

A PROPOSAL TO CONDUCT ARCHAEOLOGICAL RESOURCE
SURVEY AND ASSESSMENT
IN KOOTENAY NATIONAL PARK

Submitted to the Regional Archaeologist,
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Calgary, Alberta

by

The Kootenay Cultural Heritage Centre

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June 23, 1987
Cranbrook, B.C.

1. Introduction

The following is a proposal to conduct an archaeological resource survey and assessment in Kootenay National Park, British Columbia. According to the terms of reference, the purpose of the contract is to expand upon the existing archaeological resource inventory for the Park (Mitchell and Choquette 1974).

More specifically, the terms of reference call for the investigation of select areas and sites within the Park, the curation and analysis of material culture remains and records resulting from the study, and the submission of a report on the project.

2. Study Area

2.1 Biogeography

Kootenay National Park was created in 1922 upon completion of a highway between Banff, Alberta and Radium Hot Springs, B.C. The Park has an area of 1406 square kilometres and consists of an approximately 8 km wide strip along the highway that jogs generally southwestward from the Continental Divide at Vermilion Pass to the east side of the Rocky Mountain Trench south of Radium Hot Springs. This area contains the drainage of the Vermilion River and part of the upper Kootenay River Valley. Most of the courses of these two rivers are within broad valleys paralleling the trend of the surrounding mountain ranges, but at the northeastern and southwestern ends, and in the centre of the Park, the highway and axis of the Park traverse narrower east-west valleys. The extreme southwestern corner of the park consists of part of the eastern wall of the Rocky Mountain Trench, here drained by several small tributaries of the Columbia River.

Climate and vegetation display a general gradient along the axis of the Park and with increasing elevation. A zone of hot dry summers, moderate winters, and low annual precipitation at the extreme southern end of the Park supports a vegetal community dominated by Douglas fir, ponderosa pine, and wheatgrass. To the north of this small area and at higher elevations, the vegetation reflects a transition to subalpine conditions characterized by moderate summer temperatures and rainfall, and more severe winters. Douglas fir dominance gives way to forests of Engelmann's spruce and alpine fir. The regularity of forest transition is interrupted by avalanche slopes and burned areas supporting seral species. In the alpine zone above about 2000 m above sea level, where extreme climatic conditions and high winds preclude the growth of trees, vegetal cover consists of forbs, shrubs, grasses, and lichens. Portions of the floors of the Kootenay and Vermilion River valleys support wetland areas.

From an archaeological perspective, the locations and extent of these vegetal zones must be considered as reflecting modern conditions. When considering the archaeological potential of the Park, it is necessary to take into account past climatic fluctuations and their influence on such contributors vegetal configuration as location of timberline, forest fire and avalanche frequencies, and hydrology. A similar caveat applies to fauna. The present abundance

and distribution of the animal population, which includes elk, mule and white-tailed deer, bighorn sheep, mountain goat, moose, bears, wolf, and mountain lion, cannot be accepted a priori as being representative of the biomass available at other times in the past. Likewise, the present fish population, among which cutthroat trout, charr, whitefish, and suckers are native species, may have been augmented at times in the past by Pacific salmon when the upper Kootenay River formed the headwaters of the Columbia River (Choquette 1983). Prior to the construction of hydroelectric dams on the Columbia River, salmon are known to have ascended into the southwestern corner of the Park.

2.2 Native Peoples

Representatives of a number of different linguistic stocks occupied the general vicinity of Kootenay National Park in early historic times. Hector records finding the remains of a "Kootanie" camp at the Paint Pots (Spry 1968: 301). The Kootenay are a distinctive cultural group having a language not closely related to any other as well as many other unique cultural traits that indicate a long period of relative isolation from other peoples. The Kootenay practiced a nomadic hunting-fishing-gathering lifeway that was strongly oriented towards the resources of the mountains. Indeed, it seems certain on the basis of the archaeological researches of Reeves on the east slope and the proponent in the Kootenay drainage proper that the Kootenay occupied both sides of the Rocky Mountains prior to decimation by disease and the escalation of hostilities with the Blackfoot. The Kootenay were the first people in this area to obtain horses, which they got from the Flathead around 1730 (Haines 1938). The mobility thus provided allowed them to continue their travels through the mountains, but not without considerable resistance from the Blackfoot Nation.

The other cultural groups documented in the immediate vicinity are acknowledged to be more recent arrivals. The Columbia River drainage within the Rocky Mountain Trench was occupied by the so-called Kinbasket Shuswaps, speakers of a Salish language. This group is named after Chief Kenpesket who, after making annual hunting forays into the upper Columbia River valley for many years, migrated there from the Thompson drainage around 1840 with 50-60 of his friends and relatives (Teit 1909, Borden 1956). Descendants of this group still reside on the Shuswap Reserve south of Radium and are formally represented on the Kootenay Indian Area Council. References to the mobility of "Rocky Mountain Shuswaps" (Anderson 1975), prehistoric artifacts from cultural depressions in the Rocky Mountain Trench (eg. Yip 1982), and the occurrence of cultural depressions east of the Continental Divide (Christensen 1971) suggest a more extensive Salish presence, both temporally and spatially, that can only be elucidated by informed archaeological investigation.

East of the Continental Divide were the Stoney who reside today on a reservation in the Bow River valley. This small band of Assiniboines had reached the foothills area between the Athabasca and North Saskatchewan rivers shortly before 1800 with the westward expansion of the fur trade. By the late 1840's, the Stoneys had moved further south along the foothills in pursuit of better hunting

grounds (Anderson 1975: 42-43). According to Teit (1909: 467), the Stoneys had sufficiently adapted to mountain life that they seasonally journeyed to the Columbia River to fish for salmon and to pick berries. This led to the formation of a defensive alliance with the Kinbasket Shuswaps against the Kootenays. While these are very late developments, there is evidence of very great time depth for human occupation of the Rocky Mountain Trench and the Bow River valley. Archaeology is the only means of providing adequate context to the story of human inhabitation of the Rocky Mountains.

The other cultural group deserving mention here is the Blackfoot Nation who inhabited the foothills and prairie to the east of Kootenay National Park. Their raids across the mountains and their hostility which resulted in the abandonment of passes south of the Athabasca - Saskatchewan country during the Fur Trade era suggest some familiarity with the Rocky Mountains, but the Blackfoot were predominantly a Plains people.

2.3 History

The history of Kootenay National Park can be conveniently summarized following the chronological outline presented in Mitchell and Choquette (1974: 29). The travels of Simpson and Sinclair in 1841, DeSmet in 1845, Hector in 1858, and Dawson in 1886 through various parts of the Park comprise the Exploration Period. While documentation for the Fur Trade Period is scant indeed, the results of Choquette and Anderson's 1972 survey (Mitchell and Choquette 1974) suggest that trapping may have actually been a fairly significant activity in the Park, at least in terms of structural remains. During the Homesteading Period of the early 1900's, numerous homesteads were staked in the Park, although only a few were developed. The succeeding Industrial/Developmental Period saw the staking of mineral claims, the development of several mines, the construction of the Banff-Radium highway, and the establishment of bungalow camps. It is also possible to define a contemporary period, that of Conservation/Recreation/Interpretation, that reflects Parks Canada's current policies in keeping with the principles of a National Park.

3. Previous archaeological investigations

Sketches and descriptions of the Iron Gates Pictographs were prepared in 1962 (Kootenay National Park office file no. 318, Museums).

The first systematic archaeological work in Kootenay National Park was that of Haugen, Murton, and Saunders of the University of Victoria (Mitchell 1972). Their investigation consisted of examination of five areas slated for campground construction and a survey of the remainder of the Park. This study took place in July and August of 1971 and was a judgemental sample based on the direct historic approach: it was felt that Kutenai, Shuswap, and Blackfoot material culture, settlement patterns, subsistence activities, and seasonal movements were the cultural practices most likely to be reflected in the archaeological record. The survey party looked primarily for surface scatters of artifacts and other signs of

occupation. In the absence of clear evidence of human activity, this reconnaissance was occasionally augmented by excavation of test cuts to see if archaeological material lay beneath the surface sod. No prehistoric sites were discovered by this survey team, but they recorded the Iron Gates Pictographs (EdQa-4) and the Paint Pots (EhQa-1) on the basis of existing information that documented associations of these sites with aboriginal cultural groups.

In September 1972, Choquette and Anderson conducted a brief archaeological reconnaissance in Kootenay National Park, also under the auspices of the University of Victoria (Mitchell and Choquette 1974). This survey was primarily for historic resources, but it also included a brief examination of the prehistoric archaeological potential of the park based on Choquette's prior experience in Rocky Mountain archaeology. The survey was severely curtailed by adverse weather and was terminated prematurely after three weeks when snow covered the valley bottoms. These restrictions forced a redefinition of the objectives of the historic survey, and the thirteen historic sites located and formally recorded were judgementally sought as representative of the range of types and ages of historic sites that available documentation suggested were present in the Park. These sites consist of one temporary camp, 4 log cabin sites, 2 homesteads, 2 industrial camps, 2 activity sites (both mineral prospects), and 2 miscellaneous sites (a powderhouse and an aircraft landing field) (Mitchell and Choquette 1974: 13-27).

The brief prehistoric reconnaissance was also judgemental, and was based on a similar rationale as is proposed herein for further archaeological assessment in the Park. Three localities were selected for examination: the alluvial fan at the east end of Olive Lake at the summit of Sinclair Pass, the Kootenay Crossing vicinity, and the area around an historic homestead in the southern Kootenay River valley. The first two localities were selected as being potential indicators of prehistoric transhumance through the Park, as they are located strategically along major travel corridors. Prehistoric cultural deposits were visible on the surface of the fan beside Olive Lake where recent erosion from use of the area as a picnic and camping area had exposed the mineral soil. The existence of this site (EePx-1) reflects prehistoric travel into the upper Kootenay River valley from the Rocky Mountain Trench.

The Kootenay Crossing locality was selected because of the presence of a terrace sequence along the east side of the Kootenay River and because of the occurrence of a series of small lakes to the northeast in open canopy forest. These biographical relationships had been found to correlate well with the occurrence of prehistoric sites in the Rocky Mountain Trench, and it was reasoned that if prehistoric sites were present here in the centre of the Park, the existence of other sites elsewhere in the Park would be highly likely. Three prehistoric archaeological sites were found in the Kootenay Crossing locality, two on terraces above the Kootenay River and the third on the north side of one of the small lakes. All sites contained buried cultural deposits that were encountered by small shovel tests. These deposits appeared to be relatively intensive: several tools plus chipping detritus, bone fragments, and numerous fire broken rocks were found in the very small volume of natural deposit examined.

The third locality examined for evidence of prehistoric activity was on the west side of the Kootenay River just inside the southern park boundary. This reconnaissance may be considered to be an "arbitrary" sample since the survey team was already there to record a homestead, the terrain was thought at the time to look suitable for aboriginal inhabitation, and there was considerable historic disturbance which would provide subsurface exposure. Here, however, the results of a careful surficial examination yielded nothing of prehistoric human origin.

Two main conclusions can be drawn from the results of the archaeological investigations just summarized. First of all, the extent of past human activity in the Park is not yet fully known, but it was obviously more intensive than had been previously assumed. Second, as the following table shows, the differences in archaeological research design employed in the two prehistoric surveys strongly influenced the nature and amount of data retrieved,

	Sites Recorded			Duration (person days)
	Previously known	New	Total	
1971 survey	2	0	2	88
1972 survey	1	4	5	4

Table 1. Number of sites recorded and duration of prehistoric archaeological surveys in Kootenay National Park.

Part of the difference in data yield reflected in Table 1 is due to differences in the backgrounds of survey team personnel, but equally as significant a factor is the difference in judgemental criteria employed in sampling. As previously described, the research design employed in 1971 was basically the Direct Historic Approach, and it is apparent in the report submitted by the 1971 survey team (Murton et al 1971) that at least one of its members conceived of the Park's prior inhabitants primarily in terms of equestrian culture. The research design employed in 1972 to find prehistoric sites was based on a model of prehistoric land and resource use derived from patterning in the then-known archaeological data base for the Canadian Rocky Mountains. The locations of sites were predicted using palaeoenvironmental reconstruction to identify potential resource foci capable of supporting human populations. The research design proposed below is essentially a refinement of this model reflecting almost two decades of further research in the archaeology of the Northern Rocky Mountains.

The most recent archaeological project to be conducted in Kootenay National Park was the 1984 overview-related survey of Wilson during which one additional prehistoric site was located and recorded.

4. Proposed Investigations

4.1 Research design

The conduct of scientific inquiry generally progresses from an initial inductive stage, where classification is a major concern, to a deductive stage which evolves from inferences about the data. Hypotheses are formed and tested; then, depending upon the results, they are discarded, accepted, or modified and incorporated into an ever more detailed knowledge of the subject of inquiry. The hypotheses are framed to allow for interpretation of patterning in the data identified during the inductive stage. This process ultimately leads to the ability to make accurate predictions. For maximum scientific gain, multiple working hypotheses should guide the conduct of scientific research (cf. Platt 1964).

The Terms of Reference for the proposed project state that the archaeological resource studies should be designed to maximize data recovery, to assess prehistoric and historic potential, and to describe the significance of individual sites. The study proposed herein will meet these objectives by utilizing the methods of archaeological survey as a strategy of scientific inquiry to evaluate a number of hypotheses pertaining to the prehistory of Kootenay National Park. Site survey is usually employed as an inductive data retrieval procedure. However, the ability to model expectable patterns of site distribution based on existing knowledge makes it possible to employ site survey as a means of testing hypotheses set up to explain such patterning. Site survey thus becomes a relatively powerful research tool in its own right since it can provide considerable information regarding the relationships between sites. In addition, because a realistic and relevant archaeological context can be defined by such survey, this strategy makes possible more effective Heritage resource management because the significance of each site can be objectively assessed within this context, thus allowing for the setting of management priorities as well as the development of more detailed hypotheses to be tested by mitigative data retrieval should such be necessary.

An example of this strategy is provided by the survey of the middle Elk River drainage southeast of Kootenay National Park (see Choquette 1974 and 1979). This survey evaluated a similar set of primary working hypotheses as are proposed for Kootenay National Park: transient human presence versus systematic or "patterned" resource exploitation. In the Elk Valley, it was found by multi-stage survey that transient human presence apparently predominated prior to about 2000 years ago whereas after that time more intensive occupation took place supported by both bison hunting and fishing. Examination of any given site can now begin investigating the causes and processes connected with this shift as well as asking detailed questions about the nature of the cultural group(s) and the activities that were responsible for the cultural deposits. This stands in contrast to an approach in which site survey provides an inventory of the locations and settings of the sites only with excavation being necessary to obtain information about culture history and land/resource use. In short, by utilizing site survey as a deductive research tool in addition to its use as an

inventory device, at least one stage in the process of archaeological research can be saved and the resources that must be invested in excavation can be immediately put towards extracting detailed information as opposed to answering basic inductive questions.

With regard to Kootenay National Park, it is proposed that existing archaeological knowledge be utilized to guide the examination and assessment of the study areas for which cultural Heritage resource data is required. A number of working hypotheses will be drawn from the present archaeological data base and the study areas will be evaluated for their ability to contribute information to these research domains. The field survey will serve to confirm or reject the validity of the hypotheses with regard to each study area and the sites found will be evaluated as to their individual capability to contribute to further understanding of the Park's prehistory. It must be pointed out, of course, that reconnaissance and subsurface testing may not be sufficient to confirm or reject a given hypothesis. Nevertheless, the data obtained within this investigative framework will serve to indicate the directions for future inquiry and thus will still be an invaluable aid in setting management priorities.

The terms of reference for the proposed project define five archaeological resource management units (Map 1), within which specific study areas have been identified. The Contractor will also be required to examine "high potential areas which appear to fall outside the identified study areas" (Terms of Reference: 5). The following sections will define the working hypotheses, describe the methods to be employed to evaluate them, and will integrate this information into a strategy for examining the various study areas.

4.2 Information domains

4.2.1 Major hypotheses

The present archaeological data base for Kootenay National Park suggests that relatively intensive prehistoric human activity took place in the Kootenay Crossing vicinity and that humans were also present within the northeastern and southwestern boundaries of the Park. Two alternate hypotheses can be advanced to explain this patterning, each of which has specific ramifications with regard to the nature of the archaeological record in the rest of the park.

- A1. Human presence in Kootenay National Park was due to passage between occupation/resource foci in the Rocky Mountain Trench and the Bow Valley.
- A2. Humans were systematically exploiting resources within the Park itself and had established camps near the exploitive foci.

With regard to Hypothesis A1, it is well apparent that there were major foci of prehistoric human inhabitation in the adjacent Rocky Mountain Trench and Bow Valley and that some amount of travel probably took place between the two areas. The rapid thinning out of sites in the Bow Valley above Castle Junction suggested to Christensen (1971: 149) that Vermilion Pass may have formed a major route of travel. Fidler noted that many of the trails in the mountains had fallen into disuse as smallpox in 1781 had killed many

of the Kootenays who had been in the habit of using them (Scace 1971: 16).

On the other hand, it was the environmental similarity between the setting of the Kootenay Crossing sites and known hunting site complexes in the Rocky Mountain Trench that prompted the investigation of the terraces in the former locality and the discovery of hunting-related cultural deposits there. Further support for Hypothesis A2 derives from reports of aboriginal exploitation of the Paint Pots as a source of red ochre.

Present data does not allow for a more precise evaluation of the weight that should be given either of these hypotheses in constructing Park prehistory, so more intensive archaeological investigation is definitely in order. The level of inquiry proposed herein can provide specific types of information that will bear upon the general nature of prehistoric Park use. One indication of whether the Kootenay Crossing locality was a resource "node" or whether it was just one of a series of transient stopovers will be the symmetry of site distribution relative to Kootenay Crossing. Other indications of transient versus focussed site occupation will be provided by the density of sites in other localities (see below) and by the nature of the cultural deposits in the sites themselves.

4.2.2 Ancillary Hypotheses

Basically all archaeological survey work in Kootenay National Park should provide information relevant to the above set of hypotheses. In addition, there are a number of more specific data sets to which the various study areas defined for the Park have the potential for contributing. Besides being individual tests of the major hypotheses, the following problem domains can contribute significantly in themselves to an overall understanding of the nature of human use of the park. By seeking to obtain information relevant to them, the proposed survey will be consistent with both the Terms of Reference requiring maximal data recovery and significance assessment capability as well as the dictum of scientific efficiency of evaluating multiple working hypotheses.

Each of the following cases is related to the nature of human use of specific locales and investigation of them will constitute a test of the Null Hypothesis that human use of the type predicted did not occur.

4.2.2.1 High elevation hunting was practiced in the Park

Archaeological research in the British Columbia Rocky Mountains a short distance to the south has resulted in the documentation of a complex of game drive sites above timberline that are associated with higher ungulate carrying capacities in pre-Neoglacial time (Choquette 1985). Parts of Kootenay National Park have the potential for being a northward extension of this prehistoric land/resource use pattern.

If this hypothesis is correct, sites containing deposits and/or features related to hunting should be found at or near timberline.

4.2.2.2 Minerals were exploited in the Park in prehistoric time

As mentioned above, there is historic documentation of use of red ochre from the Paint Pots. In addition, much of the Park's bedrock consists of Palaeozoic formations which have at least some potential for containing silicate rocks suitable for stone tool manufacture.

Evidence of prehistoric utilization of the Paint Pots would confirm this hypothesis, as would the discovery of lithic sources or manufacturing debris of local stone.

4.2.2.3 Humans were present in early postglacial time

It is now established that glaciation of the Northern Rocky Mountains was not as extensive as was thought two decades ago, although considerable work remains to be done in developing an accurate glacial and deglacial chronology. It is apparent that the extent of glacial ice 10,000 years ago was no greater than, and perhaps even less than that of today. Early post-glacial human occupation foci have been documented on the East Slope of the Rocky Mountains as well as in the Kootenay River drainage and it is not unexpected that humans could have been present in Kootenay National Park as well.

If so, cultural deposits should occur systematically on early landforms, for example, in association with early lakes, and especially within early natural deposits. Early dates would of course also confirm the hypothesis.

4.2.2.4 Aboriginal fishing took place in the Park

Prehistoric fishing is a little-known aspect of human subsistence behaviour in the Northern Rocky Mountains, but artifacts inferred to have been fishing implements have been found to the south in the Elk Valley and at Crowsnest and Waterton Lakes. Kootenay National Park contains some good fish habitat that could have been exploited by prehistoric humans. In addition, Pacific salmon ascended into Kootenay National Park via Sinclair Creek prior to the construction of hydroelectric dams on the Columbia River and may also have ascended some of the other streams in the southwesternmost corner of the Park. Certain characteristics of the surficial geology of the Rocky Mountain Trench indicate that the Kootenay River probably flowed northward after entering the Trench at present-day Canal Flats, thus forming the headwaters of the Columbia River. It is thus not inconceivable that Pacific salmon could have ascended into Kootenay National Park to spawn in the upper Kootenay River at some time in the past as well.

Needless to say, the documentation of the presence of a salmon fishery in the Park would be of considerable interest, although its evidences will likely be elusive indeed. Site distributions may provide evidence of fishing, for example, associations with such hydrological features as eddies, rapids and waterfalls, and confluences. Certain artifacts, for example, notched pebbles and spears parts, will be positive indicators, as would the specific features of the Salish salmon specialization, pithouses and cache

pits. ,

4.2.2.5 Parts of the Park were used for religious observances

The investigation of Native religion by anthropologists is a touchy subject and in many cases most appropriately avoided. However, the existing data base suggests that portions of the Park were in fact used by Native People in a specifically religious context. If interpretation of the Park's cultural Heritage is to be accurate and sensitive, it is necessary to document this aspect of human use and determine appropriate management strategies.

Religion is an elusive subject matter for field archaeological documentation. However, pictographs are often, but not always, associated with the vision quest, as are certain rock features and concentrations of valuable artifacts.

4.2.2.6 There were major travel corridors through the Park

While closely connected with the major working hypotheses, prehistoric transhumance is an information domain in its own right in view of the contribution that can be made to the prehistory of surrounding areas.

Indicators of this use would be isolated finds of artifacts on trails, the distributions of sites along physiographically defined travel corridors, and/or the presence of certain distinctive features such as trail shrines. Cultural deposits and features in transient sites would be expected to occur in different frequencies than in resource foci.

4.2.3 Historic archaeology

The 1972 survey of Choquette and Anderson was targetted towards assembling an archival and field inventory of the historic resources of Kootenay National Park. In spite of the severe restrictions placed on this study by limited time and inclement weather, it was successful in creating a useful overview and chronological framework for Park history. Mitchell and Choquette (1974) also contains a number of management recommendations pertaining to historic archaeological resources. The state of our knowledge of this aspect of the Park's cultural Heritage is thus further advanced than is that of prehistoric archaeology. Unfortunately, it seems that the records for this survey have been lost so it will be necessary to revisit the historic archaeological sites and secure up-to-date information from them. There are, in addition, a few historic sites that could not be examined during the 1972 survey that will be investigated by the proposed study. These are indicated in discussions of the appropriate study areas.

4.3 Methods

Prior to commencing the field investigations, the proponent will contact the Regional Historian, R. Stuart, to determine whether there are additional historic sites in the Park besides the ones identified during the 1972 survey. In addition, Kootenay National Park

personnel will be contacted to obtain information on the locations of early warden's cabins and any other features of importance.

The field examination will be guided by the use of aerial photographs to delineate landforms and environmental settings with potential for containing archaeological sites. Some historic sites may also be identified with this technique.

The survey will be conducted via series of zig-zag foot traverses across landforms judged to have archaeological potential by aerial photo examination or subsequently in the field. Subsurface exposures such as outbanks, vehicle tracks, game trails, tree throw, and rodent backdirt will be examined for cultural deposits; the latter two types of exposure will be trowelled through. Other evidence of human activity that will be sought will include trees scarred from aboriginal cambium extraction, pits, cairns, weirs, and historic structures. Terrain covered by the reconnaissance will be recorded on appropriate large scale maps, as will the locations of significant subsurface exposures.

Depositional locales with potential for containing cultural deposits but lacking adequate subsurface exposure will be shovel tested. A minimum of 2 such tests per hectare will be excavated in undisturbed areas of moderate to high archaeological potential. Shovel tests will be 0.5 metres square and at least 0.8 metres deep.

Sites will be recorded on site data inventory forms and pertinent information will be entered onto JRD Data Entry Forms. Individual sites maps will be drawn indicating topographic features, site boundaries, and cultural features. Photographs will be taken of the general site area, site overviews, site-related features, and representative stratigraphic sections. Identified site locations will be tested utilizing a grid of 0.5 metre squares; these may be conjoined to provide better stratigraphic context. Locations of test units will be plotted on the site map.

All test units will be excavated in arbitrary levels, thicknesses of which will be determined by the nature of the sediments. The matrix of each level will be screened through 2 mm mesh wherever possible; otherwise, the matrix will be carefully trowelled through. All subsurface tests will be backfilled.

Field records will be maintained documenting areas surveyed, types of reconnaissances, personnel, location and nature of subsurface exposures, and the frequency and distribution of subsurface testing. A primary orientation of the proponent is documentation of stratigraphic context of archaeological and palaeoenvironmental evidence. Special attention will be given to such potentially significant stratigraphic features as buried soil horizons, tephra layers, and forest fire horizons. Stratigraphy will be carefully observed during site testing to ensure control over quality of provenience of artifacts and datable materials.

Collection of cultural and palaeoecological specimens will be kept to a minimum; representative artifactual, lithic, and faunal specimens will be retained for analysis. All material recovered during the course of the project will be catalogued under the direction of the Archaeological Research Services Unit.

One interim letter report and a final report will be submitted. The latter will adhere to the outline provided in the Terms of Reference.

5. Study Areas

Kootenay National Park has been subdivided into five management units for the purpose of archaeological resource description (Map 1). Within these are a number of study areas based on those defined in the Terms of Reference; there is not a direct correspondence, however. Some areas have been enlarged and a few new ones included. Areas outside those defined in the Terms of Reference are noted in the discussions of the study areas that follow. These discussions briefly describe study area biogeography, identify the cultural Heritage potential in terms of the hypotheses and information realms discussed above, and outline the strategy to be employed in the survey. The study areas and the relevant information domains are summarized in Table 2 and the study areas themselves are depicted in maps 2-10. Table 3 projects the time frame proposed for each study area.

5.1 Sinclair-Stoddart

5.1.1 Sinclair Pass (Map 2)

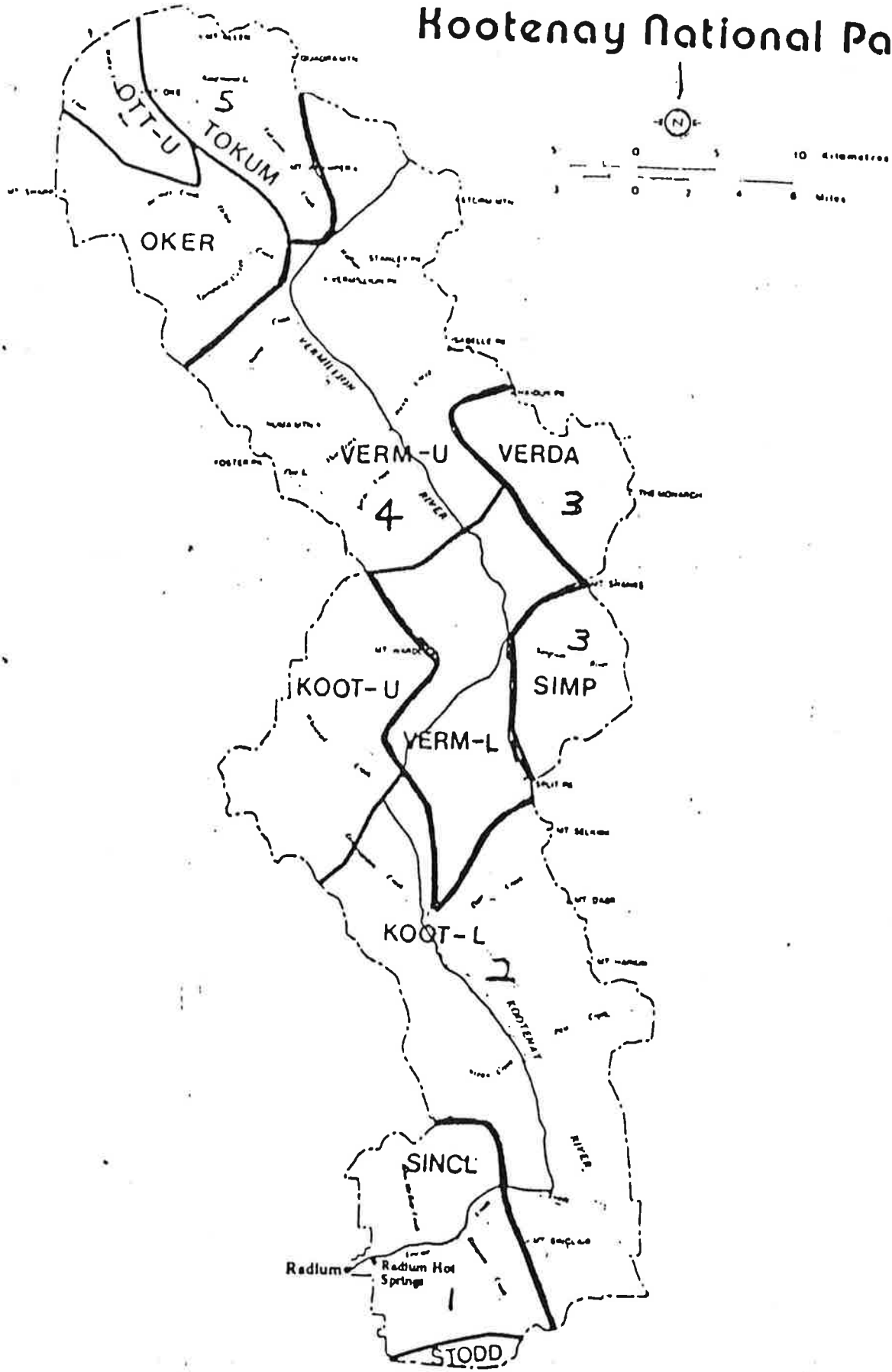
This section is roughly 6 km long and contains at least 6 alluvial fans in a steep-sided corridor. Five of the fans have southerly to westerly exposure; one has a west-northwest exposure. Three of these fans were delineated in the Terms of Reference. This study area represents the traverse of the Sinclair Pass and may be expected to contain evidence of prehistoric travel between the Columbia and Kootenay River valleys. There has been extensive disturbance connected with the construction of the Kootenay Parkway. The toes of the alluvial fans represent good depositional locales suitable for containing stratified cultural and natural deposits; these will be shovel tested.

One prehistoric site is known, at the east end of Olive Lake. This will be reevaluated and its potential to contain intact buried cultural deposits will be assessed. An historic site, "Kay's cabin" will be recorded.

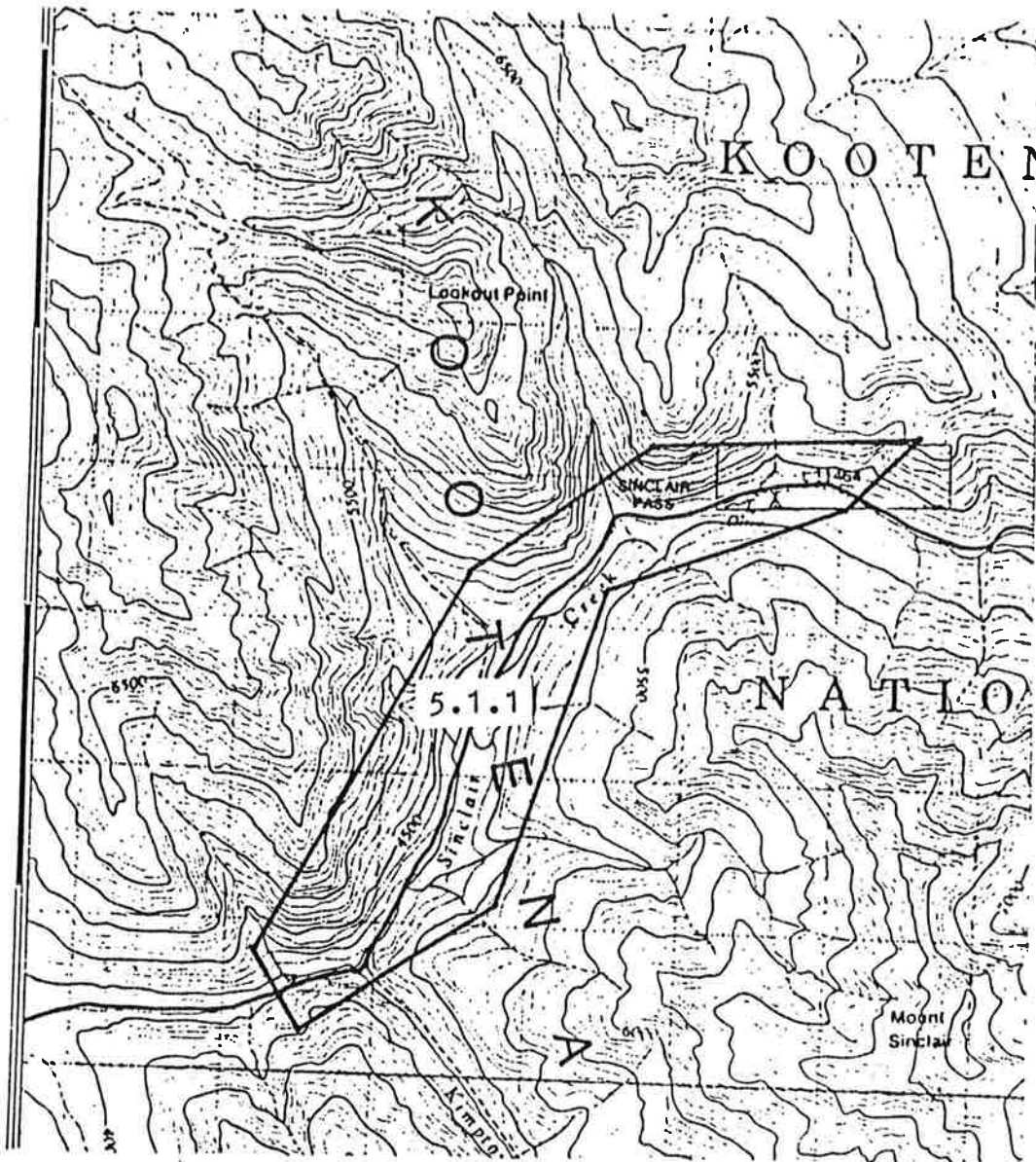
5.1.2 Radium Hot Spring (Map 3)

This area is also about 6 km long and contains Sinclair Canyon, Radium Hot Springs, and Sinclair Creek. It is part of the Sinclair Pass travel corridor and in addition has known Heritage features that relate it to a number of other important information domains. Salmon ascended Sinclair Creek, thus there is potential for discovering evidence of aboriginal fishing. A high terrace occurs along the north side of the creek which could contain deposits and features related to the drying and storage of salmon; this terrace also has the potential for containing early cultural deposits. Sinclair Canyon and the Hot Springs themselves are known to have been a focus of Native purification rites and vision quests. The Iron Gate Pictographs on the south side of the creek probably relate to this use; there may be related features such as rockshelters, stone structures, and additional pictographs in the vicinity. A previously unreported pictograph has been observed on the north side of the

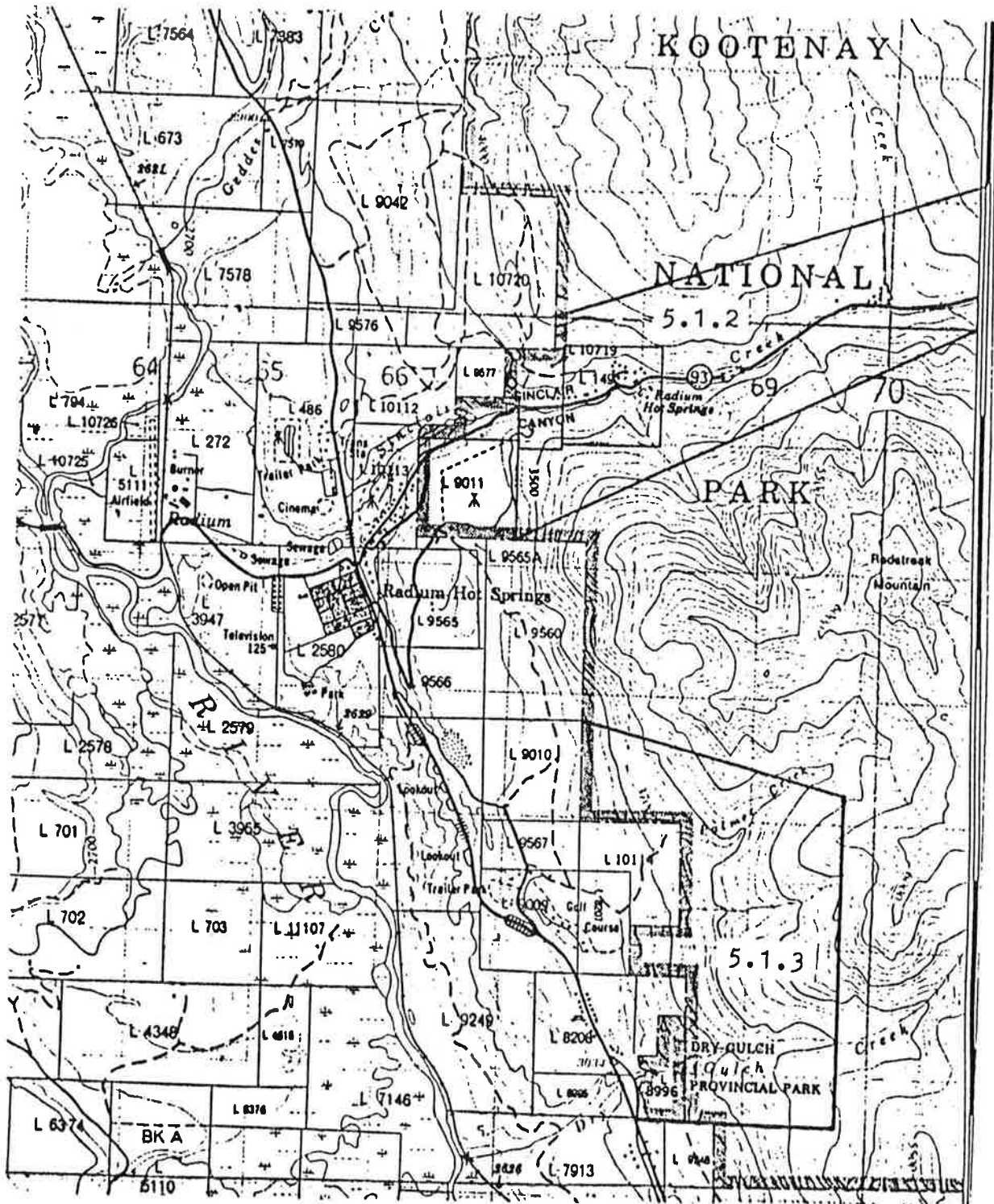
Kootenay National Park



Map 1. Archaeological resource management units



Map 2. Sinclair Pass study area (5.1.1)



Map 3. Radium Hot Springs (5.1.2) and Dry Gulch/Palmer (5.1.3) study areas.

creek. It appears to be a trail marker, presumably of a foot trail that ascended northwestward out of the canyon at this point.

Exposures are considered to be abundant here in view of the extensive disturbance and the semi-arid environment. However, a loess cap may be present in places that would bear subsurface testing. The Iron Gate Pictographs will be revisited to report on site condition and historic site 356T, the remains of a powderhouse, will be reassessed. The possibility of a northward trail will be investigated.

5.1.3 Dry Gulch/Palmer Creek (Map 3)

This area is on the eastern shoulder of the Rocky Mountain Trench. It has the potential for containing evidence of prehistoric human subsistence activities since it contains major winter and summer range for bighorn sheep, mountain goat, and mule deer and could also have served as a source of economic plants such as berries. Salmon may have ascended the creeks here, thus there is some potential for aboriginal fishing and related processing activities. An intensive site cluster containing cultural depressions and midden deposits is present outside the Park a short distance to the south on the middle reaches of Stoddard Creek.

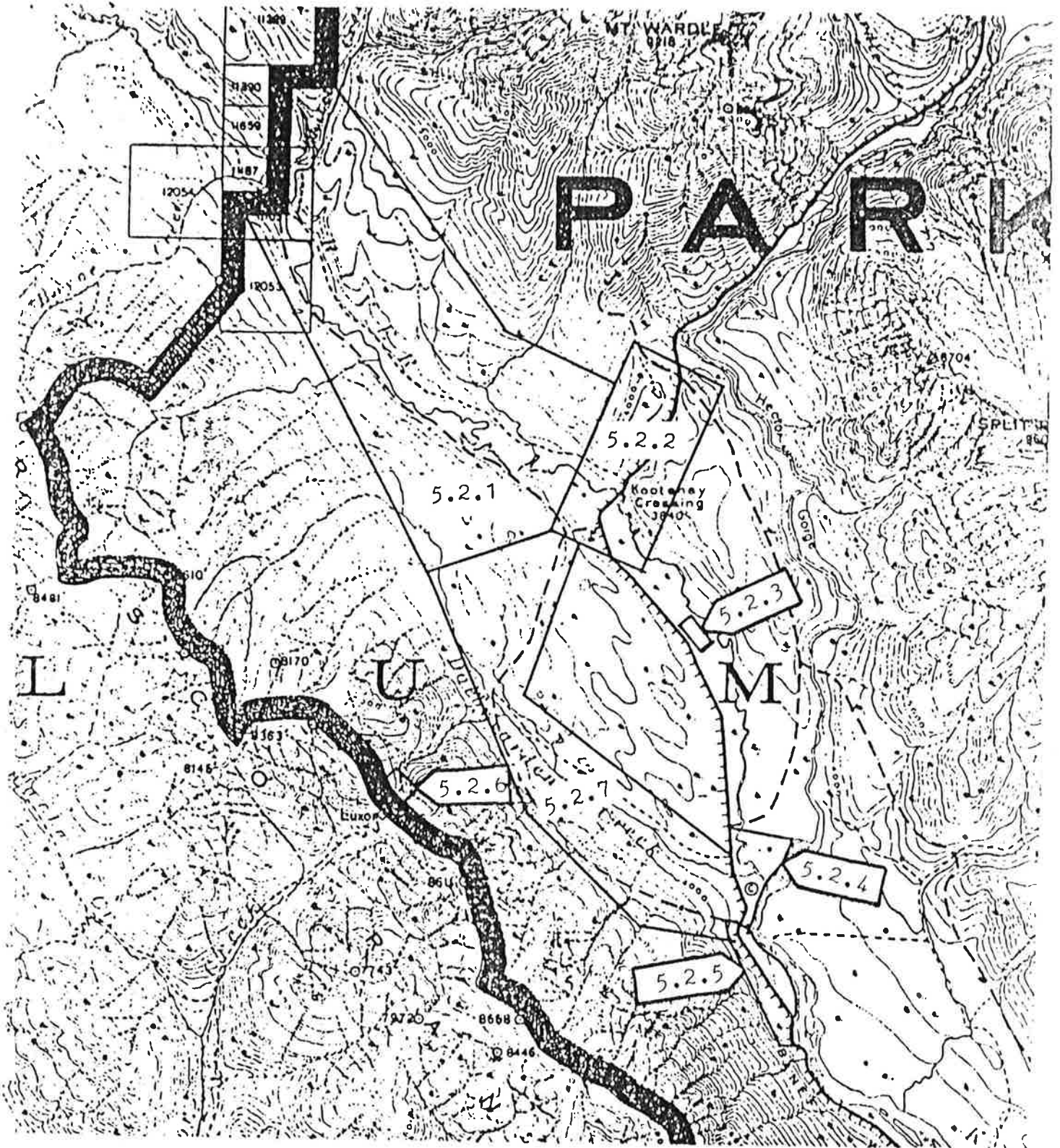
This study area was enlarged slightly on the north to include the northern edge of Palmer Creek fan. Much of the area is semi-arid and likely to have good surface exposure. Shovel testing will be necessary in colluvial and aeolian depositional localities.

5.2 Upper and Lower Kootenay River

5.2.1 Kootenay Crossing to Whitetail Creek (Map 4)

This 8 km long section of the upper Kootenay Valley is a till plain dissected by the Kootenay River and its tributaries. The largest mountain goat population in the Park is found on the slopes of Mount Wardle and Verendrye immediately to the northeast while the extensive avalanche slopes on the west side of the Kootenay Valley are summer elk range. With more frequent forest fires under natural conditions, especially during dry climatic intervals, the presently closed canopy forest could have been more open and provided spring, summer, and fall range for elk and mule deer. Kettle ponds, terraces, and fans are potential occupation sites related to exploitation of ungulate populations while open ridges and terrace margins are potential locations of trails, lookouts, and workshops. The Kootenay River could have supported a greater fish population at times in the past which could in turn have attracted humans. This area is part of a major north-south valley corridor that may have been a prehistoric travel route.

Suitable landforms will be identified by aerial photo reconnaissance and examined in the field; subsurface testing will likely be necessary in many locales because of the present vegetal cover and lack of recent disturbance. The area to be examined extends further away from the river than that indicated in the terms of reference.



Map 4. Kootenay Crossing - Whitetail Creek (5.2.1), Kootenay Crossing (5.2.2), Airport Meadow (5.2.3), Kootenay/Vermilion confluence (5.2.4), Crook's Meadow (5.2.5), Luxor Pass (5.2.6), and Fireroad (5.2.7) study areas.

5.2.2 Kootenay Crossing (Map 4)

This area of relatively strong relief contains some open canopy forest and several kettle ponds. This type of setting represents good seasonal ungulate range, especially during more arid periods. An ancient channel of the Vermilion River forms a dominant feature of the geomorphology that probably served to channel pedestrian traffic, both human and animal, through the locality, thus making it a good place for ambush hunting as well as a logical place for transient stopovers.

Three prehistoric sites were found here in 1972 during a brief examination, and the likelihood is high that there may be others in the vicinity. Shovel testing will be required to detect buried cultural deposits and minor test excavations will be undertaken at the known sites to obtain information pertaining to spatial extent, stratigraphic context, and hopefully to obtain datable materials.

A historic site (370T), interpreted to be the location of a highway construction camp, is located on the south side of the highway. This site contained a number of artifacts related to the construction of the highway; its condition will be reassessed.

5.2.3 Airport Meadow

This terrace segment has a relatively low prehistoric archaeological potential, not being situated on the sunny side of the river or at a confluence. It is an anthropogenic vegetal feature related to use as an aircraft landing strip. Time did not permit a detailed examination in 1972.

It will be examined for evidence of both prehistoric and historic activity.

5.2.4 Kootenay/Vermilion confluence (Map 4)

The mouth of Dolly Varden Creek is also included in this locality, which has good potential for being the site of an aboriginal fishery, if such do indeed occur in the Park. It could also have been the location of a transient encampment. Since it is hypothesized that the major prehistoric travel route passed through the Kootenay Crossing locality, results of examination here would be important in assessing the extent of prehistoric travel.

There is high likelihood of alluvial stratigraphy here; thus one or more deep tests may be necessary in addition to the shovel tests. This will depend upon the nature and extent of outbank exposures.

5.2.5 Crook's Meadow (Map 4)

This is another locality of relatively low prehistoric archaeological potential but which contains documented historic evidence. The field examination will focus on the discovery and recording of the John Brothers homestead.

Some shovel testing will be undertaken in the highest potential spots as part of the test of the major working hypothesis.

5.2.6 Luxor Pass (Map 4)

Luxor Pass is below the present timberline, and probably below all but the earliest prehistoric timberlines, except during times of extreme forest fire, if such did indeed occur. There is a slight possibility that it could have served as a hunting base camp. It also could have been a travel route.

The trail to the pass will be examined for evidence of prehistoric travel and the pass area itself will be shovel tested in addition to examination of any subsurface exposures that may occur.

5.2.7 Fireroad (Map 4)

This road provides access to part of the Dolly Varden Creek valley, which is predominantly wetlands. There is some possibility for evidence of fur trapping. The area defined herein is larger than in the Terms of Reference to encompass landforms that could have been utilized in connection with prehistoric hunting.

High potential landforms will be identified by aerial photo reconnaissance and examined in the field. Depositional locales of potential will be shovel tested.

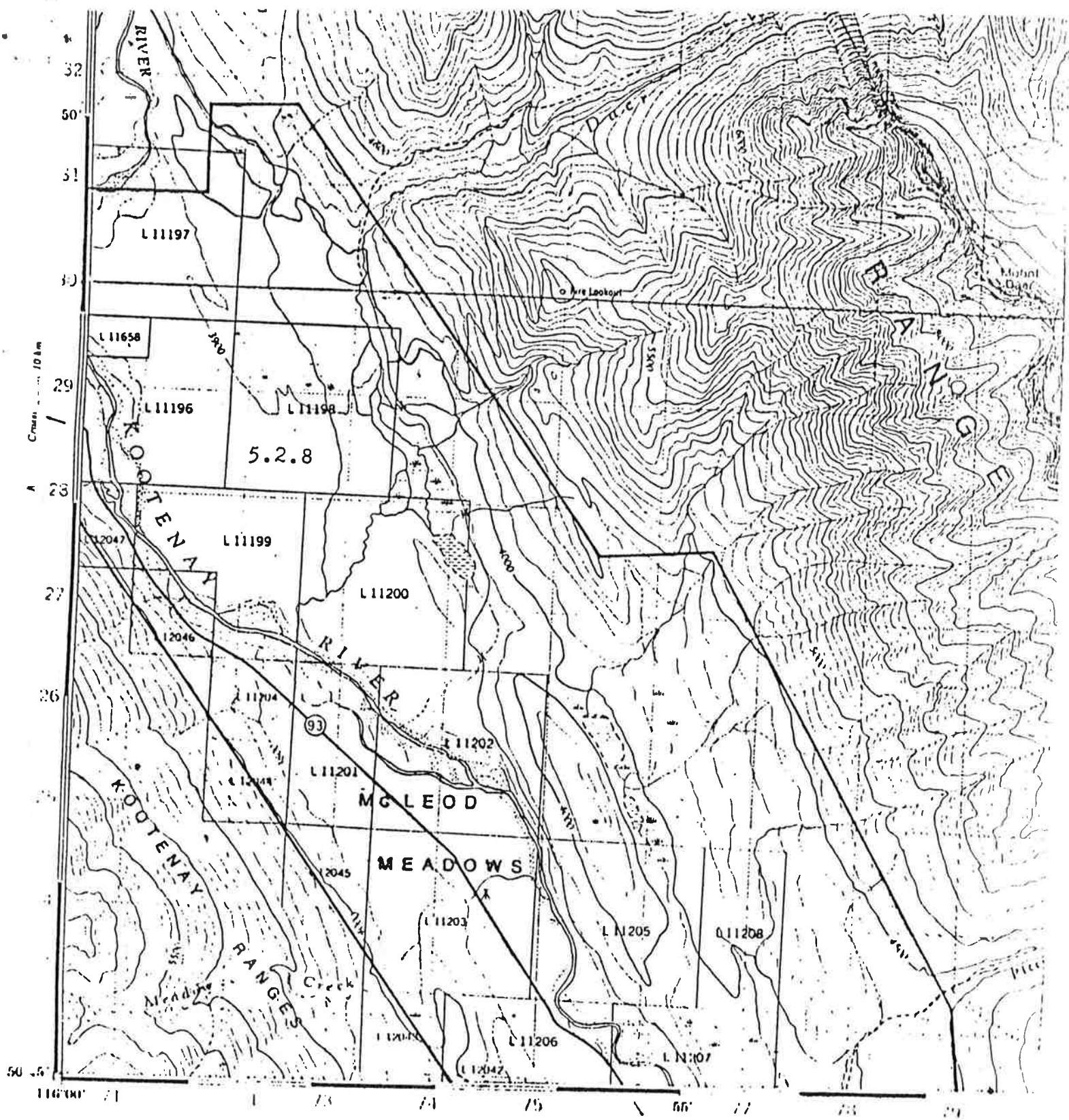
5.2.8 MacLeod Meadows (Map 5)

This is a section of the Kootenay River Valley that contains a number and range of ages of geomorphological features that could have been utilized by prehistoric humans, especially during arid periods when open canopy or fire climax forest prevailed. Tributaries to the Kootenay enter the valley and have left extensive fans prior to incising into the till plain; there are thus a number of terrace margins with southerly to westerly exposure. The locality also contains a number of small lakes which may have served as temporary occupation foci.

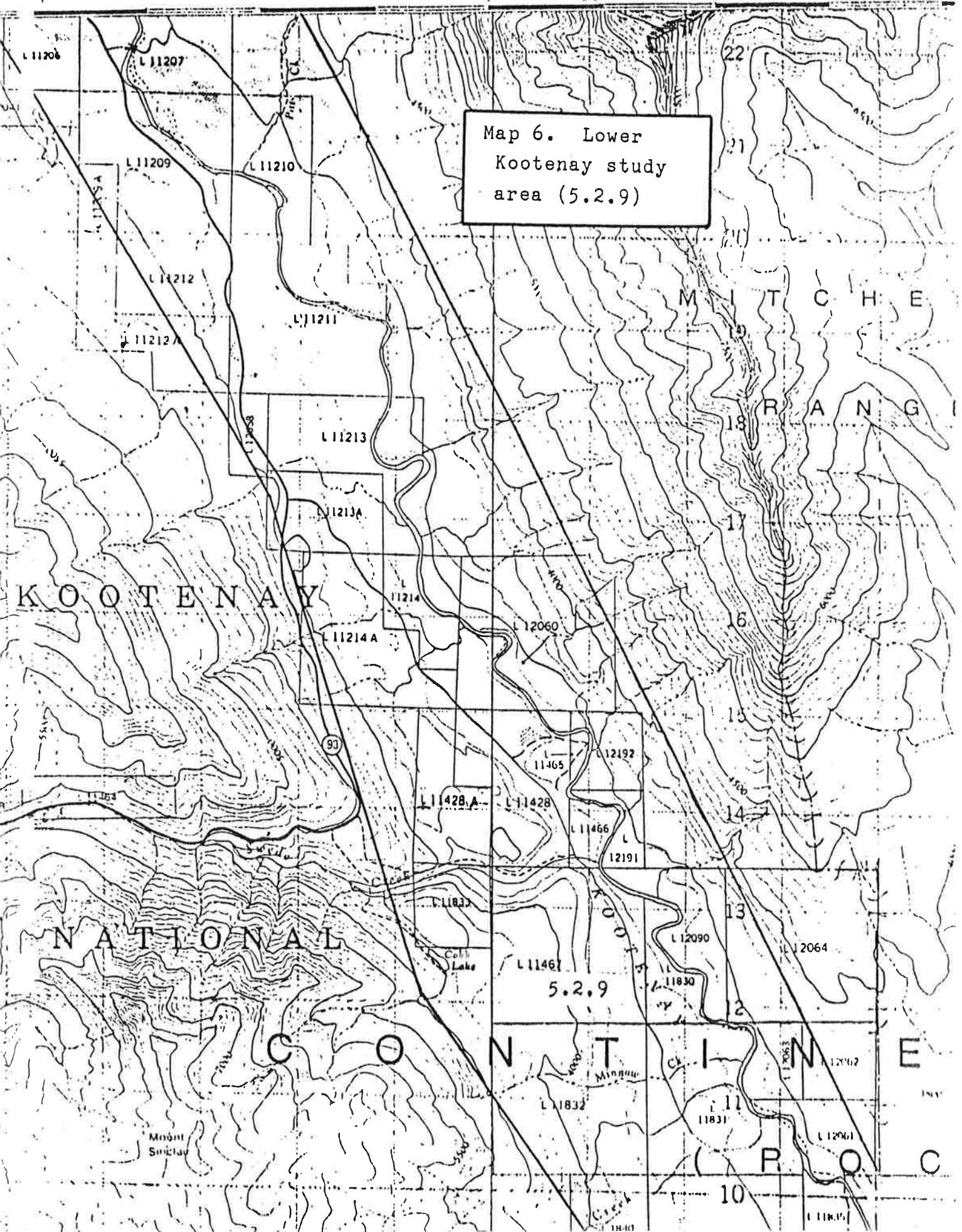
The study area has been enlarged beyond that specified in the terms of reference to include the Daer Creek fan. Areas of high archaeological potential will be identified by aerial photo reconnaissance and examined by foot traverse, with shovel testing where subsurface exposures are inadequate. The alluvial fans in particular offer the potential for stratified deposits. The Dog Lake Cabin will be recorded.

5.2.9 Lower Kootenay (Map 6)

This 16 km section of the Kootenay Valley is essentially a continuation of the terrain described for the previous study area. As such, it contains a range of landform types spanning the Holocene. The alluvial fans on the east side of the valley are not as extensive but those on the west side of the valley are moreso. Included among the latter is that of Swede Creek, the eastern terminus of the Sinclair Pass corridor, a likely spot for transient encampment. Prior to fire suppression, the extent of open canopy forest, and hence elk and mule deer range would have been more extensive. Even



Map 5. MacLeod Meadows (5.2.8) study area.



Map 6. Lower Kootenay study area (5.2.9)

sheep range may have existed on the slopes under extremely arid conditions. There are a number of Kootenay River terraces in this study area, offering the potential for a brief examination of the nature of the Kootenay River alluvial phenomena, a subject to which the proponent has devoted considerable research on lower stretches of the river. Gravel bars may have provided spawning habitat for Pacific salmon if they did indeed ascend into the Park.

This study area has also been enlarged beyond that specified in the Terms of Reference to include more of the fans on west side of the valley as well as Cobb Lake. Locations of archaeological potential will be identified by aerial photo reconnaissance prior to field examination. Shovel testing will be necessary throughout, especially in examining the Holocene soil/sediment sequence.

The Cross River Homestead, site 368T, will be reassessed.

5.3 Simpson - Verdant

5.3.1 Simpson River (Map 7)

The Simpson River heads at the Continental Divide and with its tributary, Verdant Creek, provides a travel route connecting the Columbia and Saskatchewan watersheds. It also connects with the Cross River via an intermontane pass, providing access to the Kootenay Valley by an alternate route to following the Vermilion. The headwaters of the Simpson River basin drain part of an extensive area of alpine meadowland that undoubtedly supported significant ungulate populations at times in the past.

The Simpson River will be surveyed from its mouth to the Park boundary. Vegetal cover will necessitate shovel testing of landforms with archaeological potential. Three log cabin sites were documented in the 1972 survey - these will be revisited to assess their status.

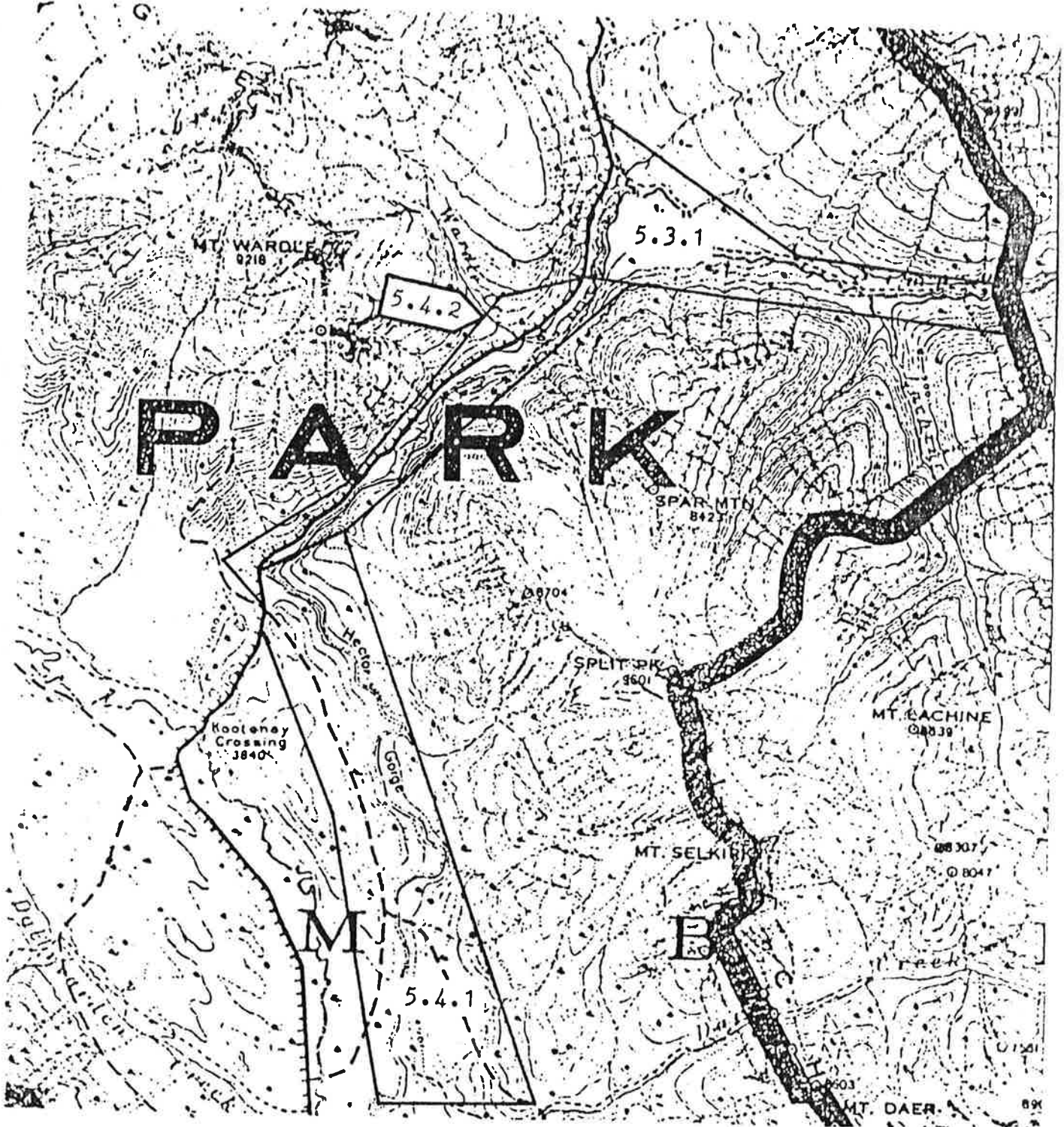
5.3.2 Redearth Pass (Map 8)

This locality is within the area of alpine meadowland mentioned above. The cirque basins and arretes in this area form a terrain complex that was used to advantage in communal hunts further south, and the potential definitely exists for high elevation hunting to have taken place in the Redearth Pass vicinity. Talc Lake represents a high probability campsite locus.

This locality will be carefully examined for cultural deposits that could relate to high elevation hunting. These include chipping stations, isolated projectile points, blinds, cairns, pits, and butchering areas. Shovel testing will be necessary in depositional locales. Other major data items that will be sought will be the nature and extent of the soil substrate, evidence of past timberline fluctuations, and occurrence of tephra. The former two are important palaeoenvironmental indicators of past vegetal cover and hence ungulate carrying capacity while the latter has the potential to be a marker of past patterns of atmospheric circulation (cf. Choquette 1987).

The survey will also document the Natalco mine.

5.4 Upper and Lower Vermilion



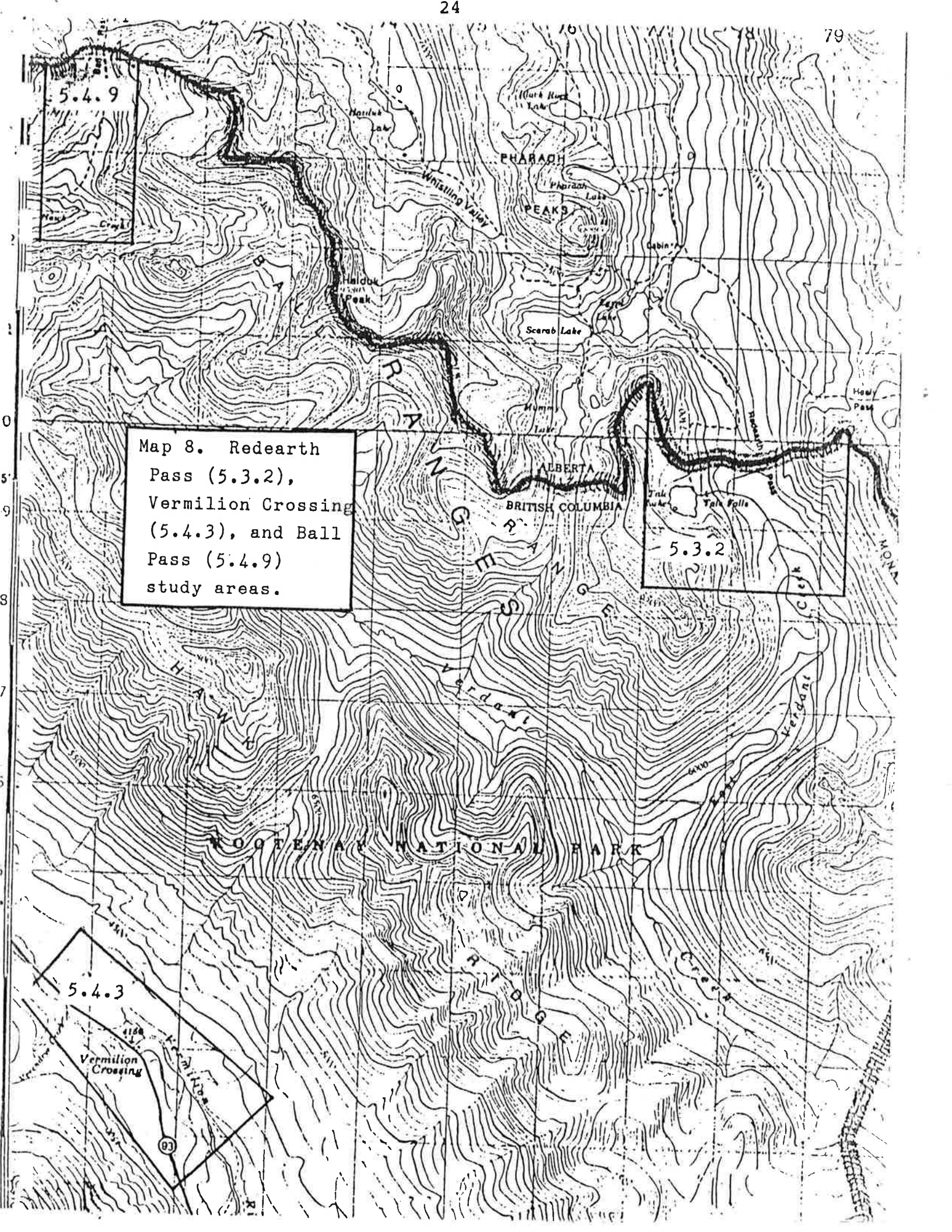
Map 7. Simpson River (5.3.1), Hector Gorge (5.4.1), and Wardle Creek (5.4.2) study areas.

Map 8. Redearth Pass (5.3.2), Vermilion Crossing (5.4.3), and Ball Pass (5.4.9) study areas.

5.4.9

5.3.2

5.4.3
Vermilion Crossing



5.4.1 Hector Gorge (Map 7)

This deeply incised canyon may or may not have been the route of travel between the Kootenay and Vermilion watersheds; otherwise, the trail would have passed through the Kootenay Crossing locality. Hector Gorge could thus contain evidence of prehistoric travel relevant to overall park use as well as to the nature of use of Kootenay Crossing. The lower section of the Gorge contains several high terraces that may contain evidence of early postglacial human presence. There is potential for an aboriginal fishery here as well, especially if salmon ascended up the Kootenay River.

Foot traverse and shovel testing will be employed in the survey of Hector Gorge. Careful observations will be made of the geology of this locality to note any evidence of the age of this channel of the Vermilion River.

5.4.2 Wardle Creek (Map 7)

This study transect parallels the Vermilion River between Hector Gorge and the mouth of Simpson River. This part of the Vermilion drainage was evidently filled with glacial drift that may have included an early postglacial lake. Incision through the fill has left a set of higher terraces and truncated fans, including that of Wardle Creek, that may contain evidence of human occupation. This part of the corridor represents the confluence of the diverging routes via Kootenay Crossing and Hector Gorge and thus has the potential for yielding evidence of prehistoric travel. The top of the Divide has an interesting aeolian cap that could contain buried deposits of archaeological significance. The largest mountain goat population in the Park is found on Mounts Wardle and Verendrye, and there are mineral licks on the lower slopes within this study locality which may have been the focus of prehistoric hunting.

This area will be carefully examined and shovel tested. There is the possibility for deeply buried material here, so deep tests may be required.

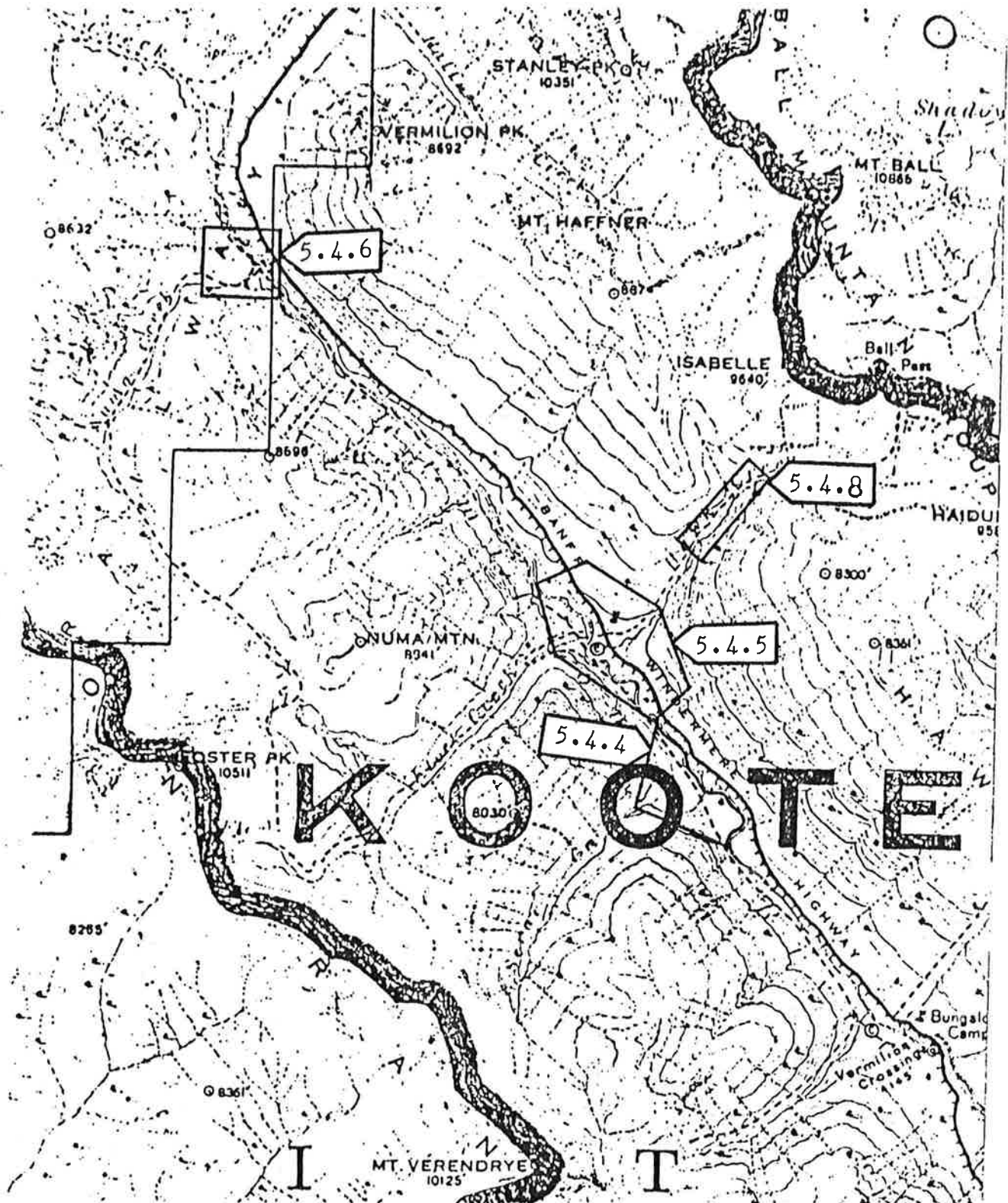
5.4.3 Vermilion Crossing (Map 8)

This locality contains rapids as well as three tributary confluences. It has potential for fishing as well as transient encampment.

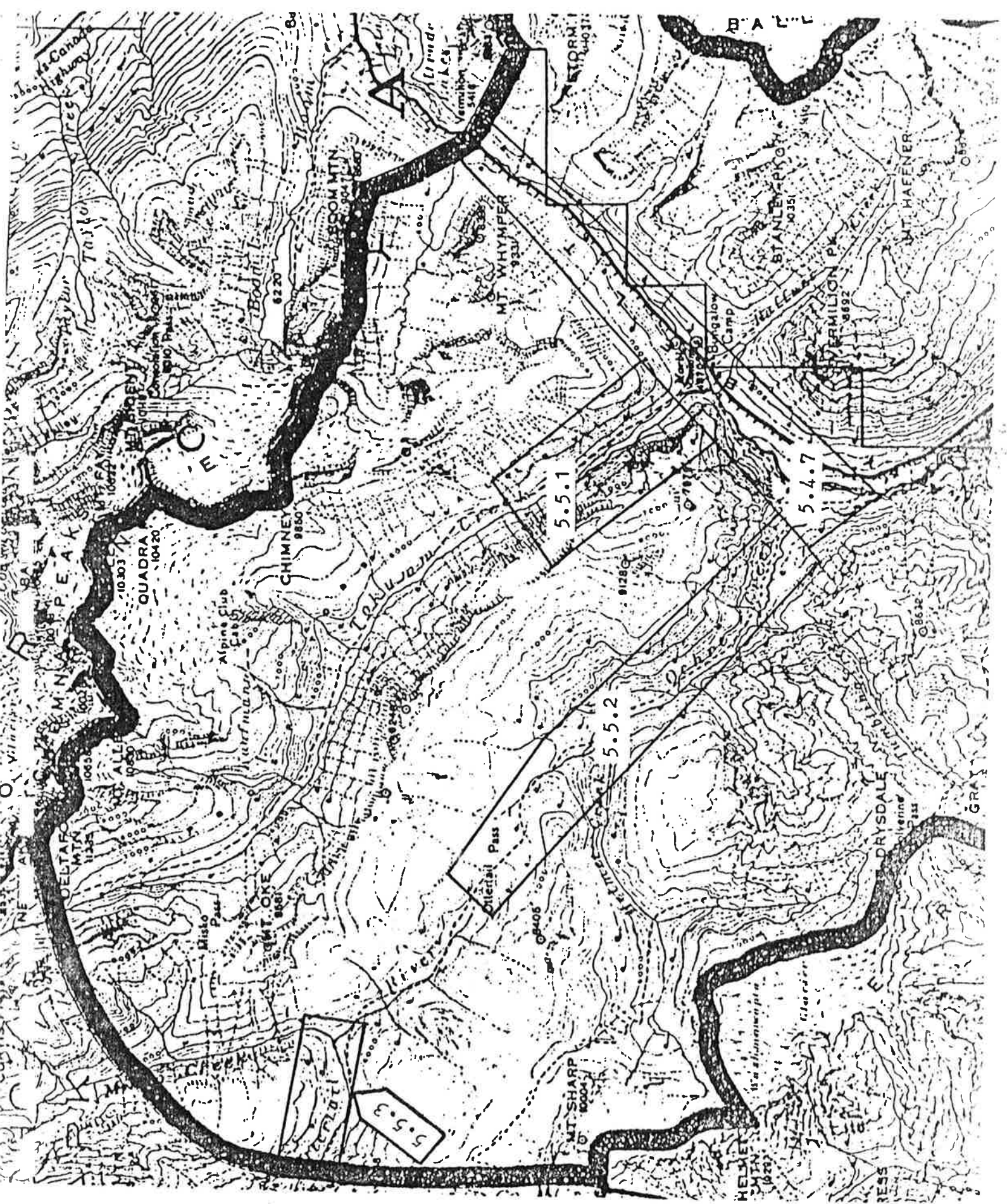
Disturbed areas and river cutbank profiles will be examined and the alluvial fans will be shovel tested.

5.4.4 Serac Creek (Map 9)

The fan of Serac Creek is not considered to have high archaeological potential since it is located on the west side of the river and does not head in a pass or spatially extensive alpine meadowland. However, the best drained, most level sections of this locality with good solar exposure will be shovel tested to detect evidence of prehistoric human presence. The boundaries of the study area have been changed to conform to the topography of the fan.



Map 9. Serac Creek (5.4.4), Floe and Hawk Creek (5.4.5), Numa Creek (5.4.6), and Albion Mine (5.4.8) study areas.



Map 10. Vermilion Pass (5.4.7), Tokumm Creek (5.5.1), Ochre Creek and Ottertall River (5.5.2), and Ottertall River (5.5.3) study areas.

5.4.5 Floe and Hawk Creek (Map 9)

The assessment provided above for Serac Creek also applies to the Floe Creek fan although there is apparently a greater extent of alpine meadowland at the head of the latter stream. Hawk Creek fan, on the other hand is on the sunny side of the Vermilion Valley, the most likely side for prehistoric travel due to generally more open vegetal cover as well as the most comfortable side of the valley for encampment. The higher solar exposure of the eastern sides of valleys also translates into a greater likelihood for open canopy forests and forest fire pioneer and fire climax vegetation, all of which have higher ungulate capability than the closed canopy forests that characterize east- and north-facing slopes. Hawk Creek fan therefore has potential for being a hunting camp location. In addition to being in the Vermilion Valley travel corridor, Hawk Creek fan is the western terminus of a Continental Divide trail through Ball Pass. The possibility that this multiple confluence area was a fishery will not be overlooked. Hawk Creek fan has a high elevation relative to the Vermilion River and thus has the potential for containing early cultural deposits.

This study area has been enlarged over that in the Terms of Reference to encompass the entirety of the Hawk Creek fan. Aerial photo reconnaissance will be employed to assess the complexity of the fans and both will be carefully examined by foot traverse and extensively shovel tested.

5.4.6 Numa Creek (Map 9)

Numa Creek, like Floe and Serac creeks, is on the shady side of the Vermilion Valley. However, like Floe Creek, it heads in alpine cirques that could have been hunted over prehistorically (see below). There is thus the potential for a transitory encampment and even a slim possibility for a hunting base camp to be located on the Numa Creek fan.

The fan will be carefully examined by foot traverse and shovel tested.

5.4.7 Vermilion Pass (Map 10)

This 11 km transect has potential for containing transitory encampments connected with prehistoric use of the Vermilion Pass corridor. Archaeological site 350T may relate to such use and/or even (but less likely) travel up Tokumm Creek. The Paint Pots (site 362T) are included in the western end of the transect. All Native groups mentioned in section 2.2 knew of this ochre source. This locality could well have been the site of religious activity connected with ochre extraction. While it is possible that historic mining activities have destroyed the prehistoric evidence of ochre extraction here, it is just as likely that the 1971 survey who recorded the site failed to accord sufficient time depth to their sampling design.

The Vermilion Pass corridor will be resurveyed and undisturbed depositional locales with archaeological potential will be shovel

tested. The Paint Pots will be resurveyed with the aim of examining landforms suitable for prehistoric mineral processing and ancillary activities. In addition, the survey will attempt to locate extinct, ochre spring cones that may have been the sites of offerings in prehistoric times. Site 350T will be test excavated to determine its horizontal and vertical extent and to obtain datable cultural materials.

Site 363T (Hector Campsite) will be reassessed.

5.4.8 Albion Mine (Map 9)

In the course of accessing Ball Pass (see below), an attempt will be made to locate the Albion Mine workings.

5.4.9 Ball Pass (Map 8)

This Continental Divide pass is at the head of Hawk Creek. At present it contains a south facing basin at or very near timberline. As such, it represents a potential location for high elevation hunting in addition to the possibility of use as a prehistoric travel corridor.

The area will be examined by careful foot traverse and depositional locales of high archaeological potential will be shovel tested. As with Redearth Pass and Numa-Floe, evidence of soils, tephra, and timberline fluctuations will be noted when appropriate.

5.5 Ochre, Tokumm, and Otter

5.5.1 Tokumm Creek (Map 10)

The location of a prehistoric site (350T) at the mouth of Tokumm Creek suggests the possibility that Tokumm Creek could have been used as an access route to high elevation hunting grounds in its upper reaches. There is also some possibility that forest cover could have been more open during arid intervals in the past, and its summer ungulate capability higher for animals wintering in the Bow Valley.

Locales of high archaeological potential will be identified during aerial photo reconnaissance and examined by foot traverse and shovel testing.

The Zenith Mine (372T) and the Zenith Mine Camp (371T) will be revisited to report on site status. Fay Hut will also be recorded.

5.5.2 Ochre Creek and Ottertail River (Map 10)

This 11 km transect includes the Ottertail Pass as well as the confluences of Helmet and Tumbling creeks, both of which head in passes. There is thus potential for obtaining evidence pertaining to prehistoric travel into and out of the north end of Kootenay National Park. There may have been higher ungulate capability in the vicinity at times in the past, suggesting the possibility that hunting camps may be present.

Well drained level areas with good solar exposure plus locations offering strategic vantage points will be examined and shovel tested if subsurface exposure is insufficient. The Ottertail Pass will be

STUDY AREA	General use	High elev hunting	Minerals	Early OCC.	Fishing	Religion	Travel	Historic
1.1	X						X	X
1.2	X			X	X	X	X	X
1.3	X			X	X			
2.1	X			X	X		X	
2.2	X						X	X
2.3	X							
2.4	X				X			
2.5	X							X
2.6	X							
2.7	X	X					X	
2.8	X			X			X	X
2.9	X			X			X	X
3.1	X						X	X
3.2	X	X					X	X
4.1	X			X	X		X	
4.2	X			X			X	
4.3	X				X		X	
4.4	X				X		X	
4.5	X			X			X	
4.6	X							
4.7	X		X				X	
4.8						X		X
4.9		X					X	X
5.1	X						X	X
5.2	X						X	X
5.3							X	X

Table 2. Study Area information domains

STUDY AREA	DURATION (days)	STUDY AREA	DURATION (days)
1.1	2	4.1	2
1.2	2	4.2	2
1.3	2	4.3	1
		4.4	1
2.1	3	4.5	2
2.2	3	4.6	1
2.3	.5	4.7	3
2.4	1	4.8	1
2.5	1	4.9	2
2.6	1		
2.7	1	5.1	3
2.8	2	5.2	3
2.9	3	5.3	1
3.1	2		
3.2	3		

Table 3. Study area schedule in person-days

shovel tested for evidence of prehistoric transitory usage as well as to observe stratigraphy and tephra occurrence.

5.5.3 Ottertail River (Map 10)

This 3 km section of the uppermost stretch of the Ottertail River has some potential to contain evidence of prehistoric transient use. Locales of high archaeological potential will be shovel tested.

6. Personnel

The project will be directed by Wayne T. Choquette. As the enclosed vita (Appendix A) indicates, he has more than 20 years of experience in Northern Rocky Mountain archaeology and is an acknowledged expert on Kootenay Region prehistory. He has extensive knowledge of regional soils, meteorology, ecology, and geology and has conducted original research in these fields. This research has been combined with Heritage resource management in an ongoing program which has borne fruit in the form of a number of reports and papers that comprise a region-specific background for future more detailed studies of Rocky Mountain prehistory. His most recent major endeavour has been the inception in late 1983 of the Kootenay Cultural Heritage Centre, an informal partnership with the Kootenay Indians. The Centre has conducted a number of site surveys, impact assessments, and salvage excavations and is developing a regional ecomuseum which combines Heritage research and management with public interpretation.

Choquette will be assisted by Allan Hunter, whose vita is also enclosed. Allan is a non-status Kootenay Indian who has taken a serious interest in the traditions of his ancestors. In addition to practicing a number of traditional subsistence activities, Allan has learned flintknapping and with the proponent has conducted experiments in stone boiling and bone processing. Allan has become an avid archaeologist, to the extent that he was motivated to return to school and completed his Grade 12 equivalency. During the past four years he has been involved, under the tutelage of the proponent, in a wide range of archaeological undertakings including salvage and test excavation, site survey, cataloguing, assembly of a site inventory and map file, production of a videotape depicting archaeology and the search for Native traditions, lithic material sourcing, and artifact analysis including detailed technological analysis of debitage. He has become proficient at both site survey and excavation to the extent that he is conducting his own surveys of reserve lands and has been advanced to the position of crew chief on excavations conducted by the Kootenay Cultural Heritage Centre.

The statement in the Terms of Reference to the effect that employment of experienced surveyors will be a major factor in selecting the Contractor is well taken. However, it must be pointed out that the basic skills involved in archaeological fieldwork can be relatively quickly learned if one is genuinely interested. After this, the most important ingredients of a field assistant are sharp eyes, common sense, and motivation, none of which are necessarily acquired by further years of doing archaeology. Indeed, in some instances, a case can be made for the adverse affect of the latter.

It must be remembered that most of the sites presently known in Kootenay National Park were not found by seasoned veterans - they were found by two very keen young archaeologists. In summary, although Allan has been doing archaeology for slightly less than four years, I can categorically state that I have every confidence in his capabilities as an assistant for the proposed project.