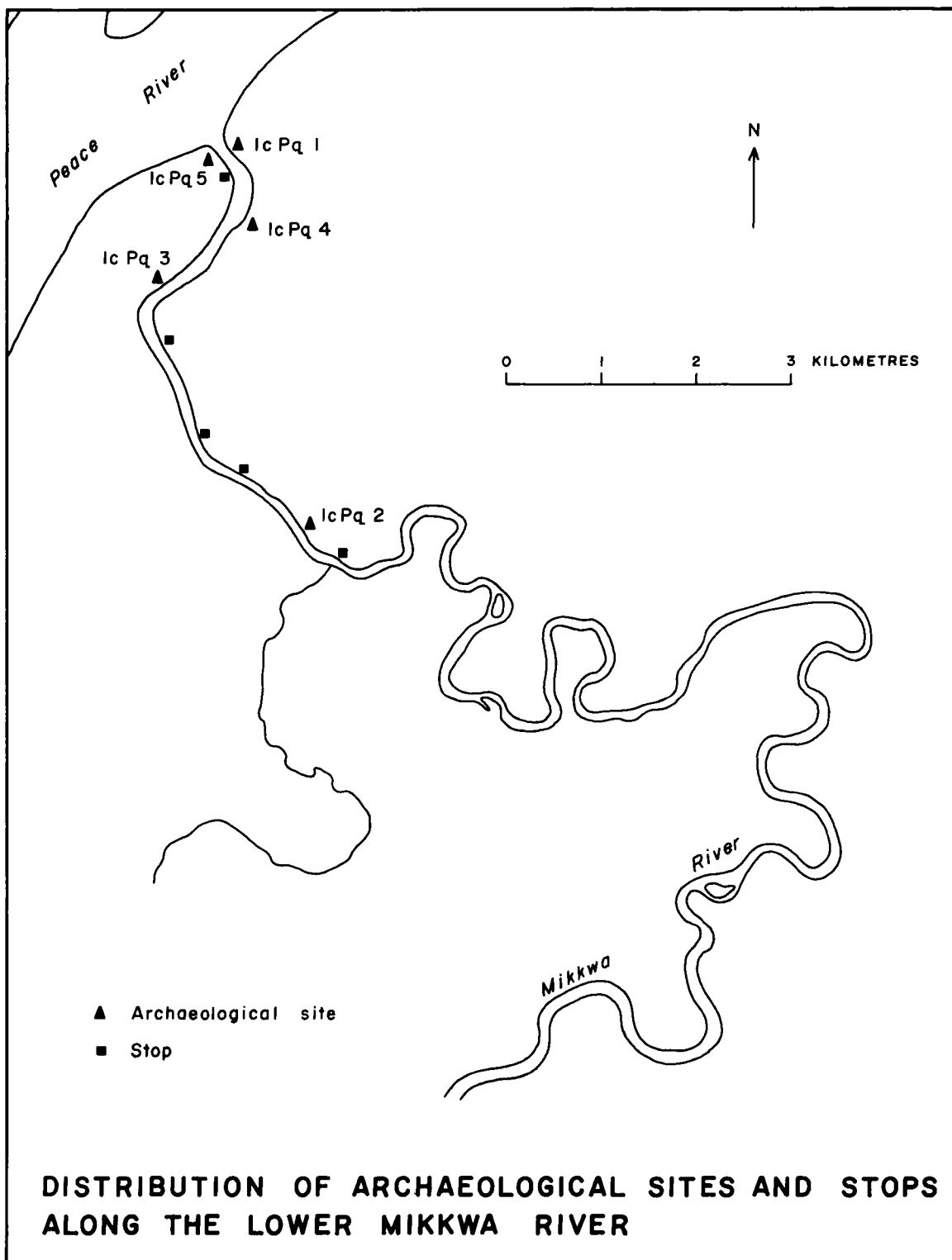


Figure 69: Five sites were concentrated at the mouth of the Mikkwa River.



Figure 67: The Peace River looking east from the Vermilion Falls.



Figure 70: The extensive clearing of the abandoned community of Little Red River, situated at the confluence of the Mikkwa and Peace River.

The 7 sites yielded 85 artifacts. No diagnostics were discovered. End scrapers, a biface, a chopper, edge modified flakes and core fragments were noted in an assemblage dominated by debitage. Quartzite constituted nearly 70% of the raw lithic material, with approximately even usage of black chert, other chert and quartz.

CONCLUSIONS

In spite of an examination of several depositional types of environment, no stratified sites were discovered. Because of its brevity, the survey should not be construed as either intensive or systematic. This stretch of the Peace River and particularly the Mikkwa River do merit the systematic exploration for stratified sites advocated above. Nevertheless, the relatively low density of sites within the study area came as a surprise, even given the limited time invested. Donahue (1976) had considerable success in a very brief investigation of the Fort Vermilion area upstream. Stevenson (in press a) also reports a high density of sites farther downstream on the lower Peace.

The Peace Point Site is included among these, and fortunately it appears as though a productive and deeply stratified site may now be excavated. Stevenson (in press b) reports that this site extends as much as 1 kilometre along the left bank of the Peace River and exhibits 3 to 7 cultural strata which extend over as much as 2.5 metres of deposits. Developments at this site will be of singular significance in the construction of a chronological framework for northern Alberta. Equally critical will be information relevant to the seasonal usage of alluvial lowlands.

ARCHAEOLOGY AT A FUR TRADE SITE, GePn-1

Permit 80-63

Michael R.A. Forsman

Archaeological Survey of Alberta

POTENTIAL HISTORICAL RESOURCE IMPACT FACTORS

The impetus for carrying out an Historical Resources Impact Assessment at GePn-1 was provided by several residents of the Flatbush-Fawcett region who expressed a concern to Alberta Culture regarding the possible fur trade site. A recently constructed access road to a gas well site passes near the site, making it more easily accessible to plunderers and potential destruction by any future logging operations. Erosion of the Athabasca River bank was also sited as a possible factor endangering the site.

HISTORICAL RESOURCE EVALUATION CRITERIA

Several characteristic of the historical resource area were examined in order to assess the overall quality of GePn 1 and the possible affect of the above impact factors on the site. As the site has not been previously recorded, the site first had to be identified as a historical resource. Part of this process necessarily included the investigation of features and a search for cultural materials. By observing these site components an evaluation was made regarding the depositional integrity of the archaeological remains, the horizontal extent of the historical resource, the quality and diversity of the physical remains, and the probable antiquity and function of the site.

Human habitation sites frequently suffer disturbance and depositional effects resulting from continuing and subsequent occupational activity in conjunction with environmental factors. These influences may effectively destroy the depositional integrity of historical resource sites. As a site is increasingly impacted, then the potential for that site to yield valuable archaeological information decreases. Since certain kinds of sites in an undisturbed condition are a rarity, they may nevertheless gain a justifiable significance in spite of their known historical associations. Depositional integrity is therefore an important criterion for evaluating historical resource significance.

The extent of a site is another criterion useful in assessing historical resources. If a site covers only a few square meters of ground, the archaeological remains may not have the same research and information potential as a much larger site of the same function. Some small sites however may be particularly representative of an historical period and consequently be of considerable value.

The quality and diversity of physical remains must be considered as an aspect of site quality. The archaeological remains are abandoned by-products of past activities and are an important link to the unrecorded history of the site. The state of preservation of these remains and their diversity must necessarily be assessed in view of their potential for contributing towards an understanding of this historical resource.

The archaeological remains must also be examined in order to verify the supposed antiquity and function of the site. It is important to establish the antiquity of a site in order to correlate the site with historical documentation. If a site is at least representative of an historical period important in the development of Alberta, the site may have a greater value than more recent sites with

less significant associations. Early fur trade sites, for example, have a greater historical value attached to them than recent homesteads.

HISTORICAL RESOURCE DATA

Historical Background

Several documents indicate the presence of fur trade posts on the Athabasca and Pembina Rivers. Unfortunately it is difficult to determine whether or not these documents are referring to the location of GePn 1.

One of the earliest references noting the existence of a fur trade post on the Pembina River is found in a letter written by James Bird, a Hudson's Bay Company trader on the upper Saskatchewan River. Bird noted that 991 made beaver were obtained by a trader at a post on the 'summer berry river' (Pembina River) during the outfit of 1800-1801 (Johnson 1967:lxxxii-lxxxiii). Johnson postulates that the post was only operative for one year. Figure 71 illustrates the location of several posts mentioned by Johnson.

A second source also indicates the presence of a fur trade post in the Pembina River drainage (Kennedy n.d.). A sketch map in the report places the location of a North West Company post on the north-east bank of a lake apparently tributary to the Pembina River.

Neither of the above documents indicate the presence of a fur trade post at the confluence of the Athabasca and Pembina Rivers where GePn-1 is situated. Two other references however suggest that a post was placed at the mouth of the Pembina River. David Thompson's map of the North-West Territory, based on his surveys between 1792 and 1812

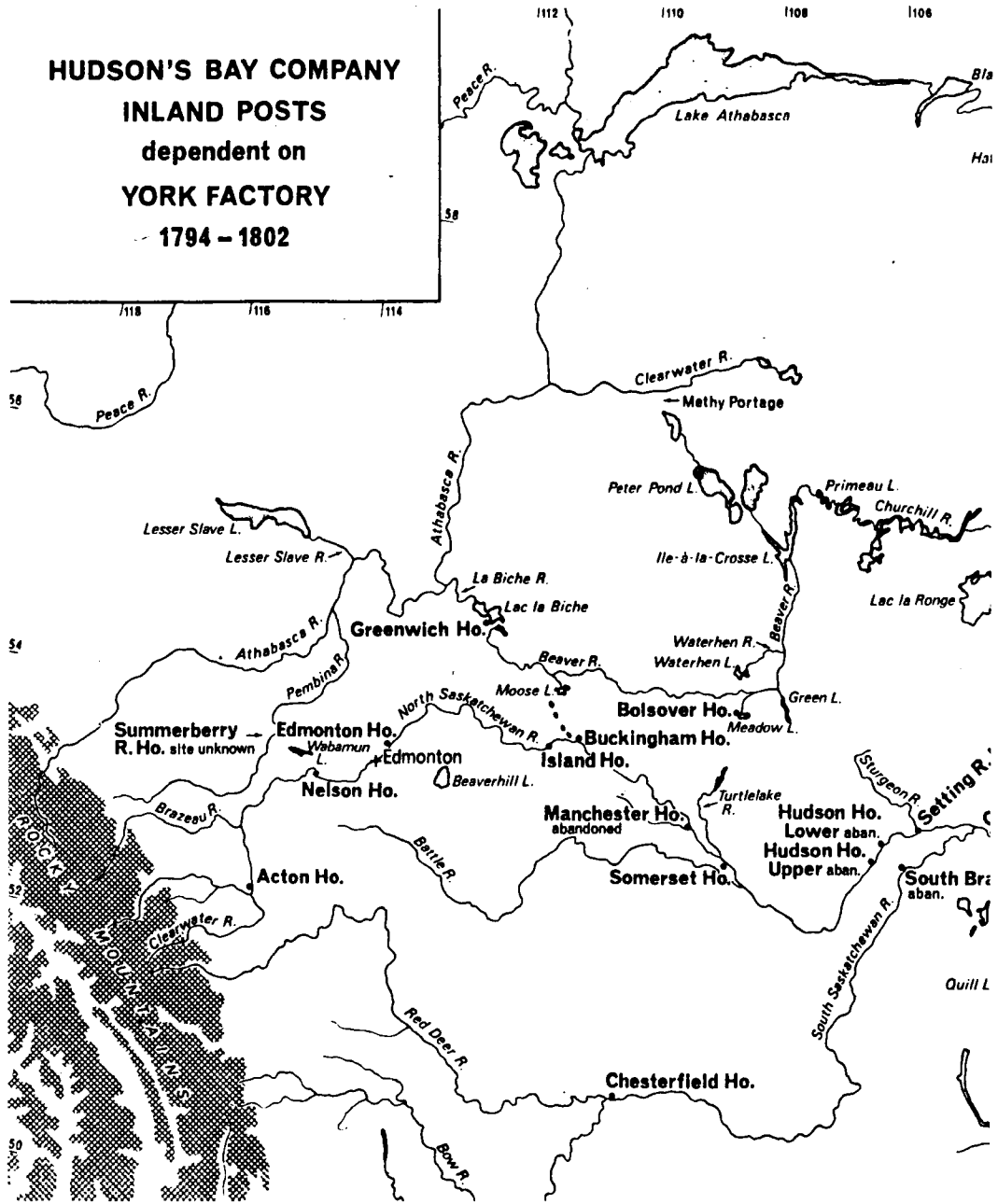


Figure 71: Map illustrating location of Pembina River.

and completed in 1814, illustrates the presence of a North West Company post in the vicinity of the confluence of the Athabasca and Pembina Rivers (Tyrrell 1916). His notation 'NWCoy' is placed on the west bank of the Athabasca River and is not necessarily indicative that the site is in precisely the same location. Thompson does not mention in his narrative the presence of a post at this specific location (Figure 72). He does mention, however, 'John Rowand's House' on the Pembina River and it is possible that this post is the same one noted on his map.

The Reverend Robert Rundle's journals also indicate the presence of a fur trade post at the mouth of the Pembina River. While travelling between Fort Assiniboine and Lesser Slave Lake Fort in March, 1846, he evidently visited an old site. Part of the entry for that day in March reads, "... Encamped at Pubneau River. I walked a little after encampment & went back to mouth of the River to see old Fort site. It is on the higher side of the mouth. Many years ago since built..." (Dempsey 1977:217).

Although the documentary data is not as descriptive and precise as one could wish for, the references are sufficient to conclude that at least one fur trade post was located near the junction of the Athabasca and Pembina Rivers, and that the site was occupied sometime in the late eighteenth and/or the early nineteenth centuries.

ARCHAEOLOGICAL GOALS

The goal of the project was to carry out an Historical Resources Impact Assessment of a possible fur trade site located near the mouth of the Pembina River. It was necessary to locate the site exactly, confirm its supposed function, determine the age of the site and its overall quality in order to assess its historical value with a view to any disturbance factors.

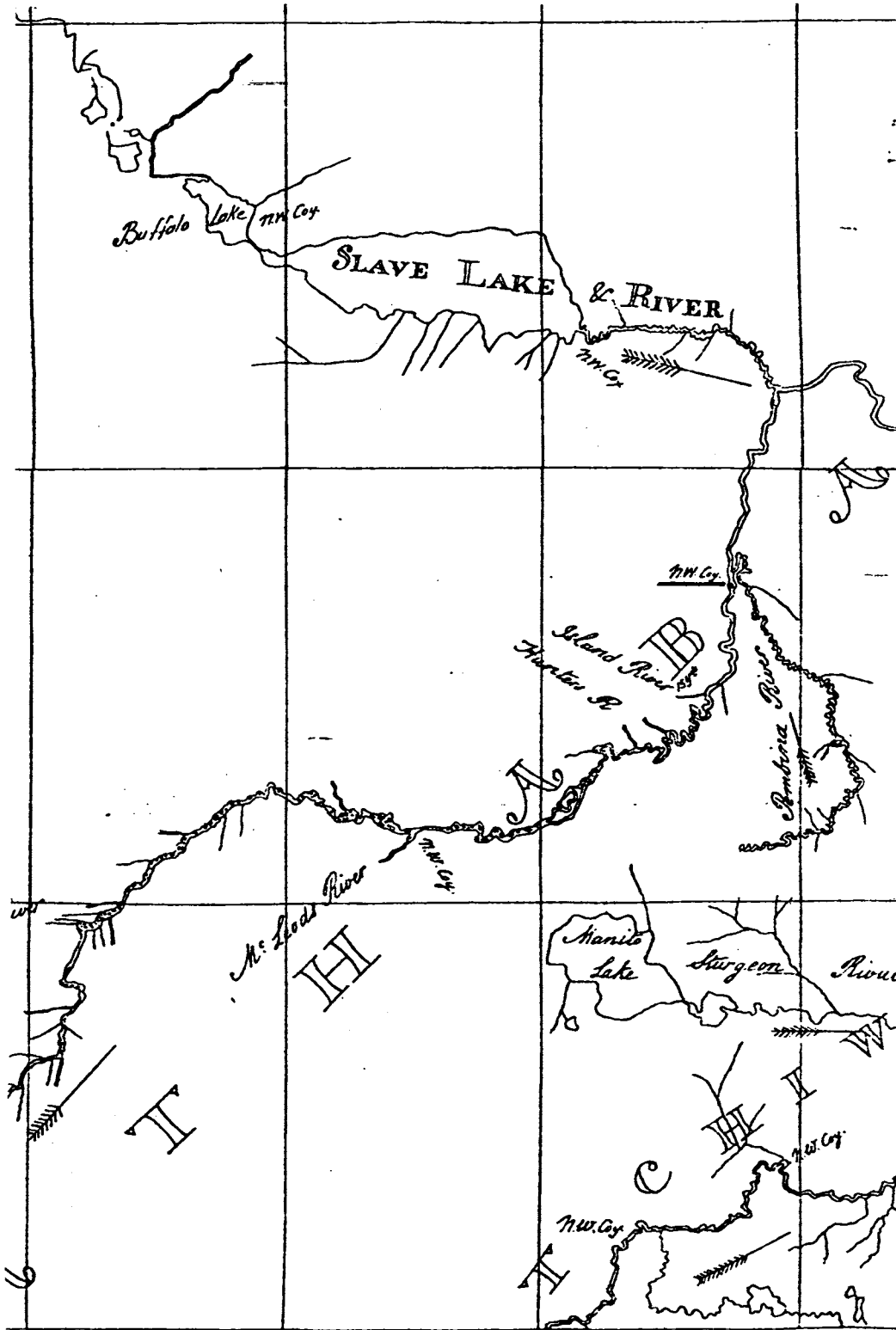


Figure 72: Part of D. Thompson's 1814 map.

METHODOLOGY AND RESOURCES

In response to the concerns of local residents, Douglas Babcock of the Historic Sites Service visited the site area on December 4, 1979. He observed and photographed two apparent cellar depressions and recommended that the Archaeological Survey examine the site as soon as possible (Babcock 1979). On May 13, 1980, I visited the site accompanied by Douglas Babcock, Mr. & Mrs. William Ashton, Ernie Bruley, Mr. & Mrs. William Hall, Gordon Gulliford and Oliver Bell. Several depressions and low mounds were observed (Figure 73). By probing one of the low mounds with a metal rod, the existence of stones and chinking approximately 20 cm below the surface could be determined. The absence of stones occurring naturally in the soil on this bank of the river suggested that the low mounds might represent fireplace bases.

Doug and I crossed to the west bank of the Athabasca River and briefly surveyed the area opposite the mouth of the Pembina River for any evidence of early historic occupation. There were no visible signs of a fort in the location covered by David Thomson's "N.W. Coy." on his map of 1814.

From the west bank of the river, however, it was clearly evident that Rundle's "higher side of the mouth" corresponds well with the side where the depressions and mounds were discovered.

Following the survey of the area and the interpretation that the mounds and depressions were apparently the only historic features in the area, the decision was then made to carry out a brief archaeological investigation of the site.

The vicinity of the depressions and mounds was surveyed by surface traverses to locate the possible existence of any other features and

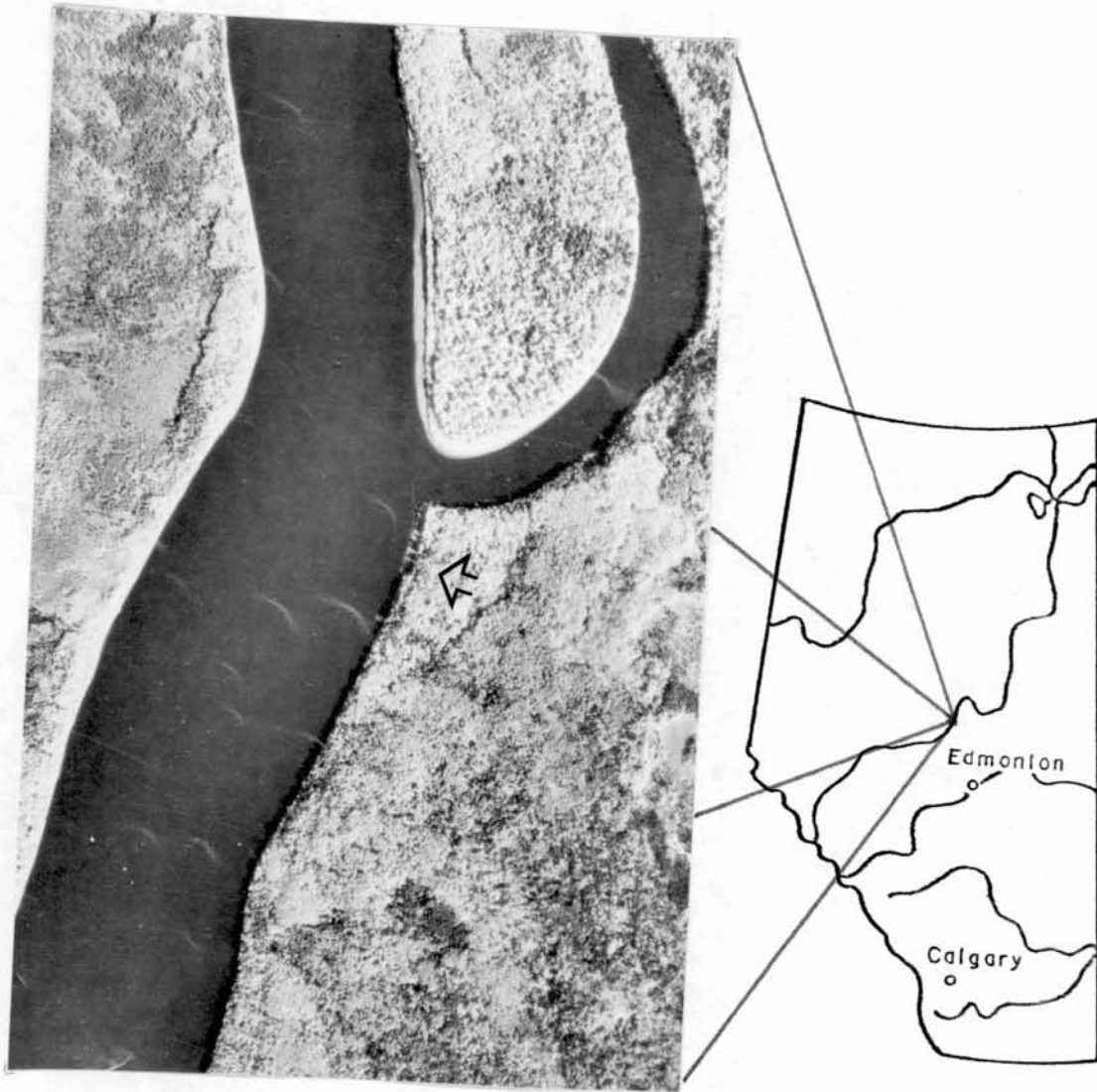


Figure 73: Location map of GePn 1. Air photo scale 1:15,000;
reference AS 1626 187, line 77, no. 212, 77/07/27.

for any signs of disturbance. The site, designated GePn 1, was then mapped and all features recorded by drawings and photographs. Test excavations were then undertaken determining the existence and depth of the buried historical resource and the condition, age and probable function of the remains. Once these minimal objectives had been satisfied, excavation was immediately discontinued.

The test excavation sampling format used at GePn-1 is called a proportional stratified random sample. A grid composed of strata measuring 5 meters by 4 meters was superimposed on the concentration of features. The strata were identified by a combination number-letter designation. Each stratum consisted of 20 listing units measuring 1 meter square. The listing units were identified by a sequential number following each stratum designation. For example, the designation GePn 1-2F10 refers to the tenth listing unit of stratum 2F on that site. By using a table of random numbers, a single sampling unit was randomly selected for excavation from the listing units of each stratum. The selection of a single sampling unit from each stratum resulted in a sampling fraction of 5 percent for each stratum tested. Figure 74 illustrates the arrangement of strata and tested units over the site.

Excavations at GePn 1 were accomplished by using trowels and shovels. All excavated soil was wet screened through 1.5 mm mesh, except for the root litter from unit 2K8. A gas powered pump with 5 cm diameter hose was used to wash soil matrix through the screens (Figure 75).

RESULTS

GePn-1 is located approximately 112 meters south of the mouth of the Pembina River and on the third terrace of the Athabasca River. This level is about 5 meters above the floodplain of the Athabasca.

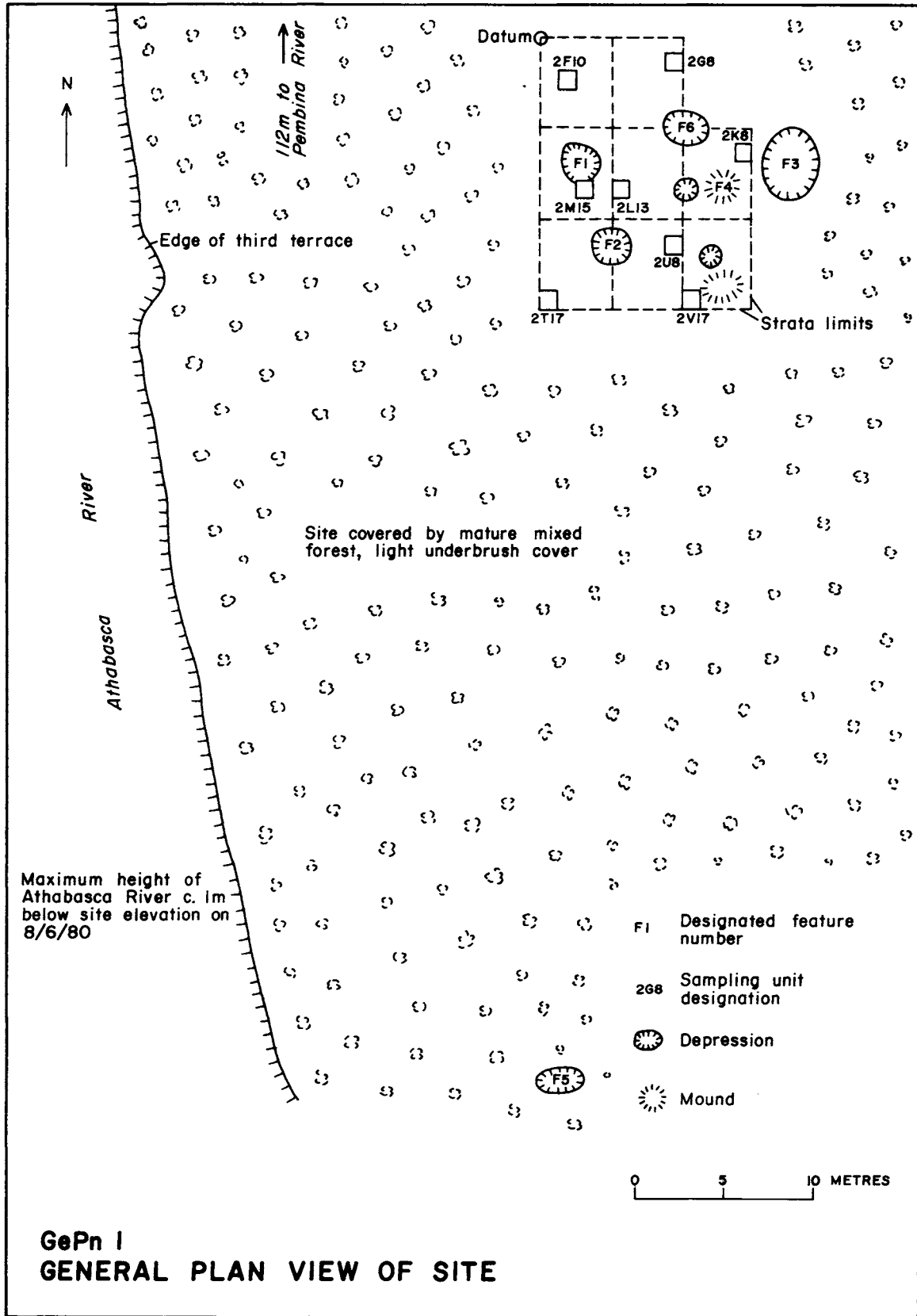


Figure 74: Map of site features and test units.

Vegetation in the site area consists of species typical of the boreal forest (Figure 76). The dominant forms are Populus and Pices with lesser amounts of Betula and Pinus also present. The predominant shrub is Rosa with some Ribes also occurring. Willows (Salix) are dominant on the narrow floodplain of the Athabasca River.

Eight one meter squares were excavated on the site. Excavation unit 2K8 and 2V17 uncovered portions of stone constructions under the two mounts (Figures 77 and 78). The basal horizon of the stones occurs at 50 cm below surface. Orange-colored, burnt clay and ash were associated with the basal course of stones in the northeast corner of unit 2V17. The stones had been mortared with clay. Although some rotten wood fragments were present in unit 2K8, they could not definitely be ascribed a structural function. The wood fragments appeared above the basal horizon of the stones and may therefore represent a much later and natural depositional occurrence. In addition, there were no architectural artifacts associated with these remains. The wood fragments were nevertheless recorded should future and more extensive excavations prove otherwise (Figure 79). No other structural remains were exposed.

Two excavation units, 2F10, and 2G8, were sterile. Two other units, 2K8 and 2V17, offered only bone fragments and chinking. Fifty-eight artifacts were recovered from the remaining units and classified according to the framework devised by South (1977). The total artifact assemblage is tabulated in Appendix 1. (Table 10).

There were more artifacts representative of the Arms group than any other. This group included 38 lead shot and one socket gun worm. Thirty-seven of the lead shot and the gun worm were recovered from unit 2U8. The lead shot can be divided into two sizes based on mean diameter, one size of approximately 5.0 mm and the other about 4.0 mm (Figure 80). A socket gun work has also been recovered from the



Figure 75: Wet screening activity.



Figure 76: View of site area.



Figure 77: Fireplace rocks along west wall of unit 2K8.



Figure 78: Fireplace rocks in northeast corner of unit 2V17.

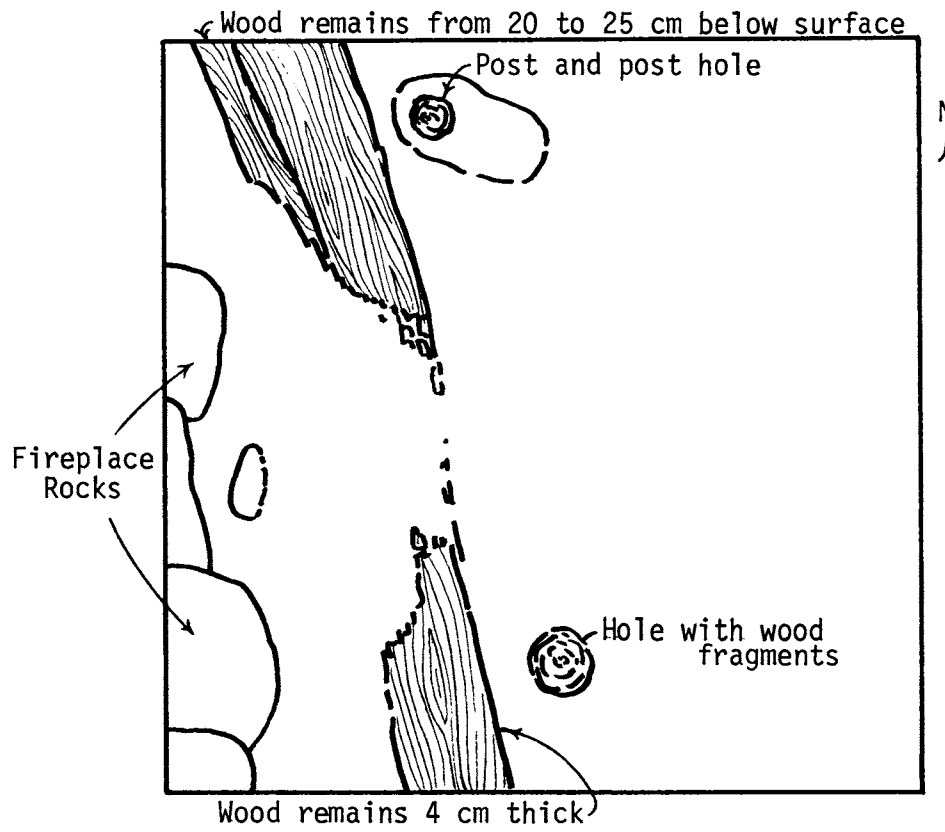


Figure 79: Plan view of unit 2K8. Scale - 1:10.

Hudson's Bay Company site of Nottingham House, dating 1802-1806 (Karklins 1979: 175,402). The specimens recovered are not regarded as particularly diagnostic of company affiliation or narrow time range.

The clothing artifact group is represented by 6 white glass beads and one white shell bead. Five of the glass beads are 'drawn' beads and the sixth is 'wire wound' (Figure 81).

One complete wrought nail and fragments of two others were recovered.

One piece of trade silver was recovered. This is a miniature round brooch, minus the cross-fastener pin (Figure 81). Similar specimens have been recovered in Alberta from Fort George (Kidd 1970:167,168,183), Rocky Mountain House (Acton House) where they were classified as earrings (Noble 1973:113,114), Rocky Mountain House I (D. Steer: personal communication), and Nottingham House (Karklins 1979:81,382), and in Saskatchewan at La Loche House (Steer 1977:114,311). These objects were manufactured by the thousands for the fur trade (Quimby 1966:93). The occurrence of these brooches is undoubtedly widespread, but as their presence at the above noted sites indicates, they are not diagnostic of company affiliation. As chronological indicators, however, they are somewhat more useful. The relatively nearby sites above were variously occupied between about 1787 and 1821. It is assumed that the silver brooch found at GePn-1 was deposited during the period of active site occupancy and that this period occurred within the aforementioned temporal span.

Several artifacts classified in the Activities group included scrap metal, an unidentified lead object and a double-ended centre eye, bone bodkin needle (Figure 83). Similar artifacts have been recovered at Fort George, where they were called 'snowshoe' needles (Losey et al 1978: 162,167; Murray 1980: A41) and from as far away as Fort Michilimackinac (Stone 1974: 158,161).

TABLE 10: Artifact Inventory from GePn-1

<u>Artifact Group and Class</u>	<u>Artifacts</u>	
	N	%
KITCHEN	0	0
ARCHITECTURE		
Nails	3	5.2
FURNITURE	0	0
ARMS		
Lead shot	37	63.8
Gunworm	1	1.7
CLOTHING		
Beads	7	12.1
PERSONAL		
Brooch (Jewelry)	1	1.7
TOBACCO PIPE	3	5.2
ACTIVITIES		
Tool park	1	1.7
Bone die	1	1.7
Unidentified function	4	6.9
	<hr/>	
TOTAL	58	100.0



Figure 80: Lead shot and gunworm.

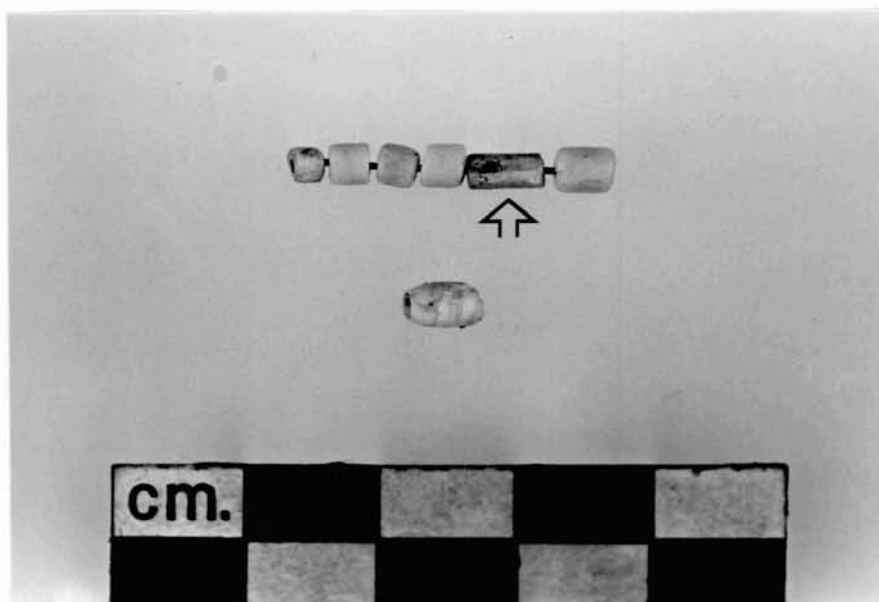


Figure 81: Beads. Shell bead indicated by arrow.

Three undiagnostic clay tobacco pipe fragments were also recovered.

CONCLUSIONS

An historical resource site reported at the junction of the Pembina Rivers was archaeologically investigated and recorded. The site was mapped indicating the prominent site features in relation to the two rivers. Test excavations exposed cultural material supporting a fur trade site interpretation. The artifacts recovered were few in number but are compatible with an occupation dating to the late eighteenth and early nineteenth centuries. The paucity of remains are considered indicative of a short-term occupation, possibly even a single season wintering post. Preservation is good. The site shows no evidence of disturbance by active river erosion or by pot-hunting activity. Access, however, is easy and the potential for vandalism is real.

HISTORICAL RESOURCE MANAGEMENT RECOMMENDATION

The historical resource site designated GePn 1 is representative of a small, short-term occupation early fur trade site. The site setting is pristine. Few sites of this type are known to exist in this condition. Although company affiliation and a more specific date of occupation remain unknown, there is a good possibility for determining these site characteristics by further archaeological excavations. In view of the known site details, it is not recommended for designation. GePn-1, nevertheless, is an historical resource with considerable future research and development potential. If the site is ever threatened by development proposals or river erosion, mitigative action is certainly warranted.



Figure 82: Silver brooch fragment



Figure 83: Bone bodkin.

**SCORING IN ARCHAEOLOGY:
THE PROCESS OF EVALUATING SITE SIGNIFICANCE**

Gerald T. Conaty

**DEPARTMENT OF ARCHAEOLOGY
SIMON FRASER UNIVERSITY**

INTRODUCTION

The burgeoning growth of archaeological projects conducted as mitigative measures in anticipation of land altering developments is more than adequately represented in Alberta. In 1975, just 56 Archaeological Research Permits were granted by the Archaeological Survey of Alberta (Byrne 1975:6-7). Of these, 30 (53.57 per cent) were granted as conservation measures. In 1978, 92 of the 116 permits granted involved impact assessments (Byrne 1979). These represent 79.31 per cent of all archaeological work conducted in the province. It is apparent that a large financial commitment and professional effort is being directed towards the recovery of endangered cultural resources in the province. It is, therefore, worthwhile to evaluate the direction that this research is taking and the value of the information which is being disseminated. An effective means of such evaluation is through an analysis of the procedures by which the significance of cultural resources is determined.

THE CONCEPT OF SIGNIFICANCE

There is, at present, no obvious means of assessing the importance of various cultural resources. Although there is an ever-increasing sophistication of analytical and methodological techniques, archaeologists still rely largely upon intuition to decide which sites

merit immediate intensive investigation and which are to be left for other archaeologists in other times. Unfortunately, in the course of an impact assessment the latter choice often condemns the resource to the bulldozer's blade.

The absence of explicit criteria for resource evaluation is a disservice to both archaeologists involved in mitigative projects and the funding agencies. Any recommendation issued by an archaeologist may be subjected to reviews from three sources: representatives of the funding agencies (who are not likely to be archaeologists); archaeological colleagues employed by the Archaeological Survey of Alberta; and, in some cases, colleagues in the profession at large. Without a well-formulated means of judging the significance of cultural resources, the archaeologist has no means of justifying his decisions.

It is to be expected that contracting agencies will desire reasons for the investment of financial resources. The more coherent and well-defined these reasons are, the greater will be the predisposition of the agency to the support of archaeological projects.

A formulation of standards of significance will also help to integrate cultural resource management studies with the research orientation of other aspects of archaeology. If culture resource management studies are to contribute substantive knowledge, rather than merely lists of newly discovered sites, they must be conducted within an atmosphere of problem-oriented research. Schiffer and Gumerman (1977: 239) have noted that:

The outstanding quality of the concept of significance is its relativity: The significance of something can only be interpreted relative to some frame of reference.

An explicit statement of the standards by which significance is evaluated therefore implies the explication of a frame of reference. This, in turn, assumes that problem-oriented research will be undertaken, and that resources will be evaluated in view of their contribution towards the resolution of specific questions.

APPROACHES TO ARCHAEOLOGICAL SIGNIFICANCE

The type of specific questions addressed by archaeologists varies with the individual and with the data which are available. An analysis of the sites discovered in the course of a survey of the Cache River, Arkansas, led House and Schiffer (1975: 180-182) to identify three broad categories within which site evaluation may be undertaken: scientific and historical significance; monetary value; and public understanding. This study demonstrates the importance of formulating well-designed -- and flexible -- research strategies prior to the initiation of fieldwork.

While House and Schiffer (1975) emphasize scientific significance, they do note that other factors must be considered in assessing the importance of cultural resources. In addition to historical, monetary, and public significance Schiffer and Gummerman (1977:244-245) have suggested that ethnic and legal significance also be evaluated. Hickman (1977) has provided a thoughtful consideration of historical significance, while Grady (1977) has integrated historical, scientific, social and monetary considerations. An innovative study by Dixon (1977) illustrates how archaeological resources may contribute to the solution of problems encountered by other disciplines.

THE PROCESS OF RESOURCE EVALUATION

In a discussion of significance, Schiffer and House (1977: 249-250) state:

It is now generally agreed that archaeological resources acquire scientific significance when their systematic study may be expected to resolve current research problems.....In this framework the significance of resources is evaluated with respect to timely and specific research questions. Although this definition forms the foundation for handling scientific significance, in itself it provides little insight into the process of effecting a match between specific questions and specific resources -- and this is the central problem in cultural resource management studies at all levels.

That this articulation has become no clearer is evidenced by a recent exchange in the Journal of Field Archaeology in which four archaeologists offered their views on significance and other aspects of cultural resource management (King 1980). One avenue by which the process of evaluation is made clearer involves a quantitative rank-ordering of cultural resources in consideration of how well specific criteria are met. This approach has been undertaken recently in at least two studies.

Following a survey of cultural resources in a portion of the Peace River drainage, Spurling (1978: 66-68) assessed 241 cultural resources in the light of 34 criteria. These criteria were subsumed under seven general categories: contribution to archaeological theory; contribution to archaeological method; contribution to archaeological techniques; substantive contribution to archaeology; contribution to public appreciation and tourism; contribution to the continuity of Native American culture; the effect of development; and the extent of investigation of each resource. Two reviewers evaluated each resource, and the results were compared using Spearman rank-order correlation

coefficients and factor analysis. These statistical manipulations largely ameliorated the effects of individual bias and provided a basis for determining the final rank order of each resource.

A similar approach was used in the evaluation of cultural resources examined or discovered during the archaeological survey of the Alsands Lease (Conaty 1980). Following Rehere (1977) and Pokotylo and Beirne (1978) each resource was assessed using ten variables:

- (i) Uniqueness. An archaeological site is considered to be unique if it is rare or uncommon in some commodity or aspect.
- (ii) Integrity. Integrity refers to the degree to which a site is undisturbed.
- (iii) Duplication of extant information. Whereas uniqueness is applicable to specific artifact, feature and site types the duplication of information refers to the contextual aspect of the resource.
- (iv) Chronological information. Data which are diachronically diagnostic and from which concepts of the processes of culture change may be developed are considered to be significant.
- (v) Paleoenvironmental information. Resources which contain information which result in a more comprehensive understanding of the conditions under which the artifacts were deposited are considered to be important.
- (vi) Socio-economic information. Archaeological sites which indicate the possible range of locational variation will be valued highly for this criterion.
- (vii) Technological information. This criterion involves the identification of the various methods by which prehistoric people manufactured their tools. Site of tool manufacture offer the best vantage from which to assess these patterns.
- (viii) Methodological development. Any resource which presents problems provides a context for methodological development. As the number and variety of archaeological sites are increased, it becomes possible to resolve some of the initial

problems and thereby increase the information content of the retrieved data.

- (ix) Education. To educate implies the imparting of knowledge through instruction. Archaeological material of educational value must be amenable to various levels of explanatory interpretation.
- (x) Recreation. Recreation, as compared with education, does not imply an explicitly instructional approach to information assimilation. Rather, a high enjoyment factor is implied.

Each archaeological site was then assigned a rank value between 1 and 5 for each variable. Assessment of resources was made by considering both the mean value for each site and the individual score for each variable. This insured that a low mean value assessment would not preclude future consideration of a resource which exhibited outstanding potential for the investigation of only one or two variables.

The contribution of these methodologies to cultural resource management was revealed during the process of governmental review of the Alsands Lease survey. In view of the impending impact of several sites, it was felt by the Archaeological Survey of Alberta that these sites merited further investigation -- a view that was not originally held by the contracting archaeologist. The disparate views were resolved by reviewing each assessment factor in the light of the specific research designs which were of interest to the Survey and to the contractor. As a result, it became evident that the discordance was the result of variable research interests. The use of the explicit assessment criteria in conjunction with well-defined research designs contributed greatly to the resolution of this problem. It is obvious, however, that regional research designs must evolve through consultation with all individuals who are working in an area so that information of value to all interested parties is collected. It is also apparent that more than one individual must participate in the evaluation of cultural resources.

CONCLUSIONS

The assessment of the significance of cultural resources is, arguably, the most onerous responsibility to be undertaken by an archaeologist. Few would disagree with Raab and Klinger's (1977: 632) view " . . . that the best approach to assessing archaeological significance is in relation to explicit, problem-orientated research designs." Placed in a position to judge which resources are to be salvaged and which are not, the contracting archaeologist must have a well-formulated procedure for arriving at decisions. Research designs provide the only suitable framework within which any such decisions can be undertaken.

It is argued there that the rank-ordering of cultural resources in view of explicitly defined variables is one meaningful way of articulating assessments with research designs. This view is not at variance with Morrato and Kelly's (1978: 21-23) critique of " . . . simple schemes to rank cultural resources in a way that not only reflects a misunderstanding of the concept of significance but also may establish some devastating precedents for cultural resource management . . . ". The variables which are integrated to provide a basis for site evaluation comprise a broad range of archaeological interests. As presented here, these decisions are but one stage in a more complex process of site evaluation. It is a process which demands open and continual dialogue between contractor, funding agencies, and professional reviewers.

ACKNOWLEDGEMENTS

Funding for the survey of the Alsands tar sands lease was provided by the Alsands Group. Their support is gratefully acknowledged. I also express thanks to Peter T. Bobrowsky, Karie Hardie, Gerald A.

Oetallar and Lawrence W. Titus for their critical reviews of earlier versions of this paper. The final product remains, as always, the sole responsibility of the author.

BIBLIOGRAPHY

- Anonymous
1976 Archaeological Mitigation Research Project Proposed Fort Hills Townsite and Airport. Prepared for Alsands Project Group. Report on file, Archaeological Survey of Alberta, Edmonton.
- Babcock, Douglas
1979 Historical resources inventory: Genstar northwest, St. Albert. Aresco Ltd. Report on file, Archaeological Survey of Alberta, Edmonton
- Bayrock, L.A.
1978 Surficial geology. Appendix. Research Council of Alberta: Preliminary Soil Survey Report 62-1:49-51.
- Benedict, James B. and Byron L. Olson
1978 The Mount Albion Complex: A study of prehistoric man and the Altithermal. Research Report No. 1. Center for Mountain Archaeology, Ward, Colorado.
- Brumley, John H.
1977 The 1976 Plains Highway Survey Project. In Archaeology in Alberta 1976, compiled by J. Michael Quigg. Archaeological Survey of Alberta, Occasional Paper No. 4., Edmonton.
- Bryan, Alan L.
1969 Late protohistoric Cree expansion into north central Alberta. Western Canadian Journal of Anthropology 1(1):32-38.
- Byrne, W.J.
1976 Archaeological Survey of Alberta Field Activities, 1975. In Archaeology in Alberta, 1975, compiled by J.M. Quigg and W.J. Byrne. pp. 1-9. Archaeological Survey of Alberta Occasional Paper No. 1, Edmonton
- 1979 Archaeological Investigations in Alberta, 1978. In Archaeology in Alberta, 1978 compiled by J.M. Hillerud, pp. 1-13. Archaeological Survey of Alberta Occasional Paper No. 14, Edmonton
- Conaty, G.T.
1980 Alsands lease Archaeological Survey, with an appendix by Karie Hardie. Report on file, ARchaeological Survey of Alberta, Edmonton.

- Dempsey, Hugh (ed.)
1977 The Rundle Journals 1840-1848. Historical Society of Alberta, Calgary.
- Dixon, K.A.
1977 Applications of archaeological resources: broadening the basis of significance. In Conservation Archaeology. A Guide for Cultural Resource Management Studies, edited by M.B. Schiffer and G.J. Gummerman, pp. 277-290. Academic Press, New York.
- Donahue, Paul F.
1976 Research in Northern Alberta, 1975. Archaeological Survey of Alberta Occasional Paper No. 2, Edmonton.
- Fedirchuk, Gloria J.
1978 Historical Resources Impact Assessment, Dickson Dam Project, Red Deer River, Alberta. Report on file, Archaeological Survey of Alberta, Edmonton.
- Finnigan, James T.
1978 The 1977 Alberta South Highway Survey Report. In Archaeology in Alberta 1977, compiled by W.J. Byrne. Archaeological Survey of Alberta Occasional Paper No. 5, Edmonton.
- Forbis, Richard G.
1960 Some Late Sites in the Oldman River Region, Alberta, National Museum of Canada Bulletin 162 (Contributions to Anthropology 1957), pp. 119-164. Ottawa.
- 1970 A Review of Alberta Archaeology to 1964 National Museum of Canada, Publications in ARchaeology, No. 1, Ottawa.
- French, D.E.
1979 Final Report, Lesser Slave Lake Canal and Weir Project. Report on file, Archaeological Survey of Alberta, Edmonton.
- Gibson, Terrance H.
n.d. A magnetic survey of FjFi-29, Strathcona Science Park. Report on file, Archaeological Survey of Alberta, Edmonton.
- Goddard, P.E.
1916 The Beaver Indians. Anthropological Papers of the American Museum of Natural History 10:202-231.

- Gordon, Brian C.
1977 Chipewyan prehistory. In Problems in the Prehistory of the North American Subarctic: The Athapaskan Question, Edited by J.W. Helmer, S. Van Dyke and F.J. Kense, Calgary: Archaeological Association, Department of ARchaeology, University of Calgary, Calgary.
- Grady, M.A.
1977 Significance Evaluation and the Orme Reservoir Project. In Conservation Archaeology. A guide for cultural resource management studies, edited by M.B. Schiffer and G.J. Gummerman, pp. 259-267. Academic Press, New York.
- Gruhn, R.
1964 Archaeological site inventory data form GhPh-6. Report on file, Archaeological Survey of Alberta, Edmonton.
- Gryba, Eugene M.
1980a Archaeological Mitigation along SR554 in the Jumpingpound Creek Valley: Final Report. Permit 79-148. Report on file, Archaeological Survey of Alberta, Edmonton.
- 1980b Salvage Archaeology along Jumpingpound Creek. Permit 79-148. In Archaeology in Alberta, 1979. compiled by Paul F. Donahue. Archaeological Survey of Alberta Occasional Paper No. 15, Edmonton.
- 1980c Highway Archaeological Survey (South), 1979: Final Report. Permit No. 79-68. Report on file, Archaeological Survey of Alberta, Edmonton.
- 1980d Highway Archaeological Survey of Southern Alberta 1979. Permit 79-68. In Archaeology in Alberta 1979. compiled by Paul F. Donahue, Archaeological Survey of Alberta Occasional Paper No. 15, Edmonton.
- 1980e Highway Archaeological Salvage Projects in Alberta. Report on file, Archaeological Survey of Alberta, Edmonton.
- Heitzmann, Roderick J. and John Priegert
1979 Alberta Highways South Survey: Historical Resources Assessment Programme, 1978. In Archaeology in Alberta 1978, compiled by J.M. Hillerud. Archaeological Survey of Alberta, Occasional Paper No. 14. Alberta Culture, Edmonton.
- Heitzmann, R.J., John Priegert and S.S. Smith
1980 Slave River Hydro Feasibility Study. Task Area 5 - Archaeological Studies. Phase I. Interim Report. For the Slave River Hydro Feasibility Study.

- Hickman, P.P.
1977 Significance of the archaeological resources of the Cache River basin. In The Cache River Archaeological Project: an experiment in contract archaeology, compiled by M.B. Schiffer and J.H. House. Arkansas Archaeological Survey Research Series 8. pp. 163-186.
- Ives, John W.
1977 A spatial analysis of artifact distribution on a Boreal Forest archaeological site. M.A. Thesis, Department of Anthropology, University of Alberta, Edmonton.
- In Press The prehistory of the Boreal Forest of Northern Alberta. A paper presented to the annual meeting of the Archaeological Society of Alberta, Lethbridge, Alberta, April 11-13, 1980.
- Ives, John W. and Barry M. Newton.
1980 Archaeology in northeastern Alberta, 1979, Permit 79-41, 108, 109. In Archaeology in Alberta 1980, compiled by Paul F. Donahue, pp. 38-41. Archaeological Survey of Alberta Occasional Paper No. 15, Edmonton.
- Jenness, Diamond
1963 The Indians of Canada. 6th Edition. National Museum of Canada, Bulletin 65, Anthropological Series No. 15.
- Johnson, Alice M., editor
1967 Saskatchewan Journals and Correspondence, Edmonton House 1975-1800, Chesterfiled House 1800-1802. London. The Hudson's Bay Record Society, London.
- Karklins, Karlis
1979 Nottingham House: The Hudons' Bay Company in Athabasca, 1902-1806. Master of Arts Thesis. University of Idaho. On file, Archaeological Survey of Alberta, Edmonton.
- Kelly, M.
1980 Dickson Dam Project 1979 Historical Resources Mitigation Study. Report on file with the Archaeological Survey of Alberta, Edmonton.
- Kennedy, R.
n.d. report of Lesser Slave Lake District 1819-1920. H.B.C. Archives B. 115/e/1.
- Kidd, Robert S.
1971 Fort George and the early fur trade in Alberta. Report on file, Provincial Museum and Archives of Alberta, Edmonton.

- King, T.H.
1980 Responses to "The trouble with archaeology": part one. Journal of Field Archaeology 7(1): 125-131.
- Lamb, W. Kaye (ed.)
1970 The Journals and Letters of Sir Alexander Mackenzie. Toronto: McMillan of Canada.
- Losey, Timothy C. et al
1978 Archaeological Investigations Fort George, 1977. Permit 77-23. On file, Archaeological Survey of Alberta, Edmonton.
- Moratto, M.J. and R.E. Kelly
1978 Optimizing strategies for evaluating archaeological significance. In Advances in Archaeological Method and Theory, Volume 1, edited by M.B. Schiffer, pp. 1-30. Academic Press, New York.
- Murray, Jeffrey
1980 Artifact Analysis, Appendix "A" in Fort George Project Interim Report No. 3: Archaeological Investigations, 1979, compiled by Losey and Kerpan, Manuscript for permit 79-9, on file, Archaeological Survey of Alberta, Edmonton.
- Newton, Barry M. and John Pollock
n.d. FjPi-29. A Prehistoric Workshop Site in the Alberta Parklands. Manuscript on file, Archaeological Survey of Alberta, Edmonton.
- Noble, William C.
1973 The excavation and historical identification of Rocky Mountain House. Canadian Historic Sites: Occasional Papers in Archaeology and History - No. 6 National Historic Sites Service, Ottawa.
- Pokotylo, D.L. and P.D. Beirne
1978 Preliminary inventory, assessment and impact evaluation of cultural heritage resources in the upper Hat Creek Valley, B.C. Report on file at the Department of Anthropology and Sociology, University of British Columbia, Vancouver, B.C.
- Pollock, John
1978 Archaeological Research in Central and Northern Alberta 1977. In Archaeology in Alberta 1977 compiled by W.J. Byrne. Archaeological Survey of Alberta Occasional Paper No. 5, Edmonton.

- Poole, Colin and R. Anderson
1976 Heritage resource inventory of proposed highway construction projects in the plains region of Alberta. In Archaeology in Alberta 1975, compiled by J. Michael Quigg and W.J. Byrne. Archaeological Survey of Alberta, Occasional Paper No. 1, Edmonton.
- Quimby, George I.
1966 Indian culture and European trade goods. The University of Wisconsin Press. Madison, Milwaukee, London.
- Raab, L.M. and T.C. Klinger
1977 A critical appraisal of "significance" in contract archaeology. American Antiquity 42(4): 629-634.
- Reeves, B. O. K.
1970 Culture change in the northern Plains: 1000 B.C. - 1000 A.D. Unpublished Ph.D. dissertation, Department of Archaeology, University of Calgary, Calgary, Alberta.
- Reeves, B. O. K. and E.J. McCullough
1978 Archaeological Reconnaissance, Alberta Transportation Highway Construction Program, Transitional Parkland and Northeastern Boreal Forest. Prepared for Alberta Culture. Permit 77-43.
- Reher, R.A.
1977 Settlement and Subsistence in the Lower Chaco River -- The CGP Survey. University of New Mexico Press, Albuquerque.
- Rogers, James L.
1972 Archaeological Investigations in the Sheep River Basin: Preliminary Report 1972. Report on file, Archaeological Survey of Alberta, Edmonton.
- Rogers, J.L. and J.A. Fromhold
1975 The FM Ranch Site: Preliminary Report. Manuscript on file, Archaeological Survey of Alberta, Edmonton.
- Rowe, J.S.
1972 Forest Regions of Canada. Department of Environment, Canadian Forestry Service. Publication No. 1300.
- Schiffer, M.B. and J.H. House
1975 Assessing significance. In Conservation Archaeology. A guide for culture resource studies, edited by M.B. Schiffer and G.J. Gummerman, pp. 241-248. Academic Press, New York.

- Sims, C.
1975 Archaeological Investigations on Athabasca Tar Sands Lease 13" A Sample Survey. Prepared for Shell Canada Limited. On file, Archaeological Survey of Alberta, Edmonton.
- 1975a Report on an Archaeological Survey of the Athabasca River 1976. Report prepared for Alberta Culture, on file, Archaeological Survey of Alberta, Edmonton.
- 1976b An outline report of the archaeological excavations at the Gardiner Lake Narrows Site, 1976. Report submitted to the Boreal Institute for Northern Studies, University of Alberta, Edmonton.
- n.d. An Archaeological Survey of the Namur Lake Area in Northeastern Alberta. Report on file, Archaeological Survey of Alberta, Edmonton.
- South, Stanley
1977 Method and Theory in Historical Archaeology. Academic Press. New York, San Francisco.
- Spurling, B.E.
1978 The Site C heritage resource inventory and assessment. A report submitted to British Columbia Hydro and Power Authority. Department of Archaeology, Simon Fraser University, Burnaby, B.C.
- Steer, Donald N.
1977 The History and Archaeology of a North West Company Trading Post and a Hudson's Bay Company Transport Depot, Lac La Loche, Saskatchewan. Manuscript Report Number 280. National Historic Parks and Sites Branch, Parks Canada, Ottawa.
- Stevenson, Marc
In press a Preliminary archaeological reconnaissance in Wood Buffalo National Park. Parks Canada Research Bulletin. In press b Peace Point - A stratified prehistoric campsite complex in Wood Buffalo National Park, Alberta. Parks Canada Research Bulletin.
- Stone, Lyle M.
1974 Fort Michilimackinac 1715-1781, In Archaeological Perspective on the Revolutionary Frontier. Publication of the Museum, Michigan State University, East Lansing, Michigan, in cooperation with Mackinac Island State Park Commission, Macimac Island, Michigan.

Syncrude Canada Ltd.

1973 Syncrude Lease No. 17: An Archaeological Survey.
Environmental Research Monograph 1973-4. Edmonton,
Alberta.

1974 The Beaver Creek Site, A Prehistoric Stone Quarry on
Syncrude Lease #22. Environmental Research Monograph
1974-2. Edmonton, Alberta

Tyrrell, J.B., editor

1916 David Thompson's narrative of his explorations in
western America, 1784-1812. The Champlain Society, XII,
Toronto.

Vance, Robert

1980 Vegetative Survey of Eaglenest and Clear Lakes, 1980.
Report on file, Archaeological Survey of Alberta,
Edmonton.

Van Wass, C.

1974 Biophysical analysis and evaluation of capability, Namur
Lake Area. Report to Land Use Assignment Committee.
Alberta Lands and Forests, Edmonton.

Wormington, H.M. and Richard G. Forbis

An Introduction to the Archaeology of Alberta, Canada.
Proceedings No. 11. Denver Museum of Natural History,
Denver.

Wright, James V.

1975 The Prehistoric of Lake Athabasca: An Initial
Statement. Archaeological Survey of Canada, Mercury
Series No. 29, Ottawa.