Expressions of the Past: Archeological Research at Voyageurs National Park

By
Jeffrey J. Richner

Midwest Archeological Center
Technical Report No. 104

NATIONAL PARK SERVICE
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This report has been reviewed against the criteria contained in 43CFR Part 7, Subpart A, Section 7.18 (a) (1) and, upon recommendation of the Midwest Regional Office and the Midwest Archeological Center, has been classified as

Available

Making the report available meets the criteria of 43CFR Part 7, Subpart A, Section 7.18 (a) (1).

ABSTRACT

This report is an archeological overview and assessment that summarizes the state of archeological knowledge regarding Voyageurs National Park through about 2003. An Overview and assessment is a specific type of National Park Service planning document that is intended to provide a basis for understanding and managing the archeological resources of a particular park area. Ideally completed very early in a park's history, the document is intended to guide management and research of the park's archeological resources. However, due to scheduling and funding constraints, overview and assessments are more often completed much later in a park's history than originally envisioned. Such is the case for this report, which has been developed several decades after founding of Voyageurs NP. Despite this scheduling, the content of the report is roughly comparable to that preferred and stated in the NPS Cultural Resources Guideline under Director's Order 28. The report's content differs from the idealized overview and assessment since it synthesizes about 30 years of archeological fieldwork and site investigation in the park, rather than merely summarizing the potential for site presence and reviewing regional literature. The primary goals of the report are to provide a culture-historical summary for understanding sites known or anticipated to be present within the park, to summarize and assess the adequacy of all previous archeological investigations within the park, to synthesize site age, content, affiliation, function, and distribution, and to make recommendations for the future management and study of the park's archeological sites.

The report was completed in draft form in 2004, but due to the retirements of Midwest Archeological Center report production staff members and other factors, the report was not finalized until recently. The current report is an edited version of the 2004 draft. The report does not summarize fieldwork completed after 2002. Accordingly, some of the site component counts and similar kinds of data presented in the report are now somewhat out of date. For example, the report summarizes information about 408 sites, but, as of January, 2008, 26 additional sites had been recorded. The National Park Services' (NPS) Archeological Site Management Information System (ASMIS), a database that serves as the primary site management tool for the NPS, currently includes 471 entries for Voyageurs NP. However, 52 of these are coded as "local resources" for which information is insufficient to allow for any kind of meaningful management or data tabulation. The local resources are not included within Government Performance and Results Act (GPRA) counts or goals. Many of the entries in the local resources subset are locations where sites are informally reported to occur, but that have not been confirmed through professional recording methods. Many of those are in inundated settings seldom exposed for examination. Other local resources are isolated finds of single artifacts that may, or may not, represent sites as defined under ASMIS. The State of Minnesota does not award formal site numbers to such discoveries. Therefore, the current inventory of sites at Voyageurs National Park for which adequate information exists is 419, rather than the 408 considered in the current report. Despite that slight gain in site inventory, the report remains fully accurate and timely with regard to its synthesis of local and regional culture history and its characterization of the park's sites, including their content, context, integrity, distribution, and significance.

The report's recommendations are also still pertinent, although considerable progress has been made on revisiting sites and assessing their current condition since 2004. No sites at the park are currently listed with unknown condition in ASMIS. Several of those now included within the ASMIS local resource category are listed as having an "unknown" condition in the current report's tables and summary counts. Others have been relocated and their condition assessed and 26 new sites have been recorded since 2002. Therefore, the data on site condition, as defined under ASMIS, in the current report are not up to date. A multi-year research program to further study the historic Bois Forte Ojibwe sites within the park has also been accomplished, with results to be published in the near future. That project addressed several of the specific Bois Forte-related recommendations made in the current report.

The projects goals are addressed through several separate discussions and chapters. The INTRODUCTION provides an overview of the contents of the report. The CULTURE HISTORY chapter summarizes regional developments from the earliest pre-contact Native American sites extending back nearly 13,000 years through the historic American settlement era into the first decades of the 20th century. Emphasis in this chapter is placed upon the earliest portion of that long time span, since it is the least known local portion of the pre-contact regional chronology. The HISTORY OF ARCHEOLOGICAL INVESTIGATIONS chapter documents all previous projects within the park and assesses their strengths and weaknesses. Projects are grouped into subsets of comparable scope and intent for this discussion. The DISCUSSION chapter provides an overview of the character of the 408 archeological sites recorded within the park prior to 2003 when the first draft version of this report was developed. Separate discussions are provided for site age, cultural placement, context, condition and significance. Given the large number of sites, this is accomplished via consideration of subsets of sites relative to age and/or cultural identification and function. Finally, the SUMMARY AND RECOMMENDATIONS chapter distills the various site-related topics considered previously in the report and offers several potential avenues for future research and management of the park's archeological resources. It is anticipated that the data provided in this report would be of use to archeologists working not only in the park, but also in the surrounding region, as well as by various park and regional NPS staff members and the Minnesota State Historic Preservation Office.

ACKNOWLEDGMENTS

This report is a culmination of the contributions of many people. All of the crew members and directors of the numerous Midwest Archeological Center field teams who have worked at Voyageurs National Park since 1979 have contributed to our current understanding of the archeological resources at the park. Further, the staffs of private contractor and university field teams have also contributed significantly since the early 1970s. Thanks to all who have worked in the beautiful, but often difficult, field settings across the park over the past 30 years. Each person from these teams has provided information for building a database of over 400 sites and a museum collection of tens of thousands of artifacts. While I cannot name all of those persons, I especially appreciate the efforts of the crew members on my numerous projects at Voyageurs National Park including Herb Beamer, René Botts, Rod Brandenberg, Tammy Bray, Barry Brenton, Forest Frost, Chris Goetting, Kristi Griffin, Tom Hensiak, Tim Perttula, Linda Plock, Chris Schoen, Ana Steffan, Pete Taber, Hawk Tolson, Wanda Watson, and Bill Volf. Midwest Archeological Center Volunteers John Banks, David Mather, Rich Webster, and Thurid Schicha also contributed extensively to several projects. As recently as 30 years ago, some researchers thought that few, if any significant and/or intact sites were present in the park. Now, thanks to the efforts of many people, we know that hundreds of sites maintain considerable depositional integrity and represent tangible evidence for diverse human activities spanning about 10,000 years.

I appreciate the input from and discussions with numerous colleagues over the years, especially Doug Birk, the late Mike Budak, Caven Clark, David Cooper, Eric Drake, Mark Lynott, David Mather, Bill Ross, Tom Thiessen, and Matt Thomas, regarding the character of archeological resources at the park and the broader Border Lakes Region. I have often recalled those informal talks, emails, and letters as I attempted to synthesize the park's surprisingly complex archeological record.

Thanks are also due for several specific components of the current report. Tom Thiessen and Mary Graves edited my original draft and offered suggestions for changes and additions. Alan Osborn edited and further improved the final draft text. Larry Kallemeyn at Voyageurs National Park helped with references related to early lake conditions and other aspects of the park's natural resources. Ricci Soto produced the digital images of many of the artifact illustrations in this report and Gosia Mahoney refined those and created many additional ones. She was also responsible for suggesting that Duck Bay and Bird Lake pottery types were present in the collections. Anne Vawser at the Midwest Archeological Center used my site database to produce the site distribution maps.

Thanks also go to all the Voyageurs National Park staff members who have assisted us over the years. Former Superintendent Russ Berry and current Superintendent Barbara West have been especially supportive of our work. I have also enjoyed working with numerous former and current members of the ranger, fire management, and maintenance divisions, including Raoul Lufbury, Steve Maass, Bill Johnson, Bruce Barrett, Dennis

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Finally, I want to thank my friend and colleague Mary Graves for assisting me in innumerable ways over the past 27+ years. She has planned field project schedules and logistics, served as a top-notch field team member, collected and shared with me huge amounts of historic data, acted as an interface between the Midwest Archeological Center and various park workgroups, protected sites through the planning and compliance process, and even functioned as a boat operator. She accomplishes her role as the park's Lead Resource Specialist with great effectiveness and total dedication. No one knows more about the cultural resources of the park than Mary. I appreciate everything she has done and continues to do to learn about and protect that legacy.

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1. INTRODUCTION

This report summarizes the archeological research conducted prior to 2003 at Voyageurs National Park (Voyageurs NP) in northeastern Minnesota. This 218,200-acre park contains evidence of about 12,000 years of human occupation of the Border Lakes Region along a chain of interconnected lakes spanning the US–Canadian border. The report is a cultural resources planning document known as an Archeological Overview and Assessment. Such studies are ideally written early in the history of a park, even at its inception, to provide guidance for subsequent research and management efforts. However, such timing has rarely been accomplished for the National Park Service's (NPS) Midwest Region parks due to a lack of funding for the studies. Instead, this project has been completed three decades after park formation and after many archeological projects have already taken place. It will, however, provide background and guidance for future archeological and historic studies. It also assesses what has been accomplished to date.

Research for the report started with construction of several databases. The largest contains 23 fields of data on the 408 archeological sites recorded within the park's boundaries by about 2003. Another contains information on all professional archeological work conducted in the park to date. These databases were developed from examination of numerous reports, memoranda, archeological site forms, maps, project field notes, and other primary data sources. Another important component of the study was the synthesis of available data on the circa 12,000-year cultural history of the park. This could not be accomplished solely with park-specific data and instead utilized historical and archeological reports from a wide region stretching from Lake Superior west into Manitoba and Saskatchewan and the Northern Plains of the United States. This literature is so large, especially for certain time periods such as the fur trade era, that coverage is not fully synthetic for all time periods. Certain lesser-known developments in the park, such as the Paleoindian and Archaic Traditions, are emphasized in considerable detail, while some better-known eras are more briefly covered. References are provided for readers interested in delving further into any of the time periods or cultural developments discussed, regardless of level of coverage in this report.

The report consists of several major sections. The first, Environmental Setting, very briefly summarizes the physical setting of the park, with discussion of geology, climate, flora, and fauna. Additional data on changes in climate through time are included in the next chapter of the report. The Culture History chapter summarizes the prehistoric and historic era from both regional and local perspectives. Where local data are sparse, more emphasis is placed on regional developments to provide a background for what might be present, but poorly known, locally. The History of Archeological Investigation chapter includes brief discussions of research around the periphery of the park followed with specific discussion of projects conducted within the park. Highlights of regional research are presented in a summary table, while all park-related studies are included in another table developed from the database mentioned above. The within-park presentation focuses upon examination of

subsets of research and management efforts, such as archeological inventories, and attempts to assess the strengths and weaknesses of these kinds of similar studies.

The Discussion chapter provides a synthesis of the 408-site database, covering the topics of site distribution, site context, condition, significance, site age, and cultural affiliation. Considerable emphasis is placed upon site age and cultural affiliation in this chapter since prehistoric chronologies are so poorly developed for the region. The Summary and Recommendations chapter suggests avenues for future research and management of the park's archeological resources. The literature used in developing the report is provided in the References Cited section. A series of extensive tables as well as select illustrations of temporally diagnostic artifacts support the report's text.

2. ENVIRONMENTAL SETTING

Voyageurs NP is located along the south side of the International Border of the United States and Ontario, Canada, east of International Falls, Minnesota (Figure 1). The park is within the Border Lakes Region. In dividing the state into archeological regions, Anfinson (1990:144–145, 150) maintains the Border Lakes name for his Region 8, which encompasses Voyageurs NP. The Border Lakes Region is part of a largely undeveloped ecosystem of nearly three million acres that includes the United States Forest Service's Boundary Waters Canoe Area Wilderness to the east and the Quetico Provincial Park in Ontario to the northeast. This area is technically classified as a subsection of the Northern Superior Subplains section, Laurentian mixed forest province (National Park Service 2000). All of Voyageurs NP and most of the Border Lakes Region are underlain by erosion-resistant ancient bedrock. Gneiss, schist, and granite comprise the bulk of these rocks. As a result of glaciation, surface exposures or outcrops occur over much of the park area and, with numerous interspersed wetlands, lakes and bogs, form a rugged topographic setting that has a profound impact upon the potential for the presence and distribution of archeological deposits.

While the rocky Border Lakes and Canadian Shield setting extends east to Lake Superior and well to the north into Ontario, the environment west of the park is considerably different. Just west of the outlet of Rainy Lake, about 10 miles from the park's western boundary, the terrain is flat with extensive bogs and wetlands. Deep soils are present on this glacial till plain. Along the extent of the Rainy River, evidences of the former bed and shores of glacial Lake Agassiz are present. The level terrain of this region, commonly known as the Big Bog, contrasts markedly with the park area. The forest cover was also different, originally consisting primarily of spruce and fir, but also of various deciduous species, especially along the Rainy River. Aspen now dominates much of the dryer settings in the area, although farm field clearings are also numerous. Further to the west, just beyond Lake of the Woods and Red Lake, the Big Bog zone gives way to the northern prairie. About the time of historic settlement, the eastern edge of this prairie zone would have been about 100 miles west from the outlet of Rainy Lake. Earlier, the position of this forest–prairie juncture would have fluctuated depending upon local and regional climatic conditions. The park's position at the southwest edge of the Canadian Shield in a setting of interconnected rivers and lakes provided its former inhabitants with local access to the resources of both the boreal and northern deciduous forests as well as relatively easy access to resources of the prairie to the west.

The park's climate is probably best known for its intensely cold winters. While relatively short, the summers are warm. Strong seasonal changes and moderate precipitation mark the area. Those expecting to find only cold weather in the park are surprised to learn that summer days can be very hot and humid, with temperatures in July and early August frequently reaching 85–90°F. The maximum annual temperature range is an incredible 152°F. The frost-free season is short, averaging only 107 days from June to middle

September. The park's numerous small and large lakes are typically ice covered from late November until about May 1.

Although some authors have included Voyageurs within the extensive boreal forests that lie to the north, the park is actually within a transition zone between the northern hardwoods of the eastern deciduous forest to the south and the conifer-dominated boreal forests to the north. Elements of both forests are clearly visible in the park as one may encounter oak-dominated settings in one area, with black spruce and balsam fir in others. Stands of red and white pines flank large areas of the park's lake shorelines, and, prior to the very late-nineteenth- and early-twentieth-century logging efforts, the park area was within the last uncut stand of such pines in the region. It is estimated that about 70 percent of the park is currently covered by boreal species (National Park Service 2000:I-116). Much of the existing pattern of forest cover results from logging activities, especially after 1913. In addition to the extensive forested areas, relatively large portions of the park where bedrock is exposed are nearly treeless. Some 400 taxa of lichens have been collected in these bedrock exposures (National Park Service 2000:I-117).

Voyageurs NP is within the large (14,900 square miles) Rainy Lake Basin. This basin forms the headwaters of the Winnipeg River, which eventually flows northward via the Nelson River to Hudson Bay. Several large and numerous smaller lakes form the core of the park. Crane Lake, while not within the park, contains fairly extensive NPS land holdings along its northern shore. Large portions of Sand Point, Namakan, and Rainy Lakes lie within the park, while park-owned lands surround most of Kabetogama Lake. These five lakes are interconnected and form an important portion of what has been called the Voyageurs Highway (Nute 1941), connecting the park via various waterways and portages to Lake Superior on the east and to Hudson Bay on the north.

Given the relative dominance of boreal species and the park's location in a drainage system eventually leading to Hudson Bay, it is not surprising that much of the human occupation of the park is more closely related to developments in northwestern Ontario than to the Midwest United States and areas to the south. However, the connection of the waterways to Lake Superior via a series of lakes and portages also links the park closely to the Upper Great Lakes and the history of human occupation of that vast region. Similarly, access to the Canadian Parklands and prairies to the west was provided via Rainy River, Lake of the Woods, and the Red River basin. So, just as the area is a transition zone for broad forest types, it can also be considered as a cultural transition area. The archeological assemblages in the park are unique to the area, but share similarities to areas to the north and east, and particularly in the earlier periods of occupation, to the west as well.

The people who occupied the park area in prehistory and through much of the historic period had access to a diverse range of mammalian, avian, and fish species. Even today, 52 species of fish are present in the park and are a major attraction for the approximately 250,000 people who visit the park each year. Lake sturgeon, suckers, and several other species are very well represented in faunal collections from many of the park's

archeological sites. The aquatic ecosystem of the park overlaps with the terrestrial system, where a variety of large and small mammals flourish(ed). The list of species present, or formerly present, in the park includes essentially all of the animals common in both boreal and northern hardwood forests. While the Woodland Caribou has been exterminated in the park area, bears are still very numerous, and moose are present, but in numbers greatly lower than their historical densities. These are among 46 species of mammals, including a wide range of important furbearers, that occur in the park today (National Park Service 2000:I-131). Birds are also very well represented, with 240 species recorded in the park. Analysis of faunal elements from numerous sites in the park (Colburn 1987; Falk 1986) has revealed use of a wide range of these avian, aquatic, and mammalian resources by both prehistoric and historic Native Americans. The interface of aquatic and terrestrial systems, so important to this diversity of wildlife, was also a critical component of prehistoric and historic use of what was to become Voyageurs NP.

The lakes provided both critical habitat for a variety of food resources and important transportation routes through a vast, rugged forest. Wild rice was once very abundant in the park and was an important seasonally available food source that also could be stored for later use during the difficult winter season. The uplands and wetlands yielded a wide range of berries and other plants that were also essential to local subsistence. The lake shorelines were, and continue to be, used by nearly all of the park's animal species, and logically formed the primary occupation sites, not only for prehistoric peoples, but also for all occupants, including modern cabin owners. Nearly all human occupation is focused on the lake shorelines, with only special-use sites, such as logging camps, known from the park's interior settings. Essentially all of the recorded archeological sites are positioned on the shorelines of the park's primary lakes.

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3. CULTURE HISTORY

The Pre-Contact Period

The history and prehistory of the pre-European and Euroamerican contact eras of the Voyageurs region have been summarized elsewhere (Birk and Richner 2004; Catton and Montgomery 2000; Lynott, Richner, and Thompson 1986; Noble 1984; Rapp et al. 1995; Richner 1999b, 2002a, 2002b; Thomas and Mather 1996) and interested readers should consult those sources. The topic is complex and difficult to consider adequately without resorting to lengthy narratives that might be of inappropriate scope for an archeological overview and assessment. Some aspects of this long history have been extensively summarized elsewhere, while other aspects have received more limited coverage. Accordingly, given the relatively sparse synthetic information available for the earliest prehistoric traditions in the project area, those traditions are given fairly extensive coverage in the current report. Particular emphasis is placed upon identifying all known Paleoindian and Archaic Tradition site assemblages for the specific park area. Such detailed coverage is not practical for the later Woodland Tradition, since there are hundreds of Woodland site components dating from about 2150 to 350 BP in the park, and they are associated with an extensive regional literature. The regional and park Woodland Tradition site data are therefore presented in a more restricted manner than Paleoindian and Archaic Tradition data. The characteristics of the Woodland Tradition sites recorded within the park are further considered in a later section of the report that synthesizes information from the site database constructed for this project.

In general, within the park boundaries, occupations dating prior to about 2150 BP are rather poorly known, while Woodland and historic Native American and Euroamerican occupations from about 2150 BP through the AD 1940 era have been more extensively identified and studied.

There is considerable variability in the presentation of prehistoric chronologies and dates for the region. In several reports, specific dates or date ranges are presented without reference to or citation of any radiocarbon laboratory sample numbers, making it impossible to know whether the dates reflect:

(1) uncalibrated radiocarbon ages determined from measurement of the remaining radiocarbon in samples and expressed in radiocarbon years before present (BP), with AD 1950 as the zero point,

(2) solar years (typically, but not fully accurately, treated as equivalent to calendar years) resulting from calibration of a measured radiocarbon age or ages expressed via the BP or AD/BC conventions, or

(3) a date estimate expressed as BP or BC/AD where any relationship to actual radiocarbon samples is uncertain.

In many cases, it is the latter situation that is reflected by dates or date ranges presented in regional archeological reports. Many of the proposed date spans, especially for the earlier portion of the prehistoric sequence, are merely estimates that are based upon very few or no locally measured radiocarbon ages.

There are inconsistent uses of the primary conventions for expressions of radiocarbon age and actual solar-year dates. The accepted convention in the journal *Radiocarbon* is to use "BP" for expressing uncalibrated radiocarbon age while calibrated ages, i.e., solar (usually reported as calendar) years, are expressed with the "cal" designation attached, e.g., cal AD 1520 (Taylor 2001:25). Some journals differentiate between calibrated and uncalibrated values by capitalizing BP or AD/BC for the calibrated values and referencing radiocarbon ages in lowercase (Taylor 2001:25). It is worth noting that BP is typically assumed to refer to "Before Present," set by convention at AD 1950. However, while that is its common usage, BP originally referred to "Before Physics," also set at the date AD 1950.

There is also some inconsistency in the use of the standard deviation (sigma), or the statistical uncertainty factor, in samples for which radiocarbon age has been determined. The statistical uncertainty is included in all appropriately documented radiocarbon age estimates through use of "±." While such ages are usually considered relative to one standard deviation, ±1 sigma, one must remember that such precision is only about 67 percent, so that the true sample age would actually fall within the ±1 sigma range only 67 percent of the time. Use of ±2 sigma increases the probability that the true age actually falls into that range 95 percent of the time.

In this section, I have attempted to differentiate between radiocarbon age and calibrated value presentations by using the "cal" designation for calibrated values. BP will be used for both uncalibrated radiocarbon ages and for general date ranges, which may or may not be based upon actual local radiocarbon age values. Laboratory numbers, standard deviation, and other data will be provided for any actual radiocarbon age determinations where feasible. The associated discussions will typically indicate whether local radiocarbon ages are available for development of estimated date ranges.

The difference between radiocarbon age and actual solar (typically equated with calendar) year must be considered for all the chronological presentations, especially for the earlier portion of the sequences where there is considerable divergence between radiocarbon age and calendar year. Beginning in the late 1950s, researchers suggested that radiocarbon age and solar years should not be assumed to be equivalent values (Taylor 1997:71). Data collected since the early 1960s have confirmed this suggestion primarily through radiocarbon determinations conducted on dendrochronologically dated wood samples. Calibrations resulting from this process resulted in a "second radiocarbon revolution" that fundamentally changed several long-held archeological interpretations in Europe (Taylor 1997:71–72). Dendrochronologically based calibration has recently been extended back to more than 11,800 cal BP (Taylor 2001). Calibrated age values for the

earlier part of that sequence are less precise than those from the 0–2500 BP period (Taylor 1997:76). Radiocarbon age is not equivalent to solar years since radiocarbon activity in living organisms, which typically directly reflects atmospheric radiocarbon levels, has not remained constant over time due to changes in radiocarbon production rates or reservoir mixing in the carbon cycle (Taylor 2001:25). Despite that, some archeologists writing on culture history in the Border Lakes Region have failed to account for or acknowledge the potentially large divergence between radiocarbon age and solar year in proposing local dating sequences. This typically results in the underestimation of the actual antiquity of Paleoindian and Archaic Traditions in the region.

Paleoindian, circa 11,500–9000 BP, or circa 13,450–10,000 cal BP

Across most of the United States, Paleoindian occupations are typically recognized in two primary divisions. These are the Early Paleoindian, or Llano (fluted point), and Late Paleoindian, or Plano (unfluted point), Traditions. At present, there is little or no evidence for Early Paleoindian occupation of the Border Lakes Region. Based upon available radiocarbon dates, pollen cores, and reconstruction of terminal Pleistocene events, the Rainy Lake watershed and much of northeast Minnesota were ice free by about 12,000 BP (Mulholland et al. 1997:379–383; Ojakangas and Mastch 1982). Since these dates and those cited in other regional Paleoindian studies are apparently all uncalibrated, they are too young relative to calendar years by as much as 2,000 years. At 11,500 BP, a radiocarbon age correlating with the beginning of Early Paleoindian Clovis occupation in other areas of the United States, the Voyageurs area was ice free, but certain portions might have been within the pool of glacial Lake Agassiz (Mulholland et al. 1997:Figure 7; Teller and Clayton 1983). The potential for the presence of both Early and Late Paleoindian sites at Voyageurs NP is closely tied to the later history of water level changes of Lake Agassiz. It covered much of the Rainy Lake watershed during several of its phases (Kallemeyn nd:8). While little is known about Early Paleoindian occupation of the region, numerous Late Paleoindian artifacts are reported from both the Border Lakes Region and general Voyageurs NP area. A few examples are described below for the immediate park area.

Chronological control is absent for the Paleoindian materials in the Border Lakes Region, so comparison with dated assemblages elsewhere in the eastern United States will have to suffice for the current discussions. The limitations for relying on such assumptions should be obvious. In a recent synthesis (Seibert nd), date spans have been presented for the fluted point tradition of about 13,450–12,900 cal BP for Clovis and Clovis-like fluted point forms and about 12,800–12,500 cal BP for Folsom and other Early Paleoindian points for much of the eastern United States. The authors of that synthesis recommend differentiating between uncalibrated radiocarbon values (expressed in their articles as RCBP, rather than BP) and calendar years, since there is such a large difference between radiocarbon and calendar years for the early period of human occupation in the eastern United States. Paleoindian (and Archaic) radiocarbon ages are consistently younger than actual calendar years. These dates should be calibrated and tied to solar or calendar years.

VOYAGEURS

Since no actual radiocarbon values are available for the local Paleoindian sites and artifacts discussed below, all chronologies for the Voyageurs NP area are merely estimates. However, it should be noted that a radiocarbon age of about 11,500 BP actually equates to about 13,450 calendar years BP, while a radiocarbon age of about 10,000 BP equates to about 11,200 calendar years BP (Anderson et al. nd:12; Stuiver et al. 1998; Stuiver et al. 2003). Even later radiocarbon ages, such as those in the range of 8000 BP toward what is generally considered the end of the Early Archaic Tradition, are still 800 years too young relative to actual calendar years according to current calibration curves (Stuiver et al. 2003).

Early Paleoindian sites are generally associated with late or terminal Pleistocene environments and hunting of now-extinct megafauna, although that view of Early Paleoindian subsistence is certainly oversimplified. Late Paleoindian sites are typically associated with the Younger Dryas, a sudden return to cold conditions that spanned about 12,850–11,450 cal BP (10,900–10,100 BP) (Anderson et al. nd:16–17). Clovis materials and the megafauna of the Pleistocene disappear at about the beginning of this period (Goodyear 1999:443). While Clovis and other early Paleoindian manifestations appear to have very wide geographic ranges and similar developments, the later Paleoindian complexes are more diverse and suggest regionalization and population growth. More diverse subsistence, usually thought to correlate with the Archaic Tradition, actually seems to begin with the Late Paleoindian Tradition. In much of the eastern United States, Paleoindian assemblages give way to Early Archaic Tradition occupations that correlate with the Pleistocene–Holocene boundary (beginning about 10,000 BP or 11,200 cal BP) and the Hypsithermal warming period that followed the Younger Dryas after about 11,450 cal BP. These associations are difficult to date precisely and sort out, since lanceolate points seem to co-occur with notched Early Archaic specimens in some areas, and the Early Archaic notched types occur earlier in the southeast United States than elsewhere (Anderson nd:77; Dincauze nd:37). For both the immediate project area and the Border Lakes Region, absolute chronologies are lacking not only for the Paleoindian Tradition, but also for the early portions of the Archaic Tradition, creating large gaps in local chronologies.

Although it is often assumed that Paleoindian materials are best known from the Plains and the southwestern United States, the vast majority of fluted points are actually reported from the eastern United States (Anderson et al. nd:20). It appears that a similar situation applies to Late Paleoindian artifacts as well. Unfortunately, the eastern sites generally exhibit poor context compared with those to the west.

Early Paleoindian points are not known from the immediate project area. The nearest examples currently reported from Minnesota are a fluted Clovis point made on Gunflint silica from a surface collection in the Reservoir Lakes area north of Duluth (Romano and Johnson 1990) and a probable Folsom point from Round Lake in Itasca County (Mulholland et al. 1997:386). Other potential Early Paleoindian points with basal thinning similar to the Holcombe type from Michigan are reported from East Bearskin Lake near the International Border in Cook County (Peters 1990:48) and at locations near Thunder Bay (Mulholland et al. 1997:389).

Numerous Late Paleoindian points and other tools are reported from several locales along the International Border, both west of Voyageurs NP and east to the Thunder Bay, Ontario, area. Most of the Late Paleoindian materials reported near Voyageurs NP occur west of International Falls. These consist of more than 50 unfluted, lanceolate projectile points and a few other temporally diagnostic tools known primarily from isolated surface finds or from artifacts documented in private artifact collections (Haywood 1989; Magner 1994, 2001; Reid 1980; Storck 1971). This pattern is repeated regionally, where, although many Late Paleoindian tools are reported, very few are from excavated contexts. For example, in Manitoba perhaps a thousand lanceolate points are known but few were recovered *in situ* (Magner 1994:25). The excavated Late Paleoindian materials from the Cummins site complex near Thunder Bay are a notable exception to this pattern (Julig 1994).

Much of the local culture history is directly affected by the geological and geomorphological events associated with the last local stages of Lake Agassiz. Unfortunately, few details regarding Lake Agassiz's beach and water level history are well documented near the park area. However, it is apparent that the lake covered much of the Rainy Lake watershed at different times, the last of which occurred during the Emerson Phase about 9900 BP (Winkler and Stanford 1998). According to the few available reports, there is no current evidence for Paleoindian occupation of the Rainy River area prior to about 10,800–9900 BP at the earliest (Magner 1994:61). Typically, researchers have suggested a not-earlier-than date of circa 9500 BP for local Late Paleoindian occupations (Dudzik 1993; Haywood 1989; Magner 1994). While none of these researchers specifically differentiates between radiocarbon age vs. solar or calendar years, I assume they are referring to chronologies based upon radiocarbon ages and radiocarbon, rather than calendar, years. As noted above, these radiocarbon values are likely too young by a factor of over 1,200 years relative to actual calendar years. This difference must be considered when building or refining any local Paleoindian and Archaic Tradition chronologies for the region. The earlier time frame (circa 10,800–9900 BP) for local Paleoindian occupation suggested by Magner correlates well with widely accepted chronologies for Late Paleoindian point types such as Agate Basin (circa 10,500–10,000 BP, or about 12,300–11,200 cal BP). The later date (post 9500 BP, or about 10,700 cal BP) would correlate well with chronologies for other Plains Late Paleoindian point types such as Hell Gap or Scottsbluff.

It has been hypothesized that, as the ice sheet retreated, Late Paleoindians moved east and north from the Plains along the shoreline of glacial lakes in the western Superior basin and along the shores of glacial Lake Agassiz near the current project area (Thomas and Mather 1996:5.5). Others (Magner 1994:61) suggest that Paleoindians could have followed caribou moving into the spruce parkland forest that colonized the Lake Agassiz basin during the Ojata low-water episode from about 10,800–9900 BP, or after 9500 BP as the water level dropped and the lake retreated northward from the succeeding higher Campbell level (Magner 1994:8, 61). Magner's estimate of 9500 BP for the falling level of Lake Agassiz can be refined based upon two radiocarbon dates from geological sediments from the McKinstry site area. Those two dates confirm that the final, post-Emerson phase of draining of the lake in the current Rainy River area occurred between 9920 ± 100 BP (Beta

77287) and 9610 ± 110 BP (Beta 82735) (Hajic 1996:6.9). Magner notes that several of the known sites west of International Falls correlate with landforms where caribou could have crossed streams and other waterways. Others have similarly hypothesized the importance of caribou hunting to Late Paleoindian groups in Ontario and elsewhere (Anderson et al. nd:20–21).

Regional environmental reconstruction suggests that essentially modern flora and fauna were becoming established in the northeastern Minnesota region by about 10,000–8000 BP (about 11,200–8900 cal BP) (Kuehn 1998:458; Mulholland et al. 1997:383–385). That is, the earlier shrub tundra (or open boreal forest) and subsequent spruce or spruce parkland forests were being replaced by a conifer and deciduous forest much like current, unlogged portions of the region. Data from Big Rice Lake pollen cores suggest that the northern portion of Minnesota saw the establishment of mixed conifer and deciduous forest toward the end of this period (Mulholland et al. 1997: 383, 384). The specific park area for the period from 9000 to 6000 BP saw a decrease in spruce and an increase in pine (Davis et al. 2000:972). In fact, the Voyageurs NP area "experienced a marked dry period during the early Holocene" (Davis et al. 2000:977) that was notable for falling lake levels, low soil moisture, and retreating forests south and west of the park. Elsewhere, this warm, dry period is known as the Hypsithermal. As noted below, this time frame would correlate with Archaic Tradition sites over most of the eastern United States, even though some have suggested, by virtue of proposed Late Paleoindian dates extending to 6000–7000 BP, that the local and regional Paleoindian Tradition extends well into the Holocene.

There is considerable variability in Late Paleoindian occupations across the northeast and Plains areas depending upon specific location, but despite this, some well-known point types and other tools have wide geographic distribution. Most of the point types recorded in Minnesota in general and the Border Lakes Region in specific are known to occur across the Plains region. These include Agate Basin, Hell Gap, Eden, and other similar unfluted, lanceolate point types. While Early Paleoindian Tradition sites are commonly associated with large game hunting, including terminal Pleistocene megafauna, recent research in northern Wisconsin and elsewhere suggests that Late Paleoindian Tradition subsistence in this region may instead be more like the later Archaic Tradition, where a variety of animals of varying size was hunted (Thomas and Mather 1996:5.6). As noted above, several researchers have suggested a connection to exploitation of caribou. To the west on the Plains, most of these Late Paleoindian point types are found at sites where bison were killed and processed (Magner 1994:29–30).

The best-known regional Paleoindian complexes are located to the east of the park in Ontario along Lake Superior's north shore (Julig 1994) and in northern Minnesota northwest of Duluth (Steinbring 1974). At the Reservoir Lakes complex in Minnesota, typical Plano-style points from several sites are made of "local" raw materials such as jasper-taconite, Gunflint silica, and Knife Lake siltstone (Harrison et al. 1995; Steinbring 1974). Large numbers of these Late Paleoindian (and Early Archaic) points are contained in the Redepenning collection from Island Lake Reservoir about 25 miles north of Duluth

(Carmichael 1983:47; Harrison et al. 1995). About 80 percent of the points in this collection are made on Knife Lake Siltstone. Although no absolute chronology is available for the sites in this complex, based upon comparison with the Lakehead complex of the Thunder Bay area, the sites have been reported to span about 9500–6000 (BP). I am very skeptical of the accuracy of proposed chronologies that would extend local Paleoindian assemblages to 6000 BP, a date typically associated with the transition from the Middle to Late Archaic Tradition over much of the northeast and southeast United States.

In the area of Thunder Bay, Ontario, the Lakehead complex is best known at the Cummins site complex (Julig 1994). There, Late Paleoindian sites are estimated to have been initially occupied at about 10,000–9500 BP (Julig 1994:5). I assume that this chronology is for radiocarbon age rather than calendar years, as discussed above. Most of the artifacts from the Cummins site complex are made from locally available jasper-taconite, although Hudson Bay Lowland chert, Knife Lake siltstone, and Gunflint silica are also present. The Lakehead and Reservoir Lakes complexes are so similar that at least one researcher has recommended combining them into a new category, the Interlakes Composite (Ross 1995).

While these Lakehead and Reservoir Lakes complexes are the best-known regional Late Paleoindian occupations, the intervening area also contains considerable evidence of Late Paleoindian sites. At South Fowl Lake along the International Border in Cook County, several Late Paleoindian lanceolate points are reported from a surface collection (Platcek 1965:Plate 1). Additional Late Paleoindian points have been recovered from multiple locations within Superior National Forest east of Voyageurs NP (Carmichael 1983:48; Mulholland et al. 1997; Peters 1986:169, 1990, 1992). Most of these are surface finds from about a dozen sites over a large area (Mulholland et al. 1997:390). These sites represent isolated finds, quarry, and trapping stations (Peters 1986:169).

It is likely that much of the Paleoindian use of the park was directly related to occupation of the former shorelines or recently exposed basin of the once-vast glacial Lake Agassiz. Detailed mapping of ancient proglacial and postglacial lake levels has not been conducted for the immediate project area, but large portions of the Rainy Lake watershed, including the park's chain of lakes, were once part of the Lake Agassiz system (National Park Service 2000:I-115; Winkler and Stanford 1998). In a study of archeological resources associated with Lake Agassiz strand lines and beaches along the Rainy River west of International Falls and Fort Frances, Haywood (1989:25) has reported that Paleoindians first occupied the area during the Emerson Phase of Lake Agassiz about 9500 (BP). He estimates that Archaic use of the area followed at about 7000 (BP). Following broader regional chronologies, it may be appropriate to push the Archaic back at least to 8000 BP (8800 cal BP) if not a millennium further, although all local dating is merely estimation based upon cross dating of diagnostic projectile points. As noted above, Magner utilized Lake Agassiz water level data to indicate the possibility of local Late Paleoindian occupation during a low-water phase from 10,800–9900 BP, or, as indicated by Haywood, after 9500 BP. As noted earlier, the absolute chronology for draining of the Emerson Phase of Lake

Agassiz developed for the McKinstry site location refines these estimates and confirms that a large glaciolacustrine lake plain would have been exposed along the current Little Fork River junction with the Rainy River by the period between 9920–9610 BP at the latest (Hajic 1996:6.9). This strongly suggests that the Late Paleoindian sites associated with the various late Lake Agassiz beaches west of International Falls predate about 9900 BP, a date that is completely consistent with the dating of Agate Basin and other similar points from areas well west of the project area.

Modern day Rainy Lake, raised about 3.1 ft from its typical high-water mark in natural conditions, is at an elevation of about 1108 ft amsl. Namakan, Kabetogama, Sand Point, and Crane Lakes, raised about 3.5 ft from their high levels in nature, are typically at about 1118 ft amsl. Unfortunately, it is difficult to relate these levels to Lake Agassiz, since various water levels have been proposed for the last local stages of that lake. Since extensive beach deposits of the Campbell stage of the proglacial Lake Agassiz are reported at an elevation of about 350 m (1148 ft amsl) west of International Falls along the Rainy River (Haywood 1989:2), it would appear that many of the shoreline landforms known to contain Archaic and Woodland archeological deposits in the park would have been inundated to a considerable depth at about 10,000 BP (Mulholland et al. 1997:Figure 8). Sediments from Cayou Lake on the Kabetogama Peninsula indicate the presence of Lake Agassiz waters there at about 9900 BP, the last time that Lake Agassiz extended into what is now the park (Winkler and Stanford 1998).

Lake Agassiz water levels fluctuated considerably through time. For example, the Campbell strands are reported to vary by about 3 m in elevation (Haywood 1989). Paleoindian materials are reported from the Sandmoen site (DfKp-1) near the Rainy River's terminus at Lake of the Woods in Ontario at 1125 ft amsl, with Campbell strandlines reported at elevations as low as 1100 ft amsl in that vicinity (Reid 1980). Other researchers cite considerably lower elevations as representing Campbell beach deposits (Magner 1994). He indicates a Campbell beach of the Emerson Phase at 299 m (981 ft amsl). He also cites other earlier Emerson levels of 311 m (1020 ft), and 317 m (1040 ft), all well below the modern level of Rainy Lake. Given this variability, and the relative lack of data regarding lake levels in the Rainy Lake chain prior to about 1900 cal AD, it is difficult to relate Lake Agassiz staging and water level history directly to the park's landforms. Accordingly, the lower elevations of landforms that would have been available for use within the park during the 10,800–9900 BP or post-9500 BP eras, when Late Paleoindians have been hypothesized to enter the Rainy River area, are not known. As noted below, apparently very early Archaic materials are associated with a sandy beach deposit at 21KC13, and a few Late Paleoindian points have been collected from currently inundated settings on Kabetogama Lake, suggesting that such questions might be further addressed with data available within the park.

As noted above, no Early Paleoindian Tradition (Llano) materials are known from the immediate project area. However, a surprisingly large number of Late Paleoindian, unfluted, lanceolate points are documented from the Canadian and American sides of the

Rainy River west of the park (Haywood 1989; Magner 1994, 2001; Reid 1980; Storck 1971), the south shore of Rainy Lake west of the park (Salkin 1993), the northern Minnesota area east of the park (Mulholland et al. 1997; Peters 1986, 1990, 1992), and from materials in local, private artifact collections from within the park. West of the park, from about 7 miles west of International Falls to Indus, Minnesota, the Ma Graves (21KC31), Plummer (21KC17), and Pelland (21KC24) sites and the Brenning collection all contain lanceolate Late Paleoindian points along with a few other diagnostic tools (Magner 1994: 46–51). Other similar sites are located along the Rainy River in Ontario and further west in Minnesota (Haywood 1989, Magner 1994, 2001). The Late Paleoindian points from the Rainy River and Lake of the Woods area west of the park include specimens typed as Agate Basin, Plainview, Scottsbluff, Hell Gap, and other similar styles (Haywood 1989; Magner 1994, 2001:Table 1). Many of these points are forms common on the Great Plains to the west and southwest of the park, although most are made of raw materials (e.g., Knife Lake Siltstone and Rhyolite) that are available locally in north-central and northeastern Minnesota, or of materials (e.g., jasper-taconite) that outcrop in the Gunflint Formation near the US–Canadian border in Ontario east of the park area.

These same Late Paleoindian Tradition point types are known for much of the state including east central (Cain 1969), northwestern (Peterson 1973; Clouse 1984) and northeast (Mulholland et al. 1997; Peters 1986, 1990, 1992; Steinbring 1974) Minnesota. This wide distribution of similar types would seem to support Ross's (1995) view that the northern Minnesota and northwest Ontario Late Paleoindian Tradition complexes are actually part of a widespread, single adaptation.

There is currently very sparse evidence for Late Paleoindian Tradition sites from within the park. In fact, no specific Late Paleoindian sites have been officially recorded. In addition, no Paleoindian artifacts have been recovered through professional archeological activities in the park. However, some diagnostic Late Paleoindian Tradition artifacts are known from the Kabetogama Lake area of the park. A "Yuma" point was recorded in a local collection from Kabetogama Lake in 1941 (Kruse 1941:52–54). The Yuma type, based on finds at a site in Colorado, formerly encompassed various point styles now redefined as Agate Basin, Hell Gap, and others. C. O. Lindberg (1947) from Hibbing, Minnesota, reported numerous surface finds from seasonally inundated settings on the lakes now within Voyageurs NP. Among the points illustrated in his report are a few that appear to be of unfluted, lanceolate, Late Paleoindian form (Lindberg 1947:60). One of these strongly resembles a Hell Gap point with an extensively reworked blade. A minimum of three or four unfluted lanceolate points are present in a local collection examined by the author in 1987. These artifacts were collected from various locations on Kabetogama Lake (Richner 1987a). The points have never been examined or studied in detail, but were merely observed among numerous points of varying age in the collection. It is thought that at least one of these points, a classic, basally ground lanceolate Late Paleoindian form, was collected from a low rocky area (usually inundated?) east of Moxie Island. The owner typically collected from seasonally submerged landforms, especially mudflats and shoreline beaches, yet the points are in fresh and unrolled condition, suggesting they may have been collected from

their original points of deposition. This may suggest that they were deposited after the lake reached essentially modern (pre-1914 dam construction) or lower levels after the retreat of Lake Agassiz to the north, or during one of Lake Agassiz's later, lower water level stages.

Another, unfluted, classic Late Paleoindian lanceolate point was confiscated from an artifact collector by park rangers in 2000. This point, examined and photographed by the author, appears to match the Agate Basin type (Figure 2). It was collected from a mudflat on the southern portion of Kabetogama Lake in Nebraska Bay. It is complete and is in pristine, unrolled condition. It is 8.3 cm long and 3.2 cm wide at its widest point. Its lateral edges are gently convex along the entire length of the point. Moderate basal grinding is present near the base of the blade. It is made of jasper-taconite. On the Plains, Agate Basin points are generally placed within a time frame of about 10,500–10,000 BP, or earlier than 11,200 cal BP (Irwin Williams et al. 1973). Some have suggested that the Agate Basin type was used over a several thousand year span in Saskatchewan, but others suggest that his definition of the point type was too broad and includes non-Paleoindian examples (Wilson and Burns 1999). Until proven otherwise by carefully applied local radiocarbon chronologies, I would assume that regional Agate Basin points may date to about 10,500–10,000 BP, with Hell Gap at about 10,000–9500 BP, and Scottsbluff/Eden somewhat more recent at about 9400–9000 BP (Shott nd:99). This would place the local Late Paleoindian Tradition materials at about 12,300–10,200 cal BP, a date range very much in keeping with similar assemblages across much of the eastern United States and Great Plains. Canadian researchers have recently suggested an "extremely tentative chronology" of 11,000–10,500 BP for northern fluted forms, 10,500–9900 BP for Agate Basin, 10,000–9500 BP for Hell Gap, and 9300–8500 BP for Scottsbluff types (Wilson and Burns 1999:231).

However, chronologies based merely on cross dating of seemingly similar forms across wide regional areas should be viewed with considerable skepticism. It has been pointed out that the Minnesota Late Paleoindian examples may or may not actually be identical to the Great Plains types and may not necessarily be of the same age and cultural association (Mulholland et al. 1997:390–391). Moreover, there is an apparent association of leaf-shaped points with the Canadian Shield Archaic and other Archaic assemblages in areas further west in Canada. These points are basically similar in shape to the Agate Basin type but are differentiated by pattern and quality of flaking (Wilson and Burns 1999:228–229). These later leaf-shaped "Agate Basin-like" points postdate Late Paleoindian stemmed types like Scottsbluff and are placed in the range of about 8500–7500 BP. The points are therefore considered to be fully distinct from classic Agate Basin and Hell Gap types (Wilson and Burns 1999:229). Perhaps these Archaic specimens may include types defined in the 1950s in Manitoba such as Sturgeon Triangular (MacNeish 1958:95, Point Number 16). Obviously, much more work will be needed to sort out these kinds of typological and chronological associations for the little known Late Paleoindian materials in the Border Lakes Region.

The presence of lanceolate points in local collections from Kabetogama Lake clearly indicates that Late Paleoindian materials matching those documented east and west of the park are present in the park. It is also very likely that other examples of Late Paleoindian

points have been collected from Kabetogama Lake as well as other park lakes in the past but have not been examined by professional archeologists to date and are therefore not reported in any local or regional archeological literature.

Since all of Minnesota was ice free by 11,200 BP, with the exception of the later (10,000 BP) Marquette advance in the Lake Superior basin (Mulholland et al. 1997:393), the Voyageurs NP project area potentially could contain Early Paleoindian materials, even though none are recorded to date. While Late Paleoindian artifacts are currently known only in small numbers from the park, data from east and west of the park as well as from local private collections strongly suggest that such artifacts are more common within the park than currently recognized.

Archaic, 10,000–2150(?) BP

As with the local Paleoindian Tradition, chronological control for the area's Archaic Tradition sites is poor. However, a few dates are available for the local area and Border Lakes Region. Differences between radiocarbon and calendar years must also be considered when interpreting these dates. For example, a radiocarbon age of circa 4400 BP is found to be too young by a minimum of nearly 400 years when calibrated via dendrochronology based curves. Earlier dates have greater variances from actual calendar years. Except where noted, the dates provided below are in uncalibrated form since most are taken from other sources that did not consider calibration curves and/or from which actual lab dates are not reported and can therefore not be calibrated.

Annual temperatures increased between 9000-6000 BP, a time period assumed by some to equate to the local Late Paleoindian Tradition, but more likely to reflect the Paleoindian/Early Archaic transition and Early/Middle Archaic occupation of the region. Just prior to 6000 BP, the climate became the warmest and driest of the entire Holocene. January temperatures were +2°C warmer than today with annual temperatures 1.5°C warmer (Davis et al. 2000:972). Although these values may not seem large, they are sufficient to create significant environmental changes. Davis et al. (2000:977) refer to this as the "prairie period" although Voyageurs NP continued to be forested through this dry era. The Archaic occupants of the region around 6000 BP would have lived in an environmental setting considerably different from the one that is present today. A reconstruction of local lake levels at this time frame would be a major aid in determining where Archaic sites might occur within the park. It is probable that modern lake levels now inundate fairly extensive landforms that were exposed for potential occupation during the dry period before 6000 BP. After about 6000 BP, white pine increased at Voyageurs and the climate became more moist and cool (Davis et al. 2000:972). By 4000 BP, modern precipitation values were reached. Spruce increased again in frequency, white and red pine persisted, and oak decreased as temperatures fell. Archaic occupations of the area probably overlap the period of increasing temperature and dry conditions beginning by 8000 BP (if not earlier) to 6000 BP, and certainly occur after 6000 BP through about 3000 BP. It was only

in the final portion of that long period that the occupants lived in environmental conditions comparable to the modern situation.

The apparent shift from Late Paleoindian Tradition to the Archaic Tradition is very poorly documented for the Border Lakes Region. However, it seems to be reflected largely in changes in projectile point styles and probably in the greater diversification of subsistence strategies (Thomas and Mather 1996:5.7). The Archaic Tradition in the region is poorly defined, but has been divided into at least three partially overlapping constructs. In the southern Boreal forests of Manitoba, Ontario, and Minnesota and across much of the Canadian Shield, Wright (1972) defined the Shield Archaic. In much of this area, these Archaic groups were the first to occupy the land after the retreat of the glacial ice. The concept of Shield Archaic has been criticized for its broadness and ambiguity (Buchner 1979, 1980; Hannah 1980), and is probably best viewed as a designation for all post-Paleoindian and pre-Woodland occupations on the Canadian Shield. Large, stemmed points are thought to give way to smaller side-notched forms through time. Tool kits include various forms of points, bifaces, and scrapers, along with some use of copper. Ground-stone tools appear to be rare. Chronologies are essentially lacking for this very broad archeological construct, although in Manitoba it has been estimated to extend from about 6500–2950 BP. In Saskatchewan, a similar date range has been hypothesized (7000–3500 BP). It has also been assumed that Shield Archaic subsistence was based upon caribou and fish, although actual faunal evidence is essentially lacking.

To the east of the project area in the Great Lakes region, another Archaic Tradition, the Lake Forest Archaic, has been defined. People of the Lake Forest Archaic consumed a more diverse diet including fish, made various ground-stone tools (adzes, axes, and gouges), utilized native copper, and established cemeteries. The presence of cemeteries and heavy non-transportable tools such as grinding stones might indicate reduction of group mobility over the preceding Paleoindian Tradition.

To the southwest of the study area, the Prairie Archaic has been defined (Anfinson 1997). Subsistence focused upon bison and deer, but collecting of nuts and seeds and fishing were also important. It is conceivable that these peoples may have shared territory with their neighbors to the east, moving through forest, prairie, and transition zones following seasonal scheduling for subsistence (Thomas and Mather 1996:5.8).

The local and regional Archaic Tradition(s) cannot be readily subdivided into the three-fold early-middle-late construct that is used over most of the eastern United States. Point styles defined as Early Archaic over much of that region (e.g., Kirk types, Hardin Barbed, and various bifurcate base types such as LeCroy) do not appear to be present locally, although that apparent pattern may reflect a lack of information as much as actual absence. Early Archaic side-notched points are relatively widespread in the southeastern United States by about 10,000 BP (11,200 cal BP) and continue no later than about 9500–9000 BP (10,700–10,200 cal BP) (Anderson nd:77). They are followed by Kirk, Hardin, and various corner notched types after that date (Anderson nd:77). These are followed by

various bifurcate forms, dating from about 8900–7800 BP (10,025–8600 cal BP). While these Archaic forms are probably earlier in the Southeast than elsewhere in the eastern United States, this absolute chronology is still quite divergent from the proposed dating for the Border Lakes Region Late Paleoindian and Archaic Traditions used by many authors. If local chronological reconstructions are accurate, the Border Lakes Region was still occupied by Late Paleoindian groups during that time frame, and possibly during the period typically defined for Middle Archaic (circa 8000–6000 BP) as well. Adams (1995) follows traditional Archaic chronologies in proposing early Archaic dates of 10,000–8000 BP for northern Ontario, rather than accepting the potentially controversial late dates for Paleoindian proposed by some authors.

However, local and regional Paleoindian and Archaic chronologies are imprecise at best and are based more on assumptions than on actual absolute dates. As noted below, some typical Middle and Late Archaic types may be more common in the area than suggested by the available literature. Most of these would seem to occur within a time frame (post 6000 BP) that is typically associated with the Late Archaic in most of the eastern United States.

Archaic sites and materials are somewhat less scarce than Paleoindian artifacts within the Border Lakes Region and local Rainy Lake area, but are still uncommon in comparison with later Woodland materials. Perhaps the best known local Archaic site is Houska Point (Steinbring 1974), located about 10 miles west of the park boundary near the outlet of Rainy Lake. Like most of the sites in this area, this is a multi-component site, but is probably best known for its Archaic artifacts, especially those made from native copper. Archaic components are also known at the multi-component Long Sault (Arthurs 1986), Smith (Birk and George 1976) and McKinstry (Yourd 1985, 1988) sites on the Rainy River a short distance west of Voyageurs NP. No diagnostic items were found at McKinstry, but dates for an aceramic component seem to indicate a pre-Laurel occupation at the lowest levels of that stratified site. In addition, the Little Fork burial site (Steinbring 1971) at the mouth of the Little Fork River yielded copper points and two bone harpoons thought to be of Archaic age. Two Archaic sites, DeKj-2 and DeKj-4, are reported on the Canadian portion of Rainy Lake near the park (Rajnovich 1980). DeKj-2 contained a jasper-taconite stemmed point.

Only a few Archaic artifacts and sites are specifically reported within Voyageurs NP. Of those, the best known site is 21KC13. That site, located at Black Bay Narrows on Rainy Lake, was examined as part of a park program of restoration of an early-twentieth-century log cabin. It was the subject of the most extensive excavation (circa 38 sq m) that has ever occurred within the park. Several diagnostic chipped-stone and copper Archaic tools were recovered during that project (Richner 1999b). In addition, at least some fauna from the site can be directly associated with Archaic site occupation.

It is probable that the first Archaic use of the park area had occurred by 7000–8000 BP, if not earlier. To date, at least one artifact, a large siltstone point, thought to date to that time frame has been recorded within the park at site 21KC13 (Richner 1999b). This point

was recovered from the base of the site deposit in clear aceramic context. This very large gray siltstone point is roughly lanceolate in form, with parallel, straight-sided edges at the base that give way to a straight-sided, tapering triangular blade (Figure 3). Despite its very large size, the blade evidences some suggestion of re-sharpening. Small, "incipient" notches are barely visible very close to its base. The blade is somewhat irregular in cross section, owing largely to hinging of a few flakes that left a ridge or knot on one face, although the piece is quite thin for its size, and has a regular outline. The concave base has been ground or worn relatively smooth, as have the edges of the base. Edge rounding and abrasion is also present on the blade edges, especially near the tip. The point seems to be transitional in style bearing some very general Late Paleoindian characteristics, but not matching any Paleoindian types.

It is difficult to find comparable examples in the literature of the 21KC13 point, although large, siltstone points occur in various Archaic sites across the Canadian Shield. One previously illustrated artifact is a perfect match for the example from 21KC13 (Shay 1971:Plate 26b). The verbal description of that point (Shay 1971:56) matches the example from 21KC13 down to the slight indentations or notches near the base. The example from the Itasca Bison Kill site is not as long as the 21KC13 point, but all other metric observations are consistent. Perhaps the Itasca specimen was subject to more re-sharpening than the Voyageurs NP example. Since the Itasca site has been dated to about 7000–8000 BP (Shay 1971), the considerable antiquity of this point type is readily apparent. Given the large statistical uncertainty in the Itasca date, the deposit can only be dated within the broad era of 11,000–7650 cal BP. Accordingly, I assume this point style is, in fact, very early in the local Archaic chronology and would date earlier than 7650 cal BP.

A second, smaller, roughly lanceolate-shaped piece was recovered from site 21KC13 just above the previously described specimen (Richner 1999b). This example is made on poor-quality greenish-gray rhyolite (Figure 3). Its tip is missing, but the point is otherwise complete. There is no evidence of grinding of the edges of the blade or base, but there is basal thinning on one face. The base is contracting to straight in form, and there is the subtlest suggestion of a shoulder. The blade appears to have been resharpened. Like the specimen described above, this tool was certainly a "spear" point or multi-function tool such as a knife; it is not an atlatl or dart point. I believe this point might represent one of the Shield Archaic leaf-shaped points discussed in the section above on Agate Basin points. If that identification is correct, a date range of 8500–7500 BP might be inferred for the point (Wilson and Burns 1999:228–229). However, since it was found in an aceramic context stratigraphically below Laurel materials, any temporal placement for this piece, beyond Archaic, is at best very tentative.

A third un-notched coarse quartzite (or gray rhyolite) biface from 21KC13 is also tentatively identified as an early Archaic specimen. This piece is thinned at the base and exhibits a suggestion of a slightly contracting stemmed base. No grinding or other modification of the edges of the piece is apparent. Its rather irregular blade shape may be

the result of re-sharpening of the blade, but I suspect this piece was never completed. It too may be one of the Archaic leaf-shaped points mentioned above.

One small point from 21KC13 appears to compare well with Archaic examples, both from the Border Lakes Region and broader areas of the Great Lakes and Midwest region, as well as the Northern Plains (Richner 1999b). It is made on a fine-grained "dirty" light gray quartzite (Figure 3). Although the point is slightly smaller than what is generally considered to be dart points (shoulder width is less than 20 mm), it does not fit with any of the known Late Woodland point types for the region. I assume it is an Archaic dart point. The point has one characteristic, basal grinding, which is typical of Archaic specimens. The concave base is worn rather smooth in contrast to the sharp edges of the blade. Similar, but less intensive smoothing is present at the margins of the notches as well. While this may have been a purposeful smoothing/grinding, it may also result from movement of the piece in the haft. The slightly sinuous (not serrated) edge of the point reflects rather careful edge re-sharpening, with alternate flakes being detached from each face.

It matches best with what Bleed (1969:15–16, Plate 12 e–i) calls eared side-notched. These are associated with an Archaic assemblage at the multi-component Petaga Point site in central Minnesota at Lake Ogechie near Lake Mille Lacs. Bleed (1969:32) lists this style as his Class K and says that they compare favorably with Late Archaic types from a variety of settings, including the Central and Upper Mississippi Valleys. The example from 21KC13 matches the five specimens from Petaga Point in essentially all morphological and metric attributes, although it is not quite as wide as the examples from Petaga Point.

Similarly shaped points have been recorded over a very wide geographic area. In Manitoba, comparable points have been called Parkdale Eared (MacNeish 1958:100, plate VI), and more recently, Oxbow points (Buchner 1980:46). The 21KC13 example does not precisely match the Oxbow type as it is defined in Montana and areas well west of Voyageurs (Greiser et al 1983). That roughly similar type dates from about 5200 to 3500 BP at the Sun River site (Greiser et al. 1983) and between about 4350 to 2550 BP at the Canning site in Minnesota (Michlovic 1994:10–11). In southwestern Minnesota, similarly shaped points have been recorded at the Mountain Lake site (Anfinson 1997:47). This poorly dated phase is thought to span about 5450 to about 2550 BP (Anfinson 1997). Examples of Parkdale eared/Oxbow points have been recorded about 25 miles west of Voyageurs NP at the Smith site at the confluence of the Rainy and Big Fork Rivers (Birk and George 1976) and at the Long Sault Rapids further west on the Rainy River in Ontario (Arthurs 1986).

The point from 21KC13 shares many similarities in shape with the Late Archaic Brewerton eared notched points of New York (Richie 1961:17). Richie also defined a Brewerton eared triangle (Richie 1961:18), which Justice (1987:123) considers to be a reworked variant of the eared-notched type. This variant has grinding on the ears and base that matches the example from 21KC13. Many of the Brewerton eared points differ in that the "ears" are the widest portion of the point, while the specimen from 21KC13 has its widest point at the shoulders like the Petaga Point examples. These Archaic Brewerton

eared notched points have been dated to 4930–3670 BP in New York (Richie 1969:89–91), and to about 4450 BP in Indiana (Cook 1980:373).

Despite the apparent match with materials of Late Archaic age, the point form, and its basal grinding are also similar to Early Archaic examples from the Ohio Valley and beyond. It is not unlike several variants of Kirk points illustrated by Chapman (1977) from Tennessee. At least one of these variants, which is very similar to the example from 21KC13, is from a deposit dated to 9350 ± 215 BP. Other Kirk corner notched and stemmed points are firmly dated from 8830–8930 BP (10,475–8812 cal BP) in the southeast United States (Anderson nd:45–70). Looking westward, the point also shares similarities with various "early side notched" points of the Northern Plains (Frison 1998:161). This and other Early Archaic assemblages across the east-central and mid-south United States often contain small, notched darts of shape and style similar to the example from Voyageurs NP.

Side-notched points of various shapes have a very long time span, ranging from Early Archaic on the Northern Plains (Frison 1998:161) to Late Woodland over much of the Midwest. Small side-notched points are present in late Woodland Blackduck contexts at the Hannaford site, for example (Rapp et al. 1995:Plate 25). However, these Late Woodland points do not share the distinctive shape of the specimen from 21KC13.

A surface find at the southern edge of site 21KC13 also appears to reflect Archaic use of the site. A polished stone gouge was collected from the interface of a bare rock dome and a thin mantle of soil in 1993. The specimen maintains a very sharp, concave bit. Gouges of this form are generally thought to be of Archaic age and are reported from Rainy River regional locales including the Smith site (Birk and George 1976:13). Very similar examples are known from Brewerton Phase Laurentian Archaic sites dating to about 4700 BP in the Middle Ottawa Valley northeast of Lake Huron (Chapdelaine et al. 2001:Figure 13). Adams (1995) has suggested a temporal span for Laurentian Archaic sites with gouges and notched points of about 5500–4000 BP.

Two other aspects of the Archaic materials from site 21KC13 are of particular note (Richner 1999b). Clark (1999) suggests that many of the site's copper tools are of Laurel and Archaic age, and that is certainly supported by the association of copper tools with the aceramic levels of the site. Seventeen of the 38 copper items are from these undisturbed early deposits, with the remaining 21 from mixed Stratum 2 proveniences. The large number of copper items in the aceramic levels of 21KC13 is particularly apparent when one considers that those proveniences account for only about 20 percent of the total volume of artifact-bearing matrix excavated at the site. Copper was brought to the site in Archaic and Initial Woodland times in bars and flat blanks, which account for 6 of the 17 items mentioned above. The two points from this provenience include a very well formed "rat tail" point and a smaller, conical point. Since other essentially identical conical points were recovered from mixed contexts, it is likely that they are also very early in the site sequence.

The association of copper artifacts with what I have identified as an Archaic occupation of site 21KC13 (Richner 1999b) is consistent with recent dating of copper implements from the north shore of Lake Superior and the boundary waters area of northern Minnesota. Dating of organic materials adhering to copper implements has yielded calibrated dates of 7016–6617 cal BP (Anderson No. 1), 5333–5249 cal BP (Renshaw No. 1), 5476–5262 cal BP (Renshaw No. 3), and 5290–4865 cal BP (Renshaw No.4) (Beukens et al. 1992:891). While perhaps only the "rat tail" point from 21KC13 would match well with the "Old Copper" points dated by Beukens et al. (1992), this date range would be applicable to that tool, and would serve as a likely lower dating limit for all of the Archaic copper items from the site. The rather close match of the Renshaw dates with the various dates presented above for notched, eared points like the Brewerton and Oxbow types is also apparent. The copper tool dates also indicate that copper tools can be expected to occur in Archaic contexts at Voyageurs NP back to about 7000 cal BP. Large Archaic copper points and other tools are present in surprising numbers in early collections from as far west as Roseau County, Minnesota west of Lake of the Woods, and several are known from locations near Fort Frances (Fryklund 1941). Many others that are currently undocumented were probably collected from within the park by numerous people during the spring "low-water" episodes from the 1920s to the 1970s.

Along with the various tools described above, the early component(s) of the site at Black Bay Narrows contained a surprising number of faunal elements (Mather 1999). Unfortunately, few could be specifically identified. Walleye, duck, and caribou/deer were identified from the numerous elements in aceramic Stratum 3. Many of the elements from Stratum 3 are burned, and this may have improved their preservation in the deposit. These include numerous fish vertebrae that could not be identified to a particular species. While it seems likely that the caribou/deer faunal element is actually from a Woodland caribou, since deer are not thought to have been present in the region in prehistory, such a final determination cannot be made at this time. Although very limited, there is nothing in the Archaic fauna, with the exception of the possible caribou element, that contrasts markedly with the fauna from the mixed Stratum 2 deposit, or from other Woodland faunal assemblages from other sites within the park (Colburn 1987; Falk in Lynott, Richner, and Thompson 1986:Appendix B). Park area faunal assemblages differ considerably from assemblages on the Rainy River to the west.

Three Oxbow type points, thought to be of Archaic association, are recorded at two sites within Voyageurs NP. All three are made on gray siltstone. One was collected from a dated context at site 21SL35 in 1979 (Figure 4). This very heavily abraded side-notched, eared point was recovered from within or directly above a small pit feature (Lynott, Richner, and Thompson 1986:Figure 23e). Lynott, Richner, and Thompson (1986:101) reported a radiocarbon age of 4410 ± 70 BP (TX3617) from a basin-shaped feature on what was thought to be a single component Laurel site, 21SL35, on the north shore of Kabetogama Lake. At the time, it was thought that the date was incongruent with the Laurel occupation and there was no clear explanation for its early age. It is a very tight date, with a small standard deviation for its age, and there is no indication of contamination or other problems

with the sample or its context in the basin-shaped feature. Now it is apparent that the site is multi-component, with at least one Archaic feature. When the radiocarbon date from 21SL35 is calibrated at two sigma via CALIB 4.3, Method A, the result yields 5298–4835 cal BP for the feature, and by extension, for the point as well. This matches very well with the radiocarbon chronology presented above for this point type in the region to the west of Voyageurs NP and for similar Brewerton points to the southeast. Recent research in Wyoming and elsewhere indicates that the Oxbow type may extend even further back in time to 6000 or more years BP (Cannon, personal communication 2002).

Michael Budak found a gouge on the ground surface at the northeastern edge of site 21SL35 in 1996. This artifact is very similar to the gouge collected at 21KC13, and like that specimen is probably of Archaic age. It fits well with the age of the feature containing the Oxbow point. This provides some additional evidence for Archaic use of that predominately Laurel site.

In 2001, two gray siltstone Oxbow points were collected from newly discovered site 21SL898 (Richner 2002b). These match the example from 21SL35 very closely and are likely of similar age. Both have been extensively resharpened, reducing the width of the blades.

An Oxbow point was found at the surface of the Long Sault site (Arthurs 1986) along the Rainy River west of Voyageurs NP. Oxbow points are also known from the visitor center locus at the Smith site at the junction of the Big Fork and Rainy Rivers (Birk and George 1976:13). Oxbow points become increasingly more common as one moves west from Voyageurs NP onto the Northern Plains. Oxbow sites are most numerous in Montana, Alberta and Saskatchewan (Aagberg et al. 1999).

Other Archaic artifacts are now identified in collections from the park, although they have not been previously reported in any detail. Perhaps the most obvious example is a huge copper tool recovered from 21SL82 in 1987 (Figure 5). This unique specimen is in the form of a very wide-bladed “butter knife.” It is certainly of Archaic association. A very large, stemmed siltstone point was recovered from a normally inundated “beach” at the north end of 21SL893 in 1999 (Richner 1999b). This point is certainly a knife or spear, as it is much too large to have served as an atlatl dart. In 2000, park rangers confiscated chipped-stone tools and debitage from an unauthorized surface collection made on Kabetogama Lake. In addition to an Agate Basin point described above, this collection also included a huge siltstone stemmed point that appears to date early in the Archaic sequence of the region.

Two other very large siltstone bifaces of probable early Archaic association were collected from the surface of seasonally inundated sites 21SL212 and 21SL213 in 1987. The example from 21SL212 is long and narrow (Figure 3). The other example is fragmentary and more flat and wide. It too must have originally been quite large. In 2002, a very large biface and a diagnostic Archaic notched point were discovered at site 21SL905 in an NPS campsite on western Namakan Lake. These kinds of discoveries suggest that Archaic

materials and sites are probably much more numerous at Voyageurs NP than are currently recognized.

Gibbon (1977:30) reported five Archaic site components at the park in the first park-wide inventory effort in 1976. However, his team recovered only one highly diagnostic Archaic point, identified at the time as a Parkdale Eared point from a beach collection at site 21SL21 on northern Kabetogama Lake (Gibbon 1977:30, 57). Unfortunately, this point was subsequently stolen from the park's museum collection, so it is no longer available for study. Perhaps it would now be classified as an Oxbow point. Three sites (21SL29, 21SL39, and 21KC21) are identified as having Archaic components on the basis of the presence of large siltstone bifaces or "knives" (Gibbon 1977:30, 58, 55, 59). Site 21SL47 is identified as having an Archaic component on the basis of a visitor's discovery of a very large copper point at that location (Gibbon 1977:30). In 1979, a Midwest Archeological Center team recovered a copper crescent during limited test excavations at this site (Lynott, Richner, and Thompson 1986:Figure 26a). Based upon the presence of a small number of pottery sherds, it was suggested that the site dated to the terminal Woodland Tradition (Lynott, Richner, and Thompson 1986:119) and that the copper artifact would fit within that time frame. It is equally plausible that the copper crescent is of Archaic association.

In my opinion, there are also other Archaic points from professional investigations in the park that have been incorrectly assumed to be of Laurel (Initial Woodland) association. Such association errors are readily explained, since site deposits in the park are often vertically mixed, or at least very much compressed and often lack obvious layering. In addition, nearly all of the prehistoric sites in the park are multi-component. Since Archaic materials appear to be relatively infrequent compared with Initial Woodland examples, it is very easy to assume that all dart points recovered from sites with extensive Laurel components are of Woodland association. The recently identified Oxbow point collected from 21SL35 in 1979 is an excellent example of this kind of incorrect identification. Other examples of points that have been assumed to be of Initial Woodland association, but which are more likely of Archaic age, include a side-notched siltstone point from a beach collection at 21SL56 and an expanding-stem siltstone point (Figure 4) from a surface context at 21SL200 (Richner 1992a). The example from 21SL56, with its square base and high, shallow notches, matches early Shield Archaic examples very closely. A concave-base, side-notched point from site 21SL195 also appears to be of Archaic age, although it was initially thought to be of Initial Woodland association (Figure 4).

A careful review of extant professional archeological collections from the park might reveal a few additional occurrences of Archaic points. Still, even given that possibility, it is apparent that relatively few diagnostic Archaic points have been recovered from the park to date. That low frequency is especially apparent when one considers the very large numbers of Woodland chipped-stone tools and ceramic vessels that are known.

However, there are other data that suggest that Archaic materials are much more common than is apparent from examining only professional collections. The author has

seen numerous Archaic projectile points in at least one local artifact collection that was obtained from a variety of sites on Kabetogama Lake (Richner 1987a). These include forms not duplicated in existing professional archeological collections. All of these items were collected during early spring low-water conditions, typically from mudflats or beaches in many areas of the Lake. Numerous Archaic specimens in this collection are reputed to derive from a mudflat near the State of Minnesota's Woodenfrog Campground in an area inundated by typical summer water levels. Collections made from seasonally inundated settings in what is now the park in the 1940s era also appear to contain numerous Archaic points (Lindberg 1947). Any future study of Archaic sites within the park will have to make better use of these kinds of private collections to fully understand the scope of Archaic occupation of the park. This will be difficult, since most of the older "pre-park" collections are already dispersed, or provenience is unknown or forgotten. Persons that have collected in the park in recent years are invariably reluctant to provide any details of that activity, since it is illegal.

Early Woodland, 3000–2150(?) BP

In contrast to the sparse evidence for Paleoindian and Archaic sites from professional archeological investigations in the park, Woodland materials are extensively represented. As described above, modern environmental conditions had developed toward the end of the long Archaic period and were maintained through most of the Woodland period. The "Early-Middle-Late" Woodland chronology, so well known for most of the eastern United States, does not apply well to the Border Lakes Region. According to traditional views of regional culture history, Early Woodland materials are thought to be absent along the International Border. That is, the typical Early Woodland ceramic ware recorded over much of the Great Lakes and Midwest Region, known in different areas by various names such as Fayette Thick, Leimbach Thick, or Marion Thick, is absent from northern Minnesota. In southeast Minnesota, the type LaMoille Thick is thought to be the local equivalent to these types. No examples of LaMoille Thick are known in the immediate Border Lakes area despite collections of many hundreds of fragmentary vessels from sites in the park, in adjacent Ontario, and on the Rainy River to the west. Instead, the distribution of LaMoille Thick is thought to be restricted to the deciduous forest area of southeast Minnesota. However, the apparently relatively recent age for this ware has lead some to suggest that there is no Early Woodland period in Minnesota (Gibbon 1986:89).

More recently, a differing view of the distribution of Early Woodland materials in Minnesota has been developed (Holman-Caine and Goltz 1995). Recent dating of sites, and of carbonized crusts on individual sherds of Brainerd ware indicate a much earlier temporal placement for this ware than had been previously assumed (Holman-Caine and Goltz 1995:112, 123–125). Many of these dates are in the range from 2000–3000 BP, within what would be considered an Early Woodland time frame over most of the Midwest (Holman-Caine and Goltz 1995:Table 7). While there have been questions raised about the accuracy of the "ceramic residue" or carbonized "crust" dates, there appear to be no valid reasons to reject the dates, which suggest peak use of the ware at about 2750 BP (Holman-Caine and

Goltz 1995:124), and a broader date range that would be accepted as overlapping the Early Woodland time frame in most of the Midwest.

Distribution of Brainerd ware suggests association with the prairie–forest ecotone west and southwest of the current project area. In an attempt to define cultural manifestations on something more than ceramic types, Holman-Caine and Goltz (1995:127) define the Elk Lake culture for the occupants of this ecotone area. They identify Brainerd ware as but one of a series of artifacts characteristic of this circa 1500-year-long occupation. Use of medium-sized dart points (e.g., Oxbow, McKean complex, and Pelican Lake), often made on local and western cherts, and wedges and chisels are other characteristic artifacts of the culture. The Elk Creek culture is viewed as continuing an essentially Archaic lifestyle while adapting to the cooler and more moist conditions that developed between 3350–1650 BP. Hunting of elk combined with use of wild rice were key to Elk Creek culture subsistence.

If Holman-Caine and Goltz's identification of continued use of Oxbow (and similar) dart points into this era is accurate, then it must be recognized that their documented presence at Voyageurs NP could reflect either Archaic or Early Woodland use. While it is certainly feasible that such types were popular over a long time period, it should be noted that the single date for an Oxbow point at Voyageurs NP is clearly of Archaic association.

While no Brainerd ware has been recorded within the park, Holman-Caine and Goltz (1995:Figure 2) indicate that, while outside the core area of Brainerd ware distribution, such ware is known from two locations on the Rainy River. Accordingly, any re-examination of ceramic collections from the park should consider that Brainerd ware specimens might be present, but previously unidentified.

Middle or Initial Woodland, 2150–1300 BP

In the apparent absence of Early Woodland materials from the Border Lakes Region, what would be known as Middle Woodland over most of the Great Lakes and eastern United States, but what is often termed "Initial Woodland" in the Border Lakes area, seems to appear rather suddenly and well developed soon after 2150 BP. As noted above, this model may need to be revised if Early Woodland wares are eventually recognized and/or recorded at sites in the region. In this area, a distinct cultural development, named "Laurel" after the location of a former community on the banks of the Rainy River west of the park, is the single Middle or Initial Woodland development. Laurel and Laurel-like materials occur over a very wide area from the Upper Peninsula of Michigan west along the US–Canadian border well into northern Ontario and Manitoba. Laurel pottery styles are also generally similar to numerous other Middle Woodland complexes from as far east as New York (Point Peninsula) and across much of the Upper Great Lakes (Lake Forest Middle Woodland, North Bay, and others) in Michigan, Wisconsin, and elsewhere. General similarities to the Hopewell Middle Woodland complexes of Illinois, Michigan, and Ohio are also seen in Laurel sites, including the aspects of mound building, exotic raw material use, and certain mortuary practices. However, the Laurel materials from the park and Rainy River area are

unique among these contemporary Middle Woodland developments, and the park can be considered to be in the "heartland" of this important cultural complex.

Examination of Laurel sites on the Rainy River was begun through antiquarian and looting episodes in the late nineteenth century. As elsewhere in the United States, these early efforts focused on burial mounds, such as the Grand Mound at the Smith site (21KC3; Bryce 1885). Those efforts will be discussed in a later section of the report. Professional study of Laurel was begun in the middle twentieth century, again with a focus on examination of mound clusters on the Rainy River. The McKinstry and Smith sites were the focus for several phases of investigation. Following the Midwestern Taxonomic System, Wilford (1943) first identified Laurel as a Focus of the Rainy River Aspect. Today, in the Border Lakes Region, it is most frequently classified as the Laurel Configuration of the Initial Woodland Pattern of the Woodland Tradition (Thomas and Mather 1996:Table 5.1). This follows Syms' (1977) taxonomy for the region.

Stoltman's reanalysis of Wilford's excavation data of the 1930s–1950s era led him to seriate Laurel pottery. This resulted in identification of three phases (Pike Bay, McKinstry, and Smith; Stoltman 1973, 1974). These phases were characterized by the relative frequencies of various decorative treatments or motifs and resultant decorative types. Lugenbeal (1976) later applied Stoltman's seriation to the Smith site and to other Laurel sites in the region and added the Hungry Hall and Anderson Phases to Stoltman's scheme. These late phases were noted to include high percentages of the types Laurel Dentate and Laurel Punctate, although Lugenbeal stressed that, due to small sample sizes, the Anderson Phase was hypothetical.

In the late 1970s, Reid and Rajnovich redefined Laurel taxonomy using Syms' system. Within the Laurel Configuration of the Initial Woodland Pattern, they identified the Boundary Waters Composite. Within that Composite, they redefined the Pike Bay, McKinstry, Smith, and Hungry Hall phases as complexes. The continuing problem with all of these taxonomic groupings is that they are not based upon solid absolute chronologies. In some ways the newer Syms' system is not a major improvement over the old Midwestern System, since the definitions of its taxa are occasionally vague or seemingly overlapping, and have rather tenuous ties to actual human behaviors. The recent excavations at the well-stratified McKinstry and Hannaford sites at the forks of the Rainy River cast considerable doubt upon Reid and Rajnovich's proposed dating sequence for their four Laurel complexes, and do not fully support the seriation originally developed by Stoltman. To date, it is still very difficult to place Laurel sites within a particular complex or set of temporal parameters based upon pottery attributes or types. However, the usual lack of datable excavation contexts, especially at sites within Voyageurs NP, currently leaves few other options for placing Laurel sites in chronological and regional perspective.

There is considerable disagreement about the temporal span of Laurel, with several authors claiming that it extends to AD 1100 (or even later), especially in its northernmost locations. Some believe that Laurel was eventually contemporaneous with a local Late

(also known as Terminal) Woodland complex, known as Blackduck, and the two merged to form a new complex along the Rainy River (Lenius and Olinyk 1990). Researchers have reported that Laurel sites at Lake of the Woods and other locations to the northwest of Rainy River extend to AD 1000 (Lenius and Olinyk 1990), AD 1100 (Dawson 1983a:12; Syms 1977), or even later (Rajnovich and Reid 1987; Reid and Rajnovich 1991:204) and are therefore contemporary with Terminal Woodland Blackduck occupations. However, there is no evidence from the extensively dated and well-stratified McKinstry and Hannaford sites at the forks of the Rainy River to support a post-AD 650 manufacture date for Laurel pottery in the immediate Rainy River area (Rapp et al. 1995; Thomas and Mather 1996). Further, there is no co-occurrence of Laurel and Blackduck wares in the well-stratified lenses at those sites. In fact, wares transitional from Laurel to Blackduck are tentatively identified in this Laurel heartland (Rapp et al. 1995; Thomas and Mather 1996).

It is beyond the scope of this report to consider the context of all pertinent radiocarbon dates thought to represent Laurel occupations, but I think it is well worth asking what is being dated at select sites that yield very late Laurel dates. Ballynacree at the north edge of Lake of the Woods is a shallow, multi-component site spanning Archaic through historic age that was very carefully excavated in 3-cm-thick arbitrary levels (Reid and Rajnovich 1983, 1991). One of the site features interpreted as a Laurel house floor provided charcoal that yielded three post-AD 1200 dates. However, it is worth noting that this feature also yielded projectile points ranging from small triangular arrowpoints to diagnostic Archaic dart forms. The authors suggest that this co-occurrence of point types should cause a reappraisal of projectile point variation within a fixed time period. They assume the materials are contemporaneous (Rajnovich and Reid 1987). Instead, this co-occurrence of types at a single horizontal plane might be alternately interpreted as evidence for lack of vertical separation, or mixing, of artifacts from multiple site occupations in a typical, shallow northern soil profile.

I would not question that the excavators found a Laurel living surface, since they recovered reconstructible Laurel pottery vessels from the “house” floor, but I would challenge the interpretation that all material found on and in that level is necessarily contemporaneous. While I do not think the dates should be rejected, I wonder if they actually date the numerous Laurel sherds and vessels found on and around this site feature. It seems equally plausible that the dates actually relate to some later aspect of the site occupation sequence, such as the occupation represented by the triangular arrowpoints. Those are known through hundreds, and perhaps thousands, of radiocarbon dates to be of Late (Terminal) Woodland or later age across huge areas of eastern North America and they are unknown in Middle Woodland settings. It is highly unlikely that this pattern would be valid for everywhere in the eastern portion of the continent except the Border Lakes Region. It seems much more likely that objects from multiple occupations spanning several thousand years co-occur in a single excavation level, than that the objects, including typical Archaic and Late Woodland forms, all date to a Laurel site occupation at circa AD 1200.

Lenius and Olinyk, who refer to their estimate of 50 BC to AD 1000 for Laurel as "more conservative" (1990:82) than Dawson's, Syms', or Reid and Rajnovich's estimates for late Laurel occupations, offer very limited actual evidence for a late Laurel presence on the Rainy River. Their Table 8.1 (Lenius and Olinyk 1990:81) summarizes 10 radiocarbon dates assigned to Laurel, with only a single radiocarbon age from the charred end of a pine log from the base of Armstrong Mound of 1010 ± 100 BP (Kenyon 1986:63) to support their interpretation of a late Laurel manifestation on the Rainy River. While the artifacts from the mound are of Laurel association (Kenyon 1970), none appear to be associated with the graves in the mound or with any particular mound features, including the preserved log from which the date was derived. Their critique of the "stacked" chronology used by Lugenbeal and others and their claim of several centuries of Laurel–Blackduck co-existence on the Rainy River are not supported by the more than four dozen radiocarbon dates that have been published from Hannaford (Rapp et al. 1995) and McKinstry (Thomas and Mather 1996) subsequent to their research. With the possible exception of a late occurrence of undecorated, plain Laurel vessels at McKinstry, there is, in fact, no direct evidence on the Rainy River for Laurel vessels postdating AD 650. Therefore, there is no mechanism for contribution of local Laurel ceramic traits to the appearance of the Rainy River Composite from AD 1000 to 1100 as postulated by Lenius and Olinyk (1990:84) unless it occurred to the northwest, where numerous late (post AD 900) Laurel dates have been reported (Meyer and Hamilton 1994:115–116).

Based upon the available evidence, data from Rainy River sites suggest that Laurel vessels are replaced locally (after a poorly known transitional era) by Blackduck wares after AD 650 (Thomas and Mather 1996; Rapp et al. 1995). Several dozen radiocarbon values from two stratified sites support this chronology. This does not preclude the possibility that Laurel ware was made later at other sites and in other areas, but there is currently no unambiguous chronological evidence in the immediate Rainy River and Rainy Lake project area for post-AD 650 manufacture and use of decorated Laurel ware.

Until radiocarbon dates that unambiguously date Laurel ware in the range proposed by Reid and Rajnovich (1991), Lenius and Olinyk (1990), and others are confirmed at single-component or well-stratified sites in the immediate Rainy River area, I will assume that the Boundary Waters Composite of the Laurel Configuration dates from about 200 BC through about AD 650.

Unlike the earlier Late Paleoindian and Archaic Traditions, Initial Woodland Tradition Laurel sites are very numerous within Voyageurs NP. In fact, so many sites contain Laurel components that it is not practical to summarize them all in narrative form. Instead, in a later section of the report, sites containing Laurel components will be summarized primarily through tabular presentation. Laurel site components from the park are most easily recognized by the presence of distinctive Laurel pottery sherds. In some cases, the sherds have been recovered in contexts amenable to partial reconstruction of vessels (e.g., Lynott, Richner, and Thompson 1986:Figure 21). Invariably, Laurel vessels are of conical shape, typically with straight, unflaring rims and flattened lips. Budak's (1985)

experiments have clearly shown that the vessels were constructed "upside down," from the rim to the conical base via the coiling technique. At 21KC13, an actual example of the final pointed "plug-like" coil that he identified in his experiments was found for a Laurel vessel, strongly supporting his findings (Richner 1999b). Laurel vessel surfaces are almost invariably smoothed, with no evidence of cord or fabric impressions. The smoothing may have occurred as part of the coil joining process. Decoration is confined to the upper third of each vessel.

While undecorated examples are known, especially for the later portion of the Laurel Configuration, most Laurel vessels are distinctively decorated. Various plain (simple) or toothed (dentate) stamps predominate in combination with punctates and bosses. These occur in banks, as well as in linear patterns. Some of these stamps have a wavy form that has been likened to the edge of a shell, and are called "pseudo-scalloped" stamped. Other vessels bear only punctates or punctates and bosses. Many of these decorative techniques have temporal specificity, although chronologies for particular decorative motifs are surprisingly weakly developed for such a well-known pottery tradition. The specifics of pottery style shifts through the long (circa 850-year) Laurel period are beyond the scope of this overview. However, it is worth mentioning that essentially all of the recognized Laurel types are present in considerable frequencies on numerous sites within Voyageurs NP. The earliest types may be the least frequent, but that observation would need to be confirmed through more detailed study of the existing collections.

At Voyageurs NP, as in much of the Border Lakes Region, the numerous Laurel sites are often multi-component, with little or no vertical separation of components. Even the few small single-component sites (e.g., 21SL187) have seldom yielded contexts amenable to absolute dating. That is largely because very little test excavation and almost no larger block excavation has been accomplished. Further, charcoal is ubiquitous in the park's shallow sandy soils due to a long history of forest fire episodes. Swain (1986) has suggested that natural forest fire periodicity may be in the 70- to 200-year range. Despite these problems, it is very likely that datable Laurel contexts occur in the park, and such locales should be the subject of very careful excavation and subsequent radiocarbon assays. Current chronological control for Voyageurs NP Laurel (and Terminal Woodland) components is based solely upon a series of thermoluminescence dates on diagnostic sherds from 1979–1987 (Ross and Sutton 1980, 1981; Lynott, Richner, and Thompson 1986; and Table 10, this report). The accuracy of these dates is unknown, although most seem to reflect expected date ranges.

Available evidence indicates that Laurel occupants within Voyageurs NP exploited a wide range of fish and mammals (Colburn 1987; Falk 1986; Thompson 1981). A similar, but less extensive range of mammal exploitation was noted for earlier mound excavations on the Rainy River (Stoltman 1973). However, excavations at McKinstry suggest that sturgeon formed the key species for site occupation, and that its extensive presence on the Rainy River may account for the population aggregations needed for mound-building activities (Yourd 1985; Thompson 1981). Sturgeon dominate the fish remains from excavations at the McKinstry occupation site, although mammalian remains, especially moose, are

fairly well represented (Thomas and Mather 1996:Table 15.7). Wild rice phytoliths are also reported from a Laurel context at Voyageurs NP, indicating a long history of local use of that important food resource.

Late or Terminal Woodland, 1300–300 BP

Regardless of precise chronological placement and the relationship of Laurel to other archeological complexes, a variety of Late (Terminal) Woodland materials are present in the project area. The best known is Blackduck, dated by many from about AD 650–1400 (Rapp et al. 1995), and by others to a more restricted AD 650–1100 (Lenius and Olinyk 1990). However, unlike the Initial Woodland where Laurel is the only recognized complex, several other Late or Terminal Woodland entities including Selkirk, Sandy Lake, and various Rainy River Composite categories have been defined for, or identified in the Border Lakes Region.

Modern environmental conditions persisted through most of this period, with the important exception of the advent of the "Little Ice Age" by about AD 1400 (Swain 1986:326). After about AD 950, there is evidence from multiple locations in the park that white pine, red and jack pine, spruce, fir, birch, and aspen were the tree species that dominated the uplands. There is also evidence to suggest that white pine decreased in frequency over the past 1,500 years while birch increased during the period (Swain 1986:323). Still, conditions were relatively stable until about AD 1400 when cooler temperatures prevailed for a period of about 450 years. Spruce and fir increased during the cool phase (Swain 1986:323, 326). This cool period is a worldwide phenomenon known as the Little Ice Age (Fagan 2000). Fagan (2000:48–49) dates this cold period to about AD 1300–1850, although he indicates that the starting date is somewhat uncertain. He provides extensive evidence in a worldwide context for the dramatic impacts on numerous cultures of this cold weather cycle. The impacts of drought and cold weather during the Little Ice Age on agriculture and human survival are very significant. However, the precise scope of impacts on the late prehistoric and early historic inhabitants of the project area is not known, despite the fact that the pollen record certainly confirms the presence of cooler conditions at Voyageurs NP from about AD 1400–1850 (Swain 1986).

Elsewhere in North America, the cold and drought conditions were critical factors in human suffering and death. In Virginia, drought cycles from AD 1560–1612 had profound impacts on early Euroamerican settlers. Based upon tree-ring evidence, the year AD 1587 was the driest growing season in over 800 years at Roanoke Island, North Carolina. Fagan (2000:96) estimates that 4,800 of 6,000 settlers died between AD 1607 and 1625, largely due to the effects of the Little Ice Age. Worldwide, the decades from AD 1570–1600, toward the end of the Woodland period considered in this section of the report, were among the coldest recorded during the Little Ice Age (Fagan 2000:52). It is conceivable that the Little Ice Age had significant impacts upon the Indian population at Voyageurs NP, but the scale of such impacts, if any, are currently unknown.

The nuances of nomenclature and typology for the regional Terminal Woodland materials are well beyond the scope of this report. It is worth noting that all of these Woodland materials, defined primarily from ceramic typologies, are known from Voyageurs NP. Blackduck artifacts are especially numerous. Sherds alternately placed in the typological categories of Late Blackduck, Selkirk, or Rainy River Composite are also present in considerable numbers. Regardless of name, these vessels can be viewed as simpler, "stripped down" decorative variants of earlier Blackduck wares. Where chronologies have been developed, they date to the era from about AD 1100–1500+. Over the past 50 years, the makers of these and Blackduck sherds have been alternately identified as Siouan, proto-Ojibwe, Ojibwe, Cree, and other tribal groups. Even today, little agreement exists among researchers on the cultural affiliation for these materials. Most favor linking Blackduck with the Ojibwe (cf. Clark 1999). However, if one accepts Lenius and Olinyk's late Woodland typological constructs, there is a gap of many hundred years between the last Blackduck wares and the early historic era when the Ojibwe tribe coalesced from several formerly autonomous groups.

Both Blackduck and the generally similar "Selkirk" materials are found in settings identical to the earlier Laurel sites. In fact, many of the sites in the region in general, and in the park specifically, are multi-component. The slow build-up of soil in the bedrock-dominated portions of the Border Lakes Region complicates site study considerably, especially when it appears that many sites were re-occupied over many centuries or millennia. Subsistence at Middle and Late Woodland sites on the Rainy River appears to be focused upon utilization of sturgeon that were once very numerous in the river and were very large. The better known sites occur at confluences with major tributaries of the Rainy River, such as the Little and Big Fork Rivers. Mound building and seasonal coalescence are important features at these sites. The Laurel and Blackduck (using that term in its broadest sense) sites in the park are usually of relatively limited horizontal extent, but often contain dense accumulations of artifacts. Many were probably formed by multiple re-occupations over many years. Unlike the major sites on the Rainy River, the numerous sites in the park do not indicate a focus on any one animal species, but instead clearly show that a very wide range of mammals, fish, birds, and plants were being exploited along the lake shorelines (Colburn 1987; Falk 1986). Several sites in the park contain surprisingly dense artifact accumulations. Little-known sites such as 21KC13 and 21SL183 have higher ceramic and lithic densities per m^2 and per m^3 than those recorded at better known sites such as McKinstry. The mound-building function, so important at McKinstry and elsewhere along the Rainy River, is absent within the park. However, mounds were once present just west of the park at the outlet of Rainy Lake at Ontario's Pither's Point (Bryce 1885; Dawson 1983b; Kenyon 1959; Noble 1984), at the Canadian side of Kettle Falls on Oak Island (Kenyon 1986), and at Sand Point Lake where at least one still remains in a popular resort on the Canadian side. Numerous other mounds remain or were formerly present at several locations (e.g., Manitou Rapids, Long Sault, and Hungry Hall) on the Rainy River west of the park (Noble 1984; Syms 1978; Thomas and Mather 1996).

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Blackduck

The typology for this ware, which largely defines the Blackduck "culture," has been defined and redefined by numerous researchers since Evans' (1961a, 1961b) early work, and is still very much in a state of flux. Thomas and Mather (1996), in their report on Phase III investigations at the McKinstry site, present the best and most succinct summary and overview of the definitions and typologies applied to Blackduck ware through the years by Evans (1961a, 1961b), Dawson (1974), Carmichael (1977), Lugenbeal (1976, 1978), and Stoltman (Rapp et al. 1995). Using Lugenbeal's data from the Smith site (21KC3) at the Big Fork River's confluence with the Rainy River, along with the more recent results from the nearby Hannaford site (21KC25), Stoltman proposed a new, hypothetical seriation of Blackduck ceramics using a variety of attributes, rather than ceramic type names. He postulates trait lists for four temporal Blackduck subdivisions (Early Blackduck, Middle Blackduck, Early Late Blackduck, and Late Late Blackduck). Thomas and Mather apply Stoltman's attribute-grouping divisions of Blackduck ware to 25 Blackduck and three Selkirk vessels from the Phase III McKinstry excavations. In their view, these chronological attribute divisions correlate well with the stratigraphic positions of the vessels from McKinstry (Thomas and Mather 1996:10.48). However, it appears from their Table 10.25 (1996:10.46) that in 11 cases, Stoltman's proposed temporal placements do not match the known stratigraphic placements of the McKinstry vessels. Allowing for some problems due to the unusual character of three miniature vessels, results improve somewhat. Still, nearly 30 percent of the vessels do not seem to match the expected stratigraphic units at McKinstry according to proposed attribute/chronological division.

I believe a major contributor to these and other apparent inconsistencies in Blackduck ceramic typological and chronological schemes is the manner in which the existing radiocarbon ages for both the Hannaford and McKinstry Terminal Woodland occupations have been interpreted. Calibrated date intercept points, or calibrated date ranges at 1 sigma, rather than the more conservative calibrated date ranges at 95 percent (2 sigma) confidence interval, appear to have been used to construct the Blackduck subdivisions at Hannaford (Rapp et al. 1995 Table 8-14). The spans of actual, calibrated ages do not match the proposed summary dating for the Early-Middle-Late subdivisions that have been defined at Hannaford and applied to McKinstry (Richner 1999b). A brief reexamination of 16 radiocarbon samples from Hannaford may be useful in this regard.

The radiocarbon ages calibrated at 1 sigma in Table 8-14 (Rapp et al. 1995:116) suggest that only 3 samples straddle the Early-Late division, and that is consistent with the calibrated intercept dates. However, the investigators place two samples within Middle Blackduck, despite the fact that the intercepts fall within their "early" span (Rapp et al. 1996:116, Table 8-14). They show seven samples within "early," seven within "middle," and two within "late" Blackduck subdivisions. The calibrated intercept dates actually have nine within early, four within middle, one spanning middle and late, and two within late Blackduck. However, when the dates are examined according to the more statistically reliable 2 sigma calibration, only the samples assigned to early and late appear to be consistent with

the reported results. Six date spans fall within the defined "early" Blackduck subdivision. Three that have intercepts within "early" span both early and middle. All of those with intercepts in middle span middle and late, and four of those span early, middle, and late. If all the samples from the site had been considered in Rapp et al. Table 8-14, I suspect that the matches between early, middle, and late would weaken even further.

Rather than reporting these dates relative to the arbitrary three-fold subdivision, it would have been more useful for the dates to be presented relative to actual stratigraphic units, and to use them to date the approximate spans of those deposits. While Stoltman has demonstrated that suites of ceramic traits for Blackduck sherds change in combination and frequency through time, I would suggest that in the future these attributes be more rigorously tied to the actual stratigraphic proveniences at the site, and therefore to the actual date spans available in the large sample of over two dozen radiocarbon dates, rather than considered primarily in arbitrary analytical subsets.

When the ill-defined Archaic and the well-defined Middle Woodland occupations are removed from consideration at McKinstry, the remaining Terminal Woodland occupations span nearly the identical time frame at that site as they do at Hannaford. The lower date for early Terminal Woodland at McKinstry is about AD 650, with the upper date for the late Terminal Woodland at about AD 1295. This range is only slightly narrower than at Hannaford, and the McKinstry Terminal Woodland dates as a group are very consistent with the dates from that site. The "early, middle, and late" Terminal Woodland dates at McKinstry do not precisely match those from Hannaford, but since that trifold system is an essentially artificial construct, and since both sites were reoccupied many times through many centuries, perhaps we should not expect neatly dated and matched subdivisions within the Terminal Woodland components of the two sites. At McKinstry, the early, middle, and late "components" span about AD 650–975 (Stratum 12), AD 800–1200 (Strata 5 and 4), and AD 1000–1300 (Stratum 1), respectively. The obvious age overlaps between these stratigraphically separate and distinct deposits reflect the relatively imprecise nature of radiocarbon dating, especially with regard to the statistical ranges involved. Certainly at McKinstry and at Hannaford, the basic sequences are in correct order, even though the authors of both reports lament the fact that all excavations did not adhere to the natural stratigraphic zones that were so well defined at the sites.

Lenius and Olinyk (1990:77–112) proposed a major revision to Terminal Woodland taxonomy and ceramic definitions for the Rainy Lake Region. They proposed that a "Rainy River Composite" resulted from a coalescence of Laurel and Blackduck cultures during the AD 700–1000 era. In their view, Blackduck and Laurel ceramics disappear at about AD 1000 and are replaced by Rainy River Composite wares reflecting the contribution of traits of both the earlier Laurel and Blackduck wares. Given that Stoltman and others have continued to define Middle and Late Blackduck wares well after the supposed disappearance of Blackduck ware around AD 1000, it is rather obvious that, despite Lenius and Olinyk's pleas to discard the concept and typology that includes Late Blackduck and Selkirk, this has not occurred, at least not south of the International Border. There is currently little

reason to accept Lenius and Olinyk's view that Laurel occupation was contemporaneous with Blackduck on the Rainy River. I believe the evidence from Hannaford and McKinstry further demonstrates that Blackduck did not end at AD 1000 to be replaced by some hybrid Blackduck–Laurel entity. However, Lenius and Olinyk have provided a very rigorous reexamination of existing pottery types, and there is considerable validity to their concerns regarding nomenclature and typology for the post-AD-1000 era in the region.

Many efforts have been made to equate Blackduck to a particular historic group, and researchers have variously suggested it to be ancestral to the Ojibwe (Dawson 1975, 1977, 1987; Clark 1999), Assiniboine (Bishop and Smith 1975; MacNeish 1958), and Cree (Evans 1961a, 1961b). Currently, most researchers equate Blackduck with the Northern Ojibwe (Clark 1999; Dawson 1987:155). Dawson (1983a:77) indicates that a number of Blackduck sites "in Ontario have produced European trade goods, indicating continuing presence to historical times." In a later report, Dawson provides numerous examples of historic association of Blackduck pottery (and Michigan, Selkirk, and other wares) with historic trade goods and radiocarbon dates (Dawson 1987:157–162). Even though there may be questions regarding associations and potentially mixed assemblages at some of these sites, Dawson provides numerous examples from the Lake Superior area, the Border Lakes Region and the Canadian Interior Region. Dawson also interprets the continuity of artifact assemblages including ceramics into the historic era as strong and clear evidence for *in situ* development of the Northern Ojibwe, as opposed to a westward expansion model long favored by historians (Dawson 1987:163). Still, such an argument for the link between Blackduck ceramics and the Northern Ojibwe remains speculative, since there is a temporal gap between Blackduck and the historic era. in some areas. Researchers cannot agree on basic chronological limits and typological definitions for Blackduck so we cannot expect archeologists to concur on the issue of "tribal identity" since some of the groups in question are probably the result of historic realignments, movements, and ethnogenesis.

A continuing, and very frustrating, weakness of the Woodland classificatory schemes for the region is that many of them are based upon stylistic attributes of ceramic vessels and little else. In essence, pots are singularly left to represent some vague cultural entities. So, while we have older reports that use abandoned schemes like the "phase/focus" approach, or newer ones that use some variant of Syms' nested "composite/complex" system, we learn little about differences in subsistence, group structure, and settlement pattern between the various archeological entities. The recent Hannaford and McKinstry projects, as well as Dawson's earlier work, are a welcome relief from this classificatory dead end, since their authors examine changes in lithic procurement, faunal and floral use, and other lines of inquiry.

Selkirk

As stated above, Lenius and Olinyk (1990) proposed a classification that eliminated older terms like Late Blackduck and Selkirk. They would place these and other similar sherds in the Winnipeg River complex of the Selkirk Composite, or, for those on the Rainy

River, within the Rainy River Composite. While the authors indicate that the placement of the former "late Blackduck" wares from the Rainy River into the Rainy River Composite, while maintaining Winnipeg River complex types like Alexander Fabric Impressed and Sturgeon Falls Fabric Impressed within the Selkirk Composite, would satisfy "most other Canadian and American researchers," it does not seem to have actually accomplished that. Researchers at the McKinstry and the Hannaford sites did not follow Lenius and Olinyk's model, but instead maintained both Late Blackduck types and Selkirk types from the Rainy River within the local Terminal Woodland. They apparently ignore Lenius and Olinyk's definition of a new configuration (Western Woodland) to subsume the Selkirk and Rainy River Composites (Lenius and Olinyk 1990:100–101), as well as their separation of the Rainy River Composite materials from Blackduck.

Selkirk vessels are of similar globular form to Blackduck vessels and share the characteristic wedge-shaped rim. In fact, much of what has been called Selkirk ware appears to be essentially a less embellished version of classic Blackduck. Vessels may have limited oblique cord-wrapped object impressions and punctates of the classic Blackduck vessels, but may also be completely undecorated. In earlier studies along the Rainy River, these vessels were considered to be a late expression of Blackduck, but are now generally placed under Selkirk ware, which was defined for woodland areas north and west of the current study area. Bodies are often treated with a different fabric than classic Blackduck ware (more "blobby" and less clearly defined weft elements compared to the close-twined weave used on classic Blackduck vessels), but there is considerable variability in the surface impressions seen on Selkirk vessels from several sites at Voyageurs NP.

The Selkirk versus "Late Blackduck" definition, like most of the other Woodland taxonomies for the region, relies solely upon decorative treatment differences in ceramic vessels, since there are no well-defined differences in artifact assemblages, ecofacts, and site types and locations. Since Selkirk vessels appear to postdate Blackduck ware in the Rainy River area, Lugenbeal's Late Blackduck taxon might better accommodate these basically similar, but less-embellished vessels.

The Selkirk (or Winnipeg River complex of the Rainy River Composite) seems to be rather late in the sequence at Voyageurs NP (Lynott, Richner, and Thompson 1986). More than a half dozen thermoluminescence dates from "non-Blackduck," relatively simply decorated, or completely undecorated, rim sherds from several sites at Voyageurs NP suggest a span of perhaps AD 1250–1600+ for those materials. At this time, there is no way to evaluate the accuracy of the thermoluminescence dates from the park, since local radiocarbon ages are not available for comparison. Despite that uncertainty, two samples from a diagnostic Selkirk vessel from 21SL50 that yielded an average of AD 1430 ± 60 (Lynott, Richner, and Thompson 1986) would seem to accurately reflect the late chronological placement of this ware within the park. As described above, the post-AD-1400 period that appears to correlate with the occurrence of Selkirk materials at Voyageurs NP era also coincides with the start of the local expression of the worldwide environmental period known as the Little Ice Age.

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The Selkirk Composite, which is defined largely by diagnostic Selkirk ceramic wares, has usually been associated with the Cree (MacNeish 1958). Perhaps most importantly, this assignment seems to match portions of the known historic distribution of the Cree. As we have seen, there are problems with linking historic groups with prehistoric complexes or ceramic types. Larger issues of ethnic identity and ethnogenesis of historic groups complicate such efforts. For example, one might ask did the Ojibwe move into the area after 1731, or did local groups merely become known as Ojibwe at that time? It seems rather tenuous to assume that the "Cree" were the makers of the Selkirk wares found along the Rainy River and the lakes of Voyageurs NP to the east. Still, the explanation that the precontact Cree were the makers of Selkirk wares seems to be the most plausible at present (Dawson 1987:165).

Bird Lake

Bird Lake is a complex of the Rainy River Composite as defined by Lenius and Olinyk (1990:93). They define the ceramic types Bird Lake Stamp and Bird Lake Cord Wrapped Object Impressed and Stamp to identify assemblages of this complex. Their Winnipeg River complex (formerly Selkirk) Alexander Fabric Impressed and Sturgeon Falls Fabric Impressed types are also thought to be present in this complex. The core area for this complex is at Swan Lake, Whitemouth Falls, and sites on the Winnipeg River (Lenius and Olinyk 1990:96). However, these pottery types were also identified by Lenius and Ollinyk at sites on Lake of the Woods, the Rainy River (McKinstry Mound 2, Smith site), and Rainy Lake (Oak Point Mound). As part of the current study, I reexamined many of the decorated rim sherds from VOYA and have tentatively identified four rim sherds from site 21SL183 as Bird Lake types. More careful restudy of ceramic collections from VOYA might yield additional examples. The presence of these seemingly exotic ceramic vessels at the park should not be too surprising, given that the VOYA area is connected to the core area of the Bird Lake complex by large river and lake systems. For example, the Winnipeg River is linked to VOYA and the Rainy Lake basin via a primary regional water transportation route that was certainly well established prior to its documented use by the French in the early AD 1730s era.

Duck Bay

Duck Bay is another complex of the Rainy River Composite as defined by Lenius and Olinyk (1990:87). Four ceramic types characterize this complex. These include Duck Bay Stamp, Duck Bay Notched Lip, and the Winnipeg River complex types Alexander Fabric Impressed and Sturgeon Falls Fabric Impressed (Lenius and Olinyk 1990:87–90). The Duck Bay Notched Lip type is not known outside of the complex's type site (Lenius and Olinyk 1990:88). Most of the sites in this complex are located well to the northwest of Voyageurs NP, with the type site located at the mouth of the Duck River on Lake Winnipegosis in west central Manitoba (Lenius and Olinyk 1990:90). However, the authors report that small, ceremonial vessels of the type Duck Bay Stamp are present at Grand Mound, McKinstry Mound 2, and Oak Point Mound on Rainy River and Rainy Lake. They further indicate that

this is evidence of long distance travel to participate in activities at the Rainy River mounds on a regular basis. The key to this view is the assignment of these vessels to the Duck Bay Stamp type. Others might define or type these specimens differently.

Duck Bay Stamped vessels were not identified at Voyageurs NP prior to the current study. Like the Bird Lake types, this may be the result of failure to identify the type and separate it from Blackduck wares, rather than an absence of the ware at Voyageurs NP. In fact, Lenius and Olynik (1990:90) suggest that additional identification of this type will be made from vessels previously defined as Blackduck. The key issue is how broadly or narrowly Blackduck wares and types should be defined. After examining illustrations of Duck Bay decorated sherds identified with herringbone motifs (Lenius and Olynik 1990: Figure 8.6. E and F) I thought there may be counterparts in Voyageurs NP collections. After reexamining rims from several sites at VOYA, I tentatively identified the Duck Bay Stamped type at sites 21SL141 and 21SL183. It is possible that others are present, but have been included within Blackduck types in previous studies.

Oneota

A single pot represented by several rim and body sherds from a site on Sweetnose Island designated 21SL51 is the only Oneota cultural item known from Voyageurs NP (Richner 1999a). The sherds were collected from the eroding cutbank at this location in 1999. This fragmentary, black, shell-tempered globular vessel has a wide strap handle, characteristic of many Oneota and/or Mississippian vessels. Decoration is limited to widely spaced vertical incised lines. Its presence may reflect trade or use of the area by people from further south. The vessel, with its dark gray color and shell temper, does not appear to be of local manufacture.

The Postcontact Period, circa AD 1650–1940

No single source has synthesized the postcontact period at the park. The following discussion is divided into Native American, Euroamerican, and American subsections.

In terms of environmental conditions, the period from AD 1400–1850 was colder than both the current climate and that preceding AD 1400. Although it is difficult to precisely date the initiation of the contact period, French traders were certainly passing through the Voyageurs NP area by the late seventeenth century, if not somewhat earlier. The European and American traders and their Indian partners dealt with difficult weather conditions from initial contact until about 1850 in a region known for cold winter conditions even in the current “warmer” environmental setting. Fagan (2000:113) determined that the AD 1680–1730 period was the coldest cycle of the Little Ice Age. It was during this era that French traders were attempting to expand their operations into the Voyageurs NP region. Local English fur trade accounts provide numerous statements about climatic conditions that could be used to examine the scope and impact of the Little Ice Age in the Voyageurs NP area, especially in the late 1700s through middle 1800s era. It is likely that analysis of

those data would reveal the kinds of conditions known elsewhere in eastern North America where very cold conditions were recorded. For example, the year 1816, when British fur traders were active at Voyageurs NP, is known as the "year without a summer" across much of the world, including eastern north America (Fagan 2000:170, 175). At New Haven, Connecticut, June temperatures were 2.5°C lower than the mean from 1780–1968. The growing season was 55 days shorter than normal, snow fell in June, and crops failed (Fagan 2000:175–176). Food shortages were recorded worldwide in 1816–1817 (Fagan 2000:177). Similar cold conditions were likely present at Voyageurs NP as well.

Historic Native American Use of the Park Area

Sandy Lake Ware and the Assiniboine

Other Terminal Woodland or early historic materials are present in smaller quantities in Voyageurs NP than the well-known Blackduck and related Terminal Woodland wares. Perhaps best known among the others is a distinctive pottery type that is diagnostic of the Sandy Lake or Wanikan "culture" (Arthurs 1978; Cooper and Johnson 1964). Unlike the other Woodland pottery types, which cannot be confidently tied to particular modern groups, it is thought that local Sandy Lake sherds are associated with the Historic Assiniboine after their split from their Siouan relatives (Dawson 1987; Participants of the Lake Superior Basin Workshop 1988). That split is believed to have occurred in the mid-sixteenth century AD. It is possible that circa two dozen sites with Sandy Lake sherds in the park reflect early historic use of the area by the Assiniboine. However, the scattered occurrence of these sherds is not indicative of a permanent, intensive occupation by whatever group made this distinctive ware.

Unlike Selkirk ware, which is essentially an unembellished version of Blackduck ware, Sandy Lake ware is considerably different in form and appearance from Blackduck ware. Although decorative embellishments occur on the ware, especially to the south of the study area, the numerous examples from Voyageurs NP are completely lacking in any exterior decorative treatment. The outer vessel surface is merely marked with vertically oriented twined fabric, a surface treatment that is apparently the result of vessel construction methods. No vessels from Voyageurs NP have been reconstructed, but the rims appear to be straighter than the typically outflaring Blackduck pots, and the rims are not thickened or wedge-shaped. In fact, the lips are the same thicknesses as the bodies. Overall, the bodies and rims are quite thin, especially compared to earlier Laurel sherds. The pots are usually grit tempered, although shell tempering is common to the south and is also known from some northern examples, including a few sherds from site 21KC13 within the park (Richner 1999b). Decoration is rather consistent on numerous vessel rims collected from several sites at Voyageurs NP from 1986, 1987, and 1997, and consists of simple impressions on the interior of the lip, usually in the form of blocky triangles, rectangles, or other similar shapes. In many cases, the impression of the tool inside the lip results in a slight mis-shapening of the exterior of the vessel in that location. This is due to the thinness of the rim wall.

Sandy Lake sherds occur in rather low frequencies at Voyageurs NP, especially compared with Laurel and Blackduck wares. Moreover, they typically appear as minority types on multi-component sites. However, a few single-component Sandy Lake sites seem to be present at Voyageurs NP. At sites with depositional integrity in the region, including examples such as 21SL82 within Voyageurs NP, Sandy Lake ware sherds occur very near the contemporary ground surface, suggesting they are very late in the sequence at these multi-component sites. Unfortunately, none at Voyageurs NP has been placed in chronological context through absolute dating. However, some local and regional sites have yielded absolute dates for Sandy Lake materials.

A mixed Sandy Lake and Selkirk level at the Long Sault site (DdKm-1) on the Rainy River west of Voyageurs NP yielded a single radiocarbon age of AD 1750 ± 100 (Arthurs 1986:223). The Selkirk and Sandy Lake materials were collected stratigraphically above two Blackduck horizons at Long Sault. Arthurs' description of these Sandy Lake sherds and vessels precisely matches the numerous examples from sites within Voyageurs NP.

A Sandy Lake vessel from the Morty site (47AS40) on Stockton Island at Apostle Islands National Lakeshore on Lake Superior to the southeast of Voyageurs NP has been dated through thermoluminescence at AD 1685 ± 53 (Richner 1987b:14). That site contains primarily Blackduck materials, dated to about AD 900, along with two shell-tempered Sandy Lake vessels (Salzer 1980; Stevenson et al. 1997:188–189). At the Lady Rapids site (DcKc-1) on the Namakan River a short distance east of the NPS-owned portion of Namakan Lake, Sandy Lake sherds were recovered in apparent association with eighteenth-century trade goods (Callaghan 1982:17, 21, 22). Sandy Lake sherds are also present at Pither's Point at the outlet of Rainy Lake, where they were reported to be associated with the Assiniboine (Koetzer and Wright 1976:39). The Basswood Shores site (21DL90) in west-central Minnesota yielded two Sandy Lake vessels and a radiocarbon age on charred deer bone of 200 ± 90 BP (Beta 51692), also indicating a historic age for the ware (Justin and Schuster 1994:82). Similar results were obtained from the Ballynacree site (DkKp-8) near Kenora, Ontario, and the Spruce Point site (DjKq-1) on Lake of the Woods (Participants of the Lake Superior Basin Workshop 1988:45; Justin and Schuster 1994:82). These site dates and the probable late-eighteenth-century historic association at the Lady Rapids site are reasonable representations for the probable age of Sandy Lake material at Voyageurs NP.

The makers of Sandy Lake ware are usually considered to be the Assiniboine, or some other northeastern Siouan subdivision (Dawson 1987; Koetzer and Wright 1976:39). The Assiniboine speak a Siouan language and have traditionally believed to have separated from the Wazikute band of Yanktonai (a "middle" Sioux group) in the sixteenth century (Jenks 1900:1055; MacNeish 1958; Swanton 1953:388). Hodge (1912:102), as edited by James Mooney and Cyrus Thomas, indicates that this split occurred before AD 1640. However, more recent research based upon linguistic evidence suggests that they separated from the Sioux at an earlier time when the other Sioux dialects were differentiating from one another (De Mallie and Miller 2001:572).

VOYAGEURS

The name Assiniboine was thought to be an Ojibwe term meaning "one who cooks by use of stones" (Hodge 1912:102; Swanton 1953:387). However, Jenks (1900:1054) believed the name translates as "warriors of the rocks" in reference to their occupation of Lake of the Woods after their split from the Yanktonai. De Mallie and Miller (2001:590) specifically reject the derivation of cooking with stones and indicate the name is from the Ojibwe term for "stone enemy."

There are various views on the original territory and distribution of the Assiniboine, with some authors suggesting Assiniboine occupancy of the project area, while others indicate that they always lived further west. Swanton (1953) and Hodge (1912:102) report that during early contact with Euroamericans the Assiniboine lived about Rainy Lake and Lake of the Woods, but from about AD 1675 on were on the Assiniboine and Saskatchewan Rivers west of Lake Winnipeg. Others report their presence in the Rainy Lake and Lake of the Woods area, and in southern Manitoba, in the 1680s based upon their interpretations of historic accounts (Ray 1974:11; Wright 1981:94). Hickerson (1967:61) interprets the historic literature to indicate that the Assiniboine and Cree were at Rainy Lake and areas to the west at about AD 1695. Some authors place them at Rainy Lake circa 1703 (Hodge 1912:102). From about 1729–1736, just before the peace between the Ojibwe and Sioux ended, Hickerson (1974:40) reported that the Cree and Assiniboine were still occupying the area near Rainy Lake, Lake of the Woods, and Lake Winnipeg. Perhaps as early as the 1740s, and certainly by 1766, the Ojibwe occupied Rainy Lake, with the Cree and Assiniboine located further to the west. However, those two groups continued to traverse the old fur trade route, traveling to Grand Portage to trade as late as 1766–1767 (Hickerson 1974:49–50). During the 1736–1766 era, they were allied with the Ojibwe against the Sioux, and would have easily passed through the new Ojibwe territory, which was largely uninhabited, to reach Grand Portage.

Other researchers have re-interpreted the historic records to indicate that neither the Rainy Lake nor the broader Border Lakes area was ever the primary homeland for the Assiniboine. Instead, they interpret the literature to indicate that the Assiniboine were in the Border Lakes and western Lake Superior areas in association with fur trading activities (Noble 1984; Wheeler 1977). In this view, the same records used by other researchers as evidence for occupation of the Border Lakes by the Assiniboine are interpreted as placing the Assiniboine west of Lake Winnipeg (Wheeler 1977:119). Ray (1974:16) claimed that the Assiniboine occupied eastern Manitoba as late as 1737, but Wheeler (1977:121) interprets the data to indicate that the Assiniboine actually lived much further west and were present in the area "solely for the purpose of trade with the French." Wheeler (1977) concludes his careful reappraisal of the historic literature to indicate that the late-seventeenth- and early-eighteenth-century Assiniboine did not occupy the Lake Forest or Southern Boreal Forest zones of Lake Superior and southern Ontario and Manitoba, but instead were present in these areas through travel from their homeland for purposes of trade. He places their actual occupation area further west in the parkland ecozone in Saskatchewan during that time frame. However, he clearly notes that the Assiniboine continued to pass through the Border Lakes to Lake Superior as late as 1768 (Wheeler 1977:122). In this interpretation,

their homeland was well west of Rainy Lake, but they were present at various times in the Rainy Lake area in the late seventeenth and early to middle eighteenth centuries for purposes of trade.

More recently, De Mallie and Miller (2001:573) suggest that at first direct contact with Europeans in the 1680s, Rainy Lake was at the southeast edge of Assiniboine territory. As their important role in the fur trade developed, they expanded west into the woodlands and parklands of what is now Saskatchewan. However, their trading activities took them to Hudson Bay and Lake Superior through the late seventeenth into the middle eighteenth centuries.

The chronology presented above for Sandy Lake ceramic vessels and the apparent transient use of the Border Lakes area by the Assiniboine as documented by Wheeler (1977), Noble (1984), De Mallie and Miller (2001), and others appear to match rather well with the scattered and apparently very late occurrence of Sandy Lake sherds in the Rainy Lake and Rainy River area. Perhaps the strongest connection for Sandy Lake vessels with the Assiniboine is at 21KC13 where shell tempered Sandy Lake pottery was recovered (Richner 1999b). Use of shell temper is certainly more tied to "Mississippian" rather than Algonkian traditions and would suggest expansion or movement from further south in Minnesota where shell tempering in Sandy Lake ware is more common. The low numbers of vessels and their apparently late association would match rather well with documented Assiniboine movement through the Rainy Lake area into the AD 1760s era. It is also likely that pottery making was becoming less important for all the regional Native American groups by the middle of the eighteenth century, if not earlier (Richner 1989). Given this background, I would assume that the Sandy Lake sherds and vessels from Voyageurs NP date after about AD 1550, and possibly to the more restricted period of about AD 1650–1770. I am not aware of any direct evidence for the Assiniboine making Sandy Lake pottery, so an Assiniboine-Sandy Lake connection remains hypothetical. While the Assiniboine may have made the Sandy Lake vessels at Voyageurs NP in the early historic period, other contemporary groups, especially the eastern Sioux, should also be considered as candidates for making the ware.

Ojibwe or Chippewa

Sites attributed to the historic Ojibwe postdating about AD 1730 are also very well represented in the park, with about 40 reported to date (Richner 2002a). Information on this occupation has recently been synthesized in considerable detail (Richner 2002a, 2002b), so only a very brief summary will be presented here. With one possible exception (21SL137), these sites appear to lack aboriginally made ceramics like those tentatively identified above for the Assiniboine. While the Sandy Lake sherds are widely scattered and appear to reflect temporary and rather ephemeral occupation of the park by the Assiniboine, the Ojibwe sites are more permanent and often include numerous structures. The off-reservation Bois Forte Ojibwe occupation of the park has been examined in considerable detail (Richner 2002a), and is known to have extended until about AD 1930–1940 at two locations. More

than 100 Bois Forte Ojibwe occupied the current park area on a relatively permanent basis from 1880–1915 and were probably present in considerably larger numbers in earlier years. Initial occupation is documented in the early 1700s and several artifacts from the eighteenth century have been recovered from sites in the park. By the late 1800s, there is evidence that at least four residential bands of the Bois Forte Ojibwe occupied several areas of the park. Sites and Bois Forte-owned parcels are clustered in Black Bay of Rainy Lake, northern Kabetogama Lake, Kettle Falls, Moose Bay on Namakan Lake, and at other areas on Sand Point and Crane Lakes (Richner 2002a). In the 1890s, Bois Forte individuals owned over 2,000 acres within what is now the park and occupied the park on an essentially permanent basis.

More than 40 sites currently assigned to Bois Fort Ojibwe occupation of the park are not a complete inventory. They are merely a sample of historic Ojibwe sites that once existed, or may still exist within the park boundaries. Many of these sites can be directly associated with Bois Forte families and individuals, and there are clear genealogical links between these people and modern Bois Forte families. Accordingly, the park's Bois Forte–related sites are an important and unique subset of the park's archeological resources and are worthy of additional detailed study.

In addition to sites of Bois Forte association, it is possible that other Ojibwe groups occupied sites within the park, at least on a temporary basis. There was an annual coalescence of 500 to 1,000 Ojibwe at Fort Frances each year through the first half of the nineteenth century as part of Midewiwin activities (Lovisek 1993:282; Noble 1984). These people were from several Ojibwe groups, including those from Red Lake in addition to the local Bois Forte of the United States and Canada. Where sites cannot be linked to Bois Forte ownership or occupation on the basis of historical records like those discussed above, it would be difficult, if not impossible, to determine the identity of a particular group who occupied a site.

Historic Euroamerican

The Fur Trade, French Era

The following brief summary is drawn primarily from Catton and Montgomery's (2000) fur trade synthesis. The fur trade history of the Voyageurs NP area has been reported to have begun in 1688 when the Frenchman Jacques de Noyon passed the winter at Rainy Lake (Catton and Montgomery 2000:10). It is, however, possible that earlier *coureurs du bois* penetrated the interior, but that such activities are not well documented. However, even if this were the first instance of a French trader staying in the Rainy Lake area, trade goods would have made their way to the area several decades earlier. It has been estimated that French items entered the Rainy River area through native middlemen traders within the first half of the seventeenth century (Christianson 1984:93). French trade goods were reaching western Lake Superior by the early-middle 1600s and occurrence of goods in the Rainy River area in advance of known presence of French traders in the area is reasonable to

assume. For example, at the Knife River Indian Villages NHS in North Dakota, archeology revealed evidence for "middle-man" exchange more than 100 years before the first direct contact with village tribes living on the Missouri River in North Dakota, ca. AD 1600 vs. AD 1738 (Ahler et al. 1991:70–71; Thiessen 1993).

By 1717, France had initiated expeditions from Montreal to establish a series of posts on the interior west of Lake Superior. Little came of this effort until 1731 when, under the leadership of Pierre Gaultier de Varennes, Sieur de la Vérendrye, and a party of 50 voyageurs and soldiers, a post was built at Rainy Lake, or Lac La Pluie as it was known to the French. This post, Fort St. Pierre, was positioned on the north side of a narrows at the outlet of Rainy Lake where the Rainy River begins. This landform, later known as Pither's Point, was at a strategic location at the western edge of the rugged Border Lakes Region. It is near the eastern edge of the flatlands resulting from a glacial till plain and the former extent of Lake Agassiz. It is on the primary transportation routes to both Hudson Bay on the north and the vast interior lands to the west. This location is less than 10 miles from the western edge of Voyageurs NP. Fort St. Pierre was one of a series of posts constructed with the intent of controlling the primary fur trade route into the interior from Lake Superior.

A French trading outpost was established in 1736 on Crane Lake at the mouth of the Vermilion River. This location is a very short distance from the southern boundary of Voyageurs NP. French traders Bourassa and Eustache under the command of La Vérendrye built and manned this post for a brief time. The English and Americans, as well as the French, may have utilized this location subsequent to 1736 (Steiner and Clouse 1994). French fortunes quickly declined after 1736 when the many of La Vérendrye's party were killed during a violent encounter with the Sioux on Lake of the Woods. However, there was a continuing French presence through the 1740s era. For example, there is evidence to indicate that Fort St. Pierre existed after the La Vérendrye presence (Voorhis 1930:157–158). By 1754, French activity in the Rainy Lake area declined with the French abandoning their forts west to Saskatchewan. By 1763, France surrendered its entire claim to North America. For the Voyageurs NP area, the majority of documentation for the French presence is for the 1731–1736 era. However, the actual French presence and the local availability of French trade goods spanned a considerably longer period.

Prior to this study, limited evidence for French-era artifacts in the park had been reported (Richner 2002a). However, preliminary examination of several private artifact collections revealed the presence of numerous French-era goods from the general project area (Birk and Richner 2004), and additional French-era items are known to occur in other collections as well (Richner 1986, 1987).

The Fur Trade, English Era

The British fur trade era in the Rainy lake area officially began in 1763, but, like for the French fur trade, English goods probably entered the area well before England gained full control of the region (Birk and Richner 2004). Passing through various Native middleman

traders, English goods from the Hudson Bay area may have been locally available, although on a relatively limited basis, by the 1670s era. In addition, English traders are thought to have traded at Rainy Lake by about 1761 (Innes 1956:188; Parker 1976:9)

While traders certainly passed through the region, there is no firm evidence for the establishment of local posts until 1787 (Catton and Montgomery 2000:17). This was an advance depot of the North West Company (NWC) and was linked to their main depot at Grand Portage to the east on Lake Superior. This post was constructed near the falls on the Rainy River a short distance west of the outlet of Rainy Lake where the earlier French post had been positioned. This location well west of Lake Superior allowed the traders to push farther west into the interior since it eliminated the need to travel the remaining distance east to Lake Superior to deliver furs or obtain supplies. Canoes from Grand Portage on Lake Superior annually brought goods and supplies to Rainy Lake to provision brigades that arrived there from the interior. Over the years, this location, on a high bank above the Rainy River, grew to include gardens, cultivated fields, and facilities for keeping domestic animals.

The Hudson's Bay Company (HBC) established its first post in the area in 1793 west of the falls on the Rainy River, about midway between Rainy Lake and Lake of the Woods at a location now known as Manitou Rapids. In 1795, a more substantial post was built at Lake of the Woods. The establishment of the first HBC post on the Rainy River was part of a deliberate strategy to interdict the NWC supply line and trading operations to the north. In 1792, HBC agent Donald Mackay marked a spot near the NWC post where the HBC could build its own competing post, but John McKay, who arrived there for that purpose the following year, concluded that it was unsuitable because of a lack of wood nearby. Instead he chose to build at Manitou Rapids. The HBC struggled to compete from its posts there through 1797, then withdrew from the Rainy Lake/River trade for a time. It re-established its presence in 1817 following the turmoil of the Red River troubles.

From 1793–1821, the NWC and HBC vied with each other for control of the fur trade, with various posts being established near the outlet of Rainy Lake and to the west along the Rainy River. Even when the HBC abandoned its trading house in the Rainy Lake area about 1797, competition for the NWC soon followed in the form of the XY Company. In 1817, the HBC reestablished a post in the Rainy Lake area. This post was constructed within sight of the falls near the source of the Rainy River about a mile upstream from the NWC fort. Both were positioned on the north side of the River. For the next few years, these posts were in direct and spirited competition for the local trade. Finally, the two companies merged in 1821. While this merger ended more than two decades of strife, it did not end fur trade competition in the region. The HBC post remained an important feature of the local landscape until just after 1900. It was renamed Fort Frances in 1830, and the local town that grew there still bears that name.

Artifacts from the British fur trade era at Voyageurs NP have been collected from several sites in the park and are also present in surprisingly large numbers in several local

private collections (Birk and Richner 2004; Richner 1992a, 2002). Many, if not all, of these artifacts appear to result from Native American, rather than Euroamerican site occupations (Richner 2002a), although a positive identification of site affiliation is often very difficult to achieve.

The Fur Trade, American Era

Independent traders and the American Fur Company were the chief rivals to the Hudson's Bay Company after 1821. Independent trader John Johnston established a post on Vermilion Lake near the current southern boundary of Voyageurs NP in 1821. By about 1824, he abandoned the area (Catton and Montgomery 2000:24). After 1821, the American Fur Company was a more formidable rival to the British traders. The American Fur Company established local posts at Rainy Lake and Vermilion Lake within its Fond du Lac Department in 1822 and 1823. While these posts were in United States territory, the international boundary was not officially surveyed until 1823. Despite United States law, the British traders essentially ignored the boundary and the Voyageurs NP area was still considered to be within the sphere of British trade even after the boundary survey. By 1833, the American Fur Company pulled out of the area, again providing the Hudson's Bay Company with a local fur trade monopoly. After the 1842 failure of the American Fur Company, the Upper Mississippi Outfit had loosely organized traders in northern Minnesota. However, the Americans were never again to establish posts in the project area after their 1830s withdrawal.

Historic American Settlement

Other than the small influx of Euroamericans into the area through the fur trade, little settlement of the Border Lakes Region surrounding and including the park area occurred until the 1860s. A gold rush at Vermilion Lake south of the current park boundary caused the influx of several hundred Euroamericans, including numerous Civil War veterans searching for opportunities. The Vermilion Lake gold rush led to the founding of the town of Winton. However, the supposed gold strike did not materialize as the metal was soon determined to be iron pyrite, or "fool's gold." There is no evidence to indicate any settlement of the park area during this brief gold frenzy at Vermilion Lake. However, it did lead directly to the 1866 treaty with the Bois Forte Chippewa, many of whom lived in and near the current park boundaries (Richner 2002a). The impact of this treaty on the Bois Forte was significant, as it required them to give up claim to their lands in what was later cataloged as Royce Area 482 (Royce 1899). That area includes the current Voyageurs NP. Since the park area was not subject to Euroamerican settlement pressure at that time, several Bois Forte bands continued to occupy the park for several more decades (Richner 2002a).

The construction of the Dawson Trail through the area in Canada in 1870 caused a considerable influx of Euroamericans. Local construction included cutting a canal through the bedrock on the Canadian side of the border at present-day Fort Frances. This was

intended to skirt the large falls on the Rainy River a short distance west of its outlet from Rainy Lake. Although the cut was made, the canal was never completed at this location. It appears that most of the individuals traveling on the Dawson Trail passed through on their way west or east, rather than settling on the Canadian side of the border near the present park. Although mapping of the International Border was initiated by geographers and fur traders, and was formalized in the International boundary surveys of 1823 by Delafield and Bigsby, this effort was largely limited to a very narrow strip along the border. Survey of townships and sections on the US side of the border does not appear to have occurred before about 1881 (Trygg 1966). The large Kabetogama Peninsula and lands immediately flanking Kabetogama, Namakan, Sand Point, and Crane Lakes were mapped from 1881 through 1884. This includes all of the area now subsumed within Voyageurs NP. For the park area, this included the following townships and ranges: T 67N R 17W; T 68N R 17W; T 69N, R 17, 18, 19, 20, 21, and 22W; T 70N, R 18, 19, 20, 21, and 22W; and T 71N, R 20, 21, and 22W. The remaining lands to the south and west of these townships were not surveyed until the 1890s, or in a few cases as late as 1900. Other than a brief mention by the surveyor of Chippewa Indians having their "summer quarters" on the northwest end of Kabetogama (then spelled Ka ba to ga ma) Lake in 1881, the surveyors made no mention of settlers in what is now the park as the land was surveyed. In fact, few settlers are indicated for the surrounding townships as late as the 1890s era. For example, only 17 settlers are indicated for T 68N R 20W a short distance south of Kabetogama Lake in 1891 (Trygg 1966).

American settlement of the area near the park was not to begin in any significant manner until 1893 with the founding of Rainy Lake City. Even then, local settlement was sporadic and of relatively small scale.

Gold Mining

The impetus for local settlement was the opportunity for homesteading and a second gold rush. In 1893, a gold rush occurred on the western end of Rainy Lake. While relatively short lived, this gold rush brought numerous fortune seekers directly into what was later to become Voyageurs NP. A classic "boom and bust" cycle gold town, Rainy Lake City, sprang up in the wilderness almost overnight in 1894. Although estimates range rather widely, at its peak it appears that about 200 people lived at the frontier town. This town was located at the narrows connecting Black Bay (or Wazusk ku tabe — Rat Root Lake — to the Ojibwe) to the main portion of Rainy Lake. A portion of Rainy Lake City has been archeologically inventoried (Connor 1985; Richner 1993b), although much additional work is needed to fully record the historic features at the site.

Gold mines were opened on several islands (Little American, Bushy Head, and others) as well as on the Kabetogama Peninsula near the new townsite. Several of the mines are listed on the National Register of Historic Places as part of a Gold Mining District. In contrast to the Vermilion gold rush of the middle 1860s, some gold was actually recovered from the 1890s strike on Rainy Lake. However, the relatively small amount of gold recovered was not commensurate with the inherent difficulty of hard-rock shaft mining and subsequent

ore processing. Accordingly, the gold rush soon dissipated, and by 1898 Rainy Lake City had become a "stopping place" with less than a dozen occupants. However, some settlers remained in the area, and the town of Koochiching (International Falls) was founded in the 1890s just as Rainy Lake City was becoming essentially abandoned. A few buildings from Rainy Lake City were even moved to the new town on the US side of the Koochiching Falls west of the outlet of Rainy Lake.

Several sites related to gold mining are known at Voyageurs NP and many more (e.g., mines, prospecting areas, and the remainder of Rainy Lake City) are yet to be recorded archeologically.

Homesteading.

As noted above, homesteading occurred in the area at a rather late date, often circa 1900. Some historical research into these parcels has been conducted, but few of the homestead locations have been studied archeologically. Lands in the park are at best marginal for farming activities, but several homestead applications were made on lands later subsumed within the park. These include at least one Indian homestead (Adikamig's homestead in 1885) in addition to the more typical Euroamerican homestead (Richner 2002a). No specific archeological emphasis has been placed upon inventorying the homesteads that occurred within the park, although a few historic sites relating to homesteads have been discovered as part of other inventory efforts. Archeological features at circa 1900-era homesteads have also been recorded along the shore of Black Bay and the Rat Root River a short distance west of the park boundary (Salkin 1993, 1998). These preliminary efforts indicate that additional archeological sites related to homesteading may be relatively numerous in some areas of the park. These should be the focus for specific archeological inventory efforts. Any such work should be accomplished in conjunction with historical research of pertinent homestead records. The park has collected basic data on the homesteads known to have been within the park and this information would serve as an excellent starting point for archeological study of the former homestead parcels.

Logging

Logging sites are an important subset of the historic archeological database at Voyageurs NP. Logging played a very important role in the local economy, especially after 1912. Several aspects of logging have had major direct and indirect impacts upon the environmental setting and the condition of a large percentage of the known archeological sites at Voyageurs. These include the impacts of clearcutting and subsequent reforestation in addition to shoreline erosion and landform inundation resulting from artificially raised lake levels.

By the 1880s era, Canadian logging companies were "poaching" the best white pine trees from the US side of the International Border (Beatty 1962, 1963a, 1963b). In addition, American loggers also removed trees without benefit of ownership of land or any official

timber rights. Although laws were in place that might have been used to limit this activity, it was difficult to stop the unauthorized removal of timber due to the wilderness character of the area and the lack of enforcement personnel. Passage of the Morris Act in 1902 resulted in much more effective control of the problem. Compared with the extensive data available for later logging activities, relatively little is known about these early logging activities. This is because the removal of the timber, primarily by Canadian loggers, was not a legal activity, so the detailed records as kept for later, legal efforts are essentially lacking for these early efforts. Operators such as Pat Smith, a Canadian from Rat Portage (later known as Kenora), Ontario, are known to have logged at various locations on the Rainy Lake drainage, including areas now in or near the park on Kabetogama, Namakan, and Sand Point Lakes (Fritz 1985:42). George Randolph, a subcontractor for the Rat Portage Lumber Company, is prominently mentioned during the 1880s through the early 1900s time frame, especially with regard to development of logging-related trails and supply routes.

Canadian loggers removed millions of board feet from northern Minnesota forests along the International Border each year through these illegal operations. More than half of the timber that reached the Rat Portage mills was from Minnesota (Fritz 1985:42). Trespass began about 1880 and continued for more than a decade. It is assumed that most of this cutting was for pine, since the logs had to be floated long distances from the park area to the mill at Rat Portage. This suggests that the early cutting was selective in nature, contrasting with the clearcuts and broader species harvests that followed in the 1910s and 1920s (Beatty 1963b:55). The unauthorized removal of timber was not limited to Canadian companies, since it is also known that American loggers cut timber from the park area and sold the logs to Pat Smith at Rat Portage (Fritz 1985:44). One such effort occurred in 1886 on Moose Bay of Namakan Lake. It was terminated not by government officials but by the local Ojibwe, who burned the camp buildings after the first winter's harvest (Fritz 1985:44). The 1894 gold strike on Western Rainy Lake stimulated additional cutting for wood products for the new town, Rainy Lake City, that developed as well as for various mine-related uses. After 1902, better laws and increased enforcement led to changes in local logging practices. Log marks were registered and the system became more formalized and regulated.

As early as 1976, archeologists recognized the potential presence of sites from this early logging era (Gibbon 1977). However, such camps, including the one documented on Moose Bay in 1886, have never been the focus for any specific archeological inventory efforts. While the early logging activities were certainly important, they were of more limited scope compared with the logging that occurred in the 1910s and 1920s period. That extensive logging was facilitated by construction of dams at two locations.

In 1909, a dam was completed at the foot of Koochiching Falls on the Rainy River spanning Fort Frances to International Falls. This dam raised the waters of Rainy Lake an average of about 3.1 ft above the typical summer high-water mark (Richner 1992a). In 1914, a dam was completed at Kettle Falls, raising waters on the interconnected Kabetogama, Namakan, Sand Point, and Crane Lakes an average of 3.5 ft above pre-dam average high-water levels. The primary purpose of these dams was to facilitate floating of logs to the

mills. The dam at International Falls also served as a hydroelectric source to generate power for the mills constructed there. The Kettle Falls dam provided constant summer water levels for booming logs to a narrow-gauge rail hoist at Hoist Bay on Namakan Lake. There, at Virginia & Rainy Lake (V&RL) Logging Company Camp 75, logs were hoisted and transported via a narrow-gauge rail line. These logs were taken to the huge V&RL mill at Virginia, Minnesota. This mill was the world's largest, but despite the huge scope of V&RL logging activities, the business was not profitable.

The V&RL Company logged enormous amounts of timber in and around what later became the park from 1910 through 1929. At the completion of their efforts, much, but not all, of the park area had been cut over. There is considerable data available for the scope of V&RL logging, the location of their logging camps, and numerous details about their logging operations (Eichholz 1954; Fritz 1985; Krenz 1969; Peralla 1967). While the peak years for this company's logging efforts were 1917 and 1918, large amounts of timber were harvested in each year of the company's operation. In the peak year, about 145,000,000 board feet were cut. In direct contrast to the poorly documented logging operations of the 1880s–1900, there are large amounts of very detailed data for the V&RL logging operations. The locations of all of the company's camps are documented in legal descriptions (usually to quarter section or smaller parcels), and there are extensive data on yields, species harvest, supplies used at the camps, wages, and many other topics. These data span the V&RL operations from 1910 through 1929, the latter of which included Camp 143 on Rainy Lake. While railroads and local mills facilitated the V&RL logging, the actual camps were usually sleigh haul camps that are in some ways more similar to nineteenth-century than to twentieth-century logging camps. Many of the camps even employed hunters to procure large game such as moose and caribou to supplement the camp's pre-packaged and canned food supplies.

About 55 logging camps are reported in the park in logging literature, although only a few have actually been recorded archeologically (Gibbon 1977; Lynott, Richner, and Thompson 1986; Richner 2000). While many of the more accessible camps have been subject to uncontrolled artifact collection, the structural remains at the camps, typically in the form of earthen berms that outline former structures, and a variety of depressions from privies and other features are invariably well preserved. Haul roads and other related features are occasionally visible, but are often obscured by dense vegetation. The more remote camps appear to be in essentially pristine condition, with surface and subsurface scatters of artifacts essentially untouched since camp abandonment. The park's logging history should be the focus for intensive archeological inventory. All of the V&RL camp locations have been plotted based upon available legal descriptions, but only a few have been recorded and mapped. All the known camps should be relocated and carefully mapped.

Additional, more highly mechanized logging efforts continued, especially on the Kabetogama Peninsula into the modern era. Much of this activity focused on pulpwood cutting, which remains the basis for extensive regional cutting to the present time. To date, these more recent logging efforts have not been the subject for any archeological research.

VOYAGEURS

As described elsewhere in this report, logging activities do not appear to have had significant adverse impacts on archeological sites in Voyageurs NP. Logging has, however, certainly changed the frequencies and ranges of plant species in some areas of the park. The impacts of logging on the character of the forest at Voyageurs NP can even be seen in local pollen records. An increase in aspen, ragweed, and chenopod pollen is recorded at Cruiser Lake along with a decrease in white pine pollen at the time of logging. At Little Trout Lake, red pine pollen decreases just before grass and chenopod pollens rise in frequency.

Commercial Fishing, 1890s to Present

Although the historic Ojibwe and the prehistoric peoples before them had relied heavily on fish for subsistence back into Archaic times, commercial exploitation of the park's fishery did not begin until the 1890s (Mapes 1986:9). Homesteading and the search for gold brought Euroamerican settlers into the area for the first time in the 1890s, but it was the building of railroads to the area that made the commercial fishing industry practical (Mapes 1986:9). Sturgeon were so plentiful on the Rainy River and Lake of the Woods that they were considered a nuisance by interfering with steamboat traffic. The huge fish were even thrown on the banks to be gathered later to be used as fuel for the steamers. A sturgeon/caviar fishery boomed on Lake of the Woods in the 1890s, but overfishing depleted the stocks there by 1900. Commercial fishing was underway on a small scale on Rainy, Namakan, Kabetogama, and Sand Point Lakes by 1896 (Mapes 1986:10). This early fishing was via pond (pound) nets. At that time, it was extremely difficult to take fish to market over the local lake and portage system. The arrival of the railroad in Fort Frances in 1901 and International Falls in 1907 opened regional markets to local fishermen. Individual American fishermen, beginning with Adolph Hilke in 1908, began fishing on Rainy Lake (Mapes 1986:12).

These early 1900s fishermen were the beginning of what was to become a major local industry for several decades. By 1910, many fishermen were living in Ranier, about nine miles west of the current west edge of the park. Fishermen also conducted other businesses, like commercial mink farms, when they were not fishing. In this case, the mink were fed non-commercial varieties of fish. Walleye, northern pike, and other species were taken for commercial purposes. Caviar from sturgeon was extremely valuable, selling for as much as $1.50 per pound in 1909 (Mapes 1986:20). While pond nets were originally used exclusively, soon gill nets, and even lines (for sturgeon fishing) were added. By the 1920s, whitefish, walleye, and northern pike had replaced sturgeon as the primary catch.

Sport fishing began even before automobile access to the area, and often led to conflicts with commercial fishermen. By the 1920s, portions of the area were closed to commercial fishing, and by that time commercial efforts had already ended on Sand Point Lake. In 1926, Kabetogama Lake was closed to commercial fishing. Continued logging also damaged the commercial fishing efforts. By 1942, only three Americans were commercially fishing on Namakan Lake and ten on Rainy Lake (Mapes 1986:39). In 1946, Namakan Lake was closed to commercial walleye fishing. By the 1960s, only five commercial fishermen

were active in the park area, and that number declined to three in the 1980s. Commercial walleye fishing finally ended in 1983.

Mapes' excellent summary of commercial fishing could serve as a guide to the kinds and locations of early-twentieth-century sites that might be expected to be present from this activity. Known historic commercial fishing and related sites, such as mink farms, are recorded in park files and are occasionally noted on early-twentieth-century maps. The park has several oral history transcriptions from commercial fishermen that provide interesting details about the local industry. Despite this information, the commercial fishing sites have never been a focus for archeological study in the park. Fish camps, residences, beached and/or sunken boats, tarring pits, and other sites are certainly present but have not been archeologically recorded to date. A few of the sites still contain standing frame structures.

Trails

Several trails skirted or passed through the park in late nineteenth and early twentieth centuries. While none of these trails have been a primary focus for archeological inventory, some sites have been recorded along (e.g., 21SL908, 21SL212, 1989-2) or at the terminus (Rainy Lake City, 21KC13) of such routes. Most of the trails through the park were winter routes that passed over the frozen surfaces of the lakes. However, various portages and overland segments do occur within the park. To date only one short segment of one of these overland routes near the foot of Junction Bay has been examined archeologically.

The best known route through the region is the fur trade route from Lake Superior that led on to Hudson Bay and/or the Canadian interior west of the park. This route, which actually consisted of multiple segments and options, probably has great antiquity. The primary route was eventually surveyed and mapped in order to mark the International Boundary in the early 1820s. Routes entered what is now the park via the Namakan River, Little Vermilion Lake, and Vermilion River on the south and east. From there they passed through Sand Point and/or Namakan Lakes either to Kettle Falls or to the Bear Portage (New Route) to the east in Canada. Once on Rainy Lake, the route passed along the International Boundary west to trading posts, first at the outlet of Rainy Lake at what later became known as Pither's Point, and later a few miles farther west at the falls where the towns of Fort Frances and International Falls grew. The importance of this route, known as the "Voyageur's Highway" (Nute 1941) has been recognized for many years. Although its level of use in antiquity is not known with certainty, it certainly received heavy use at various times through the primary fur trade era from the late 1600s to about 1870. Recently, the fur trading activities associated with the route near and through the local park area have been summarized from historical (Catton and Montgomery 2000) and archeological (Birk and Richner 2004) perspectives.

In the later years of the fur trade, there was a substantial effort to make the route a more formal trail. This route became known as the Dawson Trail, after a Canadian surveyor

who became Superintendent of the route in 1867. The goal was to build a road/trail over land and water from Fort William on the northwestern shore of Lake Superior to Fort Garry on the Red River and promote immigration into the interior of Canada. Although the route was entirely located in Canada, portions came very close to the United States. A route was first blazed in 1857, but construction did not begin in earnest until 1868. Two routes were considered. Both included overland segments on the east and west ends. As actually built, a third, longer western segment was used. Corduroy roads and bridges were planned for both overland segments, about 40 miles on the east and 90 miles on the west. The remaining 300+ miles followed portions of the old fur trade route over water and several portages. Stimulated by Louis Riel's rebellion at Fort Garry late in 1869, major work was done on the Dawson Trail in 1870 for the passage of military forces. Portages were turned into trails equipped with boat rollers and bridges were built over many obstacles. From mid-1871 through late 1873, 2,729 people passed through the route. However, this included 1,400 who were part of the military response and construction team.

Despite intensive work, the overland segments were difficult to maintain and to traverse for most travelers. These factors later led to the abandonment of the trail construction and maintenance effort. By 1872, there was a tug to facilitate passage on Rainy Lake and two steamers were being built for the Rainy River to Lake of the Woods segment. From 1876-1878, a canal was cut through the rock at Fort Frances to allow passage of boats around the falls. The lock was, however, never completed and the canal was not used. By 1874, Superintendent Dawson was recommending that no more funds be expended on the trail, and from 1878 to 1883, the trail received very minimal use. By 1885, railroads were completed that supplanted use of the trail.

Despite the extensive efforts expended on the Dawson Trail, it probably did not have major impacts on what was later to become Voyageurs NP. Most of the immigrants using the trail passed west through the area. However, local and regional trails were very important to local settlement and development. Most of these were winter routes that passed over the frozen surfaces of lakes when they entered what is now Voyageurs NP.

The Blackduck Trail was a winter route from Tower to Koochiching. Most of the circa 90-mile route passed over the uplands before entering what is now the park on the south shore of Kabetogama Lake. This trail is reported to have entered Kabetogama at Irwin Bay of the larger Bowman Bay. Portions of this trail might be depicted on Trygg's Composite Map (Trygg 1966:Sheet 23 Minnesota Series).

The Crane Lake Portage is pertinent to the Voyageurs NP area, even though none of this route was within what is now the park. It followed a 26-mile course similar to present day Route 24 from the Vermilion Lake dam to Crane Lake (Harding), which was the northern terminus. The southern half was constructed by timber squatters about 1887, while the northern portion was developed by George Randolph, a subcontractor of the Rat Portage Lumber Company of Kenora, Ontario, with assistance from Booth Company fishermen (Fritz 1986:23–24). Initially a supply route for loggers and fishermen, its use

expanded during the gold rush years following 1893. The route was used from its inception until 1907 when rail service became available. This route appears to be depicted on Trygg's Composite Map Sheet 23, and is labeled on that map as "Lake Vermilion to Crane Lake Road." A different route connecting the two areas is depicted on the E. S. Sheppard's Map (circa 1895) and is labeled "Wagon Road Summer Route." The latter route passes directly north from the Vermilion Lake dam to Crane Lake. It is unknown if this depiction is idealized, or accurate. Once travelers reached Crane Lake, steamboat service was available to the western end of Rainy Lake at Ranier.

The Koochiching–Rainy Lake City Mail Route was a local winter trail. Starting at Tower, it coincided with the Crane Lake Portage for some distance, later joining the Blackduck Trail leading to Daley Bay on Kabetogama Lake. From there it led over the ice to Rainy Lake City via Gold Portage. This route was used in the 1890s. George Randolph was also involved in developing this route.

The Mine Centre Mail Route was another winter trail. It was developed after an 1896 gold strike at Mine Centre, Ontario. This route passed across Crane Lake, to Mukooda Lake, to Sand Point Lake, and to Namakan Lake via Grassy Bay. From there it followed the Namakan and Rainy Lakes when they were ice covered. Randolph was again involved in this route.

The Moose River Tote Road was yet another winter route. Developed in 1889, it was used by loggers connected with the Rat Portage Lumber Company as a supply route. It passed from Harding (Crane Lake) to Johnson Lake, over Johnson and Spring Lakes to Nett Lake, and into Junction Bay on Namakan Lake. From there one could go east or west to supply camps. This route followed the frozen lakes and only passed over land in order to avoid the narrows and bad ice. Portions of this route were still in use though the V&RL logging episode until 1928, with a few areas still used even into the 1960s.

The Nett Lake–Kabetogama Road was built overland from the Bois Forte Reservation at Nett Lake to Kabetogama Lake in 1887 by the United States Bureau of Indian Affairs. Unlike several of the routes noted above, it was a year-round route that passed primarily over high ground. Its purpose was apparently to facilitate making payments to certain Bois Forte bands that lived off reservation at locations like Gold Portage and Moose River now within Voyageurs NP. This route is depicted on the E. S. Sheppard Map (circa 1895). It is also shown on Trygg's Composite Map Sheet 23, Minnesota Series, with the label "Nett Lake to Kabetogama Indian Trail." On that map, about 1 mile from its junction with Kabetogama Lake, it appears to be linked with another major trail (the Blackduck Trail?). Surprisingly, it is not depicted on another 1895 map entitled "Map of Country inhabited by Vermilion Lake Indians," a map that does depict other Indian trails and settlements from Lake Vermilion to the south edge of Black Bay of Rainy Lake.

While these roads and trails are the ones prominently mentioned in synthetic accounts about trails in the park area (cf. Fritz 1986), other routes are depicted on various maps. For

example, several trails are depicted on Trygg's Composite Map, Sheet 23, Minnesota Series (Trygg 1966). Trygg depicts a trail (labeled the "L. Kabetogama to Tower Tote Rd") that passes around the western side of Blackduck Lake and crosses Blackduck Creek and Ash River before hitting Daley Creek just south of the present park. From there it leads west and north to link with the road from Nett Lake to Kabetogama. It seems likely that this is the same as the Blackduck Trail. On E. S. Sheppard's Map, a similar, but not identical, route is labeled "winter road to Capitogama Lake." This route diverges from the route of the Lake Kabetogama to Tower Tote Road north of Blackduck Lake and proceeds north to Sullivan Bay near its junction with Kabetogama Lake.

Trygg (1966) also depicts a trail from Marion Lake north to Junction Bay of Namakan Lake as the "Fort Francis [*sic*] Trail." The relationship of this trail to the trails mentioned above is undetermined. Both of the 1895 maps referenced above depict a trail from Tower to Gold Portage. On the E. S. Sheppard Map it is labeled "Proposed RR" while on the Vermilion Lake Indians Map an identical route is labeled "Indian Trail." Trygg does not depict this route. Additional shorter trails, including a few connecting waterways within or very near the park (e.g., Gold Portage, Ash River to Moose River) are also depicted on these maps.

From the foregoing, it is apparent that numerous trails entered the park from the south and southeast. Most originated at Tower or other areas on Lake Vermilion or at the Nett Lake Reservation. However, their junctions with the park appear to be limited to Junction Bay on Namakan Lake (via a Johnson/ Spring/Nett Lake route or other routes), Daley Creek/Bay and nearby Bowman Bay on southern Kabetogama Lake, and the Gold Portage area connecting Kabetogama and Black Bay of Rainy Lakes. Other routes, such as the Crane Lake Portage, passed across what is now the park on routes that primarily followed the park's major lakes and over short overland portages where ice was poor due to the presence of narrows. Considerable additional research would be needed to sort out the precise routes of these trails that led into and through the park in the years prior to development of road access to International Falls in the 1920s era. Short segments of some of these trails probably occur in select areas of the park and in some cases it would still be practical to plot their routes.

Tourism and Resort Development

The resort industry within the park is directly related to the large lakes that form the park's core in association with the rugged and attractive rock-dominated landscapes that surround them. The Border Lakes Region was largely inaccessible, other than through often-difficult water- and ice-based travel, until the early twentieth century. While the early tourism era in northern Minnesota spans 1880–1920, local tourism did not flourish extensively until after the middle 1920s (National Park Service 1999). There is an excellent, detailed synthesis on regional and local tourism that should be the focus for any archeological inventory efforts associated with tourism-related sites at Voyageurs NP (National Park Service 1999). Most of the information in the current, limited summary is drawn from that

thorough report. The earliest tourists visited the area by water, since there was no road access, other than a few trails and roads laid out by the United States Bureau of Indian Affairs and loggers in the 1880s and 1890s, serving the local area. These and the old fur trade canoe routes provided access for visitors who came in small numbers to fish and boat in the Border Lakes Region.

By the late 1890s, people at the gold rush town of Rainy Lake City lauded the potential for tourism in the immediate Voyageurs area. By 1908, about a decade after Rainy Lake City had failed as a town, it received a second life as a picnic spot for visitors arriving by motorized tourist launches. However, access was extremely limited until the 1920s, so these early tourism activities were of relatively small scale.

The local resort industry started in earnest in the middle 1920s after the first road was built from Duluth to International Falls. Although this was initially only a dirt road, it provided the first automobile access to the area. However, that road was not an all-season road, and it would be several more years before year-round access was fully achieved. Prior to construction of Highway 11 (now Highway 53) from Duluth to International Falls, travel was via a few overland trails and the interconnected lake chain along the Border Lakes Region. Even as late as the 1890s during the Rainy Lake Gold Rush, access to Rainy Lake City and the gold fields was via lakes and portages from Tower, Minnesota. Steamboats ferried passengers across the larger lakes in the park (Namakan, Kabetogama, and Rainy) after the 1870s Dawson Trail era, and were especially important during the gold rush. However, during the long local winters when the lakes were ice covered, travelers had to resort to other modes of transportation, even including dog teams guided by local Native Americans. Clearly, access by road and automobile was a major factor in opening the area to tourism and settlement after about 1923.

In conjunction with gradually improving roads and expanding ownership of automobiles, the promotional efforts of various community and regional booster organizations and clubs were major factors in the development and expansion of regional and local tourism. Organizations such as the Ten Thousand Lakes Association, the Minnesota Arrowhead Association, and the Minnesota Scenic Highway Association were important to this effort. When this booster activity was combined with state-sponsored homesite leasing and the state's development of a tourist bureau in the 1930s, the mechanisms for expanded tourism were fully in place.

The history of resort development on Rainy, Kabetogama, and other park area lakes is considered in detail in the NPS 1999 synthesis on tourism. Lodges were developed in the first decade of the 1900s, with additional facilities developed in the 1910s and early 1920s prior to local road access. Even by the 1920s, while resorts were present, most were rather primitive cabins, lacking simple amenities such as plumbing.

Within a few decades, additional resorts had been developed in several areas of the park. Most notable are clusters of resorts just west of the park on Rainy Lake, along the

western shore of Kabetogama, and at the south end of Crane Lake at a location formerly known as Harding. However, other resorts were scattered at numerous locations across Kabetogama, Namakan, Rainy, and Sand Point Lakes. Resort popularity fluctuated over the years, with declines during the depression and in other eras as well. However, core areas of resorts remain at the edges of the park today on Rainy and Crane Lakes and at Ash River near its junction with Kabetogama Lake. Other small resorts were scattered within the acreage now subsumed within the park, but none are still in operation and most of the resort structures have been removed. None of the resort locations within the park have been the focus for archeological investigation, largely due to their relatively recent age. However, several are of an age that places them within the reasonable scope of archeological research, and future archeological studies of the resort era in the park could be accomplished in conjunction with additional, specifically targeted historical research.

4. HISTORY OF ARCHEOLOGICAL INVESTIGATIONS

The history of archeological investigations in the Rainy River area has been summarized elsewhere (Noble 1984; Kenyon 1986: Lynott, Richner, and Thompson 1986; Thomas and Mather 1996; Stoltman 1973) and will be presented here in brief, summary form. Despite its remote location, at a considerable distance from any major universities, there is a surprisingly large archeological literature for the area, especially for the Woodland Tradition. That regional literature will only be surveyed here in a limited way, with emphasis instead placed upon summarizing and assessing the strengths and weaknesses of all investigations that have taken place within the boundaries of Voyageurs NP. Many, but certainly not all, of the most notable archeological projects in the Rainy Lake and Rainy River area are summarized in Table 1. The interested reader can use the entries in that table along with the historical overviews mentioned above as a starting point for understanding the history of archeological research in the area. The timeline of local archeological investigations can be divided into an early antiquarian and exploratory era, a middle-twentieth-century professional research era, and more than 30 years of cultural resource management studies. Table 1 clearly shows that archeological projects have continued in an almost unbroken string from the early 1960s through the present day in this area. Within the park, work is largely limited to the post-1960s cultural resource management era.

Archeological Studies near Voyageurs National Park

As in much of the eastern United States, initial interest in the archeology of the Border Lakes Region focused on earthen mounds. While fur traders had probably noticed mounds along the Rainy River by a rather early date, the first obvious reference was made by Delafield during the international boundary survey of 1823 when he noted a mound at Manitou Rapids on the Canadian side of the Rainy River (McElroy and Riggs 1943:433). By the middle nineteenth century the presence of several other mounds along the Rainy River was noted, with at least some minimal, exploratory digging occurring as early as 1857 (Dawson 1968). As with the better-known mounds of the Ohio Valley, the origin and function of the Rainy River mounds was a topic of discussion and debate, with a local Native American tradition asserting that they were associated with underground storage and defensive fortifications for protection against attacks by the Sioux (Hind 1971:90). Hind (1971:90), however, favored an explanation that “the gigantic mounds of the Rainy River were places of sepulture.” During the 1857 Red River Expedition, he also noted the presence of “modern graves of Indians” with bark roofs as well as numerous unoccupied lodges (Hind 1971:91) at the rapids on the Rainy River.

By 1883–1884 (Table 1), more extensive examination and excavations of Rainy River mounds at the Smith (21KC3) and McKinstry (21KC2) sites at the mouths of the Little and Big Fork Rivers was underway (Bryce 1885, 1904; Stoltman 1973). The quality of documentation and reporting is uneven for these early activities, which included (failed) tunneling and major trenching efforts. Following prevailing theories of the time, Bryce hypothesized that the mounds were the work of a hypothetical former people called the

"Mound Builders" rather than Native Americans. The steamboat era on the Rainy River following development of the Dawson Trail in 1870 and the influx of settlers after the discovery of gold on Rainy Lake in 1893 also lead to an increase in public interest in the mounds. One small steamboat-era community (Laurel) was located near the largest of all the Rainy River Mounds, the Grand Mound, near the Big Fork's confluence with the Rainy River at a location now known as the Smith site. By the early 1880s, if not earlier, people from local communities began to dig into the mounds to determine their content and to collect artifacts. Picnicking and indiscriminant digging became popular Sunday afternoon pursuits at locations such as the Smith site at Laurel through the turn of the century.

Taxidermist, museum specimen collector, and licensed guide E. L. Brown left some fairly detailed accounts of his prospecting into the Rainy River mounds in his diary for 1892 (Brown 1892). He identified a mound at Pither's Point at the outlet of Rainy Lake and did considerable digging into various mounds at Long Sault Rapids (Manitou Mounds) and other locations along the Rainy River including, what are now known as, the Smith and McKinstry sites in Minnesota. He collected ceramic vessels, pipes, other tools, and human remains, and apparently sold at least some of these to his museum patrons in St. Paul. The scope of his digging should not be underestimated, since he spent several long days digging all the way to the bottom of some of the mounds.

After an apparent hiatus of about 20 years, professional interest in the mounds was renewed. Beginning in the 1930s, well-known archeologists including Edward Jenks and Lloyd Wilford began intensive study and excavation of mounds at the McKinstry and Smith sites. Research at those two important sites has continued to the present day. By the late 1950s, Walter Kenyon began a series of excavations at mounds on the Canadian side of the Rainy River that culminated in his publication of a synthesis in 1986. These efforts were followed by projects by Eldon Johnson, James Stoltman, and other well-known United States and Canadian archeologists. The early 1970s marked the initiation of planning and legislated project compliance archeological projects at these and several other sites (Table 1). It is this work, conducted on both sides of the International Border, that has provided the largest archeological database for understanding local prehistory, especially for the Woodland Tradition. While the important mound sites have remained a focus for study and interpretation, since the early 1970s excavations have shifted away from mounds to study of habitation sites. In the 1990s, excavations related to replacement of Route 11 bridges over the Little Fork and Big Fork Rivers near the confluences with the Rainy River at the Hannaford and McKinstry sites have yielded the most detailed and extensive information on local Woodland occupations available for any sets of research to date (Rapp et al. 1995, Thomas and Mather 1996). In addition, efforts have been expanded from study of individual mounds and sites to larger-scale inventory efforts. Much of that work has been accomplished on Ontario's public lands and on Voyageurs NP and Forest Service lands along the US–Canadian border.

By 1970, the importance of the Grand Mound and the Smith site (21KC3) was recognized when the Minnesota Historical Society preserved the site and in 1976 it

developed and opened the Grand Mound History Center. In 1970, the historical significance of the Manitou Mounds at Long Sault Rapids in Ontario was recognized when it was declared a site of national importance. By the 1990s, an ambitious effort to preserve and develop the location as a visitor destination was begun via the Kay-Nah Chi-Wah-Nung Manitou Mounds Historical Centre. Unfortunately, the long-term viability of both centers is in question as the MHS recently closed the Grand Mound History Center and is seeking to develop a local partnership to continue to operate it. After a major development effort and auspicious beginning, the Manitou Mounds Historical Centre has also experienced operating difficulties. Still, the presence of these two impressive public centers clearly reveals the importance of the archeological record in the region, much of which would be unknown if not for the numerous archeological and historical studies summarized in Table 1.

Archeological Studies within Voyageurs National Park

While various informal excavations or collecting efforts and antiquarian studies predating actual professional archeological research are documented for the Rainy River area back to 1857, nearly all known studies within the park are confined to the modern era. Only a few early "non-professional" discoveries are documented for the park area. Late-nineteenth- and early-twentieth-century "projects" within what is now Voyageurs NP are limited to brief notes about discoveries of caches of artifacts at Rainy Lake City (*Rainy Lake City Herald*, May 5, 1898; Richner 1999b) and Crane Lake (*Duluth Herald*, May 22, 1924; Richner 2002a). An oral history account indicates that another cache and other artifacts were discovered just outside the park near Kettle Falls in Ontario in the early twentieth century (Knox 1972). Brief reports from the 1940s documenting collection of artifacts from seasonally inundated settings in what was later to become the park constitute a second kind of pre-park "amateur" archeological investigation (Fryklund 1941; Kruse 1941; Lindberg 1947; Ribich 1946). These discoveries are discussed in the Culture History portion of this report. These brief "cache" and "collection" reports constitute the only relatively well-documented discoveries of archeological materials within the park prior to park-era archeological projects. Poorly documented, but very extensive artifact collecting by local citizens and tourists has occurred over much of the twentieth century.

The history of artifact collecting from areas now within the park is poorly known, but shoreline collecting probably began, or certainly intensified, soon after completion of dams at International Falls in 1909 and Kettle Falls in 1914. The fluctuating water levels and extensive shoreline erosion caused by the new managed water regimes exposed many sites along the shores of Rainy, Kabetogama, Namakan, Sand Point, and Crane Lakes. More intense collecting probably coincides with increased tourist use of the park area after the middle 1920s (Salmi 1968, 1971, and 1972). Given what is known about the few local collections that have been examined by professional archeologists (Birk and Richner 2004; Gibbon 1977; Richner 1992a, 2002), it is apparent that huge numbers of artifacts were collected over several decades as wave action and seasonal inundation continued to impact

dozens, if not hundreds, of sites. Fishermen, guides, resort owners and employees, summer cottage owners, other local citizens, and tourists are among the known collectors who have retrieved artifacts in large numbers from park sites. Shoreline artifact collecting was intensive at least through the 1960s era and continued at somewhat attenuated levels even after the formation of the park when such activities became illegal. Some unauthorized collecting has continued to the present time, as indicated through citations for collecting made by park rangers as recently as spring of 2000. While the potential importance of local collections to an understanding of local culture history and the scope of the park's archeological resources has been recognized since the middle 1970s (Gibbon 1977), documentation of the collections has not been fully or systematically accomplished to date. Many of the earlier collections are now dispersed, or artifact proveniences have otherwise been lost or forgotten. Few local collectors are known to have maintained any kind of formal provenience records for their materials.

Voyageurs NP was authorized in 1971 and established in 1975. Professional archeological projects of varying scale have taken place in 29 different years at Voyageurs NP since 1972. Multiple studies were completed in several of those years. Projects range from brief reconnaissance inventories to multi-year parkwide sampling inventories and limited evaluative test excavation programs (Table 2). Largely due to excellent planning by the park, very few "Phase III" data collection projects have been initiated. Typically, it has been possible to use the planning process to avoid adverse impacts to archeological sites and to protect them *in situ*. Plans for campsites and similar improvements have been altered or the proposed developments eliminated from the park's campsite management program in many instances when potentially significant archeological sites were recorded within proposed development areas. This approach has been followed rather than the alternative of adhering to the original project plan when that would have required excavations to collect data that would otherwise be lost due to the effects of development. Accordingly, Table 2 lists only three data collection projects among the 44 projects conducted at the park to date. Given that some of the projects have included inventory of 60 or more separate proposed development parcels and that over 400 sites are recorded within the shoreline zone where almost all development occurs, the effectiveness of the park's planning process for protecting archeological resources should be apparent. This is in considerable contrast to the findings of site condition in Superior National Forest, where extensive and intensive inventories of very large numbers of campsites have documented extensive damage to sites through ongoing camping activities (Peters 1984, 1985, 1986, and 1987).

Table 2 was constructed to provide a basic overview of all archeological projects conducted in the park to date. The data were compiled in ACCESS in several fields. The data fields are:

- year of investigation,
- principal investigator directing the work,

- institution responsible for the work,
- type of investigation (e.g., inventory, test excavation),
- lake(s) where the project occurred,
- brief project description,
- report citation for the project,
- Midwest Archeological Center and Voyageurs NP accession numbers for the project collections and archives,
- repository for collections and all related project records, and
- comments.

This database should assist park staff and archeological researchers in easily locating all pertinent archeological project records, reports, and collections for the park from its creation through 2001. In the following paragraphs, the projects are grouped into subsets based upon project type or compliance and programmatic actions that resulted in archeological fieldwork. Within those broad categories, such as archeological inventory, further subdivisions are made to reflect project scope. For the larger project categories, and for all of the primary projects within each category, brief comments are then offered to assess the basic strengths and weaknesses of the work.

Archeological Inventories

Since Voyageurs NP is a relatively new park and since there were no inventories of the park area prior to consideration of its establishment, it is not surprising that most projects at the park to date are in the form of various inventories. These range from small-scale reconnaissance efforts to multi-year, parkwide sampling inventories.

Reconnaissance Inventories

Reconnaissance inventories have occurred at the park from 1972 through 2000. Reconnaissance inventories utilize non-intensive field survey techniques, often in combination with interview data or the results of historic literature or archival research. Interval shovel testing, an important tool for site discovery in this heavily vegetated region, was not systematically used in any of the reconnaissance inventories, although a few such tests were occasionally part of the field methods. Instead, surface survey such as visual inspection of cutbanks, beaches, mudflats, or other landforms where soil is exposed, or examination of heavily vegetated areas for the presence of surface artifact scatters and/or various structural features is the primary field technique used in reconnaissance inventories.

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In many cases, the reconnaissance is in response to information obtained from interviews with individuals knowledgeable with regard to site locations or from data contained in historic maps or other archival records. Reconnaissance methods have not been used for inventories of areas where development actions have the potential to cause ground disturbance. At all of those project areas, intensive inventory methods have been applied.

Reconnaissance inventories have been undertaken for several reasons including:

- predicting the kinds of archeological resources that might be present in the park (e.g., Birk's 1972 and George's 1973 projects),

- checking specific areas where sites are depicted on historic maps, mentioned in various historic accounts, or documented through informant interviews (e.g., Richner's 1989 and 1994 projects),

- looking for surface indications of sites within prescribed burn units (e.g., Clark's 1990 and Richner's 2000 projects), and

- examining beaches, mudlflats, or other normally submerged landforms under low-water conditions (e.g., Gibbon's 1977 and Richner's 1999 projects).

The first two archeological projects at Voyageurs NP were reconnaissance efforts that involved very limited fieldwork, but that resulted in the understanding that numerous archeological sites spanning a considerable time period were likely to be present in certain areas of the park (Birk 1972; George 1973). One of the primary strengths of these projects was the use of informant data to indicate the likely presence of sites in the park. If there are any shortcomings of these efforts, one might be that the projects were of such limited scope that site forms were not completed for the site areas discussed in the project reports.

Site discoveries made through reconnaissance inventory based upon various historic records have played a surprisingly important role in understanding the historic archeological record at Voyageurs NP. This is especially true for historic Ojibwe sites including 1989-2, 21SL36, 31-6, 21SL21, and several others. In fact, most of the 40+ historic Ojibwe sites currently recorded within the park have been subject only to reconnaissance-level coverage and mapping of surface features, despite the fact that many were discovered during inventory projects that otherwise relied on intensive shovel-testing methods. In that regard, reconnaissance methods have often been employed as an important field technique at certain sites even within projects that are listed as "inventory" or "testing" on Table 2. Since many of the Ojibwe (and other historic) sites contain surface scatters of artifacts and earthen berms from former cabins or other surface features, few of those sites have been subject to intensive inventory techniques such as interval shovel testing or limited site test excavations. Similarly, the logging camps recorded archeologically at the park were located based upon historic documentation and interview data and have been subject

only to reconnaissance-level inventory and mapping of surface features. Some of these efforts occurred within projects that are primarily characterized as intensive inventory and testing projects. The significance of these kinds of sites is often apparent from surface indications alone. Further, many of the Ojibwe sites are thought to contain burials, so ground disturbance has been kept to a minimum in their study.

Since most prescribed burns have occurred in settings where few sites are known to occur, such as rocky uplands and wetlands, intensive interval shovel testing has seldom been used for burn inventories. Instead, both pre- and post-burn reconnaissance inventories have been accomplished. Most concern has been placed in identifying surface scatters from historic sites, since they appear to be most vulnerable to adverse impact from prescribed burning. The park has also been careful to ensure that known sites of all ages are avoided through burn protocols. While very few sites are known within any of the units burned to date, they have all been avoided by creating fire breaks around the sites or by other similar fire management techniques.

In 1999, the post-burn inventory of a wetland area was combined with a low-water inventory. Several sites were discovered in normally inundated settings in Daley Bay through this effort (Richner 1999a). The burn that occurred there did not impact the sites since the sites were still covered with ice and snow when the burn was initiated.

Low-water inventories have been a focus for several reconnaissance efforts, most notably in 1977, 1980, 1987, and 1999. The 1977 project (Gibbon 1978) clearly revealed that many archeological sites at the park occur in partially or completely submerged settings. A major component of the 1980 project, which occurred in unusually low summer water conditions, was an expansion of Gibbon's inventory of normally inundated shoreline settings. Although one might expect that all of the inundated sites would be completely deflated and redeposited, at least some of these sites (e.g., 21SL44, 21SL153, 21SL212, and others) maintain surprising amounts of intact deposits. It is likely that more detailed study of the inundated sites would have revealed additional *in situ* materials at some of them.

Strengths and Weaknesses of the Reconnaissance Inventories

While the benefits of the various reconnaissance inventories are many, there are also some apparent weaknesses in most, if not all, of these efforts. The primary shortcoming is that the areas covered via these inventories have seldom been accurately depicted on project maps. This is particularly true for the submerged shoreline inventories. Another problem is that the data are scattered among various trip reports and memoranda rather than in specific project archeological reports. Exceptions are the efforts of Birk (1972) and George (1973) where at least general maps are provided and reports have been completed. Another exception is Richner's 2002 synthesis of historic Ojibwe sites. That report utilizes data from many reconnaissance and intensive inventory efforts and compiles them in a single document. Similarly, several of the logging sites studied through reconnaissance methods are documented with acceptable maps and in a synthetic report (Lynott, Richner,

and Thompson 1986). However, others, such as those recorded in 1985 and 2000, are less thoroughly documented.

Another limitation of the early reconnaissance inventories is that while use was made of local informants to provide site locational data, their collections were never documented in a systematic fashion. In many cases it is now too late to accomplish that work, since many of the older collectors have passed away and their collections have been dispersed. Even where collections are still intact, artifact provenience, largely held only in the head of the original collector, is often forgotten and irretrievably lost. Former Kabetogama guide John Salmi's collection is an excellent illustration of this situation. While numerous objects that he collected from Kabetogama Lake are still maintained by a member of his family, provenience for the items was not recorded before his death and is therefore essentially unknown for the entire collection. Attempts in 1976, 1986, and 1987 to provide better documentation of collections were partially successful, but local collections have never been documented or utilized to the fullest degree possible. Since the last "legal" private collections were made about 30 years ago, it will soon be a database for which detailed study, especially involving site provenience, will be difficult or even impossible. Birk's (Birk and Richner 2004) recent examination of fur trade materials in several local collections is by far the most rigorous and detailed such study conducted to date and it clearly reveals the great value of collections studies.

The obvious strength of the historic site reconnaissance efforts is that they have resulted in the recording of numerous, often highly significant sites that might otherwise have gone undiscovered and unrecorded. One possible limitation of these projects is that they have not always been highly systematic. For example, the sample of V&RL logging camps that has been field checked, occasionally based upon locations documented in historic records, is largely a function of ease of access and/or accidental discovery. A better approach may have been a planned reconnaissance of a specific sample of the circa 55 camps that likely occur within the park. However, funding and logistic concerns often limit what can be accomplished in these small reconnaissance efforts and a piecemeal approach to logging camp and other historic sites recording is better than no emphasis at all being placed on these important resources.

The results of the low-water inventories were certainly impressive, with 40 new sites added to the park's database in 1980 alone. However, there is an unanticipated negative consequence of the attention placed on submerged sites in 1977 and 1980. By focusing on beaches where site deposits are often mixed and/or redeposited, attention was inadvertently drawn away from examining landforms behind the beaches, or in similar protected settings in other areas of the park where intact deposits are occasionally still preserved. It is easy to walk beaches and find sites and many interesting artifacts, but without some form of related subsurface investigation, it is difficult to determine if these sites still contain depositional integrity. At the completion of the 1977 inventory, it was assumed that most of the inundated sites were redeposited, but this conclusion was not based upon adequate levels of subsurface shovel testing or test excavations.

This shortcoming was partially rectified in 1979 and 1980 when numerous sites were found to contain at least some depositional integrity through limited test excavations and more intensive shovel testing. Most of these sites were found to contain deposits behind the beaches where the sites were initially recorded, while still others were discovered behind various soil and rock benches. Also in 1980, one newly recorded inundated site, 21SL153, was found to maintain considerable primary context material, despite its position below summer lake levels of 1118 ft amsl.

The problems related to this focus on beach deposits were further addressed in 1986 and 1987 when emphasis was placed upon intensive near-shore inventory and site test excavations. This revealed that the initial projections regarding site destruction, while accurate in one sense, were overly pessimistic (Richner 1992a). While the impact of inundation and wave-related erosion on shoreline sites should not be underestimated, more intensive work on and behind the beaches and in other more protected settings revealed that a relatively large sample of sites at Voyageurs NP still maintain at least some primary context deposits. This will be discussed further in a later section of this report.

The positive aspects of the numerous reconnaissance inventories are many. Large numbers of pre-contact sites, many of which include temporally diagnostic artifacts, were discovered and recorded. The low-water reconnaissance inventories may never be able to be repeated, since the water level management regime in place in the 1970s into the late 1990s has been replaced with a new system that shortens, or even eliminates, the annual spring low-water period. So, without the relatively extensive efforts of 1977 and 1980 and the small-scale work in 1999 and other years, the existing site inventory would be very much smaller and there would be far less recognition of the actual site density along the shorelines of the park's major lakes. In addition, reconnaissance of logging and Ojibwe sites resulted in development of two important databases without generating large artifact inventories.

Intensive Inventories

Intensive parkwide inventories unrelated to specific development actions have taken place in three phases in 1976, 1979–1980, and 1985–1987. Other intensive inventories, such as the 1975 Kettle Falls inventory have been project-area specific. These non-construction-related inventories are in response to Section 110 of the National Historic Preservation Act that calls for federal agencies to inventory their lands for the presence of archeological resources. All other intensive inventory efforts have been related to various compliance actions resulting from proposals for development under Section 106 of the National Historic Preservation Act.

The first intensive inventory within the park was conducted at the Kettle Falls area in 1975 (Watson et al. 1976). About 50 archeological sites were recorded though this inventory. Most of these are historic sites related to the post-dam lumbering era at Kettle Falls. This study resulted in completion of the first detailed archeological report for the park

area. The report remains a useful document to the present day. The strength of the project is that numerous historic sites and features were recorded along the Namakan and Rainy Lake shorelines near Kettle Falls. The report placed these within appropriate historical context in a very articulate manner. The primary weakness of the report is that most of the features recorded were never assigned site numbers, and apparently site forms were not completed for the sites or features. While documentation does not match current standards (e.g., shovel test locations are not depicted on any project maps), the project offered a very positive start to intensive archeological investigations within the park.

A University of Minnesota team (Gibbon 1977) conducted the first parkwide intensive inventory in 1976. Like other projects, this one also included other field methods including interviews with collectors, and reconnaissance inventories of beaches and similar shoreline settings of the park's major lakes. This inventory utilized interval shovel testing within numerous, small, rectangular transects as the primary field technique. Most of the transects were oriented perpendicular to the lake shorelines, although the transects are of varying size and orientation. The primary result of the project was the recording of a large sample of sites in the official State of Minnesota files. Numerous other potential sites were recorded as "map references" numbered by land ownership tract numbers. Most of these are locations provided by artifact collectors or landowners, or where enigmatic depressions or other potential features were recorded. Another important result was the finding that few, if any, sites were discovered away from the shorelines of the park's major lakes. In fact, with the possible exception of two rock shelters, no sites were recorded in upland settings or more than a few meters from the water's edge. The project is documented by narrative field notes and through a technical report (Gibbon 1977). Minimal artifact presentation and analysis was attempted, with lists constituting most of the data presented. The potential importance of local artifact collections was recognized, and the accompanying project data includes photographs of numerous artifacts from these collections.

The primary shortcoming of the report is that no site maps, other than general site areas depicted on sketches made from portions of USGS quadrangles, were made. These are occasionally inaccurate or difficult to apply to the actual topography. No site maps, *per se*, result from the project despite the fact that a large number of sites were recorded. The relationship of shovel tests, both positive and negative, to the sites is also undocumented. The site form used for the project is very brief and contains only the most basic locational and contextual information. In hindsight, the report was too pessimistic about site destruction and potential National Register eligibility of the recorded sites. Subsequent studies have revealed that some of the supposedly destroyed sites contain primary-context materials, while other sites thought to be non-significant have been found to contain a wide range of important materials. However, the report served to alert NPS management and other archeologists to the adverse impacts of wave action and site inundation. An apparent emphasis on the absence of large sites, while accurate, perhaps unwittingly suggests that the smaller sites, which characterize most of the park's archeological resources, are not as important as large villages. Other minor interpretation problems, such as mistaking a V&RL logging camp on Rainy Lake for an Indian village, slightly mar the report. However,

when considered in the context of the era and funds available for the study, the project had overwhelmingly positive results. As the first intensive field study of the park, it laid the groundwork for all studies that were to follow.

The 1979–1980 Midwest Archeological Center inventory built upon the database assembled by the University of Minnesota's 1976 project. This project also expanded the field methods used in the park by including limited test excavations at selected sites. The 1979 project utilized additional transect inventories with results identical to those in 1976. No sites were recorded in any interior settings. The few newly recorded sites all occur on major lake shorelines. Many of the sites recorded in 1976 were revisited in 1979 and 1980, and if they were not inundated at the time of fieldwork, were subject to close interval (typically 5-m) shovel testing. Where shovel testing was positive, limited test excavations were typically initiated. All of the sites treated in this manner were mapped, providing the first specific site maps for the park area since the Kettle Falls inventory project. Given the negative results of about 6,000 acres of transect inventories in 1976 and 1979, that approach was abandoned in 1980. Instead, low-water beach and shoreline inventories were combined with site test excavations during that field effort. While fewer than 6 new sites were recorded in 1979, 40 were recorded in 1980. Since most of these occurred in inundated settings, and were thought to be redeposited, the State of Minnesota initially declined to assign site numbers to all but a few of the 1980 sites. Only several years later after the project report was completed and after additional justifications for assigning site numbers were provided by the Midwest Archeological Center were official trinomials assigned to most of the 1980 sites.

The primary strength of the 1979–1980 project was that it resulted in a comprehensive, synthetic report (Lynott, Richner, and Thompson 1986) that summarized regional research and placed the park's sites in local and regional perspective. This is the first such report completed for the park area. Creative applications of dating (thermoluminescence), faunal, floral, and environmental (phytolith and pollen) analyses were accomplished and reported. For the first time, the park's archeological sites were assessed relative to systematically applied attributes such as condition, cultural association, and other factors. Also, sites were placed in regional context through development of a concise cultural historical approach. Unlike the previous projects, this one also utilized standard excavation and other forms and an improved site form. Perhaps most importantly, the report documented that a range of sites within the park spanning the pre-contact and post-contact eras contained *in situ* deposits and that many were potentially eligible for inclusion on the National Register of Historic Places.

The primary weakness of the project is that only the 1979 transect inventory units were carefully plotted on pertinent maps. Other intensive shoreline survey zones are described or mentioned in project notes but are not routinely depicted on appropriate project area maps. No survey coverage is depicted in the project report. This results in an inability to positively determine, in most instances, what areas were intensively inventoried in 1979 and 1980 other than the marked transect units and known site areas. The lack of

official site numbers for many of the newly recorded sites is also a shortcoming, but resulted from the unwillingness of the State of Minnesota to assign site numbers to inundated sites. This was resolved several years later. There are a few analytical problems with the final project report. Perhaps the most glaring is the failure to identify an Archaic eared, notched point from 21SL35, despite the fact that the point was illustrated in the report and that an Archaic-age radiocarbon date was obtained from the provenience containing the point. This is discussed further in the Culture History section of the current report. It also appears that certain ceramic vessels illustrated in the report, notably from site 21SL141, are incorrectly cited in the text relative to artifact illustrations. For example, Vessel 3 is identified in the text as the sherd in Figure 63a (Lynott, Richner, and Thompson 1986:216) and is described as a decorated early phase Blackduck vessel. However, Figure 63a illustrates an undecorated Selkirk rim. Similar errors are made for Vessels 4, 5, 17, 18, 22, 31, 40, 41, 42, and others. Essentially all of the rim sherds illustrated in Figures 63 and 64 are mis-associated with the vessel descriptions. In most, and probably all cases, it appears that the citations to Figures 63 and 64 are reversed in the text. Similar citation errors appear to occur with other illustrated artifacts in the report.

The 1985–1987 parkwide inventory is essentially a continuation of the 1979–1980 project. In 1985, emphasis was placed upon reconnaissance inventory and site evaluation on Rainy Lake. The inventory procedures, while utilizing 15-m shovel test intervals, can only be considered as a reconnaissance, since they were not applied consistently along all shorelines. Instead, shorelines were checked by boat, with "promising" landforms inventoried in meandering transects that paralleled the shoreline (Richner 1992a). However, inventory areas are not fully depicted on project maps, and in most cases, precise areas of intensive coverage cannot be determined. However, the project resulted in recording of several new sites and evaluation of many others that had been recorded by Gibbon (1977). This forms the strength of the project. Site forms were completed for all the new sites, although site numbers were not obtained from the State of Minnesota. Good project documentation in the form of field notes, photographs, and excavation forms was compiled for all of the site inventory and site testing areas.

The 1986 and 1987 projects consisted of intensive inventory and limited site testing on Kabetogama, Namakan, Sand Point, and Crane Lakes (Richner 1992a). The 1987 project included low-water inventory in early May. Project documentation matches the 1985 work, but is improved by better documentation of the areas inventoried. Shoreline inventory areas are depicted on USGS quadrangles for this work. The most important result of the 1986 and 1987 work was the discovery of numerous intact and partially intact sites across the park. Many of the sites originally recorded by Gibbon (1977) were found to contain intact deposits behind the eroded beaches where they were first discovered. It was determined that perhaps 25 percent or more of the sites in the park contained primary-context materials. While this may seem low, it is much higher than thought based upon the initial inventory efforts. The 1986 and 1987 projects continued the kinds of work completed in 1979 and 1980, with faunal, floral, and thermoluminescence analyses conducted at the completion of fieldwork. The project yielded rather large samples of artifacts and resulted in a report

(Richner 1992a) that provided an overview of all sites recorded and tested and a detailed listing of recovered artifacts. Special sections of the report focused upon historic Ojibwe occupation sites within the park and the history of water level management. An important result of the project is that paleosols were discovered on Kabetogama and Namakan Lakes, at least some of which contain buried and well-preserved prehistoric archeological sites. Site 21SL23 serves as an excellent example of one of these sites that are buried under post-1914, flood-deposited sands. There, undisturbed Woodland occupation materials are preserved under about 30 cm of redeposited beach sands.

At the completion of the project, a site database was constructed that has been updated into the format used for the current project. Although it was not recognized at the time, this may be the most important result of the project. Another positive aspect of the project is that detailed site maps were made for each site tested in 1986 and 1987.

In addition to the standard forms used in 1979 and 1980, shovel test forms were used in 1986 and 1987 to document each shovel test for the projects. This, combined with better mapping of shoreline inventory zones, was an improvement over earlier Midwest Archeological Center inventory efforts.

A weakness of the project is that the normally inundated areas examined through reconnaissance in 1987 were not always depicted on project maps, although most of the larger pedestrian inventory areas were plotted. A shortcoming of the report is that there are no individual site descriptions. Instead, sites are considered in tables and in analytical groups. In retrospect, this approach is not as useful as the site-by-site approach used in the report of the 1979–1980 investigations.

Campsite Inventories

Beginning in 1979, numerous existing and proposed campsites and other public use areas have been subject to inventory at Voyageurs NP (Lynott, Richner, and Thompson 1986; Richner 1992a, 2002b). Several hundred existing and proposed small areas within several categories of development including small campsites, large campsites, day use, and houseboat mooring locations have been inventoried. In all cases, these have been intensively inventoried. While documentation for coverage is rather poor in 1979 and 1980, mapping and other coverage is improved for later, more extensive inventory efforts (Richner 1992a, 2001). As a component of the current project all campsite inventory data have been summarized in Table 3. All proposed and existing campsites listed in Table 3 have also been plotted on project base maps that depict all known intensive inventory coverage at the park. Table 3 lists the campsites by number, type, year of inventory, and inventory results. While considered to be part of a campsite management program, the actual uses of these small developments range from day use areas to large campsites. The amount of development at each location is a function of this class or category of development. In nearly every case, development is of very small scope. For example, the small campsite category typically consists of two soil-filled cribs or pads for placement of tents, a picnic table, a metal fire

ring, a small metal bear-proof food locker, and a privy. Small docks are occasionally part of these developments as well. Day-use and houseboat developments have considerably fewer amenities than small campsites.

A careful examination of Table 3 will reveal that certain campsites have been subject to multiple inventory efforts. In some cases this resulted from changes in the names of proposed units, or confusion over whether a proposed development had been previously archeologically inventoried. In other cases, multiple inventories have been purposefully accomplished to ensure adequate inventory of proposed or existing development areas.

Not all of the campsites listed in Table 3 have actually been constructed. In fact, some will never be developed. This is particularly true of areas where potentially significant archeological sites have been recorded. In many cases, park planners have chosen to delete proposed development areas from the construction program after archeological sites have been discovered within the project areas. In addition, not all NPS campsites are listed in Table 3, since records are occasionally unclear regarding inventory coverage. This is only the case for campsites that were already in use when the archeological inventories began in 1979. Many of those areas had served as both formal and informal camping areas prior to establishment of the national park. While it is very likely that all of the campsites have in fact received archeological inventory coverage, if records were not highly specific in detailing the date and method of inventory of individual campsites, those areas have not been included in Table 3. Instead, only those areas where level of inventory is known with certainty have been included in the table.

It should be apparent from Table 3 that many archeological sites have been recorded through the small-scale, but numerous, campsite inventories. This overlap between archeological sites and campsites, both proposed and existing, is hardly surprising. Nearly all of the campsite locations are very close to the shores of the major lakes on relatively flat ground. This, of course, is the zone of the park that contains essentially all known aboriginal archeological sites. The campsite inventories have therefore been an important part of the inventories conducted at the park to date. Since the campsites are widely distributed across the park, the accompanying inventories have provided a very useful sample of the shoreline of the park's major lakes. As noted above, inventory of even larger numbers of campsites in Superior National Forest also yielded large numbers of sites. Unfortunately, there the adverse impacts to sites have been far worse that at Voyageurs NP (Peters 1984, 1985, 1986, 1987).

Reservation of Use and Occupancy Tracts

In recent years a primary focus for archeological inventory at Voyageurs NP has been small parcels where modern cottages or similar improvements occur across the park. Under this program, when the park lands were initially purchased from private landowners, some owners sold their land but retained rights to occupy their seasonally used structures for a fixed length of time. By about 2000, many of those rights-of-use were expiring. Further,

most of the structures were determined to be of modern age, not significant historically or architecturally and surplus to the needs of the NPS. Accordingly, they were proposed for removal. Since some ground disturbance would occur during removal, it was determined that archeological inventory would be accomplished in advance of the removal process. A protocol for inventory was developed in consultation with the Minnesota State Historic Preservation Office (SHPO) and the Bois Forte Chippewa of the Nett Lake Reservation were also notified about the project. In 2000 (Richner 2000), 2001 (Richner 2002b), and 2002 (Richner 2003) a large number of ROU parcels were inventoried for the presence of archeological resources (Table 4). In the most extensive effort to date, inventory of nearly 70 parcels in 2001 resulted in the recording of 8 archeological sites, all of which are unrelated to the occupation of the modern improvements that are slated for removal. This project is well documented through field records, photographs, maps, and a final project report (Richner 2002b).

While the ROU inventories have yielded fewer sites than the campsite inventories, several significant sites have been recorded at ROU parcels. Sites appear to be less frequent in these small parcels than at proposed campsites, since many of the structures are positioned on exposed, bare rock settings, or tucked against rather steep slopes. Still, some of the structures proposed for removal are on relatively flat areas containing sandy loam soils along the shorelines of the park's major lakes. Not surprisingly, many sites have been recorded at ROU structures in that topographic setting. All of the ROU inventories have been conducted by Midwest Archeological Center teams since 1999. Where sites have been recorded during inventory, measures have been taken to ensure the sites' continuing preservation even as the structures are removed. Recommendations have been specifically made for protecting sites during the removal process. For example, the former Budris cabin occurs on government Lot 70-129 at Black Bay Narrows. Inventory in 2001 revealed that site 21KC13 extends on all sides of the small cabin. Since that site was previously known to be significant, it was recommended that the structure be removed without use of any mechanized equipment and that no ground disturbance occur during the removal process. Since the structure is supported only by a few large wooden piers, with no other foundation elements, these recommendations will be able to be met through the use of hand labor and careful planning at the site. Where appropriate, language detailing site protection measures is built into contract documents when the removal would be accomplished through contract with non-NPS teams. Similar plans are developed for in-house work. Where sites are present, further protections are accomplished through fencing and monitoring of all work by the park's Cultural Resource Specialist and/or by professional archeologists.

Archeological Test Excavations

Archeological test excavations were undertaken at Voyageurs NP primarily in 1979, 1980, 1985, 1986, 1987, and 2001 (Birk and Richner 2004; Lynott, Richner, and Thompson 1986; Richner 1992a, 2002a, 2002b). The results of this work are discussed above in the section on parkwide efforts and ROU inventory efforts. Other, very small-scale testing was accomplished in 1988 and other fieldwork seasons (Frost 1988; Richner

1988b). Without question, test excavations to date, although typically of very small scope, have been very important in developing an understanding of the park's prehistoric and fur trade era site components. At most of the 72 sites subject to test excavation to date, fewer than 6 test units have been opened, and often, only 1 or 2 units have been excavated. The most intensively tested site, 21SL82, was subject to a total of 24.5 sq m of test excavation from 1979 through 1988. Despite the limited character of the test excavation efforts, many thousands of artifacts ranging from Archaic through historic age have been recovered, providing a well-documented database for future study of many aspects of culture history at Voyageurs NP.

Data Collection Projects

As noted above, only three data collection projects have been accomplished at Voyageurs NP. The first in 1977 involved recovery of numerous large stoneware vessels from the "Jug Cache" site (F33) at Kettle Falls. Park staff collected the jugs and the site was subsequently mapped and documented by archeologists from the Midwest Archeological Center. This prohibition-era site was subject to data collection since it was thought that it would certainly be subject to looting if the jugs were left in place (Spears 1977:1,5; Watson, Oothoudt, and Birk 1976). Five 5-gallon, one 3-gallon, and one 4-gallon Redwing jugs along with barrel hoops from multiple rotted barrels, and a single bottle were collected from the site.

The second data collection project did not occur until 1994 (Demeter et al. 1994). Also within the Kettle Falls area, this project was in response to plans to restore the circa 1910 dam tender's log cabin. Excavations were conducted flanking the structure where ground disturbance from foundation repair and drainage improvement was planned. Although his project is well documented and reported, it yielded relatively little of interest archeologically.

The third, and final, data collection project at Voyageurs NP was also associated with a historic structure (Richner 1999b). This involved the restoration of a circa-1910 log cabin that served as a saloon during prohibition. Excavations (circa 38 sq m) were undertaken in 1997 in a zone around the perimeter of the structure where foundation and drainage improvements would result in considerable ground disturbance. This is the largest block excavation ever accomplished at any site within the park. Unlike the previous two data collection projects, this one yielded a large and important collection of prehistoric materials in addition to numerous historic items dating to the late nineteenth and early twentieth centuries (Richner 1999b). The prehistoric site deposit was found to contain an important Archaic component dating back to perhaps 7000–8000 BP. Among the diagnostic Archaic materials from the site are projectile points and numerous copper items. This is the first reporting of Archaic materials from the park since Gibbon's brief mention of Archaic items at a few sites in 1977.

The project also resulted in recovery of large sample of Laurel, Blackduck, and other Terminal Woodland materials. Among those are the first shell-tempered Sandy Lake sherds ever recorded from the park. The very large lithic and ceramic assemblages allowed extensive analyses of debitage, formal tools (especially points, scrapers, and bipolar cores), and pottery sherds. Unfortunately, the site is badly mixed vertically in the upper 20–30 cm where most of the Woodland materials occur, and it was not possible to fully sort out these materials according to age. The deeper portions of the site were aceramic and appear to reflect only Archaic-era occupation. The larger excavated area at 21KC13 reveals that many of the better-preserved sites at Voyageurs NP can be expected to have very dense accumulations of artifacts including forms (copper tools) and ages (Archaic) that are typically very poorly represented in the results of interval shovel testing or even small-scale test excavations. This project, perhaps more than any other conducted to date, reveals the great potential that certain sites at Voyageurs NP have for studying the prehistoric past in the Border Lakes Region. Even at a site like 21KC13 where intensive historic use from the Rainy Lake City era and extensive and continual use through the twentieth century has occurred, impressive and partially stratified prehistoric deposits spanning nearly 8,000 years were found to be present and largely intact (Richner 1999b). This suggests that more intensive investigation of other sites at Voyageurs NP could be expected to yield similar—or perhaps even more useful—results.

Site Stabilization

This program was developed by Mark Lynott of the Midwest Archeological Center in response to discovery of several significant sites that were found to be undergoing adverse impacts from ongoing shoreline erosion. These include sites originally recorded by Gibbon (1977) and others recorded or further studied in the Midwest Archeological Center parkwide inventory and site testing efforts (Lynott, Richner, and Thompson 1986; Richner 1992a). The process primarily involves adding fill to the eroding edges of sites that maintain depositional integrity on soil benches raised above the high-water levels of the park's lakes, and anchoring this fill with geotechnical fabric and rock "riprap" (Lynott 1984a, 1984b, 1985). A steep sandy bank at site 21SL35 near Clyde Creek on Kabetogama Lake was stabilized using these methods in late winter, 1984 (Lynott 1984b, 1985). Work could be most reasonably accomplished when the lake was still frozen, since at that time, water levels were low and materials could be transported by truck over the frozen lake. While limited excavation accompanied stabilization at 21SL35 since the bank had to be slightly cut back before soil fill was added, subsequent site stabilization efforts did not require any associated excavations since no new ground disturbance occurred.

In late winter of 1985, site 21SL141 in the Blind Indian Narrows area of Namakan Lake was stabilized using the same methods employed at 21SL35 (Lynott 1988). Due to a slight miscalculation of summer water levels, additional riprap was added to this stabilized shoreline during the summer of 1985. In 1988, site 21SL82 was stabilized as part of a campground rehabilitation project near King Williams Narrows on the north shore of Crane Lake (Richner 1988a). At about that time, a list of significant, or potentially significant,

sites with eroding shorelines was developed, and priorities were set for future stabilization efforts. Unfortunately, only the top priority, site 21SL52 near Blind Indian Narrows, has been subject to stabilization since that time. Site 21SL52 was stabilized in a major effort in 1992 (Richner 1992b). Plans were made to stabilize nearby site 21SL53, but those plans have never been completed for various reasons including a lack of funding for the stabilization program.

The site stabilization efforts have been successful well beyond original expectations. In 1984, it was hoped that the work at 21SL35 and 21SL141 might hold the shorelines for 20 years, after which other approaches may be needed. However, stabilization of 21SL35 has been very successful, with even better results at 21SL141, 21SL52, and 21SL82. The treated areas at those sites show no continuing adverse impact from shoreline erosion, and it appears that the stabilization will last much longer than the hoped-for 20-year period. Since several significant sites with intact deposits are continuing to erode, and there is a proven method for protecting them from this damage, the stabilization program should be reinstituted as soon as possible. This is made all the more important by the fact hundreds of sites at Voyageurs NP have already been fully eroded and redeposited or at least badly damaged by shoreline erosion. The remaining intact, or partially intact, sites with eroding soil bench shorelines constitute a small sample of what was once present in that important landform within the park. If the few remaining sites on soil benches are further degraded or lost, the information they contain cannot be expected to be fully replicated at any combination of other local sites.

Summary

From the foregoing, it is apparent that more than 25 years of small-scale archeological studies have revealed important information about over 400 sites at Voyageurs NP spanning 7,000–8,000 years. Perhaps most importantly, the work has been conducted in a manner that has left the sites preserved for the future. Test excavations have very minimally impacted the sites, and even in the few cases where data collection efforts have occurred, large portions of the sites remain intact. While such small-scale studies have certain obvious drawbacks such as failing to expose features and broader intra-site patterning, the site preservation goal is more central to NPS policy than expenditure of site deposits for pure research interests. Further, the inventories and testing projects have yielded a surprisingly large series of collections that are available for further detailed study in the future.

5. DISCUSSION

This section of the report synthesizes the available data for the 408 sites currently recorded at Voyageurs NP. The discussion is organized by the following general topics: site distribution, site context and condition, site significance, and site age and cultural affiliation. Where appropriate, tables are used to help streamline narrative data presentation and provide the reader with connections back to the individual sites.

Basic management data for the 408 sites currently recorded at Voyageurs NP are summarized in a series of tables cited in this chapter. The data used in these tables are drawn from a site database developed in Microsoft's Access database software. This database contains 23 fields, with multiple values recorded for each field. The variables, variable labels, values, and value labels for the 23 fields are listed and defined in Table 5. Subsets of these fields are combined in three basic tables. The structure of those tables is summarized below.

Several of the fields that provide site locational data are included in Table 6. The fields in that table are:

- MINNNUM (official site number trinomial designation, if awarded)
- FIELDSITE (field site number)
- LAKE (where the site occurs)
- SETTING (topographic position)
- QUADRANGLE (USGS 7.5 minute quadrangle)
- UTME (site location)
- UTMN (site location)
- MINL (minimum elevation, in feet)
- MAXL (maximum site elevation, in feet), and
- SIZE (site area in sq. m).

Table 7 provides basic information on the level of archeological investigation at each site. The fields in that table are:

- MINNNUM (same as above)

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- FIELDSITE (same as above)
- STT (total number of shovel tests excavated)
- STP (number of positive shovel tests)
- EXT (number of excavation units)
- EXA (area excavated in sq. m — does not include shovel tests)
- AFFILIATION (archeological tradition, complex, or other taxonomic assignment)
- COMMENTS (brief narrative notes about the site).

Table 8 contains management data on site condition and significance. The fields in Table 8 are:

- MINNNUM (same as above)
- FIELDSITE (same as above)
- DOC (This refers to the documentation level for each site. Value definitions follow those for the Archeological Site Information Management System. Level of documentation is unrelated to site condition and significance and refers only to the level of recordation for each site.)
- DISTURBANCE (This field lists the primary factors that potentially adversely impact sites other than bioturbation and pedoturbation that impact all Voyageurs NP sites. Multiple disturbances are listed for select sites. Therefore, the total number of entries for these disturbances is greater than the number of sites recorded to date.)
- IMPACT (refers to the level of disturbance at each site)
- INTG (a measure of the depositional integrity of each site)
- CON (a general measure of site condition)
- USE (a list of activities that occur at the site)
- SIGN (refers to potential National Register significance)
- NEED (recommendations for further archeological work at each site)

Site Distribution

There is an obvious, basic pattern of horizontal site distribution within the park. This is especially apparent for the large number of prehistoric sites recorded to date. With the possible exception of a rockshelter located a few meters into the rocky uplands, all the known prehistoric and essentially all of the historic sites are positioned immediately adjacent to, or within, the pools of the park's major lakes. Sites flank the current shoreline or occur under shallow water on Kabetogama, Namakan, Rainy, Sand Point, and Crane Lakes. Currently, 14 sites are recorded on the small segment of NPS-owned shoreline along the north edge of Crane Lake, 41 on Sand Point Lake, 72 on Kabetogama Lake, 135 on Rainy Lake, and 142 on Namakan Lake. One prehistoric site is positioned on a rocky peninsula overlooking the smaller "interior" Mukooda Lake. However, that site is also in very close proximity to a bay on Sand Point Lake. A second prehistoric site on Mukooda Lake is located only a few meters from a bay on Sand Point Lake. One historic site is recorded on the interior War Club Lake, while a historic Ojibwe site is located in a bay of King Williams Narrows, and is in close proximity to both Crane and Sand Point Lakes that are connected by the narrows.

No prehistoric sites have been recorded away from these lake shorelines, despite the extensive (circa 6,000 acres) and intensive (10- or 15-m interval) shovel testing transect inventory efforts of 1976 (Gibbon 1977) and 1979 (Lynott, Richner, and Thompson 1986). Further, no prehistoric sites have been recorded along the shores of the park's smaller, interior lakes, with the exception of the Mukooda examples mentioned above. Surprisingly, inventories of all or portions of the shorelines of O'Leary, Trout, War Club, Locator, Quill, and other lakes in interior settings have failed to locate any prehistoric sites to date. While there may be prehistoric sites in the interior areas of the park, they must be rather uncommon and probably small in size, or positioned in areas difficult to inventory. There is evidence from Michigan and other nearby areas that historic Native American groups used "muskeg" or other boggy interior areas for winter campsites. The possible extension of this land use pattern to prehistory is unknown. Further, such sites would be essentially undetectable since the artifacts would settle into the sphagnum moss or water when the ice melted after site abandonment and could not now be discovered through any traditional field methods.

In addition to the possible presence of winter campsites in bog settings, various activities such as lithic procurement, hunting, plant collecting, and trapping probably occurred in the interior. However, to date no tangible evidence for such activities is recorded archeologically at Voyageurs NP. Sites might also occur along trails or roads, such as the Blackduck Trail and the Nett Lake Road (cf. Beatty 1963a, 1963b), especially in historic times. However, these routes have not been carefully traced and mapped through the park, nor have they been the focus for archeological inventory to date. Given this background, while there is an expectation that certain kinds of special-use sites may be present in the extensive interior areas of the park, none are currently recorded and there is little reason to expect that any park-related activities would impact the few that might occur there.

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A much different situation exists along the lake shorelines. All of the prehistoric sites and most of the historic sites presently recorded in the park occur along lake shorelines. Not surprisingly, sites are most common on relatively flat topographic settings along the shoreline. That fact alone removes extensive portions of the lake shorelines, especially on Namakan, Sand Point, and Rainy, from consideration as likely locations for the presence of prehistoric and early historic sites (except for rockshelter and rock art sites), since much of those shorelines are steep, rugged rock slopes. However, the presence of rock shorelines alone should not be construed as a limiting factor for site occurrence, since nearly one-quarter (95) of the known sites have been recorded in what at first glance may appear to be rock-dominated landscapes along these and the other park lakes. Basically, any relatively flat or gently sloping ground, either at, under, or raised above the modern water level up to several meters, that contains any soil accumulation must be considered as a likely location for the presence of historic or prehistoric deposits. All of the known sites are within view of the water, and most are no more than a few meters from the water's edge. In fact, many of the sites in the park have deposits on beaches (n = 176) or under the wave zone (n = 34), even if portions of the sites occur on raised benches (n = 147) nearby.

Prehistoric and historic sites typically occur on several landforms or topographic settings, and individual sites often extend across more than one of these landforms (Table 6). The most obvious preferred site location is a raised bench (n = 242). This can be of several forms including: (1) ancient lacustrine beaches or benches; (2) various soil terraces of undetermined origin, and (3) rock-dominated benches, usually consisting of smooth bedrock exposures with areas of soil accumulation on their flat surfaces (n = 95). Geomorphological studies are needed at Voyageurs NP to determine the origin of the various soil benches flanking the lakes. Benches, that in some cases seem comparable to riverine terraces, occur at several different elevations, most of which are raised no more than 5 m above lake level. One hundred and forty seven sites are known to include some form of flat soil bench. These non-bedrock settings often exhibit cutbanks that form through shoreline erosion due to fluctuating lake levels and wave action. Cutbanks have been recorded at 52 archeological sites to date. These exposed cuts result from erosion at the foot of the landform and subsequent mass wasting or slumping of the bank. It appears that much of this erosion results from the raised water levels on Rainy Lake after 1909 and on the lower lakes after 1914. Classic examples include locations where sites 21SL156, 21SL53, 21SL183, 21SL189, and several others have been recorded. Some of these sites (e.g., 21SL52, 21SL141, 21SL35, and 21SL82) have been treated through shoreline stabilization efforts and more bank stabilization is badly needed to preserve important sites in this setting.

Most of the sites recorded at Voyageurs NP are at least partially located within the wave zone on sandy, clayey, or rocky beaches (n = 176) (Table 6). More than half of the existing site inventory, including several that are inundated under the modern managed water levels, have components recorded within inundated or beach shoreline deposits. One hundred seventy-six sites include beach deposits, 11 are on inundated mudflats, and 20 are on sand bars. It appears that 68 of these sites have been redeposited through shoreline processes (Table 8). However, numerous sites with beach deposits also have subsequently

been found to extend to raised benches behind the beaches. Excellent examples are 21KC13 and 21SL35, first known though very sparse materials exposed along their sandy beaches but later found to be largely intact on higher, adjacent raised ground. Various inundated settings, including mudflats, sand bars, sand spits, and various gently sloping soil-dominated shorelines also contain a minimum of 34 sites. As above, some of these sites extend above the inundation zone, while others are confined to elevations under the current summer high-water pool. While it had been assumed by some that the inundated sites were all redeposited and destroyed, at least a sample of these sites (e.g., 21SL153, 21SL44, 21SL212) maintain considerable depositional integrity despite being underwater for most of the year.

Paleosols

Some beaches in the park, especially across Kabetogama Lake and portions of Namakan Lake, occasionally exhibit another very important depositional characteristic. At a minimum of 16 locales on these lakes, paleosols have been recorded under the existing, coarse beach sands within, below, or above the active wave zone. Careful examination of the overlying sands and the paleosols has revealed that the paleosols reflect the former ground surface prior to the flooding experienced in the early years of water management after completion of the dam at Kettle Falls in 1914. In multiple locations, water-deposited well-preserved twigs, leaves, and other organic debris occur at the paleosol surface, and are overlain with coarse, water-lain sands. The overlying sands often contain modern objects, and in some cases rolled and redeposited prehistoric items. These factors indicate modern deposition and age for the sands and the presence of ponded water prior to deposition of the sand. Deposition of the overlying sand almost certainly occurred during stormy or windy conditions during episodes when lake levels were unusually high. Numerous flood episodes are recorded including those in 1916, 1920, 1922, 1926, 1927, and other years soon after closing of the dam. High water occurred in many other years as well, particularly through the 1930s and 1940s, with notable floods occurring as recently as 1950, 1968 (Richner 1992a: Tables 4 and 5), and 2002.

Since rolled prehistoric pottery sherds and other artifacts occur in some of these beach deposits, one might incorrectly assume that these materials by definition reflect sites that are completely destroyed and redeposited. Certainly, the artifacts in the sand zone are in secondary context, but the sites from which they are derived are not necessarily totally disturbed and reworked by wave action. Site 21SL23 on Kabetogama Lake is probably the best example of this situation. There, an intact Woodland site was discovered in a paleosol under a veneer of redeposited sands. A thin humus had formed on the sand surface, but the sand does not match the soil profile recorded at most sites in the park, since it exhibits no evidence of B horizon staining or other weathering. The sand is about 30 cm deep along the shore and thins and eventually pinches out as the landform rises gently to the north. The sand contains water rolled and redeposited prehistoric items as well as early-twentieth-century materials. However, the paleosol under the sand is undisturbed above the sloping wave cut zone and contains an intact site. Its soil profile is typical of the sandy loam soil

associations at Voyageurs NP. Thus, while a portion of the site was eroded and redeposited, a significant segment of the site is preserved under the coarse, modern sand.

Although only a few sites have been recorded in the paleosols discovered to date, situations similar to that at 21SL23, a highly significant site, probably occur at other paleosol locations including site 1999-1 on the Deer Point Islands on Lake Kabetogama. This is a very important factor that should be carefully considered in any future studies of the park's beaches, and/or any planned development actions in those settings. Shovel testing must be deep enough to reveal the possible presence of paleosols in these beach and low, sand-covered bench settings. Some paleosols appear to be buried under two or more feet of modern, coarse beach sands in select areas of Kabetogama and Namakan Lakes.

Site Context, Condition, and Significance

The initial inventory of the park resulted in the perception that most, if not all, of the sites in the park were small, ephemeral, and extensively disturbed and/or totally redeposited (Gibbon 1977). Only 7 of the 180 locales and 168 sites examined in 1976 were considered to be eligible for inclusion on the National Register of Historic Places, while an additional 15 were viewed as needing additional study to determine significance (Gibbon 1977:vi). All of those deemed significant are historic sites, five of which are reported Ojibwe burial locations. No prehistoric sites were considered eligible through this inventory even though they constituted the great majority of the recorded 168 sites. In fact, a primary conclusion of the report was that "no large and significant prehistoric sites now exist within the park" (Gibbon 1977:7). The report also presented a rather gloomy scenario by claiming that "nearly all sites on Lake Kabetogama, Namakan, Sand Point, and Crane have been destroyed or severely damaged by an eight to thirteen foot rise in water level that followed construction of a dam at Kettle Falls early in this century" (Gibbon 1977:7). Further, it was reported that "it is highly unlikely that fur-trade or other important early historic sites exist within the boundaries of the park" (Gibbon 1977:7).

Subsequent research revealed that these findings were too pessimistic, and in some cases inaccurate. First, while most of the sites are rather small, a few larger prehistoric sites (e.g., 21SL183) do exist. Second, site size is irrelevant to determinations of significance under National Register eligibility criteria. A site need not be large to be significant. Third, as early as 1979, it was determined that many sites in Voyageurs NP, including several discovered during the 1976 inventory, contained intact deposits behind the beaches where they were initially discovered. By definition, these sites are not destroyed, although they have certainly been damaged by erosion. Adverse impacts to the sites are, in many cases, severe. However, several (e.g., 21SL35, 21SL55, and 21SL141) were determined by 1979 to have extensive intact deposits. Fourth, several sites have been found to contain fur trade era components. There are a minimum of 23 sites in the park that contain glass beads, metal trade goods, and/or Native-made metal items that range in age from the early 1700s era (or earlier?) through the end of the fur trade period (cf. Richner 2002a; Birk and Richner 2004).

Finally, the reported water level rise was determined to be inaccurate (Richner 1992a). Lake level rise on the lower lakes is actually known to be approximately 3.5 ft over the pre-dam average annual high-water level rather than the 8 to 13 ft rise claimed by Gibbon. However, the new, higher level is maintained over a much longer time frame than the highs in nature, which would have occurred in May, followed by a slow drop in levels. Throughout much of the year, managed water levels have averaged up to 7.5 ft higher than the typical natural levels as determined through modeling, but only about 3.5 ft higher than the pre-dam annual high-water mark (Flug 1986a, 1986b; Scovil and Bullard 1932:21). Gibbon was certainly correct in correlating this rise in water level to deteriorated site condition, but may have overstated the scope of the rise and the severity of its impacts. This was merely an error of scale and in no way diminishes the importance of Gibbon's recognition of the negative impacts of managed water levels on the sites at Voyageurs NP. Shoreline erosion, which appears to be primarily the result of managed water levels, is by far the most significant factor negatively affecting the condition of sites at the park.

Only a few years after Gibbon's initial inventory, after fewer than 50 additional sites had been recorded, the likely number of significant sites was considered to be closer to 58 (as opposed to 7), with 40 additional sites recommended for further evaluation (Lynott, Richner, and Thompson 1986:293–298). These numbers applied only to the sites reinvestigated or initially recorded in 1979 and 1980, and do not include recommendations for all of the 168 sites originally recorded by Gibbon. Obviously, these findings are highly divergent from Gibbon's more pessimistic recommendations. Numerous prehistoric components are included in those potentially significant sites studied in 1979 and 1980 are. Many of those are the same sites that had been considered to be non-significant by Gibbon. Currently, 142 sites are considered to be potentially significant, while significance is undetermined for a large number (n = 212, Table 8).

As more work was accomplished after 1980, especially in 1986 and 1987 (Richner 1992a), even more sites were found to contain intact deposits than had been determined through the 1979 and 1980 projects. Additional inventories and very limited test excavations since that date have increased the number of intact (or partially intact) deposits even further. Now, a relatively large proportion of known sites at Voyageurs NP has been determined to contain at least some intact deposits. As can be seen in Table 8, of the sites where condition is known, a minimum of 216 are at least partially intact despite the extensive adverse impacts of shoreline erosion and inundation. Primary context is fully maintained at 109 sites, and is at least partially maintained at an additional 107 (Table 8). Since the integrity of many sites (n = 124) remains undetermined, the actual number of intact, or partially intact, sites in the current inventory of 408 sites is certainly even larger than currently recognized. In the past 30 years, we have moved from assuming that few, if any, sites at the park are intact to the knowledge that more than 50 percent of the sites still maintain at least some primary context deposits.

Various sandy or sandy loam soil associations seem to be the favored soil associations for prehistoric site placement. The "typical" prehistoric or early historic site at Voyageurs

occurs on a raised bench in shallow sandy loam soil immediately flanking a major lake. Others occur in almost pure sand (e.g., 21SL35), while still others occur in sandy loam with rather high percentages of angular rocks (e.g., 21KC13 and 21KC14). However, finer textured silt loam and clay soils are also known to contain archeological deposits, especially in inundated settings or on low, marshy benches. Examples include sites in Daley Bay of Kabetogama Lake, site 21SL213 in Gold Portage, and the "Mudflat" site, 21SL153, on Namakan Lake. To date, no prehistoric sites have been recorded in dense gray clay or other similar lacustrine deposits, even where such soils occur on flat benches such as along the banks of Moose River and select other locales in the park. A few historic sites appear to occur in those settings, but such soils certainly support far fewer sites than soils with coarser sandy loam, or even rocky, constituents.

Despite some obvious limitations that result from the shallow character of the sites, the depositional context of many sites is surprisingly good. Various impacts have led to vertical mixing of deposits at certain sites, while others maintain basic vertical integrity. For example, site 21SL893 maintains clear vertical separation between its extensive and impressive fur trade and subsequent historic Ojibwe components and its prehistoric components that occur deeper in the soil profile. Many other similar examples could be cited. There is evidence for vertical separation within prehistoric deposits on select sites, including 21SL175, 21SL23, 21KC13, and several others. It is likely that more extensive and careful excavations would reveal many more subtle evidences of stratification than have been identified to date.

As noted above, most site deposits are rather shallow at Voyageurs NP. It is very rare for artifacts to extend below 40–50 cm below surface, except in the few instances where sites are covered by modern sandy, "storm" beach deposits. Perhaps the deepest deposit recorded to date is at 21KC13, where Archaic artifacts extended into the upper few cm of very coarse beach sand deposits under the typical sandy loam soil zone. Even there, depth did not exceed 70 cm. At most sites, historic fur trade and later artifacts are normally confined to the upper 10 cm of the soil profile, typically occurring near the base of the humus zone. Prehistoric materials are typically found from about 10 cm below surface to 40–50 cm below surface. At many site locations, excavation cannot penetrate below about 30–40 cm due to the presence of bedrock or other highly rocky deposits. In some instances, prehistoric materials occur immediately under the humus and extend down only to 20–30 cm. This shallow context means that essentially all of the sites are highly vulnerable even to minimal modification of the ground surface.

Site Disturbance Factors

There are multiple factors that have led to disturbance of many of the sites at Voyageurs NP. These include a variety of human activities as well as non-human-related natural processes. Several of these processes operate on all of the sites not only at Voyageurs NP, but also across huge areas of the Border Lakes and Great Lakes regions. Soil bioturbation and pedoturbation are important factors in shaping the condition of all the sites in the

region. When those processes are considered in light of the typically very shallow site deposits, it is apparent that many sites, even those in seemingly pristine environmental settings, are modified through time to varying degrees by natural processes. The action of freezing and thawing on the soil, disturbance though insect and other animal activities, and displacement by plant roots, especially through tree blow-downs, are among the factors that alter the depositional integrity of artifacts in all the park's shallow soils. It is difficult to measure the effects of these long-term processes, but they are certainly very important in shaping the association of artifacts at the sites today. The cumulative adverse impact of such natural processes should not be underestimated, especially since so many of the park's sites are multi-component and have been re-occupied many times over long time spans. Considering the very slow build-up of local forest soils, these natural processes, when combined with human actions (including the actions of the site occupants), have served to blend materials from multiple occupations into a seemingly uniform colored and textured zone of artifact-bearing soil at some of the park's sites. However, at other sites, vertical depositional integrity is maintained to a greater degree than is generally assumed.

Incredibly dense vegetation is present on many of the sites above the waterline, and the tangle of roots from trees, shrubs, and other plants can also have negative consequences for preservation of depositional context. While the roots may damage artifacts (especially prehistoric pottery), they can also move and change the position of artifacts. Evidence of significant disturbance to sites from tree falls has been recorded in a few instances. Perhaps the most obvious example is at 21SL141. There, in 1986, an earthen berm from a log cabin was discovered and mapped. It was partially disturbed by a tree that had fallen and pulled up a portion of the former cabin floor and one berm with its displaced root system. When the site was revisited in 2002, additional falls had occurred, further damaging the cabin feature. Nearly every site above the water pool in the park is threatened to at least some degree by the potential for damage through tree falls.

In a much more limited kind of impact, occurring at one site, beavers have damaged a site to a surprising degree. At 21SL161, which is V&RL Logging Camp No. 111, beavers formed trails across the site leading to rutting and erosion of berms from former logging structures. Bears, wolves, and other animals also occasionally adversely impact sites through digging and other activities. Still, all of these impacts are very minor and inconsequential compared with other site disturbance factors.

The cycle of forest fires has adversely impacted sites. Charcoal from these fires, which in some areas of the park have occurred on a recurrent 70–150 year cycle (Swain 1986:324), is present in the soil across the park. Charcoal found in site deposits can seldom be determined to be of cultural versus natural origin, especially where it occurs in middens and site scatters as opposed to hearths and similar features. Since few intact features have been discovered to date, the problems that this causes for developing site chronologies is obvious.

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Without question, the most important adverse impact to site context and condition at Voyageurs NP is shoreline erosion. While this would appear to be a purely natural impact, in its current form at the park it is actually primarily the result of human actions. While Gibbon (1977) may have overstated the damage to sites caused by raised water levels, the actual impacts of managed water levels on park sites have been extensive and severe. Many sites (n = 68) are, in fact, redeposited by wave action, although that may not be the same as considering them to be destroyed. Even the redeposited sites may contain some useful research data, since, while lacking original depositional context, many still contain a wide range of diagnostic artifacts. Redeposited sites would not typically be eligible for inclusion on the National Register of Historic Places, but they still could (and have) contribute(d) useful information to studies of site and artifact distribution and age.

The adverse impacts of raised and managed water levels on the lower lakes after 1914 and on Rainy Lake after 1909 include disturbance through inundation and wave action. Sites in the lake level fluctuation zone are often hardest hit, with wave action scouring them and washing away the soil matrix around the artifacts. The artifacts are then transported from their original context and redeposited through wave action. Prehistoric sherds caught in the beach "wash zone" are damaged very quickly, with their surfaces being badly eroded. Many such water-worn sherds have been collected from the "beach" sites at Voyageurs NP. Even lithic tools are occasionally found in rolled and dulled condition. However, impacts can vary considerably over just a few meters, with portions of a site washed away with the artifacts moved and redeposited, while other segments of the same site, both under water and above water, may remain largely, if not totally, in primary context. The situation is complex, and the mere fact that a site lies under water, or even in the annual lake level fluctuation zone, should not be construed as conclusive evidence that the entire site is in redeposited context. Some sites positioned just under the high-water mark are severely impacted and redeposited, while others at the same elevation are largely intact and maintain primary context deposits (e.g., 21SL44). Factors including soil type, landform shape, slope, and exposure are important determinates of site condition in these settings. Since the inundated sites are seldom exposed for study, relatively little is known about their condition, despite the fact that large numbers of them are recorded. As noted above, many sites are only partially inundated, with other portions preserved above the waterline. The existing inventory of inundated sites is certainly only a sample of the sites that actually occur, since professional inventories of the inundation zone have been surprisingly limited in scope.

Wave action adversely impacts sites not only in the lake wash zone, but also certain sites that are positioned on raised soil benches. These sites are both threatened and adversely impacted by destabilization of the soil bench landforms. The most obvious disturbance factor at these locations is the formation of eroding cutbanks. It is assumed that few of these were present prior to dam construction, and that most result from wave action cutting the toes of the landforms after the dams were constructed. This destabilizes the edge of the bank that is then subject to undercutting, block slumping, and erosion through mass wasting. Soil is often lost in large blocks through this process. Although the site

deposits are at the top of the flat benches, well above the lake level, the edges of the site are continually cut back through this process, damaging the sites and redepositing artifacts in secondary context. The process is highly variable in its impact. Some sites in cutbank settings remain essentially unchanged for several years, only to be severely damaged in a single episode of slumping and erosion. Surprisingly large areas of a site can be lost in a single storm through this process. After the soil erodes from the bench, either slowly or through wasting of blocks, it is reworked in the wave zone and the artifacts are redeposited on the beach or in near-shore lake deposits.

Portions or all of the eroding shoreline cutbanks of sites 21SL35, 21SL82, 21SL52, and 21SL141 have been stabilized through addition of soil and rock fills and application of geotechnical and root mat fabrics (Graves 1988; Lynott 1984b, 1988; Lynott and Richner 1990; Richner 1992a). This process has been highly successful. However, several sites in cutbank settings continue to erode. Over time, most if not all of these sites could be completely redeposited through this process. Since these sites are among the most significant ones known in the park, it is apparent that this is one of the most pressing problems for archeological site protection and management at the park. Currently, cutbanks are recorded at 52 of the park's 408 sites.

Site condition has also been impacted by various direct human actions in addition to water level management. Many sites in the wave zone and the near-shore inundation zone have been adversely impacted through unauthorized collection of artifacts. At least 19 sites are known to have been impacted by unauthorized collecting since the park was formed, and I suspect that number is far too low to accurately reflect the actual extent of impact. This collecting activity is known to have begun by the 1920s, if not earlier. Accelerated exposure and erosion of site deposits must have been extremely widespread for many years after the dams were built. Water levels fluctuated wildly from season to season and year to year until the dynamics of water flow were better understood and even then, very large seasonal changes in water level occurred. This coincided with the opening and expansion of the local tourist industry, logging, and commercial fishing. This brought many people to the area, some of whom began to collect the artifacts exposed on the park's beaches and seasonally inundated landforms. When pristine sites were first washed by water and eroded, huge numbers of artifacts and features must have been exposed to view. There are numerous stories of large collections being amassed and numerous sites being eroded and exposed in the 1920s and 1930s. These include accounts of discovery of exposed human burials and related features on sandspits, mudflats, and other low-lying landforms. While poorly documented, there is no reason to discount these stories. A few published examples from the 1940s era provide some glimpse into the scope and character of collecting activities prior to NPS ownership (Kruse 1941; Lindberg 1947; Ribich 1946). Limited professional examination of select private collections (e.g., Birk and Richner 2004; Gibbon 1977; Richner 1987**a**) also suggest that huge numbers of artifacts have been collected prior to the late 1970s era. It is likely that hundreds of locales within the park have been collected at some time in the past. These would include both professionally recorded, and currently unrecorded, archeological sites.

At least one local Kabetogama Lake fishing guide, John Salmi, collected extensively, and "guided" people to sites for collecting and even looting purposes at sites now located within the park. Commercial fishermen, such as the late Lauren Erickson, collected materials from numerous sites on Rainy Lake. They were able to examine normally inundated landforms, since they were on the lakes throughout the navigation season, including early spring when winter low-water conditions typically persisted for a period of days or weeks immediately after "ice out." Erickson, for example, conducted no excavations, but instead merely picked up artifacts from inundated landforms and beaches during the relatively limited times when they were exposed to view. Resort owners and resort visitors also amassed large collections. It appears that visitors from Illinois, Iowa, and elsewhere in addition to people from regional Minnesota towns made large collections and removed them from the local area. Local citizens also participated actively in collecting, as evidenced by materials now residing at locations such as the Koochiching Museums.

The full impact of collecting on inundated and wave zone sites may never be known, but it is certainly important and extensive. Collecting did not end with park formation, but instead has continued at attenuated levels into the park era, even though it has been illegal since the park was established in 1975. Although somewhat abated, collecting still occurs at the park today, primarily in early spring just after the "ice out" episode. However, since the late winter and spring low-water episode is of shortened duration and lower amplitude, sites in the fluctuation zone would be exposed for shorter periods of time and therefore might be subject to less pressure by unauthorized artifact collecting activities. The park rangers patrol to the best of their ability, but the large size of the park and its miles of shorelines make that task very difficult. In my opinion, although I can offer no clear quantification, the amount and diversity of materials recovered from the park by collectors since about 1915 would dwarf the scope of professionally generated collections amassed since 1976. This is strongly suggested though cursory examination of only a few intact collections still retained in the communities near the park.

While the activities above involve surface collection, some digging or looting has also occurred. Quantification is poor, but looting is known to have occurred at 21SL53 and 21SL44, and has likely occurred at 21SL115 and several other sites.

Visitor use also has negative impacts upon site condition. Use of footpaths, day-use areas, campsites, and other facilities has the potential to adversely impact sites merely through the removal of surface vegetation and root mats, since prehistoric artifacts would be exposed by subsequent erosion and soil compaction. There are several sites within designated and undesignated use areas, ranging from campsites to day-use areas. Evidence of undesignated camping has been recorded at 29 sites, while 20 additional sites occur within various NPS use areas. Impacts at those sites are typically related to loss of surface vegetation and subsequent erosion and soil compaction. An excellent example is the recent discovery of site 21SL905 in the Namakan Entrance Campsite. Archaic artifacts are exposed on the ground surface there via very minimal soil erosion and compaction after loss of the protective surface duff layer. Adverse impacts from day-use activities are

seen at sites like 21SL47b. There in 2002, a large projectile point was found in an eroded footpath and several fur trade artifacts were collected from compacted and eroded soil under and around a wooden picnic table. Similar impacts are known at sites including 21SL92, 21SL93, 21SL94, and 21SL173 within undesignated use areas, and at sites such as 21SL185, 21SL186, 21SL189, 21SL199, and 21SL905, within designated campsites as well.

The sites at Voyageurs NP are protected from other regional impacts, such as logging. Much of the region around the park is subject to highly mechanized, clear-cutting pulp wood operations that result in considerable soil disturbance on a recurrent schedule. While most of Voyageurs NP has been logged on one or more occasions, most of that work was accomplished in winter when the sites were covered with snow and protected by the frozen condition of the ground. Hand cutting and horse and team skidding were the most common logging methods, especially along the shorelines where most, if not all, of the sites occur. These methods are much less damaging to site integrity than mechanized logging. Further, swaths several hundred feet wide along extensive portions of lake shorelines and on many islands were never subject to logging due to the Shipstead-Newton-Nolan Act of 1930. That zone is where essentially all of the known sites occur. As more time passes, the sites at Voyageurs NP will certainly tend to remain in better condition than similar sites on private, state, and local governmental lands where mechanized logging continues to occur.

Preservation Factors

While certain negative factors for preservation of primary depositional context and site condition are apparent, there are also several factors that positively affect the sites. Perhaps the most obvious is that the area is largely in a natural state, with very limited development. The shorelines, where essentially all of the sites occur, receive relatively limited use via many small-scale visitor facilities. These include small campsites, day-use areas, houseboat mooring locations, and similar visitor amenities. While there are several hundred of these use areas, they are widely scattered across the park. All those built over the past 20+ years by the NPS were carefully planned and inventoried for the presence of archeological resources prior to development. Most of them, especially campsites, were placed on “hardscapes,” such as exposed bedrock settings, in a specific attempt to avoid adverse impacts to the environment and to archeological resources. Many locations proposed for development were removed from the development program after archeological resources were discovered within them. Most of the overlaps between sites and development occur at areas that were in use before the park was formed. Further, the actual developments cause relatively minor ground disturbance. For example, campsites have formal tent pads that are built with log cribs above grade, with the only ground-disturbing elements being a small bear-proof food locker, a privy vault, short footpaths, and an anchored picnic table.

While the local dense vegetative cover has some negative consequences for site context and condition, especially through tree falls and root penetration of the archeological deposits, the vegetation also offers considerable protection to archeological resources. Except

along cutbanks, beaches, and inundated topographic settings, archeological materials are seldom exposed on the ground surface in the park. Not only are the deposits protected by a dense forest duff layer, most of the sites are also covered with additional organic materials and leaf litter as well as a wide range of grasses, low shrubby plants, large shrubs, and trees. This plant cover not only holds the soil in place and protects sites against erosion; it also masks many sites from view and potential disturbance by park visitors. Even some historic sites that contain structural remains are essentially invisible except under careful examination by a trained eye.

Conditions for preservation of several classes of artifacts are surprisingly good at the park, especially within the sandy and silty loam soils. Fauna is often preserved at prehistoric and historic sites. Burned fauna is especially well preserved, but even unburned fauna is present and in relatively good condition at numerous prehistoric sites. This fact is often obscured by the traditional view that northern, acid, forest soils exhibit poor conditions for preservation of organic materials. However, several reports document the wide range of faunal elements that have been recovered from sites at Voyageurs NP (Colburn 1987; Falk 1986; Mather 1999). Preservation of faunal elements seems to decrease with time, so unburned specimens are rare in Archaic settings.

Prehistoric pottery sherds are even better preserved in these soils than faunal remains. While usually highly fragmented, the sherds almost always exhibit fresh, uneroded surfaces with subtle decorations and surface treatments clearly visible. Fingerprints have even been observed on the interior surfaces of some of the large numbers of sherds collected to date. Often, crushed, but otherwise complete vessels occur in a tight cluster of broken pieces indicating the sherds have moved minimally since the vessel was broken and discarded.

Metal objects, especially brass and iron fur trade era artifacts, are often extremely well preserved at Voyageurs NP. This is despite the fact that they usually occur in the upper 10 cm of the shallow soil profile. These soils appear to dry quickly, sparing the objects from extensive wet-dry cycles or long-term saturated conditions. Similar iron artifacts collected from inundated or other wet settings in the park are invariably poorly preserved and highly corroded. In one instance at 21SL47a, fabric has been found preserved in contact with a brass object, further attesting to the excellent preservation of fur trade era artifacts in the park.

One unique problem for the area is determination of fire-cracked vs. natural rocks. Since the soil in many areas of the park contains large amounts of naturally occurring angular rocks, it is often difficult to differentiate between culturally modified and natural specimens. While I formerly thought that most of the rock in these sites was of natural origin, I have lately become convinced that at many sites, most of the rock in the upper portions of the soil deposits is of cultural origin. However, large numbers of sites occur in sandy loam soils that overlie dense, rocky formations that are likely glacially derived. In those settings, it may never be possible to isolate fully fire-cracked from natural, angular pieces of rock. Often, the soil extends into uneven cobble, boulder, and other rock-dominated

deposits, with debitage present even in little soil pockets amidst rock that certainly is not of cultural origin. This is but one of many challenges for excavation and interpretation of archeological resources at Voyageurs NP.

Perhaps the most important positive factor in site preservation is the NPS planning process as it is applied at Voyageurs NP. As noted above, all park developments are of very small scale, and all are accomplished via a detailed and careful planning process. Archeological study, usually in the form of inventory, has been a component of all park projects that have the potential to impact archeological resources. This process has protected many archeological sites. When archeological sites have been discovered within project impact zones, several different options have resulted in their preservation. For example, campsites or other similar developments have been redesigned to avoid site areas. In other instances, proposed developments have been deleted from the park's plan if potentially significant resources were recorded in the project area. Other examples of *in situ* preservation include avoiding sites within prescribed burn units and similar kinds of planning actions. In my opinion, this has been possible largely through the presence and effectiveness of the park's Lead Resource Specialist, Mary Graves. That staff position, and Ms. Graves' involvement in the planning process, has been an invaluable link between the Midwest Archeological Center and the Voyageurs NP management staff.

Summary of Site Condition, Context, and Significance

The following list summarizes what is currently known about site condition, context, and significance. The totals are drawn from Table 8. Please refer to that table for information on individual sites. The data in these fields will require frequent revision, since information is very weak for certain fields since it is based only on the most recent visit, and some sites have not been checked for over 25 years. In addition, conditions at individual sites can change quickly, with impacts ameliorating or accelerating in sometimes unexpected ways. Each number presented below is a count of all sites where the value has been recorded within each variable. The variables were defined prior to the current configuration of the Archeological Sites Management Information System (ASMIS), but are very similar to or directly match numerous ASMIS data fields.

DOCUMENTATION

- POOR (n = 79)
- FAIR (n = 208)
- GOOD (n = 121)

DISTURBANCE

- NONE (n = 120)

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- BEACH EROSION (n = 176)
- ARTIFACT COLLECTING (n = 19) This count is certainly too low.
- LOOTING (n = 2) This count is also too low.
- UNRELATED STRUCTURE ON SITE (n = 29)
- UNDESIGNATED CAMPING (n = 29)
- CAMPING (n = 20)
- CUT BANK (n = 52)
- INUNDATION (n = 34)

IMPACT

- UNDETERMINED (n = 132)
- LOW (n = 130)
- MODERATE (n = 66)
- SEVERE (n = 80)

INTEGRITY

- UNDETERMINED (n = 124)
- REDEPOSITED (n = 68)
- PARTIALLY INTACT (n = 107)
- PRIMARY (n = 109)

CONDITION

- UNDETERMINED (n = 156)
- POOR (n = 49)
- FAIR (n = 35)

- GOOD (n = 168)

USE

- NONE (n = 302)
- NPS Facility (n = 31)
- PRIVATE (n = 23)
- Undetermined (n = 52)

SIGNIFICANCE (at present 4 archeological sites are listed on the National Register of Historic Places)

- UNDETERMINED (n = 212)
- LOCAL (n = 124)
- STATE (n = 18)
- NATIONAL (n = 0)
- NOT ELIGIBLE (n = 54)

NEED

- NONE (n = 36)
- MONITORING (n = 74)
- STABILIZATION (n = 8)
- EVALUATION (n = 285)
- DATA COLLECTION (n = 5)

Site Age and Cultural Affiliation

Background information on regional chronologies and site cultural affiliation was presented in an earlier chapter. For the Paleoindian and Archaic Traditions, this presentation included considerable information about sites within the park. In the section that follows, little more detail can be offered for those early, preceramic traditions, but considerably more data will be presented for the numerous subsequent Woodland and historic sites.

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The presentation is developed largely from the site computer database developed for this project and from a few previous project or site reports. Several tables are used to assist in synthesizing the various subsets of sites that are discussed and considered.

Paleoindian

As noted in the Culture History section of the report, no Paleoindian site components have been formally recorded though any of the professional archeological inventory, testing, or excavation projects in the park to date. The nearest professionally recovered Paleoindian artifact is a lanceolate point found during an inventory of the shoreline of Rainy Lake just west of the park boundary (Salkin 1993). However, Late Paleoindian materials are present in at least two private collections known to have been obtained from sites on Kabetogama Lake. One of those artifacts, a complete, jasper-taconite Agate Basin (or Brown's Valley?) type point (Figure 2) was confiscated from a collector by park rangers in 2000. It is now curated at the park under Voyageurs NP Accession 255.

It should be pointed out that Paleoindian sites certainly occur within the park, but hey have not been recorded. Since most, if not all, of the unfluted, lanceolate shaped points known in local collections from within the park were recovered from seasonally inundated settings, it might be difficult to relocate and record the sites that yielded those artifacts. Studies along the Rainy River west of the park document the presence of several Late Paleoindian points on higher, raised landforms related to shorelines of the final local stage of Lake Agassiz. It is probable that landforms of similar age would occur in the park, and if they do, at least some would be likely to contain similar Late Paleoindian materials. Given the presence of apparent early Archaic points at 21KC13, it is conceivable that some of the currently recorded sites might contain small numbers of Late Paleoindian materials. Identification and mapping of landform surfaces postdating about 12,000 BP along or within the park's major lake shorelines would be a basic starting point for predicting the potential locations of Late Paleoindian sites within the park.

Archaic

All sites with documented Archaic components are summarized in Table 9. From that table it can be seen that 12 sites appear to have Archaic Tradition components. The actual number of Archaic components is probably somewhat larger, since a few additional sites have yielded large bifaces that are typically thought to be of Archaic age, but are not sufficiently temporally diagnostic to confirm that association. The actual evidence for Archaic use of the park is examined in considerable detail in the Culture History section of the report and will not be repeated here. The only Archaic site component documented in relative detail is at 21KC13. That is primarily the result of the relatively limited scope of existing evaluative test excavation data at Archaic site components, and the paucity of more extensive excavations accomplished at the park to date. There is limited absolute dating for the Archaic components. The single example is a date of 4410 ± 70 BP (TX3617) from a small pit feature at site 21SL35 on Kabetogama Lake (Table 10). When calibrated at two

sigma, a range of 5280 to 4850 cal BP is obtained for that sample. A resharpened and abraded Oxbow point was directly associated with that feature. No other Archaic materials from the park can be dated through absolute means, but can be placed in general chronological perspective through artifact cross dating. Based upon that technique, it would appear that a few diagnostic lithic and copper implements extend back to about 8000–7000 BP at 21KC13 (Richner 1999b) and a few other sites. More common than these early specimens, but still relatively rare, are chipped stone dart points, such as the Oxbow type, that probably date to the circa 5000 BP era (Richner 2002b). Examples of the relatively few Archaic projectile point specimens collected from professional archeological activities at sites at Voyageurs NP are depicted in Figures 3 and 4.

Polished stone gouges also appear to be diagnostic of Archaic Tradition sites. Two have been recovered from sites at Voyageurs NP (Figures 6 and 7). One was found on the surface of a cutbank at 21SL35 while the other was found on the surface of the edge of an exposed bedrock dome at the south edge of 21KC13. Essentially identical artifacts are considered diagnostic of Laurentian Archaic sites well to the east of the Border Lakes Region in a time frame similar to the Oxbow points discussed above.

Several copper artifacts, primarily from site 21KC13, are also known from the park. Other “classic” Archaic copper implements are known from various local private collections, most of which probably derive from within, or very near the park. Based upon data from northeastern Minnesota, there is firm chronological evidence for placing the use of copper tools in the Border Lakes Region back to about 7000 BP (Beukens et al. 1992). An example of a unique and very large copper tool thought to be of Archaic association from the park is depicted in Figure 5.

Based upon the few recorded sites, there are insufficient data to define any specific pattern to the horizontal or vertical distribution of Archaic materials within the park (Figure 8). The presence of diagnostic Archaic materials in local collections, especially from Kabetogama Lake, clearly indicates that Archaic components are present on landforms now within the flood pools of the lower lakes. However, diagnostic Archaic tools have also been recovered from several landforms raised above the modern flood pools of Rainy Lake and the lower lake chain. At 21KC13 on Rainy Lake, diagnostic Archaic items extend well down into the soil profile to the upper surface of an ancient beach deposit (Richner 1999b). Despite extensive vertical mixing of the upper portion of the soil profile, several of the diagnostic Archaic items are vertically separate from any Woodland Tradition and historic materials at that significant site. Vertical separation between Archaic and Woodland materials seems to occur at 21SL35 as well, although there, only a single diagnostic Archaic tool was recovered through limited site test excavations and a second from an eroded cutbank. Like the landform at 21KC13, the 21SL35 landform is a raised, sandy bench. Archaic materials are also known from finer textured soils on rock-dominated benches, such as at site 21SL905 at the Namakan Entrance Campsite.

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Much is yet to be learned about the Archaic use of the park. The current paucity of sites should not be taken as evidence of light occupation and use of Voyageurs NP by people during Archaic times. If research were targeted to discovery and analysis of Archaic materials, I am certain that several more sites with Archaic components could be recorded and the currently known ones more thoroughly studied. Despite the very long time span for the Archaic period in the region, diagnostic Archaic materials are very sparse in comparison with later prehistoric materials. There are several possible reasons, including that many of the sites are inundated, since much of the Archaic coincides with a long regional and local dry period when lake levels may have been much different than the current situation. Another factor may be that population densities were low and the area received low-intensity use resulting in formation of relatively few sites despite the long Archaic time frame. It is also possible that more Archaic site components are present, but like at 21KC13, will remain unrecognized until more extensive excavations are conducted.

Woodland Tradition Sites

The prehistoric sites at the park are dominated by various Woodland Tradition site components. Laurel and Blackduck components are most numerous, followed by Sandy Lake and Selkirk. There is also some evidence for the presence of Duck Bay and Bird Lake pottery vessels, although they have been tentatively identified only at sites 21SL141 and 21SL183 to date. A single, partially reconstructed ceramic vessel from 21SL51 provides the only evidence to date for Oneota materials at the park.

Laurel

Table 11 lists the 90 sites with Laurel components currently recorded at Voyageurs NP. The identification of Laurel site components is made primarily on the basis of the presence of distinctive Laurel ceramic sherds, although corner-notched projectile points that also appear to be diagnostic of Laurel components are also relatively numerous. Laurel site components are widely spaced across the park and occur on all of the major park lakes. In addition, Laurel components occur on a range of landforms, including various inundated and raised bench settings flanking the shorelines. Laurel components occur on low sandy benches as well as on higher, raised rock-dominated shorelines. Relatively few (n = 15) of the sites containing Laurel materials are single component. This is partially explained by the fact that these sites are often in locales that would have been available for occupation throughout the post-10,000 BP era, and in areas very favorable to prehistoric use such as along narrows and on small, projecting peninsulas and islands. It is also likely that additional work at the 15 sites currently thought to be single component would reveal that some of those sites are, in fact, multi-component. Data on site size are poorly developed, but it is apparent that the Laurel sites range considerably in size. When considering only single component sites, or sites with very limited evidence for use in other eras, sites 21SL35 at 4,200 sq m, 21KC13 at 3,000 sq m, and 21SL904 at 900 sq m seem to reflect the larger range of the known Laurel sites. Site 21SL187, located on a small, low bench behind

a bedrock dome shoreline, is only about 36 sq m, and is a small, single component Laurel site. The park's Laurel sites occur in a size range between sites 21SL35 and 21SL187.

The full range of Laurel pottery types recorded in the Rainy River drainage occurs at the Voyageurs NP Laurel sites (Figures 9 and 10). Ceramic data are not currently in a format that allows a true summary or synthesis to be made of these materials, but, some general patterns are apparent. Surprisingly large numbers of Laurel sherds and identifiable—including many potentially reconstructible—vessels occur on the sites. For example, through inventory and small-scale test excavation efforts in 1979 and 1980 at 10 sites, over 1,400 Laurel sherds, representing a minimum of 34 vessels, were recovered (Lynott, Richner, and Thompson 1986). The largest sample was recovered from 21SL35. Additional inventory and limited test excavations in 1986 and 1987 yielded over 8,000 sherds, 1,320 of which are sufficiently diagnostic to assign to a Laurel association. A minimum of 49 Laurel vessels was tentatively defined from that sherd sample (Richner 1992a). At 21KC13, a multi-component site where about 38 sq m were excavated in 1997, 1,320 sherds from a minimum of 58 vessels were identified as Laurel (Richner 1999b). Based upon this information, four seasons of limited test excavations and one 38-sq-m excavation of a multi-component (early Archaic through historic) site yielded over 4,000 Laurel sherds representing a minimum of 141 different vessels. Since Laurel sherds and vessels have been identified in other projects as well, it is quite apparent that the park's Laurel sites hold considerable and important data for investigating the circa 750 year-long Laurel Tradition in the region.

The data from the most intensively excavated site with a Laurel component, 21KC13, can be used to provide a rough estimate of the density of Laurel artifacts at certain sites in the park. If the distribution of Laurel sherds and vessels is consistent across the entire site, based upon ratios from the excavated sample there may be as many as 100,000+ Laurel sherds and 4,500+ vessels on that relatively small (circa 3,000 sq m) site. At first glance these numbers may seem to be too large, but the considerable time span of the Laurel Tradition and the fact that this site and many others accrued from numerous re-occupations must be fully considered. Further, Budak's (1985) experiments have shown that a typical Laurel vessel could be constructed by someone with minimal experience in about one hour, decorated in 20 minutes, and subsequently fired in a few hours along with several other vessels in an open wood-fired kiln. Given the relative fragility of the vessels and their likely rough handling for use in cooking and storage, they probably would have been manufactured, broken, and discarded in large numbers, even during short-term seasonal site occupations. Even if the Laurel sherd and vessel density estimates from 21KC13 are incorrect, the existing excavated sample constitutes an area just over one percent of the entire site and clearly indicates that very large numbers of Laurel sherds and vessels are present.

Limited testing at other sites provides similar evidence for the presence of large and varied Laurel ceramic assemblages at many of the 90 sites known to contain Laurel components at the park. For example, excavation of only seven test units at 21SL35 in 1979

yielded over 600 Laurel sherds from a minimum of 19 vessels, or 86 sherds and 2.7 vessels per sq m (Lynott, Richner, and Thompson 1986). The excavated sample is only 0.16 percent of that circa-4,200-sq-m site, suggesting that over 300,000 Laurel sherds and thousands of vessels could be present there. The data from this sample of Laurel components strongly indicate that the intact and partially intact sites with Laurel components currently recorded at Voyageurs NP contain many thousands of broken Laurel vessels, a fairly large number of which might be reconstructible.

As would be expected from a ware with decoration limited to the upper one-third of the vessel, the majority of Laurel sherds at Voyageurs NP have been identified based upon their smooth outer surfaces and frequent evidence of coil breaks (cf. Budak 1985). Interestingly, at 21KC13, about 32 percent of the Laurel sherds bore various decorations, a number that matches almost perfectly with the rough estimate of two-thirds of each vessel being unembellished. At that site, the Laurel body sherds were found to be considerably thicker than the Terminal Woodland body sherds at a statistically significant level of confidence (Richner 1999b). Laurel body sherds averaged 6.68 mm thick, while terminal Woodland sherds averaged a much thinner 4.75 mm. As expected, the Laurel sherds were also much heavier than their Terminal Woodland counterparts.

As noted above, the full range of Laurel decorative types is present on sites at Voyageurs NP. Thomas and Mather (1996) use seven Laurel types that combine Stoltman's original (1973) definitions and Lugenbeal's modifications of those types. All of those types have been identified at sites at Voyageurs NP. However, it appears that certain decorative elements and types, such as Pseudo-Scallop Shell, may be relatively infrequent compared with other decorative types at Voyageurs NP. At the best-sampled site containing a Laurel component, 21KC13, various dentate designs, particularly in the form of an obliquely oriented row of stamps near the rim, dominate the decorative treatments. Simple, linear dentate design elements constitute 55 percent of all Laurel decorated sherds at that site. Dentate designs occur in combination with bosses or punctates on an additional 44 sherds. Eighty-six percent of all decorated Laurel sherds from 21KC13 bear some form of dentate design. These sherds would generally be placed within the types "Laurel Oblique" (minimum of 1 vessel) and "Laurel Dentate" (minimum of 12 vessels). Laurel Dentate is usually considered to be most common in late Laurel contexts, while Laurel Oblique is generally considered to be an early type. These types are relatively broad and encompass considerable variability, especially compared with types like "Laurel Bossed." "Pseudo-Scallop Shell" is present on only two percent of the decorated Laurel sherds and 1 identified vessel from 21KC13. This decorative technique is usually considered to be most prevalent early in the Laurel sequence.

"Laurel Bossed," "Laurel Punctate," and "Laurel Boss and Punctate" are also present at many sites at Voyageurs NP, but in fewer amounts than the dentate varieties. These types are highly specific and contain limited variability, especially compared with the type "Laurel Dentate." At 21KC13, four "Laurel Punctate" vessels were identified along with a single "Laurel Bossed" vessel. Undecorated Laurel vessels are also well represented at the

park, with two vessels identified at 21KC13. Undecorated vessels are usually considered to be another late Laurel characteristic.

The other most diagnostic group of Laurel artifacts known from Voyageurs NP is projectile points. Numerous relatively large points, typically corner notched, are recorded at these sites. Points of generally similar form are recorded in Middle Woodland contexts across large areas of the Upper Great Lakes region and the Border Lakes Region. Many raw materials are used at Voyageurs NP including various cherts thought to be from the Hudson Bay Lowlands deposits, jasper-taconite, Hudson Bay Lowland chalcedony (often mistaken for Knife River flint), Gunflint silica, and other less common materials. Siltstone, although perhaps more readily available than these other materials, appears to have seldom been used, with better quality materials seemingly selected over it and other more rough-grained materials. No Laurel points have been identified on local white quartz that outcrops at various locales at Voyageurs NP and across the region. The Laurel points appear to be well made, especially when compared with typical late Woodland points from the park. Examples of typical Laurel points are depicted in Figure 11.

It is very difficult at present to determine Laurel subsistence practices at the sites recorded to date. This is primarily due to the multi-component nature of most of the sites where Laurel components have been recorded. At the single component sites, limited fauna has been recovered to date. Much of the fauna recovered from Laurel site components appears to be calcined and is highly fragmented. This may suggest that unburned fauna may not be well preserved at these sites, since it is known that calcined fauna preserves longer in acid soils than unburned faunal remains.

Faunal remains thought to be associated with Laurel site components include beaver, moose, bear, painted turtle, northern pike, white sucker, lake sturgeon, walleye, frog, loon, oldsquaw, muskrat, hare (or rabbit) and red squirrel (Colburn 1987; Falk 1986; Mather 2006). This range clearly shows that a diffuse economy was utilized. While this set of remains offers little clue to seasonality, the presence of painted turtle at 21SL35, turtle at 21SL898, and frog at 21SL84 do suggest warm weather occupations at those sites. The presence of wild rice phytoliths at predominately Laurel site 21SL35 is also of interest and supports considerable antiquity for harvesting and processing of that important food.

Given the range of tools (points, scrapers, retouched pieces) and large numbers of sherds and vessels at most of the Laurel sites, even those of small size, it appears that the sites represent occupation by families or larger groups in both base camps and smaller seasonal or special-use camps over much of the year. The larger sites (e.g., 21SL35, 21KC13, 21SL904) are at locales such as narrows (21KC13), points of land (21SL904), and/or embayments at streams (21SL35) that were utilized over long periods of time. The setting at 21SL35 would have been an excellent spot for ricing as well as fishing and other subsistence activities. The narrows at 21KC13 were at a critical location, not only for fishing, but for access to Black Bay and all the resources it was known to contain (cranberries, mammals of all kinds, migratory water fowl, wild rice, etc.). At present, it is not possible to determine

if these sites were occupied semi-permanently, or were merely occupied on a seasonal or other short-term basis over many centuries. It seems likely that none of the sites were occupied permanently, but that instead, they were part of seasonal round of movement similar to that identified for the historic Ojibwe. It is likely that the larger ones reflect a series of re-occupations over a very long time span.

It is almost certain that the occupants of these sites participated in seasonal coalescence at locations to the west on Rainy River such as the mouths of the Big and Little Fork Rivers where they join Rainy River. There, sturgeon was taken seasonally in very large numbers, but diverse subsistence strategies were also evident in the wide ranges of species represented at the McKinstry (21KC2) and Smith (21KC3) sites. Such coalescence at these locations was also certainly related to ritual activities at the mound groups that occur there.

From the foregoing, it is apparent that the park contains a large sample of Laurel sites (Figure 12), many of which are multi-component and also contain later Woodland materials and occasionally Archaic materials. However, at least a few of the sites appear to be single component, or contain minimal evidence of earlier or later occupations. Sites range from 4,200 sq m to only a few square meters in size. They contain dense accumulations of artifacts, but, unfortunately, often are mixed through bioturbation and pedoturbation in shallow, poorly stratified, or unstratified, soil profiles. The larger sites, such as 21SL35 and 21KC13, appear to result from numerous re-occupations through the Laurel period. The character of many of these sites, with artifacts of seemingly varying age distributed across the entire site areas, might be taken to suggest that such locales were re-occupied dozens, or perhaps even hundreds, of times over many centuries. Conversely, the smaller sites, such as 21SL187 and 21SL175, might reflect single, or at least very short-term, occupations.

Blackduck

The Blackduck site components at Voyageurs NP are comparable in several ways to the Laurel components discussed above. For example, there are 88 sites with Blackduck ceramic sherds (Table 12), while Laurel materials have been identified at 90 sites. Laurel and Blackduck materials co-occur at 48 sites. Like the Laurel sites, Blackduck sites range greatly in size. Site 21SL183 appears to be the largest at 7,750 sq m, covering essentially the entire soil-covered portion of Wigwam Island. In general, it appears that Blackduck sites may be somewhat larger than Laurel sites in the park, but that is a qualitative observation.

Like Laurel site components, Blackduck components are defined entirely on the basis of the presence of diagnostic ceramic sherds and partially reconstructible vessels. The ware is distinctively different from Laurel ware in several ways. The bodies are invariably marked with some form of fabric that has alternately been called cord marked, fabric impressed, textile impressed, or other terms. The earlier literature appears to assume that the vessels were made via coiling and subsequent malleating of the bodies with some form of cord-wrapped paddle or other device (cf. Anfinson 1979:9). This has also been referred

to as the cord-wrapped paddle and anvil technique. However, there is little reason to believe that the vessels were actually made in that manner. As noted above, the bodies of Blackduck vessels are very thin in contrast to Laurel vessel bodies; too thin to stand unsupported when in a malleable, plastic state (cf. Goltz nd).

Experiments in vessel manufacture indicate a different production technique than has been successfully used for reproducing Laurel vessels (Budak 1985; Goltz nd). Laurel vessels appear to have been made "upside down" with the pointed base as the last, specialized coil to be added, then scraped and smoothed while inverted (Budak 1985). Blackduck vessels appear to have been made from stretched or flattened coils made into a slab-like form, then pressed and joined against the interior of a twined fabric mold (Goltz nd). The numerous Laurel and Blackduck body sherds from sites at Voyageurs NP strongly support these experimental findings. Numerous Laurel body sherds exhibit coil breaks, often in forms that suggest relatively minor coil joining, smoothing over, and shaping. Comparable coil breaks have not been observed in the many thousands of Blackduck body sherds from the park. Laurel sherds are usually complete in cross section, while Blackduck sherds often are longitudinally split, especially where joins appear to have been made on the vessels. The smooth, scraped surfaces of Laurel body sherds are consistent, while all of the Blackduck sherds bear some kind of fabric impressions, often in the form of clear warp and weft from various kinds of twining. Where sections of vessel bodies have been reconstructed, the pattern of warp and weft can be traced down the vessel in a manner identical to Goltz's experimental examples, not the kind of irregular, overlapping pattern one would expect from the paddle and anvil technique. The hypothesized use of a cord-wrapped dowel to impart this design (Anfinson 1979:9) seems unlikely, since the thin-walled vessels could not have stood unsupported while this treatment was added.

Vessel differences between Laurel and Blackduck are also apparent in form and decoration as well as the surface treatment and likely manufacturing techniques. Blackduck vessels are globular in shape with rounded bottoms and outflaring rims. The rims are thickened and wedge-shaped in contrast to the straighter Laurel rims that are about the same thickness as their bodies. Blackduck vessels are decorated with a combination of cord/twine treatments and punctates, again contrasting to Laurel vessels where twined fabric (cord) decorations are rare. All of these factors make it easy to distinguish even undecorated Blackduck body sherds from undecorated Laurel specimens. Much more problematic are the definitions of types and decorative changes within Blackduck through time, especially between what some consider to be Late Blackduck, but what others consider to be a different taxon, the Rainy River Composite. That debate is beyond the scope of this report, which adheres more to the older construct of Late Blackduck than to the constructs proposed by Lenius and Olinyk (1990).

The Blackduck ceramic materials (Figures 13 and 14) occur at many multi-component sites, although 21 of the sites appear to be single component. However, as with the 15 apparent single-component Laurel sites, additional study might well reveal that at least some of these Blackduck sites are actually multi-component. Like Laurel site

components, the Blackduck site components are widely distributed across the park and occur on a variety of generally similar landforms (Figure 15). It appears, but is by no means certain, that more Blackduck components may occur in submerged or beach settings than Laurel components. It is certain that Blackduck components have been recorded on several sandbars and similar low elevation settings.

To date, the Blackduck vessels from the park, as identified by decorated rims and a few partially reconstructed vessels, have not been placed in decorative types that can be clearly contrasted with decorative style shifts identified at other local sites, such as the Hannaford site on Rainy River (Rapp et al. 1995). So, the internal seriation of styles, as suggested for the park's Laurel sites above, cannot currently be accomplished for the Blackduck sherds. However, it is apparent that the full range of Blackduck materials, from early to late in the sequence, is present in the sites with Blackduck components at Voyageurs NP. Several "classic" early Blackduck rims and vessels were identified from fieldwork at Voyageurs NP in 1979 and 1980 (Lynott, Richner, and Thompson 1986). It appears that about 65 Blackduck vessels are present from this work as identified from decorated rims. Many of those are readily identified, classic Blackduck vessels. However, some might be alternately identified as Late Blackduck, Selkirk, or Winnipeg River complex of the Rainy River Composite depending upon the researcher and analytical scheme. In addition, over 1,000 body sherds from the 1979 and 1980 work contained some form of fabric or corded treatment. However, since such treatments are present on non-Blackduck wares (e.g., Sandy Lake) not all of those can be attributed to Blackduck vessels. This in contrast to the earlier Laurel materials, since no other Initial Woodland ceramics are present in the region.

Fieldwork in 1986 and 1987 yielded 3,998 sherds with various fabric or twined-cord treatments. As noted above, these cannot be attributed solely to Blackduck wares, although they are all certainly of Late Woodland or very early historic association. About 1,046 of these sherds appear to be associated with Blackduck vessels. Ninety-one Blackduck vessels were identified from the 1986–1987 collections, based primarily on the presence of 230 rim sherds. The 1997 work at 21KC13 yielded 1,449 Terminal Woodland sherds, 141 of which are decorated bodies and 81 are rims. From those, 42 vessels were identified. Of the 42 vessels, 28 are attributed to Blackduck, with the remainder to Selkirk, Sandy Lake, or other unnamed complexes. The body sherds were examined relative to the pattern of twining techniques, and it appears that three or four different twining styles dominate the assemblage. Most of these are closed-twining techniques, although open twining, possibly referred to as net impressed by some researchers, is present on a few examples.

Table 10 reveals that several Blackduck vessels were dated via thermoluminescence (TL) in 1979, 1980, 1986, and 1987. Unfortunately, the accuracy of that process is undetermined. However, the Blackduck vessel dates appear to be within the range that would be expected. Dates of AD 1070 ± 90 (WU-TL-101r) and AD 904 ± 90 (WU-TL-101t) on Blackduck sherds from site 21SL17, AD 830 ± 110 (Alpha 3163) and AD 1200 ± 80 (Alpha 3164) from 21SL82, and AD 1085 ± 100 (WU-TL-90d) from 21SL141 all appear to match expectations for the age of classic Blackduck materials from the region. At one

standard deviation, these dates span about AD 720–1280. Later dates of AD 1620 ± 50 (Alpha 3162) from 21SL23, AD 1450 ± 100 (Alpha 871) and AD 1500 ± 100 (Alpha 870) from site 21SL141 appear to date very late Blackduck (or in another typology, Rainy River Composite) vessels. The single diagnostic vessel in this later group is largely reconstructed. It bears a simple band of chevron cord-wrapped object impressions on its neck and a similar design on the wedge-shaped lip. Its lack of punctates would cause Lenius and Olinyk to define it as a type other than, and postdating, Blackduck. Therefore, the late TL age for this vessel would appear to fit their model quite well.

As for the Laurel site components, it is difficult to determine subsistence for the Blackduck sites, since most of them are multi-component, with Laurel and other occupations present in addition to the identified Blackduck component. However, Laurel materials are sparse at a few sites with Blackduck components where numerous faunal remains were recovered (Colburn 1987; Falk 1986). At site 21SL23, where only very minimal Laurel materials were found, all of the recovered fauna seem to be associated with a very late Blackduck (or Rainy River Composite) occupation. A range of fauna was recovered from very limited testing at that site, including: northern pike, white sucker, carpsucker, yellow perch, walleye, frog, turtle, snowshoe hare, red squirrel, boreal redback vole, marten, and mink. A similar wide range of species (northern pike, walleye, white sucker, snapping turtle, painted turtle, beaver, otter, muskrat, and moose) was recovered from a Blackduck component at 21SL189. A wide range (lake sturgeon, northern pike, burbot, whitefish, walleye, snapping turtle, painted turtle, snowshoe hare, red squirrel, beaver, muskrat, porcupine, and moose) was also recovered from the multi-component site 21SL183. Most of these elements are thought to derive from late Blackduck occupation of that large site. Finally, trout, sucker, carpsucker, burbot, walleye, snapping turtle, painted turtle, grebe, duck, mallard/pintail, teal, hooded merganser, eagle, grouse, snowshoe hare, beaver, muskrat, canid, fisher, mink, lynx, and moose were identified from a midden deposit at multi-component site 21SL141. Like site 21SL183, the fauna are thought to be from the Late Blackduck occupation of that site. Even given the uncertainties of association, the range of faunal elements and species is impressive. It strongly indicates that a wide range of aquatic, avian, and terrestrial species was exploited at all of these Blackduck sites.

At present, there is little to separate the Blackduck sites from their earlier Laurel counterparts other than differences in technology (arrowpoints versus darts) and ceramic styles. The Blackduck sites may have denser artifact accumulations, and they seem to contain a larger and better-preserved range of faunal elements than the Laurel components. Based upon the very limited test excavations completed in 1987, the largest site recorded to date, 21SL183, contains enormous numbers of Blackduck and other Terminal Woodland ceramic sherds and artifacts, along with an important historic (Ojibwe) occupation. The ground surface under the humus of Test Unit 3 was essentially paved with body sherds and rims from what appear to be very late prehistoric vessels. As noted above, some would classify these as Late Blackduck, while others would certainly include them within some other post-Blackduck Rainy River Composite complex. Considering that about 50 Terminal Woodland vessels were defined from individual rim sherds solely from interval shovel

testing and very limited test excavation, it is apparent that this site, as well as a few others, contain tremendous potential for understanding the Blackduck (and post-Blackduck?) occupation of the park area.

Selkirk

As noted above, taxonomy for the Terminal Woodland materials in the region has not reached a consensus, with differing approaches used by different researchers. Minimally decorated or undecorated vessels with globular shapes similar to classic Blackduck vessels have alternately been placed within a Late Blackduck category (Thomas and Mather 1996; Rapp et al. 1995; Lugenbeal 1976, 1978), within Selkirk (MacNeish 1958; Lynott, Richner, and Thompson 1986, Richner 1999b), or within the Winnipeg River, Duck Bay, and Bird Lake complexes of the Rainy River Composite (Lenius and Olinyk 1990). Two of the (former) Selkirk types, Alexander Fabric Impressed and Sturgeon Falls Fabric Impressed, continue to be used, even in the newly revised schemes (e.g., Lenius and Olinyk 1990) that do not recognize a Late Blackduck (post-circa-AD 1100) entity. The nuances of ceramic typology are too complex for consideration in this overview, but it is absolutely certain that, regardless of name, numerous post-AD 1200 sherds and vessels are present at many sites at Voyageurs NP. Whether they are considered to be Late Blackduck, Selkirk, or some other construct is overshadowed by the simple fact that some sites (e.g., 21SL141, 21SL183) contain large numbers of these vessels. A careful re-examination of those materials, and additional study of key sites in the park, might add considerably to our knowledge of these Late, Terminal Woodland wares and their association to their earlier Blackduck counterparts.

For this section of the report, only those vessels that would fit within the types Alexander Fabric Impressed or Sturgeon Falls Fabric Impressed are considered. The Alexander type bears no decoration while the Sturgeon Falls type bears only decorations on its lip (Rajnovich 1983:40). Various late decorated forms, other than classic Blackduck ware, are considered herein to be included in Blackduck, even though I recognize that many of the vessels would not be classified as Blackduck by many researchers (cf. Lenius and Olinyk 1990).

Examples of Selkirk (or Winnipeg River complex) vessels are recorded at several sites at Voyageurs NP (Table 13). For example, at 21KC13, 7 essentially undecorated, fabric-impressed vessels were recorded (Richner 1999b). Six would fit within the type Alexander Fabric Impressed, while the seventh, since it has simple decorations on its lip, would be classified as Sturgeon Falls Fabric Impressed. These types are recognized as defining the Winnipeg River complex, but are also seen as components of the Bird Lake and Duck Bay complexes of the Rainy River Composite by Lenius and Olinyk (1990). They are thought to date from about AD 1350 to the late 1600s.

Rims from similar undecorated vessels have been recorded at a minimum of 9 other sites across Voyageurs NP. A few have previously been illustrated from 21SL50 (Lynott, Richner, and Thompson 1986:Figure 27). While the authors suggest that a single vessel was

recorded at that site, the four sherds shown in Figure 27 appear to derive from at least two different vessels, both of the type Sturgeon Falls Fabric Impressed (Lynott, Richner, and Thompson 1986:120). Sherds from one of these vessels yielded an averaged TL age of AD 1430 ± 60 (WU-TL90a). Sturgeon Bay Fabric Impressed rims are also depicted for 21SL141 (Lynott, Richner, and Thompson 1986:Figure 63a, b). Late prehistoric age dates (Table 10) from that site were derived from fabric-impressed body sherds that cannot be positively associated with this, or any particular, rim sherd or vessel.

Whether classified within Selkirk, Late Blackduck, or Winnipeg River, Bird Lake, or Duck Bay complexes of the Rainy River Composite, these materials are undeniably late in the prehistoric record in the Border Lakes Region. As noted above, a few thermoluminescence (TL) dates have been obtained from Alexander Fabric Impressed and Sturgeon Falls Fabric Impressed rim sherds and body sherds associated with those rims from sites at Voyageurs NP (Table 10). Despite the potentially inexact nature of these early experiments in TL dating, the use of two different labs with different processing techniques, and the typological issues noted above, undecorated (other than treatment of the lip with simple impressions) rims are consistently dated after about AD 1300 (Table 10). In fact, most of the date range midpoints are in the AD 1400–1500 range, but the date spans widen considerably when they are viewed via the customary 2 standard deviation (95 percent confidence interval accuracy). Diagnostic Alexander Fabric Impressed and Sturgeon Falls Fabric Impressed vessels from 21SL50 and 21SL141 date to the span of about AD 1300–1650, while other fabric impressed body sherds from vessels of undermined types at 21SL141, 21SL153, and 21SL183 span about that same range. Although relatively few in number, these dates are quite consistent. So, regardless of name and taxonomic placement, there is a group of essentially plain vessels that postdate the complexly decorated Blackduck ceramic types present on many local sites.

With the exception of the decorated vessel from 21SL23 described above, the remainder of these Late, Terminal Woodland sherds and vessels exhibit fabric-impressed exteriors differing from the clear, vertically oriented twine elements seen on classic Blackduck ware. Similar or identical vessels are found over large areas of northwest Ontario and southern Manitoba as well as the Border Lakes area of Minnesota as far east as Isle Royale. They are also viewed as components of the Duck Bay and Bird Lake complexes of the Rainy River Composite, as well as essentially defining the Winnipeg River complex, formerly referred to as the Selkirk Focus (Lenius and Olinyk 1990). The ware seems to share a late temporal placement in all of these typological constructs.

There is minimal subsistence data that can be assigned with certainty to Selkirk/ Winnipeg River complex materials at Voyageurs NP. Faunal material in direct association with undecorated Terminal Woodland ceramics has only been collected from site 21SL153 on a seasonally submerged mudflat on the eastern shore Namakan Lake. The small sherds from that site may not be classic Selkirk types, but are undecorated, unembellished rims and fabric-impressed body sherds. One of those fabric-impressed body sherds was dated through thermoluminescence to AD 1205 ± 149 (Alpha-867, Table 10; Lynott, Richner, and

Thompson 1986:244). Relatively large amounts of calcined bone in highly fragmentary condition were collected from the site. All of the identifiable (n = 63) elements were from a minimum of two beavers. While this might be taken to indicate a special-use site (Lynott, Richner, and Thompson 1986:244), it might also merely reflect the known differential preservation of beaver elements in calcined fauna assemblages.

Several rims from vessels from different sites at Voyageurs NP that appear to fit within the types Alexander Fabric Impressed and Sturgeon Falls Fabric Impressed are illustrated in Figure 16. They are notable by their almost complete lack of decoration. This is in strong contrast to the earlier Blackduck types with their typically complex “mania” of twine/cord and punctate decorative elements and motifs. However, these plain wares share similar attributes in form and manufacturing techniques and surface treatment with the earlier materials. While it has been reported that classic Blackduck ware typically exhibits vertical cord impressions, and more blobby, fabric impressions are present on later wares, the situation may not be that clear-cut. For example, a reconstructed vessel from 21SL23 was dated through thermoluminescence at AD 1620 ± 50 (Alpha-3162). It bears distinct vertical impressions that are clearly imparted by a twined bag or mold of some form, since individual warp elements can be traced well down the vessel walls to near the base of the pot. The rim is of typical wedge-shaped Blackduck form, while the simple cord-wrapped object V-shaped or pseudo-chevron (cf. Lenius and Olinyk 1990) row of design elements is much simpler that those found on classic Blackduck vessels. Punctates are absent. This vessel would likely be classified as Late Late Blackduck by Stoltman, but would probably be placed within one of the undefined complexes of the Rainy River Composite by Lenius and Olinyk, particularly due to the absence of punctates, which they define as an important Blackduck decorative element that is absent on later wares, which instead bear shallow stamps of various form.

At present, sherds from vessels that would likely be defined as Alexander Fabric Impressed or Sturgeon Falls Fabric Impressed are reported from 10 sites at Voyageurs NP (Figure 17). However, I believe that such late, unembellished vessels are actually much more common and widely spread across the park than suggested by these numbers. In many cases, such undecorated fabric-impressed sherds have only been identified as Terminal Woodland in Table 7, since they could not be associated with a particular diagnostic rim. I would interpret the available data to indicate that post-AD-1300 Terminal Woodland components are actually very numerous at the park, and are far more common than suggested by the identification of only 10 Selkirk site components.

As described in the Culture History section of this report, most authors suggest that Selkirk ceramics, like Sturgeon Bay and Alexander Fabric Impressed, were made by the Cree. I am uncertain how that would equate to the presence of these types in three separate Rainy River Composite complexes as defined by Lenius and Olinyk (1990).

Sandy Lake

Sandy Lake vessels are distinctive and they contrast in a few notable ways from other Terminal Woodland (or historic) Woodland wares and types. Their rims exhibit a restricted range of variation and are easily identified. Conversely, body sherds, except those with shell temper, cannot be readily separated from other post-Laurel Woodland ceramic types. Like the Selkirk/Winnipeg River complex wares, they are late in the Woodland sequence. In fact, evidence suggests this type is very late in the Border Lakes Region, probably dating to the historic period (Arthurs 1986; Callaghan 1982). The few available dates support that temporal placement, although further to the south, Sandy Lake has a more extensive (earlier) temporal range.

Seventeen Sandy Lake components have been identified in the park to date (Table 14, Figure 18). These identifications are based solely upon the presence of Sandy Lake rims and/or identifiable vessels (Figure 19), all apparently of the type Sandy Lake Corded. Only three of those sites (21SL198, 21SL213, and 21SL215) are potentially single component. At the other sites, Sandy Lake vessels occur as minority wares on multi-component sites. To date, Sandy Lake vessels have not been associated with certain diagnostic chipped-stone tools, historic materials, or faunal elements at Voyageurs NP. About 63 Sandy Lake rim sherds, apparently associated with 223 body sherds, were identified from 1986 and 1987 fieldwork at Voyageurs NP. A few additional rims and vessels were identified in collections from 1979 and 1980 (Lynott, Richner, and Thompson 1986:Figure 54g). A minimum of two Sandy Lake vessels represented by three rim sherds were identified from work in 1997 at 21KC13 (Richner 1999b). One rim and 37 associated body sherds are shell tempered. With the exception of a single, partially reconstructed Oneota vessel from 21SL51, these are the only shell-tempered sherds recorded at Voyageurs NP to date.

The scattered distribution and relatively small number of Sandy Lake sherds and vessels recorded to date at Voyageurs NP is fully consistent with the association of this ware with the historic Assiniboine and their transitory presence in the project area via their participation in the fur trade through the middle AD 1700s. However, that distribution might also be consistent with a possible historic Dakota presence in the region. These possible associations are described in more detail in the Culture History chapter of this report.

Duck Bay and Bird Lake

These complexes were recently defined within the Rainy River Composite, and are known primarily from sites west of Voyageurs NP (Lenius and Olinyk 1990). None of the ceramic types from these complexes, other than Alexander and Sturgeon Falls Fabric Impressed, which are the primary types of the Winnipeg River complex and minor types of the Bird Lake and Duck Bay complexes, were specifically identified at sites within the park prior to the current study. However, vessels of some of the Bird Lake and Duck Bay types, although previously unidentified, seem to be present.

VOYAGEURS

Examples of pottery rims matching Lenius and Olinyk's (1990) description of Duck Bay Stamped occur at sites 21SL141 and 21SL183 near the mouth of Moose Bay on Namakan Lake. Two rims are illustrated from each site (Figure 20), although additional, smaller examples are also present at the sites. Not surprisingly, the collections from these two sites contain among the largest and most varied Terminal (Late) Woodland pottery collections presently known from the park. Two of the vessels were previously illustrated, but were not identified as Duck Bay types and were instead considered to be Blackduck pottery vessels (Lynott, Richner, and Thompson 1986:Figure 63c and 63d). While considerable work is needed in defining the scope of local Blackduck ware, the vessels depicted in Figure 20 do not fit neatly within existing Blackduck types. They lack diagnostic Blackduck attributes such as oblique cord impressions and round punctuates. Instead, they are stamped with some kind of tool, both on the exterior and on their lips. The Duck Bay stamped vessels appear to have different paste than the classic Blackduck vessels at the same sites. Paste texture and color are more similar to the Alexander and Sturgeon Falls Fabric Impressed types illustrated in Figure 16. This is a preliminary and subjective observation that requires additional study. The relationship of the Duck Bay Complex to Blackduck and the presence, distribution, and abundance of the type Duck Bay Stamped within Voyageurs NP need to be further evaluated, but would appear to reflect connections between the Voyageurs NP area and west Central Manitoba.

While Duck Bay Stamped rims are relatively distinct from Blackduck rims, rims that appear to fit within the type Bird Lake Cord Wrapped Object Impressed (CWOI) and Stamped are more similar to Blackduck examples. Still, a minimum of four Bird Lake CWOI and Stamped rims are now tentatively identified from site 21SL183 (Figure 20). These rims flare to some extent like typical Blackduck rims, but are steeply beveled into the interior of the vessels. The paste of these rims is comparable to the paste from diagnostic Blackduck rims from site 21SL183 and other local sites. Decoration is similar to Blackduck rims, but lacks the diagnostic punctuates and has added stamps, elements that for Lenius and Olinyk (1990) are sufficient to place the rims in the Bird lake CWOI and Stamped type. Additional study is needed to determine the relationship of this Bird Lake type to local Blackduck types. I suspect some researchers might subsume this type within a broader definition of Blackduck ware than Lenius and Olinyk have proposed. Like the presence of Duck Bay Stamped, local occurrence of Bird Lake CWOI and Stamped also suggests connections to the west, in this case the Winnipeg River area. Given the fact that the waterways at Voyageurs NP are connected to the Winnipeg River via the Rainy River, Lake of the Woods and a series of portages, this kind of possible association with relatively distant locales to the west is not surprising.

Oneota

As described earlier, a single partially reconstructed vessel from 21SL51 provides the only current evidence for Oneota materials at Voyageurs NP. The dark gray to black color of this vessel with its abundant shell temper, strap handle(s), and widely spaced incised decoration make it very unlike any other vessels recorded in the park (Figure 21). Given the

strong difference in paste characteristics to all other local vessels, I assume that this vessel was not locally made.

Undefined Terminal Woodland

Relatively large numbers of body sherds and several rims have been assigned to a general Terminal Woodland category. As described above, there is no practical way to assign undecorated fabric-marked body sherds to a particular type of complex if they are not associated with rim sherds. In other cases, rim sherds are present, but are not sufficiently diagnostic to assign to a particular type or complex. Perhaps many of these are part of undefined complexes of the Rainy River Composite as indicated by Lenius and Olinyk, or perhaps they are merely undefined variations of classic Blackduck, Selkirk, or other types. There are 37 such Terminal Woodland components at the park, most of which are identified on the basis of body sherds alone (Table 15, Figure 22). Artifact samples are small and little is known about most of these sites, which include locations where only a few sherds have been collected from eroded beaches. Additional work at some of these sites would probably allow more accurate identification of Terminal Woodland association.

Lithic Resources and Chipped-Stone Tools

At present, due to the multi-component and/or stratigraphically mixed condition of many Voyageurs NP sites studied to date and the small scale of excavations at probable single-component sites, there is relatively little data available for analyzing potential shifts in lithic raw material use through time at Voyageurs NP. For that reason, raw materials and tools are discussed here in more detail than within the report's preceding prehistoric temporal sections. Information is provided here on the local and regional availability of raw materials potentially used for crafting both polished and chipped-stone artifacts.

Several raw materials are present in the chipped-stone tool and debitage inventories at Voyageurs NP, and it appears that many of those material types were used throughout prehistory. For example, jasper-taconite has been identified as the raw material of temporally diagnostic projectile points associated with Late Paleoindian, Archaic, Middle Woodland, and Late Woodland occupations in the park. However, it does appear that certain raw material types are differentially represented, and possibly favored or purposefully selected over other types, during certain time periods. One possible reason for this differential representation may be that some raw materials were available in larger sizes than others. For example, many of the diagnostic Archaic points are made on a gray, uniform-textured siltstone, typically identified in northern Minnesota as Knife Lake siltstone. All of the larger Archaic points (and bifaces thought to be of Archaic association) are made on this material, which appears to have been available in a larger size range than any other regionally occurring, potentially knapable, raw material type. Certainly, the glacially derived materials are typically of small pebble size, while siltstone occurs in primary context in outcrops. At partially stratified 21KC13, siltstone and rhyolite are present in higher frequencies in the preceramic levels than in Middle and Late Woodland contexts. However, there and

elsewhere, several raw material types, either locally or regionally available, were used to some degree over long time periods.

Bakken (1997) has divided Minnesota into lithic resource areas and documented the primary and secondary raw materials for chipped-stone tools that occur in those areas. The Eastern Resource Area, a zone of bedrock and glacial drift, encompasses Voyageurs NP. The raw materials of that unit include Knife Lake siltstone, quartzite, quartz, Lake Superior agate, jasper-taconite, Gunflint silica, Hudson Bay Lowland chert, and Kakabeka chert. All of these materials have been identified at sites within Voyageurs NP. Only Knife Lake siltstone and quartz are known with certainty to have been available in primary, bedrock context in Minnesota. The other types occur in secondary, glacially derived deposits in Minnesota and Ontario. However, Gunflint silica and jasper-taconite would have been available in primary context in the Gunflint Formation in Ontario just north of the United States border. This formation is exposed east of Lake Saganaga in a long, narrow band extending to Thunder Bay (Julig 1994:Figure 3.3), and may outcrop within the Eastern Resource Area of Minnesota (Bakken 1997). Kakabeka chert occurs in cut gorges of the Kaministikwia River in Ontario (Clark 1995:23). Jasper-taconite, Gunflint silica, and Kakabeka chert are included in the Animikie silicate group by Bakken (1997) and Julig (1994:79). The Proterozoic Gunflint formation is the source for the first two of those raw materials and is underlain by rocks containing banded Kakabeka chert.

Rajnovich (1980b) has reported the presence of a chert quarry site on Rainy Lake, suggesting that other local sources of lithic raw materials are still to be considered and identified beyond those noted by Bakken. Further, Sir Alexander Mackenzie reported the presence of a potentially important source of pipestone on the western portion of Rainy Lake in what is now Ontario (Lamb 1970:105), “There is a deep bay running North-West on the right, that is not included, and is remarkable for furnishing the natives with a kind of soft, red stone, of which they make their pipes ... “ This Rainy Lake red pipestone has not been studied for its mineralogical content to date. That lack of information contrasts with the relatively extensive mineralogical data available for the famous red pipestone from southwestern Minnesota quarries known as Catlinite and for other relatively similar red pipestones from the region (Scott, Thiessen, Richner, and Stadler 2006:45-66). A complete pipe from site 21SL212 seems to be a good match for Catlinite, but its mineralogy has not been studied to confirm that tentative, visual identification.

Another source of pipestone, of the black variety, is known to occur on Rainy Lake in Ontario a short distance north of the International Border, not far east Fort Frances (Christensen, personal communication 1986). Persons who fabricate reproductions of aboriginal tobacco pipes have exploited this outcrop in recent years. The materials from the outcrop are a perfect match for the numerous archeological examples, both of manufacturing scrap and finished pipes, recovered from several sites in the park to date (Figure 23). It is a soft, grainy material that can be shaped by knife or file and which appears gray (or gray-green) until greased or wetted. When polished and wet or greased, it appears black in color. Despite its grainy character, it takes on a high polish when worked, often to the point where

the surface of the objects feels slippery to the touch. From this characteristic is it commonly called "soapstone," although it is more likely an argillite or similar metamorphic material.

Reid (1995) has convincingly demonstrated in an exhaustive study of over 8000 site collections from northwestern Ontario and northeastern Minnesota that stone tobacco pipes made in the region are invariably of historic association. Reid found that stone pipes are surprisingly rare in the region and occurred only on sites with historic components. Essentially all that he examined bore evidence of manufacture with metal tools (Reid 1995:407). The two obvious exceptions are a Middle Woodland Tradition platform pipe made from Ohio pipestone and a second tubular pipe of red pipestone. Neither is of local manufacture (Reid 1995:415). Other than those examples, regional stone tobacco pipes first appear in archeological contexts in association with French-era fur trade goods and continue into the nineteenth century English (Hudson Bay Company), Canadian (North West Company), and other fur trade/historic Indian contexts. Stone pipes were still being used by some Bois Forte Chippewa individuals well into the twentieth century (Richner 2002). The largest collections are from the Lake of the Woods and the Fort Frances areas where extensive French and English fur trade activities occurred. Reid observed that the form of the pipes shifted through time with the classic "calumet" or "T-shaped" type primarily associated with the later portion of the fur trade rather than with the French era. Relatively common types dating prior to about 1821 include the "Micmac" shape and forms based upon European-made white clay pipe shapes.

The distribution and association of pipestone artifacts at Voyageurs National Park is fully consistent with Reid's findings. Black/gray pipestone fragments bearing cuts and striations from files and other metal tools are recorded from the following sites: 21KC13 (Richner 1999), 21SL47 (Gibbon 1977), 21SL74(?), 21SL82, 21SL156, 21SL173 (Birk and Richner 2004), 21SL183, 21SL191 (Birk and Richner 2004), and 21SL893. It is apparent that pipes or other objects were being manufactured from locally or regionally obtained pipestone at these sites. A small barrel-shaped pipestone object with a shallow, narrow groove engraved around its circumference and another around its length was recovered from site 21SL78. An object of similar length, but of flattened form, with notches at either end was recovered from site 21KC13 in 1997 along with a carved fragment from another unidentified object. The function of these objects is undetermined. Black/gray pipestone tobacco pipes or pipe fragments are recorded at sites 21SL10 (Gibbon 1978), 21SL134 (Gibbon 1978), 21SL141 (Lynott, Richner, and Thompson 1986), 21SL171 (Richner 1992), 21SL172 (Richner 1992), 21SL183 (Richner 1992), 21SL191 (Birk and Richner 2004), and 21SL893. Several examples are illustrated in Figure 23. Most of the types in this sample (Micmac, elbow, etc.) are also illustrated by Reid (1995) from the Ballynacree site on Lake of the Woods or other Ontario locations.

Red pipestone pipes and pipe fragments are recorded from sites 21KC14, 21SL47a (Birk and Richner 2004:35, 37), and 21SL212 (Richner 1992) and are illustrated in Figure 23. The first two examples are of a soft, light red/pink pipestone that may match the red pipestone Reid (1995:411) identifies as deriving from a quarry site on Red Stone Bay on

Rainy Lake. This is apparently the location mentioned by McKenzie around AD 1800. The example from 21SL212 is made from a harder, less friable, darker red stone that has the visual appearance of Catlinite. However its true source has not been determined through chemical or other analyses to date and visual inspection is inadequate for making an accurate source identification of red pipestone. A red pipestone bead, carved in the form of a fish tail in the darker red variety that is visually consistent with the characteristics of Catlinite, was collected from a beach at site 21KC22 in isolated context (Gibbon 1977). A simple bead of the same material was collected from site 21SL131 (Gibbon 1978).

Even though several of the worked pipestone fragments and finished objects are from multi-component sites, it is thought that all are associated with historic site components. Many have been recovered in direct association with glass beads, gun flints, and/or various metal fur trade-era artifacts. Most of these historic site components are believed to be of Bois Forte Ojibwe association.

Birk (Birk and Richner 2004) has recently documented other pipestone objects from the Rainy Lake area in private collections that include brooch and shot molds, an engraved red pipestone palette, and other forms that are all of post-contact age. Additional stone tobacco pipes and other objects are known from other local private artifact collections and at least some of those items are from sites within the park. Based upon Reid's research and the results of archeological investigation within and near Voyageurs NP to date, it appears that the manufacture and use of tobacco pipes in the area was a post-contact introduction by the French. Therefore, the occurrence of these materials on local sites can be used as a horizon marker for the direct or indirect historic contact era beginning no later than about AD 1730 and perhaps as much as a century earlier.

The Western Resource Area includes the primary types Swan River chert, Red River chert, and quartz. While neither of these cherts has been identified at Voyageurs NP, they may well be present in the site assemblages but may have not been correctly identified. Rhyolite, Knife River chalcedony, and other types are secondary materials in this resource region. Rhyolite, an olive green to gray color, is always translucent. Rhyolite is present in Voyageurs NP lithic assemblages, and materials similar to Knife River flint (KRF) are also present. Some researchers have reported the presence of KRF in the Rainy River area (e.g., Rapp et al. 1995:162). However, it is very likely that some, and possibly most, of the "honey colored" to brown, fine-grained, translucent material occurring in local sites that is visually similar to KRF is actually derived from northern Ontario, north of Lake Superior (Clark 1995:22; Julig et al. 1988). This material is more closely related to Hudson Bay Lowland chert than to KRF. Other regional raw material types, such as "West Patricia Chert" identified in northwest Ontario, and Lake of the Woods chert (actually a green to gray siltstone) are probably also present in local assemblages.

The relative occurrences of these raw materials in the Rainy River and Rainy Lake area are considered in several recent reports (Rapp et al. 1995; Richner 1992a, 1999; Thomas and Mather 1996). At 21KC13 within Voyageurs NP, a sample of 2,438 pieces of

chipped-stone debitage included 26% local white quartz, 23% Gunflint silica, 14% jasper-taconite, 22% Hudson Bay Lowland chert, 6% siltstone, and 8% other minority types (Richner 1999b). Examination of a larger sample of debitage (n = 8,771) from various sites at Voyageurs NP in 1986 and 1987 produced somewhat different results (Richner 1992a). Totals of 45% and 40% of the debitage from those years was Hudson Bay Lowland chert, Gunflint silica 7% and 14%, jasper-taconite 7.5% and 11%, and siltstone 5% and 5.5% (Richner 1992a).

At McKinstry, quartz comprised 13% of the assemblage, Hudson Bay Lowland chert 40%, Gunflint silica 16%, jasper-taconite 6%, and siltstone 3% (Thomas and Mather 1996). At Hannaford, quartz comprised 31.5%, Hudson Bay Lowland chert 24%, Gunflint silica only 0.6%, jasper-taconite only 0.4%, and siltstone 3.1%.

Despite the varying percentage representations, similar or identical kinds of material occur not only at the large sample of sites at Voyageurs NP, but also at other local sites such as McKinstry and Hannaford.

In addition to the more commonly occurring local and regional raw materials, obsidian is present in very small quantities at Voyageurs NP. Single pieces of debitage have been recovered form exposed beach surfaces at 21SL196 and 21SL214 and form a test excavation unit at 21SL74. None can be placed in firm temporal context, although site 21SL74 includes Laurel, Blackduck, and Sandy Lake components and site 21SL196 includes a Terminal Woodland component. To date, obsidian is known from 56 additional sites in Minnesota, with few concentrations recorded (Anfinson: Personal Communication 2004). Obsidian has been recorded at four other sites in St. Louis County and at one in nearby Cook County.

Most of the debitage from sites at Voyageurs NP is small in size, with advanced stages of reduction represented on a large percentage of the assemblage. At site 21KC13, 34% of the flakes have lipped, faceted, or faceted and lipped striking platforms, all of which are correlated with later stages of reduction, especially final stages of biface sharpening. Cortex is completely absent on 67% of the 946 flakes, further indicating the importance of advanced, rather than initial, stages of lithic reduction at the site. Similar results were obtained from samples of flakes from sites examined in 1986 and 1987 (Richner 1992a). Considering only those sites with sample sizes of flakes greater than 30, nine sites examined at Voyageurs NP in 1986 contained 1,618 flakes averaging 1.31 mm long, 1.40 mm wide, and 0.219 mm thick (Richner 1992a:Table 18). The small average size of flakes is apparent, and this would appear to be consistent with occurrence of the materials at occupation sites a considerable distance from the raw material source locations and/or use of small glacially derived pebbles of raw material.

Chipped-stone tools at Voyageurs NP sites include projectile points, bifaces, scrapers, and retouched pieces. Cores are also quite numerous. Examples of projectile points from various prehistoric traditions are illustrated in several figures. Paleoindian

and Archaic points have been described in detail in earlier sections of the report. Typical Laurel points are corner-notched darts, often very well made on fine-grained raw materials. Late Woodland points include triangular arrowpoints of forms common over all of eastern North America in addition to various, very small, notched arrowpoints. While most of the triangular points are very well made, some of the other late prehistoric (or early historic?) points are very crudely executed (Figure 24).

Small end scrapers are very numerous on all of the park's Woodland sites, and are the most commonly occurring formal chipped-stone tool type at the park. At 21KC13, 70 scrapers were recovered in about 38 sq m of excavated site area. These scrapers often show considerable evidence of use, with edges rounded and abraded through use. Many are very small and appear to have been resharpened repeatedly until they were finally exhausted. Edge wear on many specimens is consistent with working dry hides (Richner 1999b). Examples of end scrapers are depicted in Figure 25.

An interesting formal tool that seems to have been largely overlooked in many regional reports is the retouched piece. Retouched pieces differ from scrapers in that the retouch is typically not as steep and the objects are not as thick and sturdy as scrapers. Many of these tools are extremely fine, with tiny, highly regular areas of retouch on various portions of the pieces. Some are retouched along multiple edges, while others are retouched only along one long edge in a form that might be called "backed pieces" or "backed blades" in Old World archeological assemblages. Raw materials for many of the retouched pieces are often of the finest texture, and under magnification, it is apparent that many of these tools are remarkably well crafted. Many of the smallest, thinnest ones must have been put to rather delicate uses.

Cores with carefully and formally prepared platforms are rare at Voyageurs NP. Numerous amorphous cores are present. More common are bipolar cores. Most of these are formed on small, glacially derived pebbles. There is an extensive literature on bipolar cores that will not be recounted here (Binford and Quimby 1963; Boksenbaum 1980; Dickson 1977; Flenniken 1980, 1981; Hayden 1980; Jeske and Lurie 1993; Leaf 1979; McDonald 1968; Morlan 1973; Patterson 1979; Richner 1987b, 1989, 1999; Salzer and Overstreet 1976; Shott 1989; Sollberger and Patterson 1976).

Historic Native American

Other than a hypothesized connection between Sandy Lake and historic Assiniboine at several sites, only one additional site at the park has yielded aboriginally made ceramic sherds that may be of historic association. Plain, undecorated sherds that do not appear to be consistent with the type Laurel Plain were recovered from 21SL137 on Namakan Lake, apparently in association with late-eighteenth-century trade goods (Lynott, Richner, and Thompson 1986). However, the site also has a Laurel component, and it is conceivable that the sherds could be of Laurel association. Despite that identification uncertainty, it is worth noting that crudely executed, essentially undecorated ware has been recorded at

Apostle Islands National Lakeshore at site 47AS47 (Richner 1989) in direct association with late-seventeenth- or early-eighteenth-century trade goods (Richner 1989). Further, those sherds appeared to be locally made. That discovery provides evidence for historic Algonkian (Ojibwe?) pottery manufacture in the region and adds some support for the reported historic association of the Voyageurs NP sherds from 21SL137. More work would be needed at site 21SL137 to further address this issue.

To date, 50 site components, in addition to the Sandy Lake site components, have been associated with historic Native American occupation at the park (Table 16, Figure 29). These were defined through a combination of presence of certain artifact classes and a varied and extensive array of historic maps and documents (Richner 2002a). Numerous artifacts and features diagnostic of Native American occupation are present at many sites. These include: (1) glass beads in many forms; (2) native-made tools and objects from cut or modified brass kettles and other historic items, such as a brass arrowpoint, numerous locally made tinkling cones, a silver ear ornament, a purposefully flattened ramrod guide or "rampipe," a brass "pipestone saw," and other modified kettle fragments; (3) European or Euroamerican-manufactured tools generally used by Native Americans such as crooked knives, muskrat spears, and awls; (4) other trade goods, such as a silver ear ornaments generally associated with Native American use; (5) native-made black and red pipestone Micmac style tobacco pipes; and (6) distinct structural features (e.g., log cabin berms with under-floor storage pits, and numerous rock features that are thought to mark historic Ojibwe graves).

To these are added a wide range of historical details about specific areas and sites including information from census records (various years for the Bois Forte Ojibwe and the 1900 and 1910 United States census), homestead records, oral histories, newspaper accounts, published accounts, historic photos, land ownership records, tribal allotment and annuity records, published and unpublished maps, place names (such as Blind Indian Narrows, Sky Island, Woodenfrog Island, etc.), and other data sources. These data are recently synthesized elsewhere in considerable detail for about 40 of the 50 sites (Richner 2002a) and need not be repeated here.

The historic data, corroborated by archeological evidence at all the sites assigned to Native American affiliation, demonstrate extensive occupation of the park by a minimum of 3 to 4 bands of the Bois Forte Chippewa probably dating from as early as the 1730s era into the mid-twentieth century. Many of the 50 sites attributed to Native American use can be confidently associated with this Bois Forte occupation via these historic records, and still others based upon their time frame and attributes such as evidence for circa-1900-era log homes. I assume all 50 are, in fact, Ojibwe sites. Most are likely of Bois Forte association, although as noted in the Culture History section of this report, other Ojibwe groups were also present in the area at different times, such as when large numbers of Ojibwe gathered for Midewiwin-related activities in the early-middle 1800s at Fort Frances. Lacking specific documentation, it would be difficult or impossible to differentiate between these groups via the archeological record.

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This is a highly important database, perhaps unique in any national park, and certainly unique in the Midwest Region. Unlike the other prehistoric and historic Native American sites, many of the sites in this group can be associated with known bands, families, or even individuals of the Bois Forte band of Ojibwe. Several of the sites appear to contain not only residential features and domestic artifact scatters, but also burials and other features. While tenuous associations to modern groups can be made for some of the other prehistoric and historic Native American sites, many of those in this site subset have obvious and direct ties to living people. In at least one instance, there are living Bois Forte elders (John and Jennie Woodenfrog) who occupied one of these sites (21SL21). Similar family connections are present for several others including 21SL52 and 31-6 (Whiteman), 21SL156 (Sky/Adams), F48 and 2000-4 (Gawboy), 21SL182 (Bego), and 21SL36 (Ne zho dain) (Richner 2002a).

Native American Rock Art Sites

Although numerous Native American pictographs have been recorded on Rainy Lake (Rajnovich 1980b:21–26), Lake of the Woods (Rajnovich 1994), Lac La Croix (Greene 1941), and in many other locations in northwest Ontario (Lambert 1983, 1985; Rajnovich 1994), few are known in, or very near the park. In fact, only one site within the park, 31-5, has been recorded at even a minimal level of detail (Gibbon 1977). Even there, information was apparently not deemed sufficient to complete an official site form. Two amorphous red pigment smears are present on a large boulder erratic at that location. It is also likely that the site contains burials or other evidence of Native American occupation, likely associated with the Ojibwe.

The best-known local rock art site is located in Namakan Narrows, just outside the park in Ontario (Bolz 1960). It is on a vertical, exposed bedrock face near the south end of the narrows. The panel formerly consisted of several images, all but one of which have been removed by Bolz when the slab containing them appeared destined to fall into the lake and be lost (Bolz 1960:155). Bolz (1960:155) comments on the content of the panel, which was positioned near a serpentine exposure of feldspar:

> Near the manitou are reddish-brown pictographs of moose, men in canoes, a large headless animal, a small cat-like animal, a pipe, a manitou, suns, and footprints. Oddly enough two of these figures, a moose and a mark resembling the Venus's mirror symbol, are in white pigment.

A single red pigment moose remains *in situ* at the site, which is easily relocated due to the unique white "serpentine" rock exposure that occurs just above the current lake level. This location is also mentioned in the accounts of early travelers and scientists since the presence of the serpentine-shaped outcrop in the rock face held considerable importance to the local Native Americans who made offerings of vermilion there (Norwood 1852:318):

> At a point, called by the Indians Wa-bi-se-gon, near the entrance to Namakan or Sturgeon Lake, is an exposure of mica slate, with feldspar veins, as shown by the subjoined cut, which, from the resemblance of one of the veins to a serpent, is regarded by the Indians as a manitou or god, and must be highly esteemed by them, from the quantity of vermilion bestowed on it, and the number of animals depicted on the face of it.

Wa-bi-se-gon may translate as "painted white" or something similar. A narrows, now named King Williams Narrows, connecting Sand Point and Crane Lakes was called Wa-ba-bi-kon (Norwood 1852:317) by the Indians, a term that translates as "white clay" (Baraga 1992:390; Bolz 1960:153). Similar white clay found on the Rainy River was known to have been mixed with sturgeon oil and used for a pigment by the local Ojibwe in the 1820s era (Bolz, 1960:155; McElroy and Riggs 1943).

Another pictograph (site 21SL1005) was recently recorded within Voyageurs NP. It consists of two distinct panels on a bare vertical rock on the west side of Surveyor's Island. The first panel has two rounded, amorphous smears of red pigment about 40-70 cm above the water line. A distinct, linear band of quartz bisects the two forms. A cleft or crack in the rock occurs below the two images. According to former Rainy Lake commercial fisherman Lauren Erickson (personal communication 1992), the two smears were identifiable well into the twentieth century as two hands prior to being obscured by wave action and related erosion. While some have equated handprint pictographs as symbols of death, others have suggested additional meanings, many of which relate to praying or supplication to deities (Rajnovich 1994:83). The second panel occurs higher on the rock face, more than two meters above the water well to the north of the two hands. This second panel, which was not mentioned by Erickson, also appears to consists of two separate elements, one of which is largely obscured by lichen growth. The more visible element consists of a round form above a linear form, but has not been identified or interpreted beyond that very general description. All of the elements at this site are executed in a deep red, vermilion-like color. Both panels are also in clear associated with unusual splits or openings into the smooth, vertical rock face. That very specific setting, along with unique occurrences of quartz or other outcrops in lines or bands, occur at many of the regional rock art sites.

It is probable that other pictographs were once present at Voyageurs NP, or are still present in degraded form like the example from Surveyor's Island. Dudzik (1997) has recently summarized the range of Minnesota rock art sites and it should be noted that rock art in Minnesota is listed on the National Register of Historic Places as a theme.

Mining Sites

There are considerable historical data for gold mining activities at Voyageurs NP, especially those occurring on the western end of Rainy Lake from about 1893 to 1898. Several of those sites have been archeologically investigated at varying levels of intensity. Mapping has ranged from development of sketch maps (Fox 1985) to detailed drawing

of multiple site features (Richner 1997). The sites range from mine pits, such as 1985-6, The Lyle Mine, to the abandoned town site of Rainy Lake City at Black Bay Narrows. Pedestrian archeological inventories and associated mapping of roads and features have occurred across a small portion of the core of Rainy Lake City, resulting in the identification of 17 distinct structural features and the discovery of a surface mine and the routes of portions of three roadways (Richner 1997). Much of the work at Rainy Lake City has been directed toward proposed use of a portion of the old town site as a visitor destination where an interpretive trail would be developed. Most of the other sites were identified through reconnaissance-level inventories of the Rainy Lake shoreline in 1985.

Another unique site directly related to the gold mining boom of the late nineteenth century is 21SL908, formerly recorded by Gibbon as map location 20-2. This site served as a stopping place for travelers heading for the gold fields from Tower, Minnesota. In 2002, the earthen berm from one of the structures, probably the actual boarding house, was discovered and mapped. Earthen berms and depressions related to other structural features, probable stone survey markers and rows and piles of boulders and rocks of undetermined function, an artifact scatter, and a section of roadway are also present but could not be mapped and fully recorded. Complete recording of the site was precluded due to time constraints, unusually wet conditions, and dense vegetation with numerous large tree falls.

There is no doubt that many sites related to gold mining are yet to be recorded archeologically at the park. In addition, more complete documentation is needed for several of the sites that have already been recorded.

Logging Sites

To date, 14 logging sites have been recorded archeologically at the park (Table 18, Figure 30). With the exception of limited shovel testing at a small area of Virginia & Rainy Lake Company Camp 75 at the former Hoist Bay Resort (Lynott, Richner, and Thompson 1986), work at these sites has been limited to mapping of surface features and determining site condition. Camp 75 is perhaps unique, not only in its role as the rail “hoist camp,” but also since the location was later redeveloped as a resort. Essentially all of the camps recorded to date are from the best-documented logging episode in the park from 1913 to 1929 by the Virginia & Rainy Lake Company. While there is documentary evidence that logging began in the park in the 1880s era via unauthorized activities by Canadian concerns, there is little archeological evidence for that logging phase. Gibbon (1977) plotted map reference 31-4 in Moose Bay of Namakan Lake, thought to be the approximate location of an 1884 Canadian camp. The actual site was not discovered or mapped. However, a reconnaissance inventory of this general area in 2000 revealed the presence of large amounts of metal logging gear, including chains and numerous other items, near an existing Reservation of Use and Occupancy structure on Tract 31-131. The original location for these items is not known, and they appear to have been gathered and piled in their current location.

DISCUSSION

The V&RL camps that have been recorded to date (e.g., 21SL159, 21SL160) are usually readily visible, with numerous sets of rectangular earthen berms marking the locations of the former camp structures (Lynott, Richner, and Thompson 1986). Historic records for the V&RL camps are quite detailed and include dates of use, legal description of location, data on species and board feet cut, in addition to information about camp wages and several other data categories. In addition, several articles and reports have been written describing the V&RL Company's activities, both within the park and in the broader area (Eichholz 1954; Fritz 1986; Peralla 1967; Wyatt 1999). First-hand accounts and hand-drawn maps are also available for a few of the camps through the recollections and correspondence of the late Oswald Johnson (Voyageurs NP Cultural Resource Files).

Twenty-eight V&RL camps are reported to have been located within the area now encompassed by the park (Wyatt 1999:Figure 17). While a few of these are probably in areas of difficult access during summer lake conditions, many of these camps should be relatively easy to relocate and map, given the existing locational data. With the exception of Camp 75, which served as the location where logs were boomed over Namakan Lake and "hoisted" onto rail cars for the company's narrow-gauge rail that carried logs to the huge V&RL mill in Virginia, Minnesota, the remaining camps were winter "sleigh haul" harvesting camps. Loggers working at the camps located within what is now the park cut more than 200,000,000 board feet of timber.

Typically, the V&RL camps recorded archeologically are at least partially located within clearings, although forest succession and encroachment is apparent at some sites. The most visible and easily accessed camps often show evidence of having been picked over by artifact collectors, although we have seen no evidence of large-scale digging or looting activities at the camps. At these more accessible sites, the surface is essentially lacking in obvious artifacts left by the loggers. At others (e.g., Camp 137 on Rainy Lake), large tin can dumps and other surface materials are still visible and relatively extensive. There is no aboveground wooden fabric from structures preserved at these sites, with the possible exception of a few root house ruins, since the camps were purposefully burned or otherwise destroyed after use by the loggers to discourage unauthorized use by various squatters and shackers. It appears that, with the exception of removal of obvious surface artifacts, many of these sites remain in essentially pristine condition and that they have considerable potential for combined archeological and historical study.

There is minimal archeological data for other logging activities in the park, even though other companies, such as the International Logging and Mondo companies, are known to have operated within the park, especially on the Kabetogama Peninsula. These later camps date from the 1930s through about 1964. While some of the locations of these camps are known, the camps have not been the focus for archeological inventory efforts to date. Wyatt (1999) identifies the differences in layout and technology at these later camps compared to the earlier, more primitive V&RL camps.

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One probable logging camp subject to a reconnaissance-level archeological inventory that cannot be positively associated with historically documented logging activities is located at Kohler Bay (site 1994-1). That site, visited only for a brief time, has never been adequately mapped or fully recorded, although not-to-scale sketch maps and notes were compiled for a few of the more obvious structural remains. It differs from the V&RL camps in that several of the buildings appear to have had rather extensive stone foundations, or that they were built into a sloping, rocky hillside. The structures at V&RL camps are now marked only by earthen berms resulting from soil piled around the wooden buildings for insulation purposes. None have foundations, *per se*, like some of the structures at site 1994-1.

All of the logging eras at Voyageurs NP have considerable potential for combined archeological and historical research. The early, unauthorized Canadian efforts of the late nineteenth century are very intriguing, and should fit within the kinds of camps from the early Great Lakes logging pattern. That is, they may be roughly similar to the classic Michigan white and red pine camps, with bermed log buildings, short sleigh hauls, and relatively small size. The later V&RL camps are certainly larger than the earlier camps, are formally organized with numerous specialized buildings, and utilized milled lumber, rather than logs, for structures. However, they shared many characteristics of the earlier camps, despite their more modern age. All of the camps, including those of other companies dating into the 1930s, would have relied on sleigh hauls to the lakes, followed by booming of logs across the lakes, either directly to mills (such as the early Canadian and later International Paper examples), or to locations such as Hoist Bay where the logs were subsequently transported by narrow-gauge rail to a huge mill at Virginia. The individual camps were quite self sufficient; some even had camp hunters to procure wild game to supplement the canned and baked goods that were the staple food sources. Data preserved at the camps can be expected to include not only work-related items, but also many artifacts pertinent to studies of health, lifeways, and even ethnicity (cf. Richner 1986b).

6. SUMMARY AND RECOMMENDATIONS

Summary of Archeological Site Characteristics and Age

The 408 sites currently recorded at Voyageurs NP represent a sample of the sites that are actually present. Without question, many more sites remain to be recorded. The current pattern of site distribution, focused on the shoreline of major lakes, is unlikely to change dramatically, even with additional inventory efforts. All of the primary lake shorelines have received reconnaissance-level inventory, and large portions of Kabetogama, Namakan, and Sand Point Lakes have been intensively inventoried. Inventory on the small NPS-owned portion of Crane Lake has been less intensive, and much of the huge Rainy Lake shoreline still requires intensive inventory efforts. However, sampling is extensive and thorough, especially since certain programs, such as the campsite management program, have caused inventories to occur very widely across the park. To date, shovel tests have been excavated at 288 of the 408 sites, while at least one test excavation unit has been excavated at 72 sites. The tested sites are typically the best documented of the Voyageurs NP site database. However, more evaluation, either through testing or other methods, is still needed at about 285 sites. Documentation for many sites (n = 79) is rather poor, and is adequate, at best, at an additional 208. Table 7 shows that many sites have not been visited by archeologists for several decades. Plans for revisiting and improving information for samples of sites should be a goal of any future archeological work at the park.

Sites continue to be adversely impacted by a variety of sources, the most obvious of which is erosion from wave action. Despite various adverse impacts, 216 sites still contain at least some primary context deposits, while the condition of 124 others remains largely unknown. Sites also contain faunal remains, features, and well-preserved artifacts in several classes despite the forces of erosion, visitor use, unauthorized collecting, bioturbation, pedoturbation, and other impacts.

The sites within the park are typically small in size, but many medium and a few large sites also occur. Many of the sites contain huge numbers of ceramic sherds and numerous lithic tools in surprisingly dense accumulations. Many of the sites are multi-component. This factor complicates excavation and site interpretation to a considerable degree, especially when combined with the shallow character of the typical site deposits. For example, at 21KC13, perhaps 8,000 years of site re-occupations are contained in about 60 cm of sandy soil, 30–40 cm of which has been mixed and blended through various impacts over time.

Although no Paleoindian sites are formally recorded, research for this report clearly indicates that such sites are present in the park. Similar research suggests that Archaic sites, while not as numerous as later sites, are also more common than originally thought. Woodland sites are present in very large numbers, reflecting continuous and relatively intense use of the park since about 2150 BP, if not earlier. Prehistoric components that cannot be placed in specific temporal or cultural context occur at 81 sites. About 266 Woodland

components are present, often in combination, at many sites. Sites that appear to result from Historic Native American occupation are very numerous (n = 50). If the Sandy Lake site components are also historic, the number of historic Native American sites increases to 67. Of the first 50, most are of Ojibwe association, and the great majority of those can be definitively associated with certain Bois Forte band communities and individuals. More Bois Forte Ojibwe sites await discovery and recording at the park. If ceramic/cultural associations are accurate, sites of the protohistoric or historic Cree (Winnipeg River complex/Selkirk), and historic Assiniboine are also present in considerable numbers. Even though data for Paleoindian and Archaic Tradition sites are somewhat sparse, it seems that Voyageurs NP was utilized by various Native American groups for most of the past 12,000 years, with occupation becoming more intense after about 2150 BP.

Although Euroamerican sites cover a very short time span compared with prehistory, 137 such site components have been recorded to date. These include logging camps, mining sites, commercial fishing sites, homesteads, a variety of historic sites at Kettle Falls, and several other site types. Many more historic sites remain to be discovered and studied.

One primary ongoing problem for understanding the sites, not only within Voyageurs NP, but across the Border Lakes area and surrounding region, is poor chronological control. In many cases, chronologies are merely assumed and are not based on adequate absolute dating of diagnostic artifacts and features. With few exceptions, dates are primarily derived from wood charcoal from general artifact-bearing zones or amorphous site features such as “living floors.” In too many cases, the origins and precise associations of such charcoal samples are unknown or cannot be adequately determined. Most of the sites are shallow and exhibit multiple re-occupations. In certain favored locales, such as at lake narrows such as at Black Bay Narrows at 21KC13, sites were reoccupied dozens, perhaps hundreds, of times. The resulting shallow site deposits are blended not only through the activities that occurred during these multiple re-occupations, but also through a variety of inter- or post-occupation factors. Freeze–thaw cycles, bioturbation, pedoturbation, and cyclical forest fires are among the most important of these factors. Because of these impacts, the assumption of contemporaneity of materials just because they occur at the same horizontal plane within a site is a poor approach, even where site condition is relatively good. Further, the cultural versus natural origin of charcoal in general soil zones is often difficult to determine.

There is a pressing need, therefore, to date deposits more carefully, where possible by processing radiocarbon samples derived from annual plant remains such as charred seeds and nut hulls. Even more importantly, such dating must be rigorously tied to materials in unmixed, distinct pits, hearths, or other features, or from thin single-component or well-stratified site deposits. Dating of charred crusts on diagnostic pottery rims should be a major emphasis. As part of this process, more attention should be paid to small, unmixed, single-component sites, since they are more likely to yield samples for radiocarbon dating that can be more confidently associated with diagnostic chipped-stone tools and pottery vessels. Only through these and similar efforts will it be possible to resolve existing debates

such as the relationships among various proposed taxonomic units and the numerous Woodland pottery types defined for the region.

Recommendations

The following recommendations are developed from the analysis of the site data and regional archeological synthesis presented in this report. They primarily reflect the views of the author, but also were developed through interaction with cultural resource management staff at the park and members of the Bois Forte Chippewa. While some of the recommendations are primarily management oriented, many include research elements that are required to provide data for future management decisions.

Site Inventory

While relatively extensive and intensive inventories have been conducted to date, additional inventories are needed to discover and record a wide range of sites that are believed to occur in the park. Inventory efforts should include general inventories of certain topographic settings as well as specific inventories targeted for discovery of certain ages or classes of sites:

1. General Inventories

- Additional shoreline inventories of a 50–100-m strip along all major lakeshores should be continued until all such shorelines are intensively examined. These inventories should begin with reconnaissance transect procedures paralleling the shoreline, then should include intensive shovel-test inventory of all relatively flat landforms that contain any soil areas that are identified via the reconnaissance efforts. Islands, projecting points or peninsulas, and narrows areas should be the highest priority areas for inventory.

- Inventories of seasonally inundated landforms should be a high priority for future work. Such inventories must be conducted early in the spring, immediately after “ice out.” Most of the work can be at a reconnaissance level, with limited shovel testing and/or small test units excavated where necessary.

2. Specific Inventories

Most of these “theme” inventories will need to be based upon archival or other historic research. Such work will reveal the approximate, or in some cases precise, locations of many historic sites that are expected to occur in the park.

- Historic Logging Camps. The approximate locations of all of the V&RL camps are known, but only a few have been recorded archeologically. The locations of the camps of other companies are less well documented. The locations of early

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Canadian camps may not be recorded in historical records since these camps were not legal operations. Field methods should rely primarily on detailed mapping of surface features and basic site recordation efforts.

- Historic Homesteads. Records are relatively good for location of homesteads within the park and could be used to narrow down the likely location of house sites. Mapping of surface features and recording of surface artifact scatters should be sufficient to record these sites.

- Fishing Camps. To date, few, if any, of these camps have been the focus for archeological inventory. No excavations should be required as part of the inventory process.

- Trails, Roads, and Portages. Historic research should be expanded for these topics and followed up with archeological inventories. Examples of trails/roads to study are described in the Culture History chapter. Portages, including Grassy, Gold, Kettle Falls, and others should be the focus for terrestrial and underwater inventories.

- Gold Mining Sites. Expanded inventory and recording of these sites is needed. A larger area of Rainy Lake City should be inventoried and mapped as part of these efforts.

Bois Forte Ojibwe Studies

Although the following recommendations are placed under the inventory heading, these recommendations actually include several related studies that go beyond field inventory efforts.

- *Transcribe and study remaining annuity records, especially from 1866 to 1879.*

- Transcribe and study official Bois Forte tribal census records.

- Compile a computer database of annuity and census records.

- Complete a more detailed analysis of band configuration and membership for bands formerly residing in and near the park.

- Conduct additional field inventories, focusing on tracts known to have been owned by Bois Forte families and individuals.

- Map and fully record sites that have thus far received only reconnaissance inventory (e.g., 2000-3, 2000-4, 21SL36, and others).

- Expand map of 21SL21. Only a portion of this significant site has been mapped. Mapping will need to occur early or quite late in the warm weather season, since some of the site features are obscured by vegetation, including extensive poison ivy growth during the summer.

- Develop a vegetation management plan for the entire inventory of Bois Forte sites in the park in cooperation with the Bois Forte.

- Write a multiple property National Register nomination.

- Expand efforts to locate additional oral histories containing information about the Bois Forte at Voyageurs NP.

- Recognize the uniqueness of the Bois Forte database and integrate these and other archeological data more completely in the park's interpretive, maintenance, and other programs.

Fur Trade Research

Massive amounts of primary records exist that relate to the historic fur trade in, and around, Voyageurs NP from the late 1600s through about 1870 (Catton and Montgomery 2000; Thomas D. Thiessen, personal communication 2002). They exist in archives at a number of locations, including the Hudson's Bay Company Archives, the Archives of Ontario, the National Archives of Canada, the Minnesota Historical Society, and elsewhere, as well as in numerous publications. These contain a great deal of detailed information about trading locations and other places relating to the historic fur trade, as well as Native American presence in the region. This information should be carefully analyzed for leads on places where archeological evidence of Euroamerican and Native American activities took place. These leads should be followed with targeted archeological inventories to confirm the presence of archeological resources in locations identified thorough historical research.

Site Evaluation

Additional limited test excavations are needed at many sites, especially those with prehistoric components. A stratified sampling design should be used to create a priority list of sites to be evaluated. This will allow emphasis to be placed upon site components, such as Archaic sites, that are relatively poorly known at present. Single-component and vertically stratified components, although relatively rare, should also be specific targets for site testing efforts.

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Site Monitoring

There is a need to monitor systematically the condition of various subsets of the site inventory. Priorities for monitoring should be developed within various groups of sites based upon their topographic setting, significance, content, and other factors. There will likely be a degree of overlap in the various subsets under consideration. Some of the factors or subsets to consider for monitoring might include:

- sites with cutbanks;
- known and reported burial locations;
- sites with surface scatters of artifacts that may be subject to unauthorized collection;
- sites with surface features such as earthen berms from former structures that may be subject to damage through natural processes such as tree falls;
- historic Bois Forte occupation sites; and
- sites where unauthorized collection or looting has occurred.

Research Needs

Research needs cannot be clearly separated from the recommendations presented above. In most cases, some combination of efforts and attention to these recommendations will be needed to advance knowledge about the sites at Voyageurs NP.

- Conduct geomorphological studies of certain topographic settings including all shoreline soil benches, bedrock dome benches with soil accumulations and seasonally inundated settings including sand bars, sand spits, mudflats, and other related landforms. This would improve knowledge of the age and distribution of landforms, especially for the little known Paleoindian and Archaic periods, that may be likely to contain evidence of those early occupations.

- Expand site chronological control by renewing TL dating of ceramic sherds and attempt to date charred organic residue on pottery vessels via radiocarbon Advanced Mass Spectrometer dating. The TL dating accomplished to date in the park was experimental and the most recent efforts are now about 20 years old. It is likely that considerable improvements have been made since those dates were processed. Attempts should also be made to conduct radiocarbon dating of charred seeds or other annual plant remains, faunal elements, or other materials that would improve the very poor local radiocarbon chronology.

- Reanalyze prehistoric ceramic assemblages from certain significant sites to better understand the nuances of Woodland site occupations.

- Expand the study of local artifact collections (cf. Birk and Richner 2004). This should be accomplished on a systematic basis.

- Conduct additional test excavation sampling of Archaic Tradition sites within the park.

- Reanalyze all chipped-stone tools from existing collections to identify additional Archaic specimens.

- Analyze any faunal elements that have been collected from small-scale projects that have not yet been analyzed.

Reporting and Interpretation

- Develop pamphlets, brochures, exhibits, and similar data for a variety of archeological topics for use in park visitor centers, for interpretive tours, and for use at select onsite locations.

- Write non-technical reports and books for the public on certain archeological and historical topics such as the Bois Forte occupation of the park.

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Table 1. Summary of selected historical and archeological studies in the area around Voyageurs National Park.

Date	Researcher and/or Report*	Project	Location
1823	McElroy and Riggs (1943)	Mention of mound	Manitou Rapids, Rainy River, Ontario
1857	Anonymous (Dawson 1968)	Mound exploration	Rainy River, Canada
1880	Pithers (Bryce 1984)	Pither's Point Mound "excavation"	Outlet of Rainy Lake, Ontario
1883	Undetermined (Stoltman 1973)	Grand Mound tunnel (Smith site, 21KC3)	Big Fork confluence with Rainy River, Minnesota
1884-85	Lawson (Stoltman 1973; Winchell 1911)	McKinstry collections and excavation Mounds 1 and 2 (21KC2)	Little Fork confluence with Rainy River, Minnesota
1884-85	Bryce (1985, 1904)	Mound study including excavation of Grand Mound (Smith site, 21KC3)	Rainy River, U.S. and Canada
1892	Brown (1892)	Mound digging, multiple sites	Rainy River, Minnesota and Ontario
1896	Hulbert and Kempton (Stoltman 1973; Winchell 1911; Brower and Bushnell 1900)	McKinstry Mound 1 excavation (21KC2)	Little Fork confluence with Rainy River, Minnesota
1933	Jenks (1935); (Stoltman 1973)	Smith site Mound 4 excavation (21KC3)	Big Fork confluence with Rainy River, Minnesota
Pre-1939	Byman	McKinstry Mound 2 excavation (21KC2)	Little Fork confluence with Rainy River, Minnesota
1939	Wilford (1950a, 1950b); (Stoltman 1973)	McKinstry Mound 1 and 2 excavations (21KC2)	Little Fork confluence with Rainy River, Minnesota
1940	Wilford (Stoltman 1973)	Pike Bay Mound excavations	Lake Vermilion, Minnesota
1941	Kruse (1941)	Late Paleoindian points (Yuma) reported	Kabetogama Lake and Lake of the Woods, Minnesota
1941	Klammer (1941)	Potential for study in Border Lakes identified	Northeastern Minnesota
1943	Wilford (1943)	Classification of Minnesota Prehistoric Cultures, including Rainy River Aspect	Minnesota
1946	Ribich (1946)	Report of amateur archeologist's collection of pottery	Kabetogama Lake, later within Voyageurs NP

Table 1. Continued.

Date	Researcher and/or Report*	Project	Location
1947	Lindberg (1947)	Report of nine sites by amateur archeologist	Sand Point, Crane, Namakan, and Kabetogama Lakes, later in Voyageurs NP
1953	Houska (Steinbring 1971)	Little Fork burial	Little Fork, Rainy River, Minnesota
1956	Wilford	Smith site Mound 3 excavation (21KC3)	Big Fork confluence with Rainy River, Minnesota
1958	Kenyon (1959)	Mound Study and Search for fur post, Pither's Point	Outlet of Rainy Lake, Ontario
1959	Kenyon (1960, 1986)	Long Sault study	Rainy River, Ontario
1959-62	Emerson (Wright 1967)	Pic River Testing and excavation	North Shore, Lake Superior, Ontario
1960	Wright (1963)	Survey	Lake Superior to Manitoba, Canada
1961	Johnson et al. (Stoltman 1973)	Pearson site excavation	Lake Vermilion, Minnesota
1961	Kenyon (1986)	Hungry Hall Mound 2 excavation	Mouth of Rainy River, Ontario
1961	Wright (Noble 1984)	Long Sault Mounds recording (DdKm-1)	Rainy River, Ontario
1961	Cameron (Noble 1984)	Study of Hungry Hall skeletons	Mouth of Rainy River, Ontario
1962	Hanson (Kenyon and Churcher 1965)	Paleoindian (?) antler and tool	Rainy River, Ontario
1963	Dawson and Wright (Dawson 1983c; Julig 1994)	Cummins site excavations	Thunder Bay, Lake Superior, Ontario
1964	Kenyon (1986)	Oak Point Mound excavation	Rainy Lake (near Kettle Falls), Ontario
1966	Kenyon (1970, 1986)	Long Sault, Armstrong Mound excavation	Rainy River, Ontario
1969	Kenyon (1986)	Hungry Hall Mound 1 excavation	Mouth of Rainy River, Ontario
1969	Smyth and Chism (Noble 1984)	Long Sault site study and Manitou Rapids "Rainy River House" survey	Rainy River, Ontario
1970	Dawson (1983b)	Pither's Point excavation	Outlet of Rainy Lake, Ontario
1970	Kenyon (1986)	Mound Point excavation	Rainy River, Ontario

Table 1. Continued.

Date	Researcher and/or Report*	Project	Location
1970	Stoltman (1973, 1974)	McKinstry Mound 1 excavation (21KC2)	Little Fork confluence with Rainy River, Ontario
1970	Minnesota Historical Society	Acquisition of the Smith site (21KC3)	Big Fork confluence with Rainy River, Minnesota
1970-71	Steinbring (1974)	Houska Point (21KC6) excavation	Outlet of Rainy Lake, Minnesota
1972	Various (Noble 1984)	Long Sault site studies	Rainy River, Ontario
1972	Campling (1972)	Inventory of Quetico Provincial Park	Ontario, Canada
1973	Tyyska (Noble 1984)	Long Sault planning	Rainy River, Ontario
1973	Yarborough and Arthurs (Noble 1984)	Long Sault mounds study	Rainy River, Ontario
1973	Stoltman and Lugenbeal (Stoltman 1973)	Smith site excavations (21KC3)	Big Fork confluence with Rainy River, Minnesota
1973	Fox (Rajnovich 1983)	Spruce Point site (DjKq-1) excavation	Lake of the Woods, Ontario
1974	McFee (Noble 1984)	Long Sault mounds study	Rainy River, Ontario
1974	Fox (1974)	Excavation of Prairie Portage site (DaJu-2) and inventory of Basswood Lake	Quetico Provincial Park, Ontario
1975	Arthurs (1986)	Long Sault study continues	Rainy River, Ontario
1975	Reid (1977), Reid and Rajnovich (1983)	Discovery of Ballynacree site (DkKp-8)	Winnipeg River, Kenora, Ontario
1975	Reid (Rajnovich 1983)	Additional excavations at Spruce Point site (DjKq-1)	Lake of the Woods, Ontario
1976	Lugenbeal (1976, 1978)	Dissertation research	University of Wisconsin
1976	Reid (Rajnovich 1983)	Additional Excavations at Spruce Pointe site (DjKq-1)	Lake of the Woods, Ontario
1976	Minnesota Historical Society	Opens Grand Mound History Center, Smith site (21KC3)	Big Fork confluence with Rainy River, Minnesota
1977	Reid, Rajnovich, and Smith (Noble 1984)	Summarize 3 years of work at Lake of The Woods	Lake of the Woods, Ontario

Table 1. Continued.

Date	Researcher and/or Report*	Project	Location
1978-79	Rajnovich (1980b)	Survey of Rainy Lake	Rainy Lake, Ontario
1978	Reid and Ross (Reid 1980)	West Patricia Land Use Programme begins	Northwestern Ontario
1979	Smith (Noble 1984)	Analysis of Mahon collection	Lake of the Woods, Ontario
1979	Reid (1980)	Sandmoen site reporting	Rainy River, Ontario
1979	Callaghan (1982)	Lady Rapids site (DcKc-1) Testing	Namakan River, Ontario
1980	Balmer (Noble 1984)	Fur trade study	Northwestern Ontario
1980	Rajnovich (1980a)	Archaic age bison discovery in bog	near Kenora, Ontario
1980	Hamilton (1981)	Wenasaga Rapids site (EdKh-1) excavation	North end Lac Seul, Northwestern Ontario
1981	Rajnovich (1983)	Additional excavations at Spruce Point site (DjKq-1)	Lake of the Woods, Ontario
1982	Arthurs (1986)	Synthesis on Manitou Mounds at Long Sault	Rainy River, Ontario
1982	Peters et al. (1983)	Inventory and Evaluation	Superior National Forest, Minnesota
1982	Lambert (1983)	Northwestern Ontario Rock Art Project	East of Kenora, Ontario
1982	Pelleck (1983)	Forestry Point site (Egkl-1)	North of Kenora, Ontario,
1982-84	Peterson, Yourd, and Gonsior (Yourd 1985, 1988)	McKinstry site, Hwy. 11 bridge study (21KC2)	Little Fork confluence with Rainy River, Minnesota
1983	Peters (1984)	Inventory and Evaluation, Superior National Forest, Big Rice site study	Superior National Forest, Minnesota
1983-86	Reid (Rajnovich and Reid 1987)	Ballynacree site (DkKp-8) excavations	Winnipeg River, Kenora, Ontario
1984	Noble (1984)	Rainy River Mounds synthesis	Rainy River, Ontario
1984	Rajnovich	Hope Lake site	Rainy River, Ontario
1984	Rajnovich (1985)	“Boise Cascade” burial site salvage excavations (DdKi-2)	Fort Frances, Rainy River, Ontario

Table 1. Continued.

Date	Researcher and/or Report*	Project	Location
1984	Peters (1985)	Inventory and Evaluation, inventory of 336 campsites	Superior National Forest, Minnesota
1984	Lambert (1985)	Second Northwestern Ontario Rock Art Project	Northwestern Ontario
1983-85	Julig (1994)	Cummins site excavations	Thunder Bay, Lake Superior, Ontario
1985	Clouse and Budak (Thomas and Mather 1996)	Smith site testing (21KC3)	Big Fork confluence with Rainy River, Minnesota
1985	Yourd (1985, 1988)	Hannaford site study, Hwy. 11 bridge (21KC25)	Big Fork confluence with Rainy River, Minnesota
1985	Peters (1986)	Inventory and Assessment, campsite inventory (312)	Superior National Forest, Minnesota
1985	Lambert	Third Northwestern Ontario Rock Art Project	Northwestern Ontario
1986	Emerson (Thomas and Mather 1996)	McKinstry testing (21KC2)	Little Fork confluence with Rainy River, Minnesota
1986	Haywood (1989)	Paleoindian survey	Rainy River, Ontario
1986	Peters (1987)	Inventory and Assessment of 128 campsites	Superior National Forest, Minnesota
1987	Pastershank (1989)	Inventory at SE Corner of Lake of the Woods	Lake of the Woods, Ontario
1987	Halverson (1988)	Inventory of lakes at the SE edge of Lake of the Woods	East edge, Lake of the Woods, Ontario
1987	Peterson and Magner (Anfinson and Peterson 1988)	Inventory of Ash River Trail site 21SL167 (V&RL Camp 59)	Near west edge of Voyageurs NP
1988	Chartrand (1992)	Analysis of Fort Frances “Boise Cascade” burials	Fort Frances, Rainy River, Ontario
1989	Peters (1990)	Inventory and Evaluation	Superior National Forest, Minnesota
1989-90	Halverson (1992)	Nestor Falls site (DgKi-3) excavation	East shore, Lake of the Woods, Ontario
1990	Romano and Johnson (1990)	Clovis point report	Reservoir Lakes, north of Duluth

Table 1. Concluded.

Date	Researcher and/or Report*	Project	Location
1990-91	Peters (1992)	Inventory and Assessment	Superior National Forest, Minnesota
1992	Johnson and Ready (Thomas and Mather 1996)	Reconstructed 1939 skull and masks from McKinstry (21KC2)	Little Fork confluence with Rainy River, Minnesota
1992	Holman-Caine (Rapp et al. 1995)	Hannaford site, HWY 11 Bridge Phase III (21KC25) Excavation	Big Fork confluence with Rainy River, Minnesota
1992	Steiner and Clouse (1994)	MHS inventory and search for Bourassa site	Crane Lake, Minnesota
1992	Salkin (1993, 1998)	FERC Rainy Lake Inventory	Western Rainy Lake, Minnesota
1993-95	Thompson (1993, 1994a, 1994b, 1995)	Testing at Dove Island site	Rainy Lake, Minnesota, just west of Voyageurs NP
1994	Magner (1994, 2001)	Study of late Paleoindian points in collections	NW Minnesota along US–Canadian border
1994	Julig (1994)	Cummins site report	Thunder Bay, Lake Superior, Ontario
1994	Arzigian (Thomas and Mather 1996)	McKinstry site coring (21KC2)	Little Fork confluence with Rainy River, Minnesota
1994	Roberts and Henning (Thomas and Mather 1996)	McKinstry, HWY 11 Bridge Phase III Excavation (21KC2)	Little Fork confluence with Rainy River, Minnesota
1994	Torbenson and others (Thomas and Mather 1996; Torbenson et al. 1994)	Study of McKinstry skeletal material (21KC2)	Little Fork confluence with Rainy River Minnesota
1994	Rajnovich (1994)	Publication of synthesis on Indian rock art	Canadian Shield area, Ontario
1995	Rapp et al. (1995)	Hannaford, Phase III report (21KC25)	Big Fork near confluence with Rainy River, Minnesota
1996	Thomas and Mather (1996)	Publication of Phase III McKinstry excavation (21KC2)	Little Fork confluence with Rainy River, Minnesota

Notes: * Report citation, where pertinent, is in parentheses according to author under this heading. The report author is not always equivalent to the researcher.

Table 2. Archeological Investigations at Voyageurs National Park from 1972 to 2002.

Year	Investigator	Institution	Type	Description	Reference	MWAC Accession	VOYA Accession	Repository
1972	Doug Birk	MHS	Reconnaissance	Limited shoreline reconnaissance	Birk 1972	none	none	
1973	Douglas George	MHS	Reconnaissance	Limited shoreline reconnaissance	George 1973	none	none	
1975	Watson et al.	MHS	Inventory	Inventory of the Kettle Falls area	Watson, Oodhoudt, and Birk 1976	none	23, 40	VOYA
1976	Guy Gibbon	U Minn.	Transect inventory, reconnaissance	Transect inventory and shoreline Reconnaissance	Gibbon 1977	none	23, 40	VOYA
1977	Guy Gibbon	U Minn.	Reconnaissance	Low-water shoreline reconnaissance	Gibbon 1978	none	23, 40	VOYA
1977	W. Spears	MWAC	Data collection	Data collection at the Jug Cache site, Kettle Falls	Spears 1977	none	16	VOYA
1979	Mark Lynott	MWAC	Inventory and Testing	Transect and shoreline inventory and evaluative testing	Lynott, Richner, and Thompson 1986	38A	144	MWAC
1980	Mona Thompson	MWAC	Monitoring	Monitor utility installation at Hoist Bay	Lynott, Richner, and Thompson 1986	38C	144	MWAC
1980	Jeff Richner	MWAC	Inventory and Testing	Shoreline inventory and evaluative testing	Lynott, Richner, and Thompson 1986	38B	144	MWAC
1980	Mark Lynott	MWAC	Inventory and Testing	Inventory and limited testing at Hoist Bay	Lynott, Richner, and Thompson 1986	38B	144	MWAC
1981	Mark Lynott	MWAC	Inventory and reconnaissance	Inventory of well site at Black Bay, recon. of eroding sites	Lynott 1981	38D	144	MWAC

Table 2. Continued.

Year	Investigator	Institution	Type	Description	Reference	MWAC Accession	VOYA Accession	Repository
1982	Mark Lynott	MWAC	Inventory and reconnaissance	Inventory of Whispering Pines, reconnaissance of 21SL35	Lynott 1982	38E	144	MWAC
1983	Mark Lynott	MWAC	Reconnaissance	Monitor site condition, 21SL35, 82, and 83	None	117	146	MWAC
1984	Mark Lynott	MWAC	Stabilization	Stabilization of site 21SL35	Lynott 1984b	118	147	MWAC
1984	Melissa Connor	MWAC	Inventory	Inventory at Black Bay Visitor Center, 21KC13, and 21SL73	Connor 1985	112	145	MWAC
1984	Mark Lynott	MWAC	Inventory	Inventory at Black Bay Visitor Center	Lynott 1984a			
1985	Mark Lynott	MWAC	Stabilization	Stabilization of site 21SL141	Lynott 1988	418	172	MWAC
1985	Greg Fox	MWAC	Reconnaissance and testing	Shoreline reconnaissance and limited testing	Richner 1992a, Bozell 1986	228	150	MWAC
1986	Jeff Richner	MWAC	Inventory and Testing	Shoreline inventory and evaluative testing	Richner 1992a, Col-burn 1987, Sauer 1987	227	149	MWAC
1986	Mary Graves	VOYA	Monitoring	Monitor beach at site 21SL52	Graves 1987	289	187	MWAC
1987	Bruce Bevan	Private	Geophysical inventory	Magnetometer and radar inventory at 21SL82	Bevan 1987, Bevan 1999	—	—	MWAC
1987	Steve Maas	VOYA	Monitoring	Monitor development near 21SL176	Maas 1987	276	152	MWAC
1987	Jeff Richner	MWAC	Inventory and Testing	Shoreline inventory and evaluative testing	Richner 1992a, Parker 1988	246	151	MWAC
1988	Jeff Richner	MWAC	Stabilization	Stabilization of site 21SL82 and reconnaissance of sites on Namakan	Richner 1988a	419	173	MWAC

Table 2. Continued.

Year	Investigator	Institution	Type	Description	Reference	MWAC Accession	VOYA Accession	Repository
1988	Forest Frost	MWAC	Inventory and site monitoring	Inventory of proposed campsites and monitoring at 21SL82	Frost 1988, Richner 1992a	387B	171	MWAC
1988	Mary Graves	VOYA	Monitoring	Monitor stabilization, site 21SL82	Graves 1988	420	174	MWAC
1988	Jeff Richner	MWAC	Inventory and site monitoring	Inventory of proposed campsites and monitoring at 21SL82	Richner 1988b, Richner 1992a	387A	171	MWAC
1989	Jeff Richner	MWAC	Reconnaissance	Reconnaissance inventory of Ojibwe sites 31-6 and 1989-2	Richner 1999a Richner 2002a	375		MWAC
1990	Caven Clark	MWAC	Reconnaissance	Reconnaissance of prescribed burn areas	Clark 1990	444	176	MWAC
1991	Jeff Richner	MWAC	Inventory	Inventory of proposed campsites	Richner 1991, Richner 1992a	505		MWAC
1992	Jeff Richner	MWAC	Inventory and reconnaissance	Inventory of proposed campsites and trail reconnaissance of Rainy Lake City	Richner 1992b	480		MWAC
1992	Jeff Richner	MWAC	Stabilization	Stabilization of site 21SL52		421	175	VOYA
1993	Jeff Richner	MWAC	Mapping, inventory	Mapping at Rainy Lake City and inventory of NPS 1	Richner 1993b	509		MWAC
1994	Steve Demeter	CCRG	Data Collection	Data collection at dam keeper's cabin, Kettle Falls	Demeter et al. 1994	589	184	MWAC
1994	Jeff Richner	MWAC	Project planning and reconnaissance	Reconnaissance of site 1994-1at Kohler Bay	Richner 1994	579	186	MWAC

Table 2. Concluded.

Year	Investigator	Institution	Type	Description	Reference	MWAC Accession	VOYA Accession	Repository
1995	Jeff Richner	MWAC	Inventory, reconnaissance	Campsite inventory and recon. at 21SL21 and others	Richner 1995	606		MWAC
1996	Jeff Richner	MWAC	Mapping, inventory	Mapping at site 21SL21, campsite inventory, 21KC13 site testing	(trip report not in file)	659	192	MWAC
1997	Jeff Richner	MWAC	Data collection	Excavation at site 21KC13 in advance of cabin restoration	Richner 1999b	723	196	MWAC
1997	Andrea LeVasseur	USFS	ARPA damage assessment	Assessment of damage at 21SL44	LeVasseur 1997	1005	239	MWAC
1998	Jeff Richner	MWAC	Planning meeting	Planning at 21KC13	none	none	none	—
1999	Jeff Richner	MWAC	Reconnaissance	Reconnaissance of shorelines in low-water conditions	Richner 1999a	824	226	MWAC
2000	Jeff Richner	MWAC	Inventory and reconnaissance	ROU, prescribed burn and other inventories	Richner 2000	898	230	MWAC
2001	Jeff Richner	MWAC	Inventory and limited testing	ROU inventory; fur trade study	Richner 2001, 2002b; Birk and Richner 2004	934	231	MWAC
2002	Jeff Richner	MWAC	Inventory and limited testing	ROU, prescribed burn inventories, Rainy Lake City trail work	Richner 2003	984	238	MWAC

MWAC = Midwest Archeological Center; USFS = U. S. Forest Service; VOYA = Voyageurs NP; ROU = Reservation of Use and Occupancy, MHS = Minnesota Historical Society.

Table 3. Summary of proposed and existing campsite, houseboat, and day-use area inventories from 1986 through 2001.

Number	Year	Name	Lake	Use	Methods	Results
—	1986	Swanson's Bay, interior	SP	SC	ET86	21SL172
—	1986	Swanson's Bay, alternate	SP	SC	ET86	21SL171
—	1986	Swanson's Bay, outside	SP	SC	ST	Negative
—	1988	West Cemetery Island	K	SC	RS	21SL22
—	2001	—	R	DU	ET	21SL93
—	2001	—	R	DU	ET	21SL92
1001	1992	Harrison Bay	R	HB	ST	Negative
1001A	1995	Harrison Bay	R	SC	ST	Negative
1002	1991	Makinen Point	R	SC	ST	Negative
1002A	2001	Boyles Island	R	HB	ST	Negative
1003A	2001	Stones Point	R	SC	ST	Negative
1003C	1995	Big American	R	SC	ST	Negative
1005	2001	Rainy Lake City	R	DU	ST	Negative
1006E	1991	Turner Cove	R	HB	ST	Negative
1006G	1995	Dahl Island	R	HB	ST	Negative
1006H	1986	Sunrise Point	R	SC	ST	Negative
1006I	1995	Handford Island	R	HB	ST	1995-1
1006J	1995	Brouillette Island	R	HB	ST	Negative
1006K	1995	Loon Bay	R	GC	ST	Negative
1006L	1992	Hastay Island East	R	HB	ST	Negative
1007A	1995	Reuter Creek	R	LC	ST	Negative
1007B	1995	Reuter Creek	R	SC	ST	Negative
1010A	1991	Dryweed Island South	R	HB	RS	Negative
1010B	2001	Bruggeman Point	R	LC	ST	Negative
1010D	1986	Breakwater Cove	R	SC	ST	Negative
1010F	1991	Cooper Point	R	SC	ST	Negative
1010G	1992	Skipper Rock	R	HB	ST	Negative
1010I	2001	Goulet Island	R	HB	ST	1985-6
1010K	2001	Tango Channel	R	DU	ST	Negative
1011	1991	Fox Islands	R	DU	ST	1991-7
1013A	1992	Harbor Island West	R	HB	ST	Negative
1013B	1992	Harbor Island East	R	HB	ST	Negative
1013C	1992	Brule Cove	R	HB	ST	Negative
1013D	1992	Soboleski Bay South	R	SC	ST	Negative
1013E	1991	Soboleski Bay North	R	SC	ST	Negative
1013F	1988	Brule Narrows	R	LC	ST	Fish Camp
1013G	1992	Brule Narrows North	R	HB	ST	1992-11
1013H	1992	Brule Narrows South	R	HB	ST	Negative

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
1013J	2001	Houska Island	R	SC	ST	Negative
1013K	1992	Soldier Point West	R	HB	ST	Negative
1014	1992	Gull Beach	R	HB	ST	Negative
1014A	1992	Red Rock Island	R	HB	ST	57-2
1015A	1986	Whites Point	R	SC	ST	Negative
1016	1986	Diamond Island North	R	HB	ST	Negative
1017	1986	Diamond Is. Central	R	HB	ST	Negative
1020	1986	Diamond Island South	R	LC	ST	Negative
1020D	1992	Olson Bay North	R	HB	ST	Negative
1020E	1992	Olson Bay South	R	HB	ST	1985-8
1020F	1992	Cranberry Bay	R	HB	ST	Negative
1021A	1986	Arden Island	R	LC	ST	Negative
1022B	1992	Alder Creek	R	DU	ST	1992-2, 54-1
1022C	1986	Alder Creek	R	SC	ST	Negative
1022D	1986	Jack Pine Bench	R	SC	ST	Negative
1023B	1986	Mink Camp	R	LC	ST	Negative
1023B	1991	Mink Camp	R	LC	ST	Negative
1023C	2001	Kranz Point	R	SC	ST	Negative
1023E	1991	Lost Bay East	R	HB	RS	Negative
1023F	1992	Falls View	R	HB	ST	Negative
1024	1992	Saginaw Bay North	R	HB	ST	Negative
1024A	1991	Saginaw Bay Northwest	R	HB	ST	Negative
1024B	1992	Saginaw Bay West	R	HB	ST	1992-14 (Crazy Anderson)
1024C	1992	Saginaw Bay Southwest	R	HB	ST	Negative
1024D	1991	Saginaw Bay West	R	SC	ST	Negative
1024E	1991	Saginaw Bay Central	R	HB	ST	Negative, adjacent to 21SL103
1024F	1991	Saginaw Bay East	R	HB	ST	Negative
1024G	1992	Saginaw Bay Southeast	R	HB	ST	Negative
1024H	1991	Marion Bay West	R	HB	ST	Negative
1025A	1991	Marion Bay Central	R	HB	ST	Negative, paleosol
1025A	1992	Marion Bay Central	R	HB	ST	Negative
1026A	1988	Marion Bay	R	SC	ST	Negative
1026A	1991	Marion Bay	R	SC	ST	Negative
1026A	1992	Marion Bay	R	SC	ST	Negative
1027	1991	Marion Bay East	R	HB	RS	Negative

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
1027	1992	Marion Bay East	R	HB	ST	Negative
1027A	1992	Duckfoot Islands	R	SC	ST	Negative
1027B	1991	Duckfoot Islands	R	HB	ST	Negative
1027C	1988	Duckfoot Islands	R	LC	ST	21SL224 (1988-4)
1027D	1991	Finlander Bay West	R	HB	ST	Negative
1028	1988	Finlander Island	R	SC	ST	Negative
1028A	1992	Finlander Island	R	HB	ST	Negative
1028B	1992	Finlander Bay Central	R	HB	ST	Negative
1028C	1992	Finlander Bay East	R	HB	ST	Negative
1029	1988	Nelson Point	R	SC	ST	Negative
1030	1986	Lost Bay	R	Re	ST	Negative
1030A	1988	Nuthatch	R	SC	ST	Negative
1030C	1988	Chickadee	R	SC	ST	Negative
1031	1992	Kempton Entrance North	R	HB	ST	Negative
1032	1992	Kempton Entrance South	R	HB	ST	1992-8
1032A	2001	Kempton Entrance East	R	SC	ST	Negative
1032D	1988	Pine Island View	R	SC	ST	Negative
1032E	2001	Three Sisters Island	R	HB	ST	21SL894
1033	1995	Hitchcock Island	R	HB	ST	Negative
1034	1992	Hitchcock Bay Central	R	HB	ST	Negative
1034A	1992	Hitchcock Bay West	R	HB	—	Not inventoried
1034B	1992	Hitchcock Bay South	R	HB	—	Not inventoried
1035	1992	Kawawia Bay West	R	HB	ST	21SL159
1036	1992	Kawawia Bay East	R	HB	ST	21SL159
1037D	1992	Marystone Bay West	R	HB	ST	Negative
1037E	1992	Marystone Bay East	R	HB	ST	Negative
1037F	1991	White Fish Bay	R	HB	ST	Negative
1038	1991	Kempton Bay North	R	HB	ST	36-4
1038A	1988	Beaver Lodge	R	SC	ST	Negative
1039	1991	Kempton Bay South	R	HB	ET85	1985-16
1039B	1992	Kempton Bay East	R	HB	ST	Negative
1039C	1991	Idle Hour Bay	R	HB	ST	Negative
1039E	1996	Browns Bay West	R	LC	ST	21SL89
1039E	1988	Browns Bay West	R	LC	RS	21SL89
1039F	1996	Browns Bay East	R	SC	ST	21SL89
1041	1991	Stoffels Point	R	HB	ET85	21SL94

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
1042	1988	Finger Bay Beach	R	SC	ST	Negative
1043	1988	Windmill Rock View	R	SC	ST	Negative
1043A	1992	Anderson Bay West	R	HB	ST	ax and stoneware ?
1043B	1992	Anderson Bay	R	DU	ST	Negative
1044	1991	Anderson Bay East	R	SC	ST	Negative
1044A	1991	Anderson Bay West	R	SC	RS	Negative
1044B	1992	Anderson Bay East	R	HB	ST	Negative
1044C	1992	Virgin Point	R	SC	ST	Negative
1044D	1991	Virgin Bay West	R	HB	ST	21SL85
1045	1992	Sand Bay East	R	HB	ST	21SL17
1045A	1992	Sand Bay South	R	HB	ST	Negative
1045C	1992	Sand Bay Island	R	SC	ST	21SL242
1051	1992	Cranberry Creek	R	SC	ST	1992-1
1090A	1992	Virgin Island North	R	SC	ST	Negative
1090B	1992	Virgin Bay Central	R	HB	ST	1992-7
1090C	1991	Virgin Bay East	R	HB	ST	Negative
1090D	2001	Smith Point	R	SC	ST	Negative
1090E	1992	Smith Bay South	R	HB	—	Not inventoried
1110A	1992	Fish Camp Bay	R	HB	ST	Negative
1110B	1995	Fish Camp Point	R	SC	ST	Negative
1110C	1992	Fish Net Point	R	HB	ST	Negative
1110D	1991	Fish Net Point North	R	SC	ST	Negative
1110E	1991	Fish Net Point East	R	SC	ST	KF#48
1110F	1991	Fish Net Point South	R	SC	ST	Negative
1110G	1992	American Channel West	R	HB	ST	Negative
1110H	1992	American Channel East	R	HB	ST	1992-6
2007	1996	Johnson Lake	J	SC	ST	Negative
2012	1996	Lucille Lake	L	SC	ST	Negative
2080	1996	Quarterline Lake	Q	SC	ST	Negative
2120	1996	Peary Lake	P	SC	ST	Negative
2140	1996	Brown Lake	B	SC	ST	Negative
3001	1991	Trygg Island View	K	HB	ST	21SL27, paleosol
3002	1992	Trygg Island	K	HB	—	Not inventoried
3006	1986	La Bontys Point	K	SC	ST	Negative, adjacent to 21SL190

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
3011	1992	Schoolteacher Island	K	HB	ST	Negative
3013	1988	Mallard Bay Point	K	HB	ST	Negative
3014A	1992	Windigo Point	K	HB	ST	Negative
3014B	1987	Windigo	K	SC	RS	Negative
3015A	1991	Moose Bay	K	LC	ST	Negative
3016	1992	Rottenwood Point	K	HB	ST	Negative
3018	1987	Rottenwood Island	K	SC	RS	Negative
3018	2001	Rottenwood Island	K	SC	ST	21SL895
3020	1986	Hacksaw Pass	K	DU	ST	Negative
3020A	1987	Gold Portage	K	HB	RS	21SL211
3022A	1991	Gold Portage	K	LC	ST	Adjacent to 21SL210
3030	1986	Wood Duck Island	K	SC	ST	Negative
3032	1987	Cemetery Island	K	DU	ST	21SL115
3032	1988	Cemetery Island	K	DU	RS	21SL115
3041	1986	Happy Landing	K	SC	ST	Negative, adjacent to 21SL23
3046	1986	Maple Point	K	SC	ST	Negative, paleosol
3049	1991	East Three Sisters Island	K	HB	ST	1991-1
3050	1986	Eks Bay	K	LC	ET86	21SL189
3051	1992	Sucker Creek	K	SC	ST	Negative
3055	1986	Camel Back Island	K	SC	ST	Negative
3057	1986	Pine Point	K	Sc	ST	Negative
3062	1986	Cutover Island	K	LC	ST	Negative
3062	1992	Cutover Island View	K	HB	ST	Negative, paleosol
3063A	1991	Fox Farm	K	SC	ST	Negative
3064	1988	Cutover Island North	K	SC	ST	Negative, paleosol
3067	1988	Cutover Island South	K	HB	ST	Negative, paleosol
3067A	1992	Cutover Island Central	K	HB	ST	Negative
3068	1988	Cutover Island South	K	SC	ST	Negative, paleosol
3070	1986	Lost Bay Island	K	SC	ST	Negative
3070	1988	Lost Bay Island	K	SC	ST	Negative
3072	1992	Zolner Island	K	HB	ST	21SL26
3075	1991	Grassy Islands South	K	SC	ST	Negative

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
3077	1988	North Wood Duck Island	K	SC	ST	Negative, paleosol
3081A	1986	Bittersweet Island	K	LC	ST	Negative
3083A	1991	Echo Island	K	LC	ST	Negative
3100	1986	Shelter Bay	K	SC	ST	Negative
3100	1988	Sugarbush Island West	K	HB	ST	Negative, paleosol
3100	1992	Sugarbush Island West	K	HB	ST	Paleosol
3100A	2001	Sugarbush Island East	K	HB	ST	Negative
3101	1991	Nashata Point North	K	HB	ST	Negative, paleosol
3107	1992	Nashata Point South	K	HB	ST	21SL36
3109A	2001	Watson Island	K	SC	ST	Negative
3110	1986	Round Bear Island	K	SC	ST	Negative
3116A	1991	Sphunge Island West	K	SC	ST	Negative
3116B	1991	Sphunge Island East	K	SC	ST	1991-2
3120	1987	Martin Island	K	SC	ST	Isolated find
3127	1987	Moxie Island (2)	K	DU	ST	21SL197
3129	1987	Moxie Island	K	SC	ST	Negative
3138	1992	Eks Bay	K	HB	ST	Negative
3141	1988	Lost Bay East	K	HB	ST	Negative
3145	1991	Long Slu	K	HB	ST	Negative
3147	1991	Lost Bay West	K	HB	RS	Negative
3151	2001	Marr Point West	K	SC	ST	Negative
3153	2001	Town Bay	K	HB	ST	Negative
3158	1988	Yoder Island	K	HB	ST	Negative, paleosol
3159	1991	East Yoder Island	K	HB	ST	Negative
3160	1991	Shoe Pack Beach	K	DU	ST	21SL42, 21SL187
3164A	1987	Jenos	K	GC	RS	Negative
3164A	1991	Jenos	K	GC	ST	Negative
3168	1988	Blue Heron Point	K	HB	ST	Negative, paleosol
3169	1986	Blue Fin Bay	K	HB	ST	21SL133
3169	1988	Blue Fin Bay	K	HB	ST	Negative, paleosol
3178	1991	Pine Island	K	LC	ST	Negative
3180	1988	Feedem Island	K	HB	ST	21SL223 (1988-1)

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
3182	2001	Green Island	K	HB	ST	21SL896
3184	1991	Wolf Island	K	SC	RS	Negative
3187	1986	Bald Rock	K	LC	ET86	21SL188
3188	1991	Round Bear Island	K	DU	ST	Negative
3193	1991	Round Bear Island	K	DU	ST	Negative
3198	1992	Lost Lake Entrance	K	DU	ST	1992-5
3198A	2001	Kabetogama Narows	K	GC	ST, ET	21SL898
3200A	1991	Ash River Narrows West	K	SC	ST	1991-5
3200B	1991	Ash River Narrows East	K	SC	ST	1991-5
3201A	1988	West Blind Ash Bay	K	LC	ST	21SL222 (1988-2)
3201A	1991	West Blind Ash Bay	K	LC	ST	21SL222
3201A	2001	West Blind Ash Bay	K	LC	RS	Negative
3207	1991	Twin Bay West	K	HB	ST	Negative
3208	1991	Twin Bay East	K	HB	ST	Negative
3213A	1989	Nebraska Bay	K	SC	ST	Negative
3213A	1991	Nebraska Bay	K	SC	ST	Negative
3214	1986	Daley Bay	K	SC	ST	Negative
3214	1992	Daley Bay	K	SC	ST	21SL41
3217	1999	Deer Point Islands East	K	HB	ST	1999-1, paleosol
3217	1992	Deer Point Islands East	K	HB	ST	Negative, paleosol
3225	1992	Peterson Point	K	HB	ST	Negative
3226	1991	State Point Bay	K	HB	RS	Negative
3227A	1989	Peterson Point	K	SC	ST	Negative
3227A	1991	Peterson Point	K	SC	ST	Negative
3229A	1992	Samuelson Point	K	DU	ST	1992-10
3230	1992	Kabetogama Narrows South	K	SC	ST	Negative
3235	1991	Portage Beach	K	HB	ST	21SL49
3236	1992	State Point	K	SC	ST	Negative
4001	1991	Mica Bay South	N	HB	ST	Negative
4002A	1991	Mica Bay Inlet	N	HB	ST	Negative
4003	1988	Mica Beach	N	HB	ST	Negative
4003	1991	Mica Bay Beach	N	HB	RS	21SL59
4005	1988	Squaw Narrows	N	SC	ST	Negative
4005	1991	Mica Island	N	SC	ST	Negative
4006A	1991	Squaw Narrows	N	HB	ST	Negative, adjacent to 21SL123

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
4006B	1992	Squaw Narrows	N	SC	ST	21SL120
4007	1988	Johnson Bay	N	SC	ST	Negative
4010	1986	Day Marker 23	N	SC	ST	Negative
4010C	1992	Blind Indian Narrows East	N	HB	ST	Negative
4013	1989	Kubel Island View	N	LC	ST	Negative
4020B	2001	Blind Indian Narrows	N	LC	ST	Negative
4024	1992	Kohler Bay	N	HB	ST	E. Randolph site
4024A	1991	Kohler Point	N	SC	ST	1991-6
4026	1992	Gable Point	N	HB	ST	Negative
4027A	2001	Lone Squaw Island	N	SC	ST	Negative
4040	1986	Williams Is South	N	SC	ST	Negative
4041	1992	Kotval East	N	HB	ST	21SL258
4041A	1992	Bohman Fish Camp	N	HB	ST	Negative
4042	1992	Kotval West	N	HB	ST	1992-4
4043	1991	Sexton Island	N	SC	ST	Negative
4048A	1989	Torry Fish Camp	N	LC	ST	Negative
4048B	1992	Kubel Entrance West	N	SC	ST	Negative
4048D	2001	Gehering Bay	N	HB	ST	Negative
4049A	1991	Namakan Island North	N	HB	ST	Negative
4050	2001	Wigwam Point East	N	HB	ST	Negative
4050	1995	Wigwam Point East	N	HB	ST	Negative
4053	1991	Namakan Island South	N	SC	ST	21SL185
4056	1992	Junction Bay North	N	HB	ST	Negative
4058B	1992	Williams Island East	N	HB	ST	Negative
4060	1991	Big Sky Island	N	SC	ST	Negative
4060A	2001	Footes Island	N	SC	ST	Negative
4069	1992	Williams Island West	N	HB	—	Not inventoried
4070	1987	Williams Island North	N	SC	ST	Negative
4070	1988	Williams Island North	N	SC	ST	Negative
4073A	1992	Moose Bay	N	HB	ST	Negative
4087	1988	Snake Island View	N	HB	ST	Negative
4089	1988	Kettle Portage	N	SC	ST	Negative
4093	1991	Namakan Island Northeast	N	SC	ST	Negative (18-1??)
4097	1992	Smuggler's Point	N	HB	ST	Negative
4098	1988	Pike Bay	N	SC	ST	Negative
4098A	1991	Pike Bay	N	HB	ST	Negative

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
4104A	1991	Randolph Bay	N	HB	ST	Negative
4106	1992	West Sheen Island	N	HB	ST	1992-9
4107	2001	Sheen Island	N	SC	RS	21SL61
4108A	1991	McManus Island	N	HB	ET79	21SL63
4110A	1992	Blind Indian Narrows West	N	HB	ST	Negative
4111	1991	Sheen Point North	N	HB	ST	Negative
4112	1991	Deep Slough	N	SC	ST	Negative
4113A	1991	Deep Slough	N	HB	ST	Negative
4114	1991	Heron Bay	N	HB	ST	Negative
4117	1992	Juniper Point	N	HB	ST	21SL194
4117A	1992	Juniper Bay West	N	HB	ST	Negative
4118A	1989	Grassy Portage	N	SC	ST	Negative
4118A?	1991	Ebel's (Juniper Bay East)	N	HB	ST	21SL252
4118C	1992	Beaver Bay	N	HB	ST	Negative
4118D	1991	Grassy Portage	N	SC	ST	Negative
4118G	1991	Leach Bay	N	SC	ST	Negative
4118I	1995	Leach Beach	N	DU	ST	Negative
4119	1980	Namakan Narrows	N	LC	ET80	21SL73
4120	1992	Rusty Island	N	HB	—	Not inventoried
4122	1991	North Mitchell Island	N	SC	ST	Negative, adjacent to 21SL133
4123	1992	Mitchell Bay	N	HB	ST	1992-3
4123A	1991	Mitchell Island West	N	HB	ST	Negative
4123B	1991	Mitchell Island East	N	HB	ST	Negative
4150A	1991	Sheen Point South	N	HB	ST	Negative, adjacent to 21SL161
4170B	1991	Junction Bay Central	N	HB	ST	Negative
4180B	1992	Junction Bay South	N	SC	—	Not inventoried
4240	1986	My Island South	N	SC	ST	Negative
4270A	1992	Depthfinder View	N	HB	ST	21SL233
4310A	1991	Aspen Bench	N	SC	ST	Negative
4320	1980	Cove Bay	N	SC	ET80	21SL155
4360	1987	Rainbow Island	N	SC	ET87	21SL199
5005	1988	Portage Beach	SP	HB	ST	Negative
5009	1991	Sand Point Island East	SP	HB	ST	Negative
5009A	1991	Sand Point Island West	SP	HB	ST	Negative

Table 3. Continued.

Number	Year	Name	Lake	Use	Methods	Results
5010	1986	North Island West	SP	SC	ST	Negative
5010	2001	Sand Point Narrows	SP	SC	ST	Negative
5011A	2001	Sprague Point	SP	LC	ST, ET	21SL893 (1999-5)
5012A	2001	Partridge Point	SP	SC	ST	Negative
5014	1988	Swansons Bay	SP	SC	ST	Negative
5014	1991	Swansons Bay	SP	SC	ST	21SL230
5015A	1988	Granite Cliff South	SP	SC	ST	Negative
5015B	1988	Granite Cliff North	SP	SC	ST	Negative
5016A	1991	Stoneburner Island	SP	SC	RS	Negative
5016B	1991	Stoneburner Cove	SP	SC	ET86	21SL74
5017A	1995	Leach Bay	SP	HB	ST	Negative
5018A	1991	Hoosier Hideaway	SP	SC	ST	Negative
5019	1988	Little Trout Point	SP	HB	ET86	21SL177 (1986-9)
5021	1986	Browns Bay	SP	SC	ST	Negative
5021A	1988	Browns Bay Entrance	SP	SC	ST	Negative
5024	1988	King Pin	SP	LC	ST	Negative
5026A	1995	Safe Harbor	SP	DU	ST	Negative
5026B	1991	Safe Harbor North	SP	LC	RS	Negative
5026C	1991	Sand Point View	SP	SC	RS	Negative
5027A	2001	Grassy Bay Island	SP	HB	ST	Negative
5028	1988	Feldt Channel	SP	SC	ST	Negative
5029A	2001	Claffey Beach	SP	HB	ST	21SL75
5029B	1988	Grassy Bay	SP	HB	ST	Negative
5029C	1992	Feldt Point	SP	HB	ST	Negative
5029D	2001	Sand Point Day Use	SP	DU	ST	21SL250
5030	1986	North Island East	SP	SG	ST	Negative
5030	1995	Grassy Bay South	SP	SC	ST	Negative
5032A	2001	Jensen Bay	SP	SC	ST	Negative
5032B	1988	Monroe Point	SP	HB	ST	21SL219 (1988-5)
5033A	1991	Scout Camp	SP	GC	ST	Negative
5034A	1988	Browns Bay View	SP	LC	ST	Negative
5039	1991	Browns Bay	SP	HB	ST	Negative
5042A	2001	Sand Point	SP	SC	ST	Negative
5045	1991	Back of The Moon	SP	LC	ST	21SL220
5045A	2001	Ingersoll's Cove	SP	HB	ST	21SL900
5046	1995	Tower Point	SP	HB	ST	21SL84

Table 3. Concluded.

Number	Year	Name	Lake	Use	Methods	Results
5048	1989	Tower View	SP	SC	ST	Negative
5053	1992	Davidson Bench	SP	SC	ST	21SL80
5059	1988	NW Arm Beach	C	HB	ST	21SL118 (1988-3)
5061B	1991	Cliff Beach	C	HB	RS	1991-8
5062	1995	Safe Harbor South	SP	DU	ST	Negative
5062B	1991	Onan Point	C	DU	ST	1991-4
5080	1986	Burnt Island	SP	SC	ST	Negative
5120	1986	Mukooda Lake	M	Re	ET86	21SL176
5140	1979	King Williams Narrows	C	LC	ET	21SL82
5140	1980	King Williams Narrows	C	LC	ET	21SL82
5140	1986	King Williams Narrows	C	LC	ET	21SL82
5140	1987	King Williams Narrows	C	LC	ET	21SL82
5140	1988	King Williams Narrows	C	LC	ET	21SL82

Use Codes
HB = House Boat Mooring Site
SC = Small Campsite
GC = Group Campsite
LC = Large Campsite
DU = Day Use
SG = Small Campgound

Lakes
N = Namakan Lake
SP = Sand Point Lake
C = Crane Lake
R = Rainy Lake
M = Mukooda Lake
N = Namakan Lake
K = Kabetogama

Methods
ST = Shovel Testing
RS = Reconnaissance
ET = Evaluative Testing

Table 4. Summary of archeological investigations at Reservation of Use and Occupancy tracts, Voyageurs NP.

Tract	Year	Name	Proposed Use	#ST	+ST	Quad	Site	Comments
—	1999	Williams	—					Namakan Narrows
01-106	2001	Ward	—	0	0	CL	21SL901	significant historic Ojibwe site
01-107	2001	Sonneberg	—	4	0	CL	21SL901	significant historic Ojibwe site
01-113	2001	Lowry	—	2	0	CL		cabin on Chief's Island
01-122	2002	Casareto	—	8	0	CL		near Ojibwe cabin berm, site 21SL907
02-102	2001	Lunsford	—	4	1	CL		
02-106	2001	Gregorich	5045A	11	2	CL	21SL900	
02-140	2001	Monroe	—	4	0	CL		
03-103	1980, 2001	Murphy	DU 5029D	7	5	CL	21SL250	site intact behind beach and on dome
03-105	1976, 2001	Purcell	HB 5029A	4	0	CL	21SL075	1 debitage on beach, redeposited site
03-108	2001	Klammer	HB 5027A	4	0	RB		low ground, wet
03-124	1986, 2001	Sloderbeck	—	0	0			inventoried 1986, Staege Bay
03-125	1986, 2001	Vandracek	—	0	0			inventoried 1986, Staege Bay
03-130	2002	Brown	—	1	0	CL		
03-135	2002	Ingersoll	—	9	2	CL	21SL909	lithic scatter at point
03-136	1976, 2000	Dill	—	5	4		21SL078	intact, multi-component site
03-140	2001	Monroe	5042A	0	0	CL		rock slope with flower bed terraces
03-142	2001	Jensen	—	2	0	JL		clay
03-143	2001	Jensen	5032A	4	0	JL		mostly clay and wet, some sand
04-110	2002	Traugott	—	4	0	RB		flat, deep sand
04-113	2001	O'Donnell	SC 5010	1	0	RB		no soil, bald rock
04-136	2001	Partridge	SC 5012A	0	0	RB		
04-148	2001	Sprague	LC 5011A	43	35	RB	21SL893	significant site, multi-component
04-149	2001	Sprague	—	8	5	RB	21SL899	shallow, rocky site
05-103	2002	Burrows	—	2	0	RB		rocky slope
13-115	2001	Opheim	—	0	0	AR		high on rock, no soil
15-110	2000, 2001	Erickson	SC 1090D	0	0	KF		inventoried 2000, negative results
15-110	2000	Amic	—	0	0			Rainy

Table 4. Continued.

Tract	Year	Name	Proposed Use	#ST	+ST	Quad	Site	Comments
15-111	2000	Johnson	—	0	0			Rainy
19-128	1976, 1979, 2002	LaJeune	SC 4107	7	3	NM	21SL061	Double sand spit, partially intact site
19-459	2001	Sessing	—	0	0	NM		could not locate cabin
20-127	2002	Shanklin	—	10	3	NA	20-1, 21SL906	fauna on soil bench
22-101	2002	Marble	—	1	0	NA		all clay
23-105	2001	Torry	HB 4048D	2	0	NA		near 21SL58, soil filled rock terraces
23-112	2002	Kaukola	—	3	0	NA		historic log cabin
23-131	2001	Schulte	HB 4050	0	0	NA		wet clay bench
23-144	2001	Strand	—	1	0	AR		rocky, on Bego family allotment
23-149	2002	Skull	—	2	0	NA		all clay
23-246	2002			1	0	NA		rocky slope
27-501	1976, 1985. 2001	L'hereux	DU	7	5	KB	21SL093	potentially significant site
27-521	1976, 1985, 2001	Dabney	DU	16	10	KB	21SL092	potentially significant site
30-116	2002	Nelson	—	0	0	AR		slope w/rock
30-118	2001	Eastman	—	0	0	AR		all rock
30-119	2001	Gable	—	2	0	AR		little soil on high ground
30-120	2001	NI Conference	SC 4027A	4	0	AR		rocky high ground
30-124	2002	Kline	—	0	0	AR		slope
31-101	2000, 2001	Cayton	LC 4020B	0	0	AR		inventoried 2000, negative
31-110	2001	LaFave	SC 4060A	3	0	AR		clay
31-112	2001	Smith	—	2	0	AR		clay
31-126	2002	Luce	—	12	11	AR	21SL904	significant site w/ Laurel component
31-131	1999, 2001	Nelson	—	0	0	AR		inventoried 1999, negative
31-140	2001	Sather	—	2	0	AR		by Moose R. trestle
31-151	2001	Smith	—	0	0	AR		structure previously removed
31-156	2001	Christeson	—	3	0	AR		old lodge, little soil
32-105	2001	Slatinski	—	8	7	AR	21SL897	good site

Table 4. Continued.

Tract	Year	Name	Proposed Use	#ST	+ST	Quad	Site	Comments
32-121	2001	Slather	LC 3201A	1	0	DB		all rock, linked to 32-122, 32-123
32-122	2001	Arvig	LC 3201A	6	0	DB		clay bench
32-123	2001	Stengl	LC 3201A	4	0	DB		clay bench
33-109	2001	Town	HB 3153	2	0	DB		shack, negative
33-111	2002	Niemi	—	5	0	DB		
33-113	2001	Marr	SC 3151	4	0	DB		near CCC camp, 33-1?
33-123	2001	Darst	—	18	13	AR	21SL898	significant site, Archaic and Laurel
33-134	2001	Simon	HB 3182	9	1	DB	21SL896	1 positive test
33-136	2002	Larkin	—	6	0	DB	paleosol	
37-108	2001	Shermoen	HB 1032E	6	1	SP	21SL894	one positive test
37-109	2001	Rohde	SC 1032A	4	0	SP		some rocky soil
39-118	2001	Houska	SC 1013J	2	0	SP		all rock
44-104	2002	O'Connor	—	7	0	DB		
45-106	2000	Vardol	—	1	0		D. Bay	
48-102	2002		—	11	1	DB	21SL903	
49-108	2001	McKenna	SC 3109A	3	0	DB		rocky
50-114	2001	Erding	HB 3100A	2	0	DB		little soil
54-128	2001	Thompson	SC 1023C	3	0	CR		
57-141	2001	Misner	—	0	0	CR		trailer house previously removed
60-112	2001	Cookson	SC 3018	9	3	CR	21SL895	2 ST debitage, 1 w/ pottery
61-654	2001	Polski	—	5	1	KA		I debitage, no number assigned
67-104	2001	Schiebe	—	0	0	CR		all rock
67-106	2001	Ong	—	1	0	CR		one tiny soil zone
67-109	2001	McSwiggen	—	1	0	CR		organic material over rock
67-121	2001	Lundquist	—	0	0	IV		all rock
67-122	2001	Bernard	1010K	2	0	IV		rock slope
67-123	2001	Stenberg	—	1	0	IV		
67-125	2001	Keeney	—	0	0	IV		building previously removed by lessee
67-141	2001	Nagurski	HB 1002A	5	0	IV		no soil
67-169	2001	Bruggeman	LC 1010B	2	0	CR		organic material over rock
67-173	2001	Olsen	—	1	0	IV		
67-174	2001	LaBlanc	—	1	0	IV		
68-107	2001	Dodds	—	7	0	CR		soil behind cabin

Table 4. Concluded.

Tract	Year	Name	Proposed Use	#ST	+ST	Quad	Site	Comments
68-111	1985, 2001	Goulet	HB 1010I	4	0	CR	1985-6	Old Soldier Mine
68-124	2001	Vanderstop	—	0	0	CR		all rock
70-103	2001	Skrien	—	3	0	IV		organic material over rock
70-114	2001	Pullar	—	0	0	IV		trash clean-up location
70-121	2001	Stone	SC 1003A	0	0	IV		no soil
70-128	2001	Kirvan	DU 1005	0	0	IV		previously checked
70-129	multiple	Budris	—	8	7-8	IV	21KC13	significant site
70-135	2002	Coran	—	17	15	IV	21KC14	significant site
70-137	1976, 1985, 2001	Dahl	—	12	12	IV	21KC14	significant site

Table 5. Data fields recorded for Voyageurs NP site database.

Variable	Variable Label	Value	Value Label
official site number	MINNNUM	state trinomial	Site No.
field site number	FIELDSITE	various	Site No.
lake	LAKE	Namakan	NAMA
		Kabetogama	KABE
		Sand Point	SAND
		Crane	CRAN
		Rainy	RAIN
		War Club	WARC
		Mukooda	MUKO
USGS quadrangle	QUADRANGLE	various	
Universal Transverse Mercator	UTME	Easting	meters
	UTMN	Northing	meters
site topography	SETTING	undetermined	UN
		lake bottom	LB
		soil bench	BH
		upland	UP
		beach	BE
		sand bar	SB
		rock shore	RO
		mudflat	MF
		inundated	IN
		rock shelter	RS
site area	SIZE	sq meters	value
minimum elevation	MINL	feet AMSL	value
maximum elevation	MAXL	feet AMSL	value

Table 5. Continued.

Variable	Variable Label	Value	Value Label
disturbance factors	DISTURB	beach erosion	BE
		camping	CA
		artifact collecting	CL
		looting	LO
		unrelated structure on site	US
		undesignated camping	UC
		inundation	IN
		none known	NO
		cutbank	CB
level of adverse impact	IMP	undetermined	U
		low	L
		moderate	M
		high	H
site integrity	INTG	undetermined	U
		primary	P
		partially intact	PI
		redeposited	R
National Register eligibility	SIGN	undetermined	U
		not eligible	X
		local significance	L
		state significance	S
		national significance	N
site use	USE	none	N
		NPS facility	F
		private	P
		undesignated camping	U
study needs	NEED	evaluation	E
		monitoring	M
		data collection	D
		stabilization	S
		none	X

Table 5. Concluded.

Variable	Variable Label	Value	Value Label
site condition	CON	good	G
		fair	F
		poor	P
		undetermined	U
level of documentation	DOC	good	G
		fair	F
		poor	P
total number of shovel tests excavated	STT	STT	count, U= undetermined
number of positive shovel tests	STP	STP	count, U= undetermined
number of excavation units	EXT	EXT	count, U= undetermined
area excavated in test units	EXA	EXA	count, U= undetermined
cultural affiliation	Affiliation	prehistoric	PR
		archaic	AR
		Woodland	WO
		Laurel	LL
		Blackduck	TW
		Selkirk	SK
		Sandy Lake	SL
		Duck Bay	DB
		Oneota	ON
		Historic Anglo American	HE
		Historic Native American	HA
		historic logging camp	HLC
Comments	COMMENTS		

Table 6. Site locational data.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
—	01-01	CRAN	BH	CRANE LAKE	1119	?	U
—	01-02	CRAN	BH	CRANE LAKE	?	1124	U
—	01-03	CRAN	BH	CRANE LAKE	?	1124	U
—	02-03	SAND	RO	CRANE LAKE	1130	1140	300
—	03-02	SAND	BH	REDHORSE BAY	?	1130	U
—	07-01	NAMA	BH	HALE BAY	?	1130	U
—	07-02	NAMA	BH	HALE BAY	?	1125	U
—	16-01	RAIN	UN	KETTLE FALLS	1108	1130	U
—	16-03	RAIN	UN	KETTLE FALLS	?	1119	U
—	17-01	NAMA	UN	NAMAKAN IS	1119	1150	U
—	18-01	NAMA	UN	NAMAKAN IS	1119	1140	4
—	19-10	NAMA	UN	NAMAKAN IS	?	1130	U
—	1980-06	RAIN	BE	KEMPTON BAY	?	1107	240
—	01-04	CRAN	BH	CRANE LAKE	?	?	U
—	1980-20	NAMA	BH	NAMAKAN IS	1119	1125	374400
—	1980-22	NAMA	BE	ASH RIVER N E	?	1119	U
—	1980-39	NAMA	BE	HALE BAY	1119	1125	100
—	1980-40	NAMA	BE, BH	HALE BAY	?	1119	180
—	1985-01	RAIN	RO	CRANBERRY BAY	?	1109	1000
—	1985-02	RAIN	BH	CRANBERRY BAY	?	1120	5000
—	1985-03	RAIN	BH	CRANBERRY BAY	?	1110	400
—	1985-04	RAIN	RO	ISLAND VIEW	?	1115	7600
—	1985-05	RAIN	RO	CRANBERRY BAY	?	1115	4
—	1985-06	RAIN	RO	CRANBERRY BAY	?	1125	612
—	1985-07	RAIN	BH	ISLAND VIEW	?	1115	3000
—	1985-08	RAIN	BH	CRANBERRY BAY	?	1129	6000
—	1985-09	RAIN	BE	CRANBERRY BAY	?	1110	100
—	1985-10	RAIN	RO	CRANBERRY BAY	?	1119	2000
—	1985-11	RAIN	BH	CRANBERRY BAY	?	1119	100
—	1985-12	RAIN	BH	ISLAND VIEW	?	1129	25
—	1985-13	RAIN	RO	SOLDIER POINT	?	1129	25
—	1985-14	RAIN	RO	SOLDIER POINT	?	1119	50
—	1985-15	RAIN	RO	SOLDIER POINT	?	1119	16
—	1985-16	RAIN	BE, BH	KEMPTON BAY	?	1110	10
—	1985-17	RAIN	RO	SOLDIER POINT	1119	1129	12500
—	1985-18	RAIN	BE	KETTLE FALLS	?	1110	240
—	1985-19	RAIN	RO	ISLAND VIEW	?	1160	80
—	1986-16	CRAN	BH	CRANE LAKE	?	1125	150
—	1989-02	NAMA	RO	DALEY BAY	1124	1130	100
—	1991-01	KABE	RO, SB	CRANBERRY BAY	1120	1130	U
—	1991-02	KABE	BH, RO	DALEY BAY	1118	1130	U

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
—	1991-03	KABE	BH, RO	DALEY BAY	1118	1125	U
—	1991-04	CRAN	RO	CRANE LAKE	1125	1130	U
—	1991-05	KABE	BH, RO	ASH RIVER NE	1118	1130	U
—	1991-06	NAMA	BH, RO	ASH RIVER NE	1120	1125	U
—	1991-07	RAIN	RO	SOLDIER POINT	1108	1120	U
—	1991-08	CRAN	UP	CRANE LAKE	1140	1140	10
—	1992-01	RAIN	RO	CRANBERRY BAY	1120	1125	U
—	1992-03	NAMA	BE	HALE BAY	1119	1119	U
—	1992-04	NAMA	RO	ASH RIVER NE	1120	1130	U
—	1992-05	KABE	BH, RO	ASH RIVER NE	1120	1140	U
—	1992-06	RAIN	RO	KETTLE FALLS	1110	1120	U
—	1992-07	RAIN	BH	KETTLE FALLS	1110	1120	U
—	1992-08	RAIN	UP	SOLDIER POINT	1120	1130	U
—	1992-09	NAMA	BH	NAMAKAN IS	1120	1130	U
—	1992-10	KABE	BH	ASH RIVER NE	1120	1140	U
—	1992-11	RAIN	RO	SOLDIER POINT	1108	1115	U
—	1992-12	RAIN	RO	ISLAND VIEW	1113	1120	U
—	1992-13	NAMA	BH, RO	ASH RIVER NE	1120	1140	U
—	1992-14	RAIN	RO	SOLDIER POINT	1108	1120	U
—	1992-15	NAMA	BH, RO	HALE BAY	1118	1125	U
—	1992-16	RAIN	RO	ISLAND VIEW	1108	1138	16700
—	1994-01	KABE	BH	ASH RIVER NE	1120	1130	1600
—	1995-01	RAIN	RO	CRANBERRY BAY	1109	1112	U
—	22-03	NAMA	UP	NAMAKAN IS	?	1140	U
—	25-04	NAMA	UP	KETTLE FALLS	1119	1160	U
—	25-05	RAIN	BH	KETTLE FALLS	1108	1130	U
—	25-06	NAMA	UP	NAMAKAN IS	?	?	U
—	25-07	NAMA	UP	KETTLE FALLS	1180	1240	600
—	27-02	RAIN	UP	KEMPTON BAY	1108	1130	750
—	31-01	KABE	UP	ASH RIVER NE	1119	1150	U
—	31-04	NAMA	UP	ASH RIVER N E	?	1125	U
—	31-05	NAMA	RO	ASH RIVER N E	?	1130	400
—	31-06	NAMA	BH, BE	ASH RIVER N E	1120	1125	5000
—	31-07	NAMA	BH	ASH RIVER N E	1119	1140	U
—	32-01	KABE	UP	ASH RIVER N E	1119	1140	U
—	32-04	KABE	UP	ASH RIVER N E	1119	1150	U
—	33-01	KABE	UP	DALEY BAY	1119	1140	U
—	33-03	KABE	UP	ASH RIVER NE	1119	1140	U
—	36-04	RAIN	UP	KEMPTON BAY	1108	1130	40
—	39-01	RAIN	UP	SOLDIER POINT	1108	1120	2000
—	41-01	RAIN	UP	SOLDIER POINT	1108	1140	U

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
—	49-02	KABE	UP	DALEY BAY	1119	1130	U
—	49-08	KABE	UP	DALEY BAY	1119	1130	U
—	52-02	WAR	BH	SOLDIER POINT	1143	1150	U
—	54-01	RAIN	RO	CRANBERRY BAY	1120	1125	900
—	57-01	RAIN	BH	CRANBERRY BAY	1108	1120	200
—	57-02	RAIN	UP	CRANBERRY BAY	1110	1120	U
—	67-04	RAIN	UP	CRANBERRY BAY	?	1110	140
—	67-05	RAIN	UP	CRANBERRY BAY	1108	1120	35
—	F/02	NAMA	RO	KETTLE FALLS	?	1140	225
—	F/03	NAMA	LB	KETTLE FALLS	?	1118	U
—	F/05	NAMA	UP	KETTLE FALLS	?	1140	200
—	F/06	NAMA	UP	KETTLE FALLS	?	1140	40
—	F/07	NAMA	UP	KETTLE FALLS	?	1125	U
—	F/08	NAMA	BH	KETTLE FALLS	?	1130	U
—	F/09	NAMA	UP	KETTLE FALLS	?	1140	20
—	F/10	NAMA	RO	KETTLE FALLS	?	1130	U
—	F/13	NAMA	RO	KETTLE FALLS	?	1140	U
—	F/15	NAMA	UP	KETTLE FALLS	?	1160	U
—	F/16	NAMA	UP	KETTLE FALLS	?	1130	U
—	F/17	RAIN	UP	KETTLE FALLS	?	1135	U
—	F/21	NAMA	LB	KETTLE FALLS	?	1119	U
—	F/23	RAIN	BH	KETTLE FALLS	?	1118	10
—	F/24	RAIN	RO	KETTLE FALLS	1119	1130	U
—	F/25	RAIN	RO	KETTLE FALLS	1119	1140	U
—	F/28	RAIN	RO	KETTLE FALLS	1119	1130	20
—	F/29	RAIN	RO	KETTLE FALLS	1119	1130	U
—	F/30	RAIN	UP	KETTLE FALLS	1130	1145	9
—	F/32	RAIN	LB	KETTLE FALLS	?	1107	10
—	F/33	RAIN	BH	KETTLE FALLS	?	1120	40
—	F/34	RAIN	LB	KETTLE FALLS	?	1107	13
—	F/40	NAMA	IN	KETTLE FALLS	1130	1140	15
—	F/41	NAMA	BH, IN	KETTLE FALLS	1119	1140	250
—	F/45	RAIN	RO	KETTLE FALLS	1107	1110	U
—	F/47	RAIN	BH, UP	KETTLE FALLS	1107	1120	400
—	F/48	RAIN	BH	KETTLE FALLS	1107	1120	200
—	F/50	RAIN	BH, UP	KETTLE FALLS	1110	1120	20
—	F/51	RAIN	UP	KETTLE FALLS	1130	1140	400
—	F/52	RAIN	BH	KETTLE FALLS	1110	1120	U
—	F/53	RAIN	UP	KETTLE FALLS	1110	1120	U
—	F/55	RAIN	BE	KETTLE FALLS	?	1107	U
—	1999-07	KABE	BH	DALEY BAY	1119	1130	U

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
—	2000-02	KABE	BH, RO	DALEY BAY	?	1121	U
—	2000-03	KWN	UP	CRANE LAKE	?	1130	U
—	2000-04	RAIN	BH	KETTLE FALLS	1108	1120	U
—	1999-01	NAMA	BE	DALEY BAY	1115	1120	U
—	1999-02	NAMA	MF	DALEY BAY	1115	1119	U
—	1999-03	NAMA	MF	DALEY BAY	1115	1119	2000
—	1999-04	NAMA	MF	DALEY BAY	1115	1119	U
—	1999-06	NAMA	MF	DALEY BAY	1115	1119	U
—	67-02	RAIN	UN	ISLAND VIEW	?	1130	U
—	67-03	RAIN	BE	CRANBERRY BAY	?	1130	U
—	1995-02	NAMA	BH	NAMAKAN IS	?	1130	U
—	04-01	SAND	BH	REDHORSE BAY	1119	1130	U
—	22-06	NAMA	RO	ASH RIVER NE	?	1118	U
—	31-08	NAMA	BH	ASH RIVER NE	?	1133	U
—	51-03	KABE	BE	CRANBERRY BAY	1119	1130	U
—	51-02	KABE	BE	CRANBERRY BAY	1119	1130	U
—	F/01	NAMA	LB	KETTLE FALLS	?	1119	1
—	F/11	NAMA	UP	KETTLE FALLS	?	1120	1
—	F/12	NAMA	UP	KETTLE FALLS	1140	1160	150
—	F/14	NAMA	UP	KETTLE FALLS	1140	1160	350
—	F/18	NAMA	UP	KETTLE FALLS	1130	1160	150
—	F/19	NAMA	UP	KETTLE FALLS	1130	1150	3
—	F/20	RAIN	UP	KETTLE FALLS	1119	1130	400
—	F/22	NAMA	UP	KETTLE FALLS	1119	1140	250
—	F/26	NAMA	UP	KETTLE FALLS	?	1130	300
—	F/27	RAIN	UP	KETTLE FALLS	1130	1140	2
—	F/31	RAIN	UP	KETTLE FALLS	1120	1130	350
—	F/35	RAIN	RO	KETTLE FALLS	1119	1130	2
—	F/36	RAIN	UP	KETTLE FALLS	1119	1130	20
—	F/37	RAIN	UP	KETTLE FALLS	1119	1130	200
—	F/38	NAMA	UP	KETTLE FALLS	1119	1130	150
—	1986-24	SAND	BH		?	?	U
21KC010	67-07	RAIN	BE	CRANBERRY BAY	?	1108	U
21KC011	67-06	RAIN	SB	CRANBERRY BAY	?	1108	U
21KC012	67-01	RAIN	BE	ISLAND VIEW	?	1108	U
21KC013	67-08	RAIN	BE, BH	ISLAND VIEW	1108	1124	3000
21KC014	67-09	RAIN	BE, BH	ISLAND VIEW	?	1130	U
21KC015	67-10	RAIN	BE, BH	ISLAND VIEW	?	1108	U
21KC016	67-11	RAIN	BE	ISLAND VIEW	?	1108	U
21KC017	67-12	RAIN	BE, BH	ISLAND VIEW	1108	1110	200
21KC018	66-01	RAIN	BE	ISLAND VIEW	?	1108	U

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
21KC019	66-02	RAIN	SB	ISLAND VIEW	?	1107	U
21KC020	66-03	RAIN	BE	ISLAND VIEW	?	1108	U
21KC021	66-04	RAIN	BE	ISLAND VIEW	1107	1117	U
21KC022	66-05	RAIN	BE	CRANBERRY BAY	?	1108	U
21KC090	2001-01	RAIN	BH	ISLAND VIEW	?	1135	U
21SL010	49-04	KABE	BE	DALEY BAY	?	1119	U
21SL011	61-01	KABE	BE	KABETOGAMA	?	1119	U
21SL017	15-01,54	RAIN	BE, BH	KETTLE FALLS	?	1108	1050
21SL018	F/44	RAIN	RO, SB	KETTLE FALLS	?	1107	U
21SL019	F/49	RAIN	BE	KETTLE FALLS	?	1107	U
21SL020	F/43	RAIN	BH	KETTLE FALLS	?	1118	800
21SL021	60-01	KABE	BE, RO	CRANBERRY BAY	1119	1140	33750
21SL022	60-02	KABE	BE, BH	CRANBERRY BAY	?	1119	U
21SL023	60-04	KABE	BE, BH	CRANBERRY BAY	1119	1125	480
21SL024	61-04	KABE	BE, BH	KABETOGAMA	?	1119	U
21SL025	61-02	KABE	BE	KABETOGAMA	?	1119	U
21SL026	61-03	KABE	BE	KABETOGAMA	?	1119	U
21SL027	51-01	KABE	BE	CRANBERRY BAY	?	1119	U
21SL028	62-02	KABE	BH	KABETOGAMA	?	1130	U
21SL031	49-01	KABE	BE	KABETOGAMA	?	1119	U
21SL032	49-05	KABE	BE	KABETOGAMA	?	1119	U
21SL033	49-06	KABE	BE	DALEY BAY	?	1119	850
21SL034	49-07	KABE	BE	DALEY BAY	?	1119	U
21SL035	50-01	KABE	BE, BH	DALEY BAY	1130	1140	4200
21SL036	49-03	KABE	BE, BH	DALEY BAY	?	1119	U
21SL037	48-01	KABE	BH	DALEY BAY	1119	1130	2500
21SL038	44-01	KABE	BE, BH	DALEY BAY	?	1119	2000
21SL039	44-05	KABE	BE	DALEY BAY	?	1119	U
21SL040	45-02	KABE	BE	DALEY BAY	?	1119	U
21SL041	45-01	KABE	BE, BH	DALEY BAY	?	1118	U
21SL042	44-02	KABE	BE	DALEY BAY	?	1119	U
21SL043	44-03	KABE	BE	DALEY BAY	?	1119	U
21SL044	44-04	KABE	BE, MF	DALEY BAY	?	1119	U
21SL045	33-02	KABE	BE	DALEY BAY	?	1119	U
21SL046	44-06	KABE	BE	DALEY BAY	?	1119	U
21SL047	32-03	KABE	RO, BH, BE	ASH RIVER N E	1119	1150	2500
21SL048	32-02	KABE	BE, BH, RO	ASH RIVER N E	1119	1130	600
21SL049	31-03	KABE	BE	ASH RIVER N E	?	1119	U
21SL050	30-01	NAMA	BE, BH	ASH RIVER N E	?	1130	10

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
21SL051	30-02	NAMA	BH, BE	ASH RIVER N E	1117	1140	U
21SL052	23-03	NAMA	BE, BH	ASH RIVER N E	1119	1130	7800
21SL053	23-02	NAMA	BE, BH	ASH RIVER N E	1119	1130	1050
21SL054	22-01	NAMA	BE, BH	ASH RIVER N E	1119	1130	U
21SL055	22-02	NAMA	BH	ASH RIVER N E	?	1130	200
21SL056	22-04	NAMA	BE	NAMAKAN IS	?	1118	U
21SL057	22-05	NAMA	BE	NAMAKAN IS	?	1118	U
21SL058	23-01	NAMA	BE	NAMAKAN IS	?	1119	U
21SL059	25-03	NAMA	BE	KETTLE FALLS	?	1119	U
21SL060	19-01	NAMA	BE	NAMAKAN IS	?	1118	U
21SL061	19-02	NAMA	BE	NAMAKAN IS	?	1119	U
21SL062	19-03	NAMA	SB	NAMAKAN IS	?	1118	U
21SL063	19-04	NAMA	BH	NAMAKAN IS	?	1125	150
21SL064	19-05	NAMA	BE	NAMAKAN IS	?	1119	U
21SL065	19-07	NAMA	BE	NAMAKAN IS	?	1119	U
21SL066	19-08	NAMA	BE	NAMAKAN IS	?	1119	U
21SL067	13-01,02	NAMA	BE	NAMAKAN IS	?	1119	U
21SL068	13-03	NAMA	BE	HALE BAY	?	1119	U
21SL069	07-03	NAMA	BE	HALE BAY	?	1119	U
21SL070	31-02	NAMA	RS	ASH RIVER N E	?	?	U
21SL071	19-06	NAMA	RO	NAMAKAN IS	1119	1129	U
21SL072	05-01	NAMA	UP	HALE BAY	?	?	U
21SL073	05-02	NAMA	BH	REDHORSE BAY	1119	1140	3000
21SL074	04-02	SAND	RO	REDHORSE BAY	1125	1130	1800
21SL075	03-03	SAND	BE	CRANE LAKE	?	1119	U
21SL076	03-01	SAND	BH, RO	HALE BAY	1121	1130	65
21SL077	08-01	SAND	BE	HALE BAY	?	1119	U
21SL078	03-04	SAND	RO	CRANE LAKE	1119	1130	U
21SL079	02-02	SAND	BE	CRANE LAKE	?	1119	U
21SL080	02-04	SAND	BE	CRANE LAKE	?	1119	U
21SL081	01-07	CRAN	BH	CRANE LAKE	?	1130	U
21SL082	01-06	CRAN	BH, BE	CRANE LAKE	1130	1140	2750
21SL083	01-05	CRAN	BH	CRANE LAKE	1119	1125	800
21SL084	02-01	SAND	BH, RO	CRANE LAKE	?	1130	100
21SL085	25-02	RAIN	BE	KETTLE FALLS	?	1108	U
21SL086	26-02	RAIN	BE	KETTLE FALLS	?	1108	U
21SL087	25-01	RAIN	BE	KEMPTON BAY	?	1108	U
21SL088	26-01	RAIN	BE, BH	KEMPTON BAY	1108	1118	U
21SL089	27-09	RAIN	BE, BH	KEMPTON BAY	1108	1118	U
21SL090	27-08	RAIN	BH	KEMPTON BAY	1108	1120	U
21SL091	27-07	RAIN	BH	KEMPTON BAY	?	1112	U

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
21SL092	27-03	RAIN	BE, BH	KEMPTON BAY	1108	1110	800
21SL093	27-06	RAIN	BE, BH	KEMPTON BAY	1106	1112	600
21SL094	27-04	RAIN	BE, RO	KEMPTON BAY	1108	1115	200
21SL095	27-05	RAIN	BE	KEMPTON BAY	1108	1125	U
21SL096	36-06	RAIN	BE	KEMPTON BAY	1108	1120	U
21SL097	36-05	RAIN	BE	KEMPTON BAY	?	1107	U
21SL098	27-01	RAIN	BE	KEMPTON BAY	?	1108	U
21SL099	37-01	RAIN	BE	SOLDIER POINT	?	1107	U
21SL100	40-04	RAIN	BE	SOLDIER POINT	?	1107	U
21SL101	53-01	RAIN	BE	SOLDIER POINT	?	1108	U
21SL102	40-01	RAIN	BE	SOLDIER POINT	?	1107	U
21SL103	40-03	RAIN	BE	SOLDIER POINT	?	1108	U
21SL104	39-06	RAIN	BE	SOLDIER POINT	?	1107	U
21SL105	40-02	RAIN	BE	SOLDIER POINT	?	1108	U
21SL106	39-05	RAIN	BE	SOLDIER POINT	?	1108	U
21SL107	39-02	RAIN	BH, RO	SOLDIER POINT	?	1112	U
21SL108	39-03,4	RAIN	BE, BH	SOLDIER POINT	1108	1115	U
21SL109	54-03	RAIN	BE	SOLDIER POINT	?	1108	U
21SL110	54-04	RAIN	BE	SOLDIER POINT	?	1108	U
21SL111	57-03	KABE	BE	CRANBERRY BAY	?	1119	U
21SL112		NAMA	BE	NAMAKAN IS	?	1119	U
21SL113		NAMA	BE	HALE BAY	?	1118	U
21SL114	1987-02	KABE	BE	CRANBERRY BAY	?	1118	565
21SL115	60-03	KABE	BE, BH	CRANBERRY BAY	?	1119	880
21SL116		NAMA	BE	ASH RIVER N E	?	1118	100
21SL117		NAMA	BE	ASH RIVER N E	?	1119	100
21SL118		NAMA	BE, SB	MANAKAN IS	?	1118	880
21SL119	1986-15	NAMA	RO, SB	MANAKAN IS	1117	1135	1840
21SL120		NAMA	BE	MANAKAN IS	?	1118	450
21SL121		NAMA	BE	MANAKAN IS	?	1119	200
21SL122		NAMA	BE	MANAKAN IS	?	1119	U
21SL123		NAMA	BE	MANAKAN IS	?	1119	100
21SL124		NAMA	BE, BH	MANAKAN IS	?	1118	450
21SL125		NAMA	BE, BH	ASH RIVER N E	?	1118	220
21SL126		NAMA	BE	ASH RIVER N E	?	1118	220
21SL127		NAMA	BE	NAMAKAN IS	?	1118	450
21SL128		NAMA	BH	HALE BAY	?	1118	450
21SL129		NAMA	BE	HALE BAY	?	1119	U
21SL130		NAMA	BE	HALE BAY	?	1119	220
21SL131		NAMA	BE	HALE BAY	?	1119	670
21SL132		NAMA	BE	HALE BAY	?	1118	220

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
21SL133		NAMA	BE	HALE BAY	?	1119	U
21SL134		NAMA	BE, CB	NAMAKAN IS	?	1119	450
21SL136	21-PS-11	NAMA	BH	NAMAKAN IS	?	1125	100
21SL137	21WI1	NAMA	BH	ASH RIVER N E	?	1122	350
21SL138	21DM1	NAMA	BH	DALEY BAY	1119	1122	75
21SL139	21CS1	KABE	BE	ASH RIVER N E	?	1125	U
21SL140	21LM1	KABE	BH	DALEY BAY	1119	1130	1600
21SL141	21MT51	NAMA	BH	ASH RIVER N E	1130	1140	1500
21SL152		SAND	BE, BH	REDHORSE BAY	?	1130	500
21SL153		NAMA	MF	HALE BAY	1115	1119	400
21SL154		RAIN	BE	KEMPTON BAY	1112	1113	500
21SL155		NAMA	BH, BE	HALE BAY	?	1125	375
21SL156	1986-19	NAMA	BE, BH	ASH RIVER N E	1122	1130	6250
21SL157		NAMA	SB	NAMAKAN IS	?	1118	U
21SL158		NAMA	RO	NAMAKAN IS	?	1130	8400
21SL159	36-03	RAIN	BH, RO	SOLDIER PT	?	1118	4250
21SL160		NAMA	RO	HALE BAY	?	1125	6250
21SL161		NAMA	RO	NAMAKAN IS	?	1125	4500
21SL170	1986-13	CRAN	BH, BE	CRANE LAKE	?	1128	U
21SL171	1986-05	SAND	BH, RO	REDHORSE BAY	1122	1125	400
21SL172	1986-04	SAND	BH, RO	REDHORSE BAY	?	1130	350
21SL173	1986-26	SAND	RO	CRANE LAKE	1122	1128	800
21SL175	1986-14	MUKO	RO	CRANE LAKE	?	1130	35
21SL176	1986-12	MUKO	BH, RO	CRANE LAKE	1128	1132	75
21SL177	1986-09	SAND	BH	HALE BAY	1126	1130	525
21SL178	1986-08	SAND	RO	HALE BAY	?	1121	25
21SL179	1986-07	SAND	BH	HALE BAY	?	1121	1000
21SL180	1986-06	SAND	BH	JOHNSON LAKE	?	1123	200
21SL181	1986-28	NAMA	BH, RO	NAMAKAN IS	?	1130	600
21SL182	1986-23	NAMA	BH	ASH RIVER N E	1120	1140	7500
21SL183	1986-22	NAMA	BE, BH	NAMAKAN IS	1119	1130	7750
21SL184	1986-20	NAMA	RO	NAMAKAN IS	1122	1132	650
21SL185	1986-18	NAMA	BH, RO	NAMAKAN IS	?	1130	U
21SL186	1986-17	NAMA	BH, RO	NAMAKAN IS	?	1131	300
21SL187	1986-11	KABE	RO	DALEY BAY	?	1121	36
21SL188	1986-10	KABE	RO	ASH RIVER N E	?	1127	300
21SL189	1986-03	KABE	BH	ASH RIVER N E	?	1125	1320
21SL190	1986-02	KABE	BH, RO	CRANBERRY BAY	?	1125	30
21SL191	1986-27	SAND	BE, BH, RO	CRANE LAKE	1117	1129	140

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
21SL192	1987-28	KABE	SB, BE, RO	DALEY BAY	1115	1119	U
21SL193	1987-27	KABE	BE, RO, BH	KABETOGAMA	1119	1130	1800
21SL194	1987-21	NAMA	BE, BH	HALE BAY	1119	1130	U
21SL195	1987-22	NAMA	BE	HALE BAY	1119	1123	90
21SL196	1987-20	NAMA	SB	HALE BAY	1117	1120	375
21SL197	1987-15	KABE	RO	DALEY BAY	?	1125	180
21SL198	1987-16	NAMA	BE	HALE BAY	1117	1119	300
21SL199	1987-17	NAMA	RO	HALE BAY	1119	1126	600
21SL200	1987-18	NAMA	BE, RO	HALE BAY	1118	1121	1250
21SL201	1987-01	KABE	BE, BH	CRANBERRY BAY	?	1120	800
21SL202	1987-03	KABE	BE, BH	CRANBERRY BAY	1116	1120	1000
21SL203	1987-04	NAMA	BE, BH	KETTLE FALLS	1116	1125	2450
21SL204	1987-05	RAIN	BH	KETTLE FALLS	1110	1113	600
21SL205	1987-06	RAIN	BE, BH	KETTLE FALLS	?	1107	U
21SL206	1987-07	RAIN	BE	KETTLE FALLS	1107	1110	450
21SL207	1987-08	RAIN	BE	KETTLE FALLS	?	1107	50
21SL208	1987-09	RAIN	BE	KETTLE FALLS	?	1108	300
21SL209	1987-10	NAMA	RO, MF	KETTLE FALLS	?	1118	2
21SL210	1987-11	KABE	BH	CRANBERRY BAY	?	1121	700
21SL211	1987-12	KABE	BE, BH	CRANBERRY BAY	?	1125	3000
21SL212	1987-13	KABE	MF	CRANBERRY BAY	1117	1119	1750
21SL213	1987-14	KABE	BH, IN	CRANBERRY BAY	?	1123	U
21SL214	1987-23	RAIN	SB	CRANBERRY BAY	1105	1108	U
21SL215	1987-24	RAIN	RO	CRANBERRY BAY	1107	1108	150
21SL216	1987-25	RAIN	RO, MF	CRANBERRY BAY	1106	1110	600
21SL217	1987-26	RAIN	RO	CRANBERRY BAY	1105	1108	U
21SL218	1988-04	CRAN	BH	CRANE LAKE	?	1124	U
21SL219	1988-05	SAND	RO	JOHNSON LAKE	?	1123	U
21SL220	1988-06	SAND	RO	CRANE LAKE	?	1127	U
21SL221	1988-07	NAMA	RO	HALE BAY	1122	1125	150
21SL222	1988-02	NAMA	RO	DALEY BAY	?	1130	U
21SL223	1988-01	NAMA	BH	DALEY BAY	?	1129	U
21SL224	1988-03	RAIN	SB, BH, RO	SOLDIER POINT	?	1115	U
21SL225	1980-33	SAND	BE, RO	REDHORSE BAY	?	1119	125
21SL226	1980-31	SAND	BE	REDHORSE BAY	1115	1119	30
21SL227	1980-30	SAND	BE, MF, BH	REDHORSE BAY	?	1118	U
21SL228	1980-32	SAND	RO	REDHORSE BAY	?	1122	U
21SL229	1980-29	SAND	BE	REDHORSE BAY	?	1107	U

Table 6. Continued.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
21SL230	1980-28	SAND	BE	REDHORSE BAY	?	1118	U
21SL231	1980-27	SAND	BE	REDHORSE BAY	?	1118	U
21SL232	1980-26	SAND	BE	REDHORSE BAY	?	1118	100
21SL233	1980-25	NAMA	BE	REDHORSE BAY	?	1118	U
21SL234	1980-24	SAND	BE	REDHORSE BAY	?	1118	30
21SL235	1980-35	SAND	BE	CRANE LAKE	?	1119	200
21SL236	1980-02	NAMA	BE	HALE BAY	?	1119	30
21SL237	1980-01	NAMA	BE, SB	HALE BAY	?	1119	250
21SL238	1980-38	SAND	SB	REDHORSE BAY	?	1119	200
21SL239	1980-34	SAND	BE, MF	REDHORSE BAY	?	1118	75
21SL240	1980-05	RAIN	BE	KEMPTON BAY	?	1107	U
21SL241	1980-14	RAIN	SB	KETTLE FALLS	?	1106	30
21SL242	1980-13	RAIN	BH	KETTLE FALLS	?	1112	100
21SL243	1980-12	RAIN	SB	KETTLE FALLS	?	1107	U
21SL244	1980-11	RAIN	SB	KETTLE FALLS	?	1107	U
21SL245	1980-07	RAIN	BE	SOLDIER POINT	?	1107	300
21SL246	1980-08	RAIN	BE	KEMPTON BAY	?	1107	240
21SL247	1980-09	RAIN	BE	KEMPTON BAY	?	1107	200
21SL248	1980-10	RAIN	BE, BH	KEMPTON BAY	?	1107	320
21SL249	1980-36	SAND	BE	CRANE LAKE	?	1118	150
21SL250	1980-37	SAND	BE, BH, RO	CRANE LAKE	1119	1125	U
21SL251	1980-03	NAMA	BE	HALE BAY	?	1118	20
21SL252	1980-04	NAMA	BE	HALE BAY	?	1119	100
21SL253	1980-21	NAMA	SB	ASH RIVER N E	?	1118	U
21SL254	1980-15	NAMA	BE	NAMAKAN IS	?	1119	U
21SL255	1980-16	NAMA	SB	NAMAKAN IS	?	1118	U
21SL256	1980-17	NAMA	BE, SB	NAMAKAN IS	?	1118	20
21SL257	1980-18	NAMA	BE	NAMAKAN IS	?	1118	500
21SL258	1980-19	NAMA	BE	NAMAKAN IS	?	1119	U
21SL893	1999-05	SAND	BE, BH	REDHORSE BAY	1116	1128	7000
21SL894	2001-02	RAIN	BH	SOLDIER POINT	?	?	U
21SL895	2001-03	KABE	BH	CRANBERRY BAY	?	1125	200
21SL896	2001-04	KABE	BE, BH	DALEY BAY	?	1120	U
21SL897	2001-05	KABE	RO	ASH RIVER NE	?	1130	300
21SL898	2001-06	KABE	BH	ASH RIVER NE	?	1128	700
21SL899	2001-07	SAND	BH	REDHORSE BAY	?	1125	150
21SL900	2001-08	SAND	BH	CRANE LAKE	?	1125	100
21SL901	2001-09	CRAN	BH	CRANE LAKE	?	1125	U
21SL903	2002-01	KAB	BH, RO	DALEY BAY	?	?	100
21SL904	2002-02	KAB	BH, RO	ASH RIVER NE	?	?	900

Table 6. Concluded.

MINNNUM	FIELDSITE	LAKE	SETTING	QUADRANGLE	MINL	MAXL	SIZE
21SL905	2002-03	NAM	RO, BH	ASH RIVER NE	?	?	225
21SL906	20-01	NAMA	BE, BH	NAMAKAN IS	?	?	U
21SL907	2002-05	CRAN	BH	CRANE LAKE	?	?	U
21SL908	20-02	NAMA	UP	NAMAKAN IS	?	?	U
21SL909	2002-07	SAND	BH, RO	CRANE LAKE	1119	1122	50
21SL910	2002-08	KAB	BH	DALEY BAY	?	?	50

Table 7. Archeological data for each Voyageurs NP site

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
—	01-01	76, 79	U	U	0	0	PR	“Good collecting spot”
—	01-02	76	0	0	0	0	UN	3 depressions
—	01-03	76	0	0	0	0	UN	6 depressions
—	02-03	73, 76, 86	0	0	3	2	HE	oven site
—	03-02	76	0	0	0	0	UN	depression
—	07-01	76	0	0	0	0	HE	cabin
—	07-02	76	0	0	0	0	HE	Blind Pig Still
—	16-01	76, 85	0	0	0	0	HE	structural features
—	16-03	76	0	0	0	0	HE	possible building
—	17-01	76	0	0	0	0	HE	mica mine
—	18-01	76, 91	5	0	0	0	UN	mound of gravel
—	19-10	76	U	U	0	0	HE	house site
—	1980-06	80	11	0	0	0	TW	Rainy Lake #5
—	01-04	76	0	0	0	0	HE?	wooden foundation, Cassareto
—	1980-20	80	57	U	10	10	HLC	Hoist Bay V&RL Camp 75
—	1980-22	80	0	0	0	0	TW	Williams Island 2
—	1980-39	80	0	0	0	0	PR	TP #3
—	1980-40	80	0	0	0	0	TW, HA	TP #4
—	1985-01	85	2	0	0	0	HE	20th-century cabin site
—	1985-02	85	3	1	0	0	HE	structural berm and scatter
—	1985-03	85	15	2	0	0	HE, BD	12 Gauge Site
—	1985-04	85	12	4	0	0	LL, BD, HE	Island in Black Bay w/depression
—	1985-05	85	0	0	0	0	HE	Bushy Head Mine
—	1985-06	85, 01	0	0	0	0	HE	Lyle Mine
—	1985-07	85	3	0	0	0	HE	historic scatter and 2 foundations
—	1985-08	85, 92	8	3	0	0	PR, HE	fish camp and lithic scatter
—	1985-09	85	3	2	0	0	HE	house foundation
—	1985-10	85	0	0	0	0	HE	log structure foundation
—	1985-11	85	0	0	0	0	HE	Old Soldier Mine
—	1985-12	85	0	0	0	0	HE	Gold Harbor Mine
—	1985-13	85	2	2	0	0	HE	log cabin berm, pre-1935
—	1985-14	85	2	2	0	0	HE	historic artifact scatter
—	1985-15	85	2	0	0	0	HE	collapsed log structure

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
—	1985-16	85, 91	4	1	1	1	LL	beach and sand bench
—	1985-17	85	0	0	0	0	HLC	V&RL Camp 136
—	1985-18	85	4	0	0	0	HE	stove parts and cans above beach
—	1985-19	85	0	0	0	0	HE	Big American Mine
—	1986-16	86, 00	0	0	0	0	HA	Ojibwe cabin berm near 21SL82
—	1989-02	89, 92, 99	0	0	0	0	HA	artifact scatter 1895 Ojibwe map reference
—	1991-01	91	6	0	0	0	WO	at East 3 sisters houseboat
—	1991-02	91	6	2	0	0	BD	at Sphunge east large camp
—	1991-03	91	1	1	0	0	BD	at Sphunge east large camp
—	1991-04	91	5	1	0	0	LL	at Onan day use
—	1991-05	91	2	2	0	0	BD	east of Sullivan Bay mouth
—	1991-06	91	5	1	0	0	LL, BD	at Kohler Point small camp
—	1991-07	91	1	1	0	0	BD	at Fox Island day use
—	1991-08	91	0	0	0	0	HA	cache
—	1992-01	92	3	1	0	0	HE	homestead site at 1051 SC
—	1992-03	92	2	0	0	0	PR	at 4123 HB
—	1992-04	92	4	1	0	0	PR, HA?	within Allotment 399, 4042 HB
—	1992-05	92	9	4	0	0	LL, BD	at 3198 DU
—	1992-06	92	4	2	0	0	PR	at 1110H HB
—	1992-07	92, 00	0	0	0	0	PR, HE	cabin berm, Euro American
—	1992-08	92	3	1	0	0	PR	at 1032 HB
—	1992-09	92	9	2	0	0	WO	at 4106 HB
—	1992-10	92	4	2	0	0	TW	at 3229A DU
—	1992-11	92	2	1	0	0	PR	at 1013G HB
—	1992-12	92	3	3	0	0	BD	
—	1992-13	92	1	0	0	0	HA	East Randolph homestead? sawmill
—	1992-14	92	1	0	0	0	HE	Crazy Anderson Shack site
—	1992-15	92	0	0	0	0	HE	
—	1992-16	92	0	0	0	0	HE	1893–1898, Little American Island

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
—	1994-01	94	0	0	0	0	HE, HA	Kohler rock ring and structures
—	1995-01	95	3	3	0	0	LL, BD	“Hannaford houseboat”
—	22-03	76	U	U	0	0	HE	structural features
—	25-04	76, 79	0	0	0	0	HE	historic artifact scatter
—	25-05	76, 85	0	0	0	0	UN	depressions
—	25-06	76	0	0	0	0	HE	log cabin
—	25-07	76, 79	U	U	0	0	UN	3 depressions, natural?
—	27-02	76, 85	0	0	0	0	HE	3 house depressions
—	31-01	76	0	0	0	0	HE, HLC	logging camp?
—	31-04	76	0	0	0	0	HLC	1880s logging camp
—	31-05	76	0	0	0	0	HA	rock art (and graves?)
—	31-06	76, 89, 99	0	0	0	0	HA	Joe Whiteman cabin, 1989-1
—	31-07	76, 79	U	U	2	2	UN	possible ricing jigs
—	32-01	76, 79	0	0	0	0	HE	fishing shacks
—	32-04	76, 79	U	U	1	1	HA	rockshelter, steatite pipe, jig
—	33-01	76, 79	U	U	0	0	PR, HE	CCC camp
—	33-03	76	U	U	0	0	HLC	logging camp
—	36-04	76, 80, 85, 91	0	0	0	0	HE	cabin
—	39-01	76, 85	0	0	0	0	HE	20th century
—	41-01	76, 85	0	0	0	0	HLC	V&RL Camp 143
—	49-02	76, 79	0	0	1	1	UN	possible natural depressions
—	49-08	76	U	0	0	0	UN	Grave Island
—	52-02	76, 85	6	2	0	0	HE	CCC Camp
—	54-01	76, 85, 92	3	1	0	0	HE	1992-2
—	57-01	76, 85	0	0	0	0	HE	mine shaft
—	57-02	76, 92	U	U	0	0	HE	stone foundation
—	67-04	76, 85	0	0	0	0	HE	mine shaft
—	67-05	76, 85	0	0	0	0	HE	mine shaft
—	F/02	75, 86	0	0	4	3	HE	Ice House #1
—	F/03	75	0	0	0	0	HE	Submerged crib
—	F/05	75	0	0	0	0	HE	Old corral
—	F/06	75	0	0	0	0	HE	foundation
—	F/07	75	0	0	0	0	HE	sawmill
—	F/08	75, 94	0	0	18	18	HE	1910 Log cabin
—	F/09	75	0	0	0	0	HE	Old Horse Barn

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
—	F/10	75	0	0	0	0	HE	Cris Monson Post
—	F/13	75	0	0	0	0	HE	Jack Ryan's Post
—	F/15	75	0	0	0	0	HE	Hotel Ice House
—	F/16	75	0	0	0	0	HE	Old Hotel Barn
—	F/17	75	0	0	0	0	HE	Falls Hotel
—	F/21	75	0	0	0	0	HE	crib
—	F/23	75	0	0	0	0	HE	Beaton Cabin
—	F/24	75	0	0	0	0	HE	Narrow Gauge Cab
—	F/25	75	0	0	0	0	HE	Madam Carr's
—	F/28	75	0	0	0	0	HE	Lumberjack Smith
—	F/29	75	0	0	0	0	HE	Chappy Chapman's
—	F/30	75, 87	6	0	0	0	HE	Blind Pig Shanty
—	F/32	75	0	0	0	0	HE	Sunken Rowboat
—	F/33	75, 76, 77	0	0	0	0	HE	Jug Cache
—	F/34	75	0	0	0	0	HE	Boat "Jerry"
—	F/40	75	0	0	0	0	HA	tent ring
—	F/41	75	0	0	0	0	HE	Catamaran's Cave
—	F/45	75	U	1	0	0	PR	Surveyor's Point
—	F/47	75	0	0	0	0	HE	barge and cabin
—	F/48	75, 91, 00	4	1	1	2	HA	Gawboy's Cabin (?)
—	F/50	75	U	U	0	0	HE	Still Site
—	F/51	75	U	U	0	0	HE	Oscar Nelson's
—	F/52	75	0	0	0	0	HLC	1950s Logging Camp
—	F/53	75	0	0	0	0	HE	Ice House #2
—	F/55	75	0	0	0	0	PR	Sand Bay Island #2
—	1999-07	99, 00	0	0	0	0	HE	V&RL Camp 22, site 2000-1
—	2000-02	00	1	1	0	0	PR	2 fauna
—	2000-03	00, 01	0	0	0	0	HA	Ojibwe cabins, KWN
—	2000-04	00	0	0	0	0	HA	Ojibwe cabins, KF, Allotment 396
—	1999-01	99	2	2	0	0	TW	paleosol, Deer Point Island East houseboat
—	1999-02	99	0	0	0	0	HE	moose bones
—	1999-03	99	0	0	0	0	TW	fire-cracked rock rings
—	1999-04	99	0	0	0	0	PR	scatter
—	1999-06	99	0	0	0	0	PR	fire-cracked rock rings
—	67-02	76	0	0	0	0	HE	mining era
—	67-03	76	0	0	0	0	WO	collecting area

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
—	1995-02	95	0	0	0	0	HA	Holsapple spirit houses
—	04-01	76	0	0	0	0	HE	Swanson's cabin
—	22-06	76	0	0	0	0	HA?	inundated burials reported
—	31-08	76	0	0	0	0	HE	historic scatter
—	51-03	76	0	0	0	0	PR	collect area
—	51-02	76	0	0	0	0	PR	collect area
—	F/01	75	0	0	0	0	HE	anchor
—	F/11	75	0	0	0	0	HE	boiler from sub. Boat
—	F/12	75	0	0	0	0	HE	path/trail
—	F/14	75	0	0	0	0	HE	path/trail
—	F/18	75	0	0	0	0	HE	hotel road
—	F/19	75	0	0	0	0	HE	forge
—	F/20	75	0	0	0	0	HE	boardwalk
—	F/22	75	0	0	0	0	HE	narrow gauge rail portage
—	F/26	75	0	0	0	0	HE	Kettle Falls dam
—	F/27	75	0	0	0	0	HE	graffiti
—	F/31	75	0	0	0	0	HE	"cow" trail
—	F/35	75	0	0	0	0	PR	isolated flake
—	F/36	75	0	0	0	0	HE	logs in marsh
—	F/37	75	0	0	0	0	HE	trail
—	F/38	75	0	0	0	0	HE	logging area
—	1986-24	86	0	0	0	0	HLC	Int Lumber Co 1932-33
21KC010	67-07	76, 85	10	0	0	0	PR	Near Dryweed Island
21KC011	67-06	76, 85	0	0	0	0	LL, BD, HE	Near Dryweed Island
21KC012	67-01	76, 85	U	0	0	0	WO	Big American Island
21KC013	67-08	76, 84, 85, 93, 94, 96, 97, 98, 01	22	21	40	40	AR, LL, BD, SK, SL, HA, HE	at Rainy Lake City
21KC014	67-09	76, 85, 01, 02	47	36	1	0.5	LL, BD	at Rainy Lake City
21KC015	67-10	76, 85	7	1	0	0	BD	
21KC016	67-11	76	0	0	0	0	PR	
21KC017	67-12	76, 85	5	1	1	0.5	LL, BD	
21KC018	66-01	76, 85	5	1	1	0.5	BD	
21KC019	66-02	76, 85	0	0	0	0	PR	
21KC020	66-03	76	0	0	0	0	WO, HE	
21KC021	66-04	76, 85	24	4	0	0	BD	Squaw Frank Island

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
21KC022	66-05	76, 85	1	0	0	0	HA	catlinite bead
21KC090	2001-01	01	0	0	0	0	HE	cabin berm
21SL010	49-04	73, 76, 77, 79	U	U	0	0	BD, HA	Sugarbush Island
21SL011	61-01	73, 76, 77, 79	U	U	0	0	TW	North of Wood Duck Island
21SL017	15-01,54	75, 76, 80, 85, 92	40	15	5	4.5	LL, BD, SL, HE, SK	Sand Bay Island
21SL018	F/44	75, 85	U	U	1	1.5	BD	
21SL019	F/49	75, 85	3	0	0	0	PR	
21SL020	F/43	75, 85, 92	5	1	1	1	PR	
21SL021	60-01	76, 79, 95, 96, 99	U	U	0	0	AR, WO, HA	Woodenfrog's Island
21SL022	60-02	76, 77, 79, 87	10	5	1	1	LL, BD, HA	
21SL023	60-04	76, 77, 79, 86, 87	15	7	6	5.5	LL, BD	Budak site, paleosol
21SL024	61-04	76, 77, 79, 86	22	1	2	2	LL, BD	Wood Duck Island
21SL025	61-02	76, 79	U	0	0	0	WO	Eagle Nest Island
21SL026	61-03	76, 79, 92	4	0	0	0	LL, TW	Zollner Island
21SL027	51-01	76, 77, 79, 91	1	0	0	0	WO	Paleosol
21SL028	62-02	76, 79	U	1	0	0	LL, BD	Fin Island
21SL031	49-01	76	U	U	0	0	WO	Little Sugarbush
21SL032	49-05	76, 77, 79, 86	33	3	0	0	LL, BD, SL	Sugarbush Island
21SL033	49-06	76, 77, 79, 80	27	3	3	3	LL, BD, SK	Sugarbush Island
21SL034	49-07	76, 77	0	0	0	0	WO	Sugarbush Island
21SL035	50-01	76, 77, 79, 82, 83, 84, 96	65	U	7	7	AR, LL, TW	Clyde Creek, National Register
21SL036	49-03	76, 77, 79, 86, 92, 96, 99	1	0	0	0	LL, BD, HA	Nashata Point
21SL037	48-01	76	U	U	0	0	PR	East of Sphunge Island
21SL038	44-01	76, 77, 79, 86	54	4	0	0	LL, BD, HE	East of Blue Fin Ba

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
21SL039	44-05	76	U	U	0	0	AR	Knox Island
21SL040	45-02	76, 79	U	0	0	0	LL, BD	Dr Point Islands
21SL041	45-01	76, 77, 79, 92	U+1	1	0	0	LL, BD	S of L. Richie I
21SL042	44-02	76, 79, 86, 91, 99	11	0	1	1	BD	
21SL043	44-03	76, 77, 79, 80, 86, 99	17	1	0	0	LL, BD	
21SL044	44-04	76, 79, 97, 99	U	0	0	0	BD	Looting
21SL045	33-02	76	U	U	0	0	WO	Lost Bay
21SL046	44-06	76	0	0	0	0	TW	Green Island
21SL047	32-03	73, 76, 79, 92, 95, 01, 02	32	?	5	5	AR, LL, TW, HA	Meadwood Resort
21SL048	32-02	76, 77, 79, 86	13	5	3	3	LL	East of Kab Narrows
21SL049	31-03	76, 91	U	0	0	0	WO	
21SL050	30-01	76, 79	U	1	1	1	SK	Sweetnose Island
21SL051	30-02	76, 79, 99	U	U	5	5	TW, ON, HA?	Oneota shell temp. vessel
21SL052	23-03	76, 77, 79, 80, 86, 87, 92, 93, 00	U	U	4	3.5	LL, BD, HA	Williams Island
21SL053	23-02	76, 77, 80, 89, 92, 94, 00	0	0	1	0.3	LL, BD, HA	Cemetery Island, Namakan
21SL054	22-01	76, 77, 85, 91	5	3	0	0	TW, HA	Big Sky Island, probable grave
21SL055	22-02	76, 77, 79	23	U	3	3.5	LL, BD	National Register
21SL056	22-04	76, 77	0	0	0	0	AR, BD	Hoist Bay
21SL057	22-05	76, 77, 79	U	0	0	0	PR	
21SL058	23-01	76, 79	0	0	0	0	WO	
21SL059	25-03	76, 77, 91	U	U	0	0	BD	Mica Bay
21SL060	19-01	76, 79, 80	U	0	0	0	LL, BD	might be mis-plotted
21SL061	19-02	76, 79	U	0	0	0	PR	Sheen Island tombolo

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
21SL062	19-03	76, 79.80	U	0	0	0	PR	Sheen Island
21SL063	19-04	76, 77, 79, 91	U	U	3	3	LL, BD	McManus Island
21SL064	19-05	76, 79	U	0	0	0	PR	Wolf Pack Island
21SL065	19-07	76, 79	U	0	0	0	PR	
21SL066	19-08	76, 77, 79	U	0	0	0	PR	
21SL067	13-01,02	76, 77, 79	U	1	0	0	LL	
21SL068	13-03	76, 77, 80	U	0	0	0	PR	
21SL069	07-03	76	U	U	0	0	PR	
21SL070	31-02	76, 79	2	1	0	0	PR	Rock Shelter
21SL071	19-06	76, 79, 80	U	1	0	0	WO	
21SL072	05-01	76, 77	U	1	0	0	PR, HE	Blind Pig Island
21SL073	05-02	76, 80, 84, 94	50	4	17	17	LL, BD	National Register
21SL074	04-02	76, 80, 86, 91	31	10	10	10	LL, BD, SL	obsidian debitage
21SL075	03-03	76, 01	U	U	0	0	WO	
21SL076	03-01	76, 79, 86	U	3	3	3.3	LL, BD, SL, HA	Grassy Bay
21SL077	08-01	76, 79	U	0	0	0	LL	Grassy Bay
21SL078	03-04	76, 00, 01	7	6	0	0	BD, HE, HA	Near Ingersol's
21SL079	02-02	76, 79	U	0	0	0	PR	
21SL080	02-04	76, 92	5	3	0	0	WO, HE	North of KWN
21SL081	01-07	76, 79, 80	U	0	0	0	LL, BD	KWN
21SL082	01-06	76, 79, 80, 83, 86, 87, 88	84	32	25	24.5	AR, LL, SL, BD, HA	King W. Narrows, on NR
21SL083	01-05	76, 80, 83	U	U	11	11	LL, BD, HA	near KWN
21SL084	02-01	76, 79, 95, 96	U	9	5	3	LL, BD, HA	Sand Point Lake
21SL085	25-02	76, 80, 85, 91	8	0	0	0	BD	
21SL086	26-02	76, 80	U	U	0	0	WO	
21SL087	25-01	76, 80, 85	8	0	0	0	PR	
21SL088	26-01	76, 80, 85	U	0	0	0	PR	

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
21SL089	27-09	76, 85, 96	21	12	1	1	PR	
21SL090	27-08	76, 80, 85	7	1	0	0	LL	
21SL091	27-07	76, 80, 85	5	1	0	0	LL	Lyman Island
21SL092	27-03	76, 80, 85, 01	35	18	1	1	LL, BD	Blueberry Island
21SL093	27-06	76, 85, 01	10	5	0	0	TW	Blueberry Island
21SL094	27-04	76, 85, 91	14	8	1	1	BD	
21SL095	27-05	76, 85	U	U	0	0	PR, HE	
21SL096	36-06	76, 82, 85	14	1	0	0	BD	
21SL097	36-05	76, 82, 85	5	0	0	0	TW	Big Island
21SL098	27-01	76, 82, 85	18	0	0	0	TW	Big Island
21SL099	37-01	76, 85	9	0	0	0	TW	Three Sisters Island
21SL100	40-04	76, 85	0	0	0	0	WO	On Bedrock
21SL101	53-01	76, 85	15	1	0	0	PR	
21SL102	40-01	76, 85	8	0	0	0	TW	
21SL103	40-03	76, 85, 91	10	0	0	0	LL	Saginaw Bay
21SL104	39-06	76, 85	8	0	0	0	WO	Frank Island
21SL105	40-02	76, 85	6	0	0	0	WO	Saginaw Bay
21SL106	39-05	76, 85	8	U	0	0	TW, HE	Soldier Point
21SL107	39-02	76, 85	13	3	0	0	TW	Brule Narrows
21SL108	39-03,4	76, 85	8	2	0	0	PR, HE	Lost Bay
21SL109	54-03	76, 85	12	0	0	0	PR	Lost Bay
21SL110	54-04	76, 85	15	0	0	0	PR	
21SL111	57-03	76, 85	5	0	0	0	PR	
21SL112		77	0	0	0	0	WO	
21SL113		77	0	0	0	0	PR	
21SL114	1987-02	77, 87	7	0	0	0	LL, BD	
21SL115	60-03	76, 77, 79, 87, 88, 99	U	0	0	0	LL, TW, HA	graves reported
21SL116		77	0	0	0	0	PR	
21SL117		77, 80	0	0	0	0	LL	
21SL118		77, 80	0	0	0	0	PR	
21SL119	1986-15	77, 86	16	14	4	4	LL, BD	

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
21SL120		77, 79, 80, 92	2	0	0	0	WO	
21SL121		77, 80	0	0	0	0	PR	
21SL122		77, 80	0	0	0	0	PR	
21SL123		77, 80	0	0	0	0	WO	
21SL124		77	0	0	0	0	BD	
21SL125		77, 79, 80	20	0	1	1	LL, BD	Moose Bay
21SL126		77, 79, 80	23	0	2	2	LL, BD, SL	
21SL127		77	0	0	0	0	PR	
21SL128		77	0	0	0	0	LL	
21SL129		77, 80, 87	9	1	0	0	TW	
21SL130		77, 80	U	0	0	0	WO	
21SL131		77, 80, 87	5	0	0	0	LL, SL	
21SL132		77, 80	U	U	0	0	LL	
21SL133		77, 80, 91	U	U	0	0	PR	
21SL134		77, 80	0	0	0	0	LL, HE, HA	blue glass bead
21SL136	21-PS-11	79	0	0	0	0	PR	
21SL137	21WI1	79, 80, 86, 00	U	U	4	4	LL, BD, HA	Williams Island, Namakan
21SL138	21DM1	79, 80, 86	18	2	2	2	WO	Eagle View CG
21SL139	21CS1	79	U	0	0	0	LL	
21SL140	21LM1	79	0	0	0	0	HE	Little Martin Island
21SL141	21MT51	79, 80, 85, 86, 99, 00	52	U	8	8	LL, BD, SK, DB, HA	Sweetnose Island, Namakan, NR
21SL152		80, 86	27	2	5	5	LL, BD	Hidden Toad Site
21SL153		80, 87, 99	20	0	9	9	SK	Mudflat Site
21SL154		77, 78, 79, 80	U	U	0	0	LL, HE	HH Site, RL #8
21SL155		80	30	U	6	6	LL	Cove Bay Site
21SL156	1986-19	80, 86, 99, 00	23	2	0	0	LL, BD, SK, SL, HA	FF 1 and 2, 1980-23
21SL157		80	U	U	0	0	BD	Running Duck
21SL158		80	0	0	0	0	HLC	V&RL Camp 129
21SL159	36-03	76, 80, 85, 92	0	0	0	0	HLC	V&RL Camp 137
21SL160		80	0	0	2	1	HLC	V&RL Camp 35

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
21SL161		80, 91	U	U	0	0	HLC	V&RL Camp 111
21SL170	1986-13	86	10	1	0	0	HLC	
21SL171	1986-05	86	20	8	6	5.2	LL, BD, SK, SL, HA	
21SL172	1986-04	86, 01	18	9	7	7	LL, BD, HA	
21SL173	1986-26	86, 87, 01	6	5	7	7	LL, BD, HA	
21SL175	1986-14	86	17	4	2	2	LL, SL, SK	Mukooda Interior
21SL176	1986-12	86, 89	36	2	4	3.9	LL, BD	Mukooda Campground
21SL177	1986-09	86	10	2	7	7	LL, TW	Grassy Bay
21SL178	1986-08	86	24	1	2	2	LL, BD, SL, HE	Grassy Bay
21SL179	1986-07	86	1	0	0	0	BD	Grassy Bay
21SL180	1986-06	86	8	2	0	0	HE, HLC	in Brown's Bay
21SL181	1986-28	86	8	4	0	0	LL, BD	Sexton Island
21SL182	1986-23	86, 00	0	0	0	0	PR, HA	Tar Point, Bego allotment
21SL183	1986-22	86, 92, 00	170	146	5	3.9	LL, BD, SK, HA	Wigwam Island, bundle burial
21SL184	1986-20	86	4	2	0	0	WO	
21SL185	1986-18	86, 91	2	0	0	0	PR	
21SL186	1986-17	86, 02	9	5	0	0	LL	Namakan Island campsite
21SL187	1986-11	86, 91	10	5	4	3	LL, HE	
21SL188	1986-10	86	29	3	3	2.2	LL, TW	Round Bear Island
21SL189	1986-03	86	80	20	6	6	BD, SL, HE	Ek's Bay Camp, ricing jigs
21SL190	1986-02	86	0	0	0	0	HE	La Bonty's Cabin
21SL191	1986-27	86, 87, 01	17	10	4	3.5	LL, HA	86-27 and 87-19
21SL192	1987-28	87	0	0	0	0	PR	
21SL193	1987-27	87	0	0	0	0	TW	
21SL194	1987-21	87, 92	2	1	0	0	PR	
21SL195	1987-22	87	0	0	0	0	AR, LL	
21SL196	1987-20	87	0	0	0	0	TW	South of 21SL237
21SL197	1987-15	87	12	6	2	2	LL, TW, HE	Moxie Island
21SL198	1987-16	87	1	U	0	0	SL	
21SL199	1987-17	87	36	6	4	4	LL	Rainbow Island
21SL200	1987-18	87	5	2	2	2	AR, LL, BD	
21SL201	1987-01	87	12	9	0	0	LL, TW	
21SL202	1987-03	87	8	6	0	0	LL, TW	
21SL203	1987-04	87	7	0	0	0	BD	ALSO #16-4
21SL204	1987-05	87	11	6	3	3	PR	

Table 7. Continued.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
21SL205	1987-06	87	U	0	0	0	PR	
21SL206	1987-07	87	0	0	0	0	HE	
21SL207	1987-08	87	0	0	0	0	PR, HE	
21SL208	1987-09	87	3	2	0	0	LL, BD	American Channel
21SL209	1987-10	87	1	1	0	0	BD	rock and mudflat
21SL210	1987-11	87, 91	24	10	4	2.5	PR, HE, HA	Boy's Camp
21SL211	1987-12	87	4	0	0	0	HE, BD	Fish Camp, steamboat landing
21SL212	1987-13	87, 99	15	3	3	2	LL, BD, SL, HA	Gold Portage
21SL213	1987-14	87	0	0	0	0	SL	
21SL214	1987-23	87	0	0	0	0	PR	
21SL215	1987-24	87	6	0	0	0	SL	
21SL216	1987-25	87	1	0	0	0	TW	
21SL217	1987-26	87	1	0	0	0	PR	
21SL218	1988-04	88	6	3	0	0	PR	
21SL219	1988-05	88	3	1	0	0	TW	Monroe Point
21SL220	1988-06	88, 91	7	3	0	0	PR, HE	
21SL221	1988-07	88	2	1	0	0	PR	
21SL222	1988-02	88, 91	7	6	0	0	BD	
21SL223	1988-01	88	3	1	0	0	TW	Feedem Island
21SL224	1988-03	88	3	1	0	0	WO	
21SL225	1980-33	80	0	0	0	0	TW	Piled Rock site
21SL226	1980-31	80	0	0	0	0	LL, BD	Stone site
21SL227	1980-30	80	0	0	0	0	WO	Hidden Rock site
21SL228	1980-32	80	0	0	0	0	TW	Reef Island
21SL229	1980-29	80	10	0	0	0	TW	Cattail site
21SL230	1980-28	80, 91	0	0	0	0	PR	Swanson's Bay #1
21SL231	1980-27	80	U	0	0	0	PR	Swanson's Bay #2
21SL232	1980-26	80	0	0	0	0	PR	Shallow Rock
21SL233	1980-25	80, 92	36	1	0	0	PR	T. B. site
21SL234	1980-24	80	0	0	0	0	PR	J. R. site
21SL235	1980-35	80	U	0	0	0	WO	King Williams Narrows #1
21SL236	1980-02	80	3	0	0	0	PR	LOOK BACK site
21SL237	1980-01	80, 87	9	1	0	0	LL, TW, HE	Yellow Flowers
21SL238	1980-38	80	0	0	0	0	WO	Hourglass site
21SL239	1980-34	80	0	0	0	0	PR	Houseboat Island
21SL240	1980-05	80	10	0	0	0	TW	Hiccup site
21SL241	1980-14	80	0	0	0	0	WO	Rainy Lake #1
21SL242	1980-13	80, 85, 92	30	5	1	1	BD	Rainy Lake #2
21SL243	1980-12	80	0	0	0	0	WO	Rainy Lake #3

Table 7. Concluded.

MINNNUM	FIELDSITE	YEARS	STT	STP	EXT	EXA	AFFILIATION	COMMENTS
21SL244	1980-11	80	U	U	0	0	WO	Rainy Lake #4
21SL245	1980-07	80	0	0	0	0	PR	C. S. site
21SL246	1980-08	80	11	0	0	0	TW	Pebble Beach
21SL247	1980-09	80, 85	5	0	0	0	WO	Kempton Channel
21SL248	1980-10	80, 85	12	0	0	0	TW	Beaver Lodge
21SL249	1980-36	80	0	0	0	0	PR	Crippled Toad
21SL250	1980-37	80, 01	7	5	0	0	LL, BD	Brad Murphy site
21SL251	1980-03	80, 87	5	0	0	0	TW	Woodchuck site
21SL252	1980-04	80, 91	5	0	0	0	TW	Wrong Beach
21SL253	1980-21	80	U	U	0	0	PR	Indian Point
21SL254	1980-15	80	0	0	0	0	HA	John Bay #1, bead
21SL255	1980-16	80	0	0	0	0	PR	Sand Box site
21SL256	1980-17	80	0	0	0	0	WO	Stump site
21SL257	1980-18	80	0	0	0	0	WO, HE	Stovetop site
21SL258	1980-19	80, 92	0	0	0	0	PR, HE	C.G. 1 site
21SL893	1999-05	99, 01	50	42	4	4	AR, LL, BD, HA	highly significant site
21SL894	2001-02	01	6	1	0	0	PR	single test
21SL895	2001-03	01	9	3	0	0	BD	Rottenwood Island
21SL896	2001-04	01	9	1	0	0	PR	Green Island
21SL897	2001-05	01	8	7	0	0	LL, BD, HE	Mouth of Sullivan Bay
21SL898	2001-06	01	18	12	1	1	AR, LL, BD	Kab narrows
21SL899	2001-07	01	8	5	0	0	BD	Sand Point near SL893
21SL900	2001-08	01	10	2	0	0	PR	near Ingersol's
21SL901	2001-09	01	4	0	0	0	HA	2 Ojibwe Cabins and ricing jigs
21SL903	2002-01	02	11	1	0	0	BD, LL	ceramic scatter
21SL904	2002-02	02	12	12	2	2	BD, LL	Sullivan Bay point
21SL905	2002-03	02	5	1	4	4	AR	Namakan Entrance Campsite
21SL906	20-01	76, 02	5	2	0	0	WO	structural features
21SL907	2002-05	02	0	0	0	0	HA	Ojibwe cabin berm and ricing jigs
21SL908	20-02	76, 02	0	0	0	0	HE	structural features, 1893–1898
21SL909	2002-07	02	9	3	0	0	PR	Ingersol's south point
21SL910	2002-08	02	0	0	0	0	HE	berm near Elsworth Rock Garden

Note: Column headings are keyed to Table 5 variable labels, and individual entries correspond to Table 5 value labels.

Table 8. Site condition, use, and significance data.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
—	01-01	P	NO	U	U	U	N	U	E
—	01-02	P	NO	U	U	U	N	U	E
—	01-03	P	NO	U	U	U	N	U	E
—	02-03	G	NO	L	P	G	N	L	M
—	03-02	P	NO	U	U	U	N	U	E
—	07-01	P	UN	U	PI	U	N	U	E
—	07-02	P	UN	U	U	U	N	U	E
—	16-01	P	UN	U	PI	U	N	U	E
—	16-03	P	UN	U	U	U	N	U	E
—	17-01	P	NO	U	U	U	N	U	E
—	18-01	P	UN	U	U	U	N	U	E
—	19-10	P	UN	U	U	U	N	U	E
—	1980-06	F	BE	S	R	P	N	X	M
—	01-04	P	US	U	U	U	P	U	E
—	1980-20	G	US	L	P	G	F	L	M
—	1980-22	F	UC	S	R	P	N	X	M
—	1980-39	P	BE	U	U	U	N	U	E
—	1980-40	F	BE, CB	M	U	U	N	U	E
—	1985-01	G	NO	U	PI	G	N	X	M
—	1985-02	G	NO	U	PI	G	N	X	M
—	1985-03	G	CB	L	PI	G	N	L	E
—	1985-04	G	CA	U	P	G	N	L	E
—	1985-05	G	NO	L	PI	G	N	L	M
—	1985-06	G	US	L	PI	G	N	L	M
—	1985-07	F	NO	U	U	G	N	L	E
—	1985-08	F	UC	L	PI	U	U	L	E
—	1985-09	F	BE	L	PI	U	U	L	E
—	1985-10	F	UC	L	PI	G	U	U	E
—	1985-11	G	US	U	P	G	N	L	E
—	1985-12	G	NO	U	P	G	N	L	E
—	1985-13	G	NO	U	P	G	N	L	E
—	1985-14	F	NO	U	P	G	N	L	E
—	1985-15	F	NO	U	P	G	N	L	E
—	1985-16	G	BE	U	PI	G	N	L	E
—	1985-17	F	CL	U	PI	G	N	L	M
—	1985-18	F	BE	L	U	F	N	U	E
—	1985-19	G	NO	U	P	G	N	L	M
—	1986-16	G	NO	L	P	G	N	L	E
—	1989-02	F	NO	L	P	G	N	L	E
—	1991-01	P	UC	M	U	U	F	U	E
—	1991-02	P	US	U	P	U	N	U	E
—	1991-03	P	NO	L	P	G	N	U	E
—	1991-04	P	NO	L	P	G	N	U	E
—	1991-05	P	US	L	P	G	N	U	E

Table 8. Continued.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
—	1991-06	P	NO	L	P	G	N	U	E
—	1991-07	F	NO	L	P	G	N	U	E
—	1991-08	F	CL	M	PI	G	N	S	M
—	1992-01	P	NO	L	P	G	N	U	E
—	1992-03	F	BE	S	R	P	N	U	M
—	1992-04	F	NO	L	P	U	N	U	E
—	1992-05	F	US	U	P	G	N	U	E
—	1992-06	F	NO	L	P	G	N	U	E
—	1992-07	F	NO	L	P	G	N	U	E
—	1992-08	F	NO	L	P	G	N	U	E
—	1992-09	F	NO	L	P	G	N	U	E
—	1992-10	F	US	U	P	G	N	U	E
—	1992-11	F	NO	L	P	U	N	U	E
—	1992-12	F	NO	L	P	G	F	U	E
—	1992-13	F	NO	L	P	G	N	U	E
—	1992-14	P	NO	L	P	G	N	U	E
—	1992-15	P	BE	U	U	U	N	U	E
—	1992-16	F	NO	L	P	G	F	L	E
—	1994-01	F	NO	L	P	G	N	L	E
—	1995-01	P	UC	L	P	G	U	U	E
—	22-03	P	NO	U	U	U	N	U	E
—	25-04	P	NO	U	U	U	N	U	E
—	25-05	F	NO	U	U	U	N	U	E
—	25-06	P	NO	U	U	U	N	U	E
—	25-07	P	NO	U	U	G	N	U	E
—	27-02	G	NO	U	U	F	N	U	E
—	31-01	P	US	U	U	U	N	U	E
—	31-04	P	US	U	U	U	P	U	E
—	31-05	P	NO	L	P	G	U	U	E
—	31-06	F	BE, CB	L	P	G	N	L	E
—	31-07	P	NO	U	U	U	N	U	E
—	32-01	P	NO	U	U	U	N	U	E
—	32-04	P	NO	U	U	U	N	U	E
—	33-01	P	NO	U	PI	U	N	U	E
—	33-03	P	NO	U	U	U	N	U	E
—	36-04	G	NO	U	PI	G	N	L	E
—	39-01	G	NO	U	PI	G	N	U	E
—	41-01	G	NO	L	P	G	N	L	M
—	49-02	P	NO	U	U	U	N	U	E
—	49-08	P	NO	U	U	U	N	U	E
—	52-02	G	NO	L	P	F	N	L	M
—	54-01	P	NO	L	U	G	N	U	E
—	57-01	F	NO	U	P	G	N	L	X
—	57-02	F	US	U	P	F	P	U	N

Table 8. Continued.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
—	67-04	F	NO	L	P	F	N	L	X
—	67-05	P	NO	U	P	F	N	L	X
—	F/02	F	NO	X	P	G	N	U	E
—	F/03	F	IN	U	P	G	N	U	E
—	F/05	F	NO	U	PI	G	N	L	E
—	F/06	F	NO	U	PI	G	N	L	E
—	F/07	F	NO	U	PI	G	N	L	E
—	F/08	G	NO	L	P	G	N	L	M
—	F/09	F	NO	U	PI	G	N	L	E
—	F/10	F	NO	U	PI	G	N	L	E
—	F/13	F	NO	U	PI	G	N	L	E
—	F/15	F	NO	U	PI	G	N	L	E
—	F/16	F	NO	U	PI	G	N	L	E
—	F/17	F	NO	U	PI	G	N	S	X
—	F/21	F	IN	L	PI	G	N	L	E
—	F/23	F	NO	U	U	G	N	U	E
—	F/24	F	NO	U	U	G	N	L	E
—	F/25	F	NO	U	U	G	N	L	E
—	F/28	F	NO	U	U	G	N	L	E
—	F/29	F	NO	U	U	G	N	L	E
—	F/30	F	NO	U	PI	G	N	L	E
—	F/32	F	IN	U	PI	G	N	L	E
—	F/33	F	NO	L	P	G	N	L	X
—	F/34	F	IN	L	P	G	N	L	E
—	F/40	F	NO	U	P	G	N	L	E
—	F/41	F	NO	L	PI	G	N	L	E
—	F/45	F	NO	U	PI	G	N	L	E
—	F/47	F	NO	U	PI	G	N	L	E
—	F/48	F	CL	U	P	G	N	L	E
—	F/50	F	NO	U	PI	G	N	L	E
—	F/51	F	NO	U	PI	G	N	L	E
—	F/52	F	NO	U	PI	G	N	L	E
—	F/53	F	NO	U	PI	G	N	L	E
—	F/55	F	CL, IN	S	R	G	N	X	X
—	1999-07	F	NO	L	P	G	N	L	E
—	2000-02	P	NO	L	P	U	N	U	E
—	2000-03	P	NO	L	P	G	N	S	E
—	2000-04	P	NO	L	P	G	N	S	E
—	1999-01	F	BE	U	PI	U	F	U	E
—	1999-02	F	IN	M	PI	F	N	U	E
—	1999-03	F	IN	M	PI	F	N	U	E
—	1999-04	F	IN	M	U	U	N	U	E
—	1999-06	F	IN	M	PI	U	N	U	E
—	67-02	P	NO	U	U	U	N	U	E

Table 8. Continued.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
—	67-03	P	CL	U	U	U	N	U	E
—	1995-02	P	NO	L	P	G	N	U	E
—	04-01	P	NO	U	U	U	N	U	E
—	22-06	P	IN	U	U	U	N	U	E
—	31-08	P	NO	U	U	U	N	U	E
—	51-03	P	CL	U	U	U	N	U	E
—	51-02	P	CL	U	U	U	N	U	E
—	F/01	G	NO	L	P	G	N	X	E
—	F/11	G	NO	L	U	G	N	X	E
—	F/12	G	NO	S	U	P	F	X	E
—	F/14	G	NO	L	P	G	F	U	E
—	F/18	G	NO	S	U	P	F	X	X
—	F/19	G	NO	L	U	U	F	U	E
—	F/20	G	NO	S	PI	P	F	X	X
—	F/22	G	NO	L	PI	F	F	U	E
—	F/26	G	NO	L	P	G	F	L	X
—	F/27	G	NO	M	PI	F	F	X	X
—	F/31	F	NO	S	U	U	F	U	E
—	F/35	F	UC	S	R	P	U	X	X
—	F/36	F	NO	U	U	U	F	U	E
—	F/37	F	NO	U	U	U	F	U	U
—	F/38	F	NO	U	U	U	F	U	U
—	1986-24	P	—	U	U	P	N	U	E
21KC010	67-07	F	BE	S	R	P	N	X	M
21KC011	67-06	F	IN	U	U	U	N	U	E
21KC012	67-01	P	CA	U	U	U	U	U	E
21KC013	67-08	G	BE, CB	L	P	G	P	S	M
21KC014	67-09	G	US	L	P	G	N	L	E
21KC015	67-10	G	US	L	PI	G	N	L	E
21KC016	67-11	P	BE	U	U	U	N	U	E
21KC017	67-12	F	BE	L	PI	F	N	L	E
21KC018	66-01	F	BE	L	PI	F	N	L	E
21KC019	66-02	F	IN	L	U	U	N	U	E
21KC020	66-03	F	BE	L	U	U	N	U	E
21KC021	66-04	F	BE	L	PI	U	N	U	E
21KC022	66-05	P	BE	L	U	U	N	U	E
21KC090	2001-01	G	NO	L	P	G	N	L	E
21SL010	49-04	F	BE, CA	U	U	U	N	U	E
21SL011	61-01	F	BE, CA	L	U	U	N	U	E
21SL017	15-01,54	G	CL	L	P	G	U	L	M
21SL018	F/44	G	IN	L	PI	F	N	U	E
21SL019	F/49	F	BE	S	R	U	U	U	E
21SL020	F/43	G	CA	L	PI	G	U	L	E
21SL021	60-01	F	CL	L	P	G	U	S	E

Table 8. Continued.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
21SL022	60-02	G	UC	L	PI	G	U	L	E
21SL023	60-04	G	BE	L	P	G	U	S	M
21SL024	61-04	F	BE	M	PI	U	U	U	E
21SL025	61-02	F	BE	L	U	U	U	U	E
21SL026	61-03	F	BE	U	U	U	U	U	E
21SL027	51-01	F	BE	S	R	U	N	U	E
21SL028	62-02	F	NO	U	PI	U	U	U	E
21SL031	49-01	P	BE	U	U	U	U	U	E
21SL032	49-05	F	BE, CL	M	PI	U	N	U	E
21SL033	49-06	G	UC	L	PI	F	U	U	E
21SL034	49-07	F	CL	U	U	U	U	U	E
21SL035	50-01	G	BE, CB	L	P	G	N	S	M
21SL036	49-03	F	BE, CL	U	P	U	U	S	E
21SL037	48-01	P	US	L	U	U	N	U	E
21SL038	44-01	F	CB	M	PI	U	N	U	E
21SL039	44-05	P	BE	U	U	U	N	U	E
21SL040	45-02	F	BE	L	U	U	N	U	E
21SL041	45-01	F	BE	M	PI	U	N	U	E
21SL042	44-02	F	BE, CL	S	R	U	N	U	E
21SL043	44-03	F	BE, CL	S	R	U	N	U	E
21SL044	44-04	F	BE, LO	S	PI	F	N	U	M
21SL045	33-02	P	BE	U	U	U	N	U	E
21SL046	44-06	P	BE	U	U	U	N	U	E
21SL047	32-03	G	US	L	P	G	F	S	M
21SL048	32-02	G	BE	L	PI	G	N	L	M
21SL049	31-03	P	UC	U	U	U	N	U	E
21SL050	30-01	G	CB	L	P	G	N	L	M
21SL051	30-02	G	CB	M	PI	G	U	L	E
21SL052	23-03	G	CL, CB	L	P	G	U	S	M
21SL053	23-02	G	LO, CB	S	P	G	U	S	S
21SL054	22-01	F	CB	U	PI	F	N	L	E
21SL055	22-02	G	CB	M	P	G	N	L	S
21SL056	22-04	P	BE, CL	M	U	U	N	U	E
21SL057	22-05	F	BE, CL	S	R	P	N	X	X
21SL058	23-01	F	BE	U	U	U	P	U	E
21SL059	25-03	P	BE	U	U	U	N	U	E
21SL060	19-01	F	BE	S	R	U	N	U	E
21SL061	19-02	F	BE	U	U	U	P	U	E
21SL062	19-03	F	IN	S	R	U	N	U	E
21SL063	19-04	F	CB	M	U	U	N	U	E
21SL064	19-05	F	BE	U	U	U	N	U	E
21SL065	19-07	F	BE	U	U	U	N	U	E
21SL066	19-08	F	BE	S	R	U	N	U	E
21SL067	13-01,02	F	BE	U	PI	U	U	U	E

Table 8. Continued.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
21SL068	13-03	P	BE	U	U	U	N	U	E
21SL069	07-03	P	BE	U	U	U	N	U	E
21SL070	31-02	P	NO	U	PI	U	N	U	E
21SL071	19-06	F	CB, CA	M	PI	U	F	U	E
21SL072	05-01	P	NO	U	PI	U	N	U	E
21SL073	05-02	G	NO	L	P	G	N	L	M
21SL074	04-02	G	US	L	P	G	N	L	M
21SL075	03-03	P	BE	U	U	U	P	U	E
21SL076	03-01	G	UC	L	P	G	U	L	M
21SL077	08-01	F	BE	S	R	U	N	U	E
21SL078	03-04	P	US	L	U	U	P	U	E
21SL079	02-02	F	BE	S	R	P	N	X	X
21SL080	02-04	P	BE	U	U	U	N	U	E
21SL081	01-07	F	CB	S	U	U	U	U	E
21SL082	01-06	G	CB, CA	L	P	G	F	L	M
21SL083	01-05	G	CB	M	P	G	N	L	S,M
21SL084	02-01	G	UC	L	P	G	U	L	M
21SL085	25-02	G	BE	S	R	P	N	X	X
21SL086	26-02	P	BE	S	R	P	P	U	E
21SL087	25-01	F	BE	S	R	P	N	X	X
21SL088	26-01	F	CB	S	R	U	N	U	E
21SL089	27-09	F	UC	U	P	G	N	U	E
21SL090	27-08	F	UC	U	PI	U	N	U	E
21SL091	27-07	F	UC	U	PI	G	N	U	E
21SL092	27-03	G	BE, UC	L	PI	G	U	L	E
21SL093	27-06	G	BE, UC	M	PI	G	U	L	E
21SL094	27-04	G	UC	L	PI	F	U	L	E
21SL095	27-05	F	BE	S	R	P	U	X	X
21SL096	36-06	G	BE	S	R	P	N	X	X
21SL097	36-05	G	BE	S	R	P	N	X	X
21SL098	27-01	G	BE	S	R	P	N	X	X
21SL099	37-01	G	BE	S	U	P	N	X	X
21SL100	40-04	G	BE	S	U	P	N	X	X
21SL101	53-01	F	BE	L	PI	U	U	L	E
21SL102	40-01	G	BE	S	R	P	N	X	X
21SL103	40-03	G	BE	S	R	P	N	X	X
21SL104	39-06	G	BE	S	R	P	N	X	X
21SL105	40-02	G	BE	S	R	P	N	X	X
21SL106	39-05	P	BE	U	U	U	N	U	E
21SL107	39-02	F	BE	L	PI	G	N	L	E
21SL108	39-03,4	F	BE	U	PI	G	N	L	E
21SL109	54-03	F	BE	S	R	P	N	X	X
21SL110	54-04	F	BE	S	R	P	N	X	X
21SL111	57-03	F	BE	S	R	P	N	X	X

Table 8. Continued.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
21SL112	—	P	BE	U	U	U	N	U	E
21SL113	—	P	BE	U	U	U	N	U	E
21SL114	1987-02	G	BE	M	U	U	N	U	E
21SL115	60-03	G	BE	M	U	U	N	U	E
21SL116	—	F	BE	M	U	U	N	U	E
21SL117	—	F	BE	M	U	U	N	U	E
21SL118	—	F	BE	U	U	U	N	U	E
21SL119	1986-15	G	BE, UC	L	PI	G	U	L	M
21SL120	—	F	BE	S	R	P	N	X	M
21SL121	—	F	BE	S	R	U	N	U	E
21SL122	—	F	BE	S	R	U	N	U	E
21SL123	—	F	BE	M	U	U	N	U	E
21SL124	—	P	BE, CB	U	U	U	N	U	E
21SL125	—	G	BE, CB	S	R	P	N	L	D
21SL126	—	G	BE, CB	M	PI	F	N	L	E
21SL127	—	P	BE	M	U	U	N	U	E
21SL128	—	P	BE, CA	M	U	U	U	U	E
21SL129	—	F	BE, CB	M	PI	U	U	U	E
21SL130	—	F	BE	S	R	U	U	X	X
21SL131	—	F	BE	M	U	U	U	X	X
21SL132	—	F	BE	S	R	P	N	X	X
21SL133	—	F	BE	S	R	P	N	X	X
21SL134	—	F	BE, CB	M	PI	U	N	U	E
21SL136	21-PS-11	F	CA	L	U	U	F	U	E
21SL137	21WI1	G	CB	L	P	G	U	L	S
21SL138	21DM1	G	CB	L	U	F	F	L	M
21SL139	21CS1	F	BE, CB	M	U	U	N	U	E
21SL140	21LM1	P	UC	U	PI	U	N	U	E
21SL141	21MT51	G	CB	L	P	G	U	L	M
21SL152	—	G	CB	M	PI	G	N	L	M
21SL153	—	G	IN	M	PI	F	N	L	D
21SL154	—	F	BE	M	P	F	N	U	E
21SL155	—	G	BE	S	PI	F	F	L	S
21SL156	1986-19	G	BE, CB, CL	M	PI	G	N	L	S
21SL157	—	F	IN	M	U	U	N	U	E
21SL158	—	G	CO	L	P	G	N	L	M
21SL159	36-03	G	NO	X	P	G	N	L	M
21SL160	—	G	NO	X	P	G	N	L	M
21SL161	—	G	NO	X	P	G	N	L	M
21SL170	1986-13	F	BE	L	P	G	N	L	E
21SL171	1986-05	G	CB, UC	L	P	G	U	L	M
21SL172	1986-04	G	CB, UC	L	P	G	U	L	M
21SL173	1986-26	G	UC	M	P	G	U	S	M
21SL175	1986-14	G	NO	L	P	G	N	L	M

Table 8. Continued.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
21SL176	1986-12	G	CA	M	PI	F	F	L	M
21SL177	1986-09	G	CB, CA	M	PI	F	U	L	M
21SL178	1986-08	G	CA	L	PI	G	N	L	M
21SL179	1986-07	F	CB, CA	S	R	P	U	X	M
21SL180	1986-06	P	CB	M	PI	U	P	U	E
21SL181	1986-28	F	CB	U	PI	G	N	U	E
21SL182	1986-23	F	CO	L	P	G	N	L	E
21SL183	1986-22	G	CB, UC	L	P	G	N	S	M
21SL184	1986-20	F	CB	M	PI	F	N	U	E
21SL185	1986-18	F	NO	L	U	U	U	U	E
21SL186	1986-17	G	CA	M	PI	G	F	U	E
21SL187	1986-11	G	UC	L	P	G	N	L	M
21SL188	1986-10	G	CA	L	P	G	F	L	M
21SL189	1986-03	G	CB, CA	M	PI	G	F	L	M,D
21SL190	1986-02	F	CA	L	PI	G	U	L	E
21SL191	1986-27	G	BE	L	P	G	N	L	M
21SL192	1987-28	F	BE	M	U	U	N	U	E
21SL193	1987-27	F	BE	L	PI	G	N	U	E
21SL194	1987-21	F	BE	U	PI	F	U	U	E
21SL195	1987-22	F	BE	S	U	U	N	U	E
21SL196	1987-20	F	IN	M	U	U	N	U	E
21SL197	1987-15	G	UC	M	PI	F	N	L	M
21SL198	1987-16	F	BE	S	U	U	N	U	E
21SL199	1987-17	G	CB, CA	M	PI	G	F	L	S
21SL200	1987-18	G	BE	M	PI	F	N	L	M
21SL201	1987-01	F	BE	M	P	G	N	U	E
21SL202	1987-03	F	BE, CB	L	P	G	U	U	E
21SL203	1987-04	F	BE, CB	S	R	P	F	X	X
21SL204	1987-05	G	CB	M	PI	G	N	L	M
21SL205	1987-06	F	BE	S	R	P	N	X	X
21SL206	1987-07	F	CL	M	P	G	N	L	D
21SL207	1987-08	F	BE	M	U	F	N	U	E
21SL208	1987-09	F	BE	M	PI	F	N	U	E
21SL209	1987-10	F	IN	S	R	P	N	X	M
21SL210	1987-11	G	CB	M	PI	G	N	L	S
21SL211	1987-12	F	CO, BE	M	U	F	N	L	E
21SL212	1987-13	G	IN, CO	M	P	G	N	S	D,M
21SL213	1987-14	F	IN, CB	U	U	U	N	U	E
21SL214	1987-23	F	BE, IN	M	U	U	N	U	E
21SL215	1987-24	F	IN	S	R	U	N	U	E
21SL216	1987-25	F	CB, IN	S	R	U	N	U	E
21SL217	1987-26	F	IN	S	R	U	N	U	E
21SL218	1988-04	F	CB UC	M	PI	G	U	L	E
21SL219	1988-05	F	NO	M	PI	F	N	U	E

Table 8. Continued.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
21SL220	1988-06	F	US	L	PI	F	N	U	E
21SL221	1988-07	F	CA	M	PI	F	U	U	E
21SL222	1988-02	F	NO	U	P	G	N	U	E
21SL223	1988-01	F	NO	L	PI	G	N	U	E
21SL224	1988-03	F	IN	M	U	G	U	U	E
21SL225	1980-33	F	BE	S	R	U	N	U	E
21SL226	1980-31	F	BE	U	U	U	N	U	E
21SL227	1980-30	F	BE, US	U	U	U	N	U	E
21SL228	1980-32	F	CA	S	R	U	F	U	E
21SL229	1980-29	F	BE	S	R	U	N	U	E
21SL230	1980-28	F	BE	S	R	U	N	U	E
21SL231	1980-27	F	BE	S	R	U	N	U	E
21SL232	1980-26	F	BE	S	R	P	N	X	M
21SL233	1980-25	F	BE	S	R	P	N	X	M
21SL234	1980-24	F	BE	M	U	U	N	U	E
21SL235	1980-35	F	CB	S	R	U	N	U	E
21SL236	1980-02	F	BE	S	R	P	N	X	M
21SL237	1980-01	G	BE, CB	M	U	F	N	L	E
21SL238	1980-38	F	IN	S	R	U	N	U	E
21SL239	1980-34	F	IN	S	R	U	N	U	E
21SL240	1980-05	F	BE	S	R	P	N	X	M
21SL241	1980-14	F	IN	S	R	P	N	X	M
21SL242	1980-13	G	BE	L	PI	G	N	L	E
21SL243	1980-12	F	IN	S	R	P	N	X	M
21SL244	1980-11	F	IN	S	R	P	N	X	X
21SL245	1980-07	F	BE	S	R	P	N	X	X
21SL246	1980-08	F	BE	S	R	P	N	X	M
21SL247	1980-09	F	BE	S	R	P	N	X	M
21SL248	1980-10	F	BE	S	R	P	N	X	M
21SL249	1980-36	P	BE	U	U	U	N	U	E
21SL250	1980-37	F	UC, BE	L	PI	G	P	U	E
21SL251	1980-03	F	BE	S	R	P	N	X	M
21SL252	1980-04	F	BE	S	R	P	N	X	M
21SL253	1980-21	F	IN	M	U	U	N	U	E
21SL254	1980-15	F	UC	U	U	U	N	U	E
21SL255	1980-16	F	IN	S	R	U	N	X	E
21SL256	1980-17	F	IN	S	R	P	N	X	M
21SL257	1980-18	F	BE	U	U	U	N	U	E
21SL258	1980-19	F	UC	U	U	U	N	U	E
21SL893	1999-05	G	BE, US	L	P	G	P	S	M
21SL894	2001-02	G	US	L	P	U	P	U	E
21SL895	2001-03	G	US	L	P	G	P	U	E
21SL896	2001-04	G	US	L	U	U	P	U	E
21SL897	2001-05	G	US	L	P	G	P	L	E

Table 8. Concluded.

MINNNUM	FIELDSITE	DOC	DISTURB	IMPACT	INTG	CON	USE	SIGN	NEED
21SL898	2001-06	G	CB, US	L	P	G	P	S	E
21SL899	2001-07	G	US	L	PI	G	P	U	E
21SL900	2001-08	G	US	L	U	U	P	U	E
21SL901	2001-09	G	CB	L	P	G	N	S	E
21SL903	2002-01	G	CB	L	P	G	P	U	E
21SL904	2002-02	G	CB	L	P	G	P	L	M
21SL905	2002-03	G	—	L	P	G	F	L	M
21SL906	20-01	G	US	M	PI	G	P	U	E
21SL907	2002-05	G	NO	L	P	G	N	L	M
21SL908	20-02	G	NO	L	P	G	N	L	E
21SL909	2002-07	G	US	M	PI	G	P	U	E
21SL910	2002-08	G	NO	L	P	G	N	U	E

Table 9. Sites with Archaic components.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
21KC013	67-08	AR, LL, BD, SK, SL, HA, HE	RAIN	BE, BH	G	P
21SL021	60-01	AR, WO, HA	KABE	BE, RO	F	P
21SL035	50-01	AR, LL, TW	KABE	BE, BH	G	P
21SL039	44-05	AR	KABE	BE	P	U
21SL047	32-03	AR, LL, TW, HA	KABE	RO, BH, BE	G	P
21SL056	22-04	AR, BD	NAMA	BE	P	U
21SL082	01-06	AR, LL, SL, BD, HA	CRAN	BH, BE	G	P
21SL195	1987-22	AR, LL	NAMA	BE	F	U
21SL200	1987-18	AR, LL, BD	NAMA	BE, RO	G	PI
21SL212	1987-13	AR, LL, BD, SL, HA	KABE	MF	G	P
21SL893	1999-05	AR, LL, BD, HA	SAND	BE, BH	G	P
21SL898	2001-06	AR, LL, BD	KABE	BH	G	P
21SL905	2002-03	AR	NAMA	RO, BH	G	P

Table 10. Absolute dates from sites at Voyageurs National Park; Part 1 (pages 64, 65) includes dates, Part 2 (pages 65, 66) includes reference citations.

Year	Site	Horizontal Prov.	Vertical Prov.	Type	Lab Number	Reported Age	Material Dated
1980	21SL017	Unit 3	26 cm	TL	WU-TL-101r	AD 1070 ± 90	cord-marked body sherd
1980	21SL017	Unit 4	23 cm	TL	WU-TL-101t	AD 970 ± 90	cord-marked body sherd
1986	21SL023	Unit 1	30 cm	TL	Alpha-3162	AD 1620 ± 50	cord-marked body sherd
1986	21SL023	Unit 1	35 cm	TL	Alpha-3166	AD 700 ± 230	plain (?) sherd
1979	21SL035	24.3-25.3S, 24-25E	—	TL	Alpha-864	AD 750 ± 240	Laurel dentate sherd
1979	21SL035	29-30S, 41.5-42.5E	50 cm	C-14	TX - 3617	4410 ± 70 BP	charcoal from feature
1982	21SL035	eroding cutbank	—	TL	Alpha-863	AD 625 ± 265	Laurel dentate sherd
1979	21SL035	29-30S, 41.5-42.5E	20–60 cm	TL	WU-TL-90b	AD 580 ± 125	Laurel body sherd
1979	21SL050	Unit 1	10 cm	TL	WU-TL-90a1	AD 1455 ± 55	Selkirk body sherd
1979	21SL050	Unit 1	10 cm	TL	WU-TL-90a2	AD 1400 ± 65	Selkirk body sherd
1979	21SL050	Unit 1	10 cm	TL	WU-TL90a	AD 1430 ± 60	average of 2 dates
1980	21SL053	eroding cut bank	40 cm	TL	WU-TL-101q	AD 400 ± 210	Laurel punctate rim
1980	21SL073	Unit 3	—	TL	Alpha 872	AD 1080 ± 174	untyped sherd
1980	21SL073	Unit 2	0–10 cm	TL	Alpha-865	AD 580 ± 274	untyped sherd
1980	21SL073	Unit 3	28 cm	TL	WU-TL-101s	AD 190 ± 170	Laurel body sherd
1986	21SL074	Unit 9	10 cm	TL	Alpha-3159	AD 1310 ± 80	untyped sherd
1986	21SL082	Unit 1	16 cmbs	TL	Alpha-3163	AD 830 ± 140	combed and cord-impressed Blackduck sherd
1986	21SL082	Unit 1	24–27 cm	TL	Alpha-3164	AD 1200 ± 80	cord-impressed and punctate Blackduck sherd
1979	21SL082	Unit 4	—	TL	Alpha 873	AD 1310 ± 128	cord-marked body sherd
1979	21SL137	21-22S, 10-11W	0–10 cm	TL	Alpha-866	AD 1220 ± 146	untyped sherd
1979	21SL141	001-002-1	10–20 cm	TL	Alpha-870	AD 1500 ± 90	cord-marked body sherd
1979	21SL141	9-10S, 12-13W	20 cm	TL	WU-TL-90e	AD 965 ± 115	cord-marked body sherd
1979	21SL141	001-002-2	10–20 cm	TL	Alpha-871	AD 1450 ± 100	fabric-impressed sherd
1980	21SL141	slump excavation	—	TL	Alpha-874	AD 1390 ± 112	fabric-impressed sherds
1979	21SL141	9-10S, 12-13W	20 cm	TL	WU-TL-90d	AD 1085 ± 100	cord-marked body sherd
1980	21SL152	Unit 3	0–10 cm	TL	Alpha-875	AD 1130 ± 175	plain sherds
1980	21SL153	Unit 9	0–10 cm	TL	Alpha-867	AD 1205 ± 149	fabric-impressed sherd

Table 10. Part 1 Concluded.

Year	Site	Horizontal Prov.	Vertical Prov.	Type	Lab Number	Reported Age	Material Dated
1986	21SL171	Unit 5, 9-10N, 5-6W	14 cm	TL	Alpha-3160	AD 530 ± 60	Laurel dentate sherd
1986	21SL175	Unit 1	10–14 cm	TL	Alpha-3165	AD 730 ± 110	Laurel body sherd
1986	21SL183	Unit 3	3–5 cm	TL	Alpha-3167	AD 1520 ± 60	fabric-impressed sherd
1986	21SL183	Unit 5, soil slump	28 cm	TL	Alpha-3168	AD 1360 ± 100	fabric-impressed sherd
1986	21SL187	Unit 4	13 cm	TL	Alpha-3161	AD 1110 ± 110	sloughed-sherds

Table 10. Part 2

Site	Lab Number	Illustration	Reference	Comments
21SL017	WU-TL-101r	—	Ross and Sutton 1981; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	cord-marked body sherd, Blackduck
21SL017	WU-TL-101t	—	Ross and Sutton 1981; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	cord-marked body sherd, Blackduck
21SL023	Alpha-3162	—	Richner 1992	sherd from reconstructed “Late Blackduck” vessel
21SL023	Alpha-3166	—	Richner 1992	smooth surface sherd, association uncertain
21SL035	Alpha-864	LRT 1986 Fig 21a	Lynott, Richner, and Thompson 1986	oblique-stamped Laurel vessel
21SL035	TX 3617	LRT 1986:Fig 23e	Lynott, Richner, and Thompson 1986	associated with an Archaic point, Richner (1999)
21SL035	Alpha-863	LRT 1986:Fig 21b	Lynott, Richner, and Thompson 1986	linear-stamped Laurel vessel
21SL035	WU-TL-90b	—	Ross and Sutton 1980; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	smooth body sherd from pit feature
21SL050	WU-TL-90a1	LRT 1986:Fig 27	Ross and Sutton 1980; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	Sturgeon Falls Fabric Impressed vessel
21SL050	WU-TL-90a2	LRT 1986:Fig 27	Ross and Sutton 1980; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	Sturgeon Falls Fabric Impressed vessel

Table 10. Part 2 Concluded.

Site	Lab Number	Illustration	Reference	Comments
21SL050	WU-TL90a	—	Ross and Sutton 1980; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	Sturgeon Falls Fabric Impressed vessel
21SL053	WU-TL-101q	LRT 1986 Fig 33d	Ross and Sutton 1981; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	Laurel Punctate vessel
21SL073	Alpha 872	—	Lynott, Richner, and Thompson 1986	"plain" sherd
21SL073	Alpha-865	LRT 1986 Fig 41d	Lynott, Richner, and Thompson 1986	possible Laurel–Blackduck transitional vessel
21SL073	WU-TL-101s	—	Ross and Sutton 1981; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	smooth body sherd (from Laurel Punctate vessel?)
21SL074	Alpha-3159	—	Richner 1992	incised body sherd (?)
21SL082	Alpha-3163	—	Richner 1992	combed neck with CWS impressions, Blackduck
21SL082	Alpha-3164	—	Richner 1992	oblique CWS and punctate, Blackduck
21SL082	Alpha 873	—	Lynott, Richner, and Thompson 1986	cord marked body sherd, Blackduck (?)
21SL137	Alpha-866	—	Lynott, Richner, and Thompson 1986	plain (?) sherd
21SL141	Alpha-870	—	Lynott, Richner, and Thompson 1986	body sherd
21SL141	WU-TL-90e	—	Ross and Sutton 1980; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	body sherd, probably Blackduck
21SL141	Alpha-871	—	Lynott, Richner and Thompson 1986	fabric-impressed body sherd (Selkirk?)
21SL141	Alpha-874	—	Lynott, Richner and Thompson 1986	fabric-impressed body sherds (Selkirk?)
21SL141	WU-TL-90d	—	Ross and Sutton 1980; Lynott and Perry 1984; Lynott, Richner, and Thompson 1986	body sherd, probably Blackduck
21SL152	Alpha-875	—	Lynott, Richner and Thompson 1986	linear-stamped vessel (?)
21SL153	Alpha-867	—	Lynott, Richner and Thompson 1986	fabric-impressed body sherd (Selkirk?)
21SL171	Alpha-3160	—	Richner 1992	dentate-decorated, partially reconstructed
21SL175	Alpha-3165	—	Richner 1992	smooth surface sherd with coil breaks
21SL183	Alpha-3167	—	Richner 1992	oblique CWS decoration, "Late Blackduck"
21SL183	Alpha-3168	—	Richner 1992	chevron-decorated lip, "Late Blackduck"
21SL187	Alpha-3161	—	Richner 1992	uncertain ceramic type

Notes: Abbreviations used above are TL = thermoluminescence; Prov. = Provenience; LRT = Lynott, Richner, and Thompson; CWS = cord-wrapped stick.

Table 11. Sites with Laurel components.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
—	1985-04	LL, BD, HE	RAIN	RO	G	P
—	1985-16	LL	RAIN	BE, BH	G	PI
—	1991-04	LL	CRAN	RO	P	P
—	1991-06	LL, BD	NAMA	BH, RO	P	P
—	1992-05	LL, BD	KABE	BH, RO	F	P
—	1995-01	LL, BD	RAIN	RO	P	P
21KC011	67-06	LL, BD, HE	RAIN	SB	F	U
21KC013	67-08	AR, LL, BD, SK, SL, HA, HE	RAIN	BE, BH	G	P
21KC014	67-09	LL, BD	RAIN	BE, BH	G	P
21KC017	67-12	LL, BD	RAIN	BE, BH	F	PI
21SL017	15-01,54	LL, BD, SL, HE, SK	RAIN	BE, BH	G	P
21SL022	60-02	LL, BD, HA	KABE	BE, BH	G	PI
21SL023	60-04	LL, BD	KABE	BE, BH	G	P
21SL024	61-04	LL, BD	KABE	BE, BH	F	PI
21SL026	61-03	LL, TW	KABE	BE	F	U
21SL028	62-02	LL, BD	KABE	BH	F	PI
21SL032	49-05	LL, BD, SL	KABE	BE	F	PI
21SL033	49-06	LL, BD, SK	KABE	BE	G	PI
21SL035	50-01	AR, LL, TW	KABE	BE, BH	G	P
21SL036	49-03	LL, BD, HA	KABE	BE, BH	F	P
21SL038	44-01	LL, BD, HE	KABE	BE, BH	F	PI
21SL040	45-02	LL, BD	KABE	BE	F	U
21SL041	45-01	LL, BD	KABE	BE, BH	F	PI
21SL043	44-03	LL, BD	KABE	BE	F	R
21SL047	32-03	AR, LL, TW, HA	KABE	RO, BH, BE	G	P
21SL048	32-02	LL	KABE	BE, BH, RO	G	PI
21SL052	23-03	LL, BD, HA	NAMA	BE, BH	G	P
21SL053	23-02	LL, BD, HA	NAMA	BE, BH	G	P
21SL055	22-02	LL, BD	NAMA	BH	G	P
21SL060	19-01	LL, BD	NAMA	BE	F	R
21SL063	19-04	LL, BD	NAMA	BH	F	U
21SL067	13-01,02	LL	NAMA	BE	F	PI
21SL073	05-02	LL, BD	NAMA	BH	G	P
21SL074	04-02	LL, BD, SL	SAND	RO	G	P
21SL076	03-01	LL, BD, SL, HA	SAND	BH, RO	G	P
21SL077	08-01	LL	SAND	BE	F	R
21SL081	01-07	LL, BD	CRAN	BH	F	U
21SL082	01-06	AR, LL, SL, BD, HA	CRAN	BH, BE	G	P
21SL083	01-05	LL, BD, HA	CRAN	BH	G	P
21SL084	02-01	LL, BD, HA	SAND	BH, RO	G	P
21SL090	27-08	LL	RAIN	BH	F	PI
21SL091	27-07	LL	RAIN	BH	F	PI
21SL092	27-03	LL, BD	RAIN	BE, BH	G	PI
21SL103	40-03	LL	RAIN	BE	G	R
21SL114	1987-02	LL, BD	KABE	BE	G	U
21SL115	60-03	LL, TW, HA	KABE	BE, BH	G	U
21SL117	—	LL	NAMA	BE	F	U
21SL119	1986-15	LL, BD	NAMA	BE, RO, SB	G	PI

Table 11. Concluded.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
21SL125	—	LL, BD	NAMA	BE, BH	G	R
21SL126	—	LL, BD, SL	NAMA	BE	G	PI
21SL128	—	LL	NAMA	BE, BH	P	U
21SL131	—	LL, SL	NAMA	BE	F	U
21SL132	—	LL	NAMA	BE	F	R
21SL134	—	LL, HE, HA	NAMA	BE, CB	F	PI
21SL137	21WI1	LL, BD, HA	NAMA	BH	G	P
21SL139	21CS1	LL	KABE	BE	F	U
21SL141	21MT51	LL, BD, SK, DB, HA	NAMA	BH	G	P
21SL152	—	LL, BD	SAND	BE, BH	G	PI
21SL154	—	LL, HE	RAIN	BE	F	P
21SL155	—	LL	NAMA	BH, BE	G	PI
21SL156	1986-19	LL, BD, SK, SL, HA	NAMA	BE, BH	G	PI
21SL171	1986-05	LL, BD, SK, SL, HA	SAND	BH, RO	G	P
21SL172	1986-04	LL, BD, HA	SAND	BH, RO	G	P
21SL173	1986-26	LL, BD, HA	SAND	RO	G	P
21SL175	1986-14	LL, SL, SK	MUKO	RO	G	P
21SL176	1986-12	LL, BD	MUKO	BH, RO	G	PI
21SL177	1986-09	LL, TW	SAND	BH	G	PI
21SL178	1986-08	LL, BD, SL, HE	SAND	RO	G	PI
21SL181	1986-28	LL, BD	NAMA	BH, RO	F	PI
21SL183	1986-22	LL, BD, SK, HA	NAMA	BE, BH	G	P
21SL186	1986-17	LL	NAMA	BH, RO	G	PI
21SL187	1986-11	LL, HE	KABE	RO	G	P
21SL188	1986-10	LL, TW	KABE	RO	G	P
21SL191	1986-27	LL, HA	SAND	BE, BH, RO	G	P
21SL195	1987-22	AR, LL	NAMA	BE	F	U
21SL197	1987-15	LL, TW, HE	KABE	RO	G	PI
21SL199	1987-17	LL	NAMA	RO	G	PI
21SL200	1987-18	AR, LL, BD	NAMA	BE, RO	G	PI
21SL201	1987-01	LL, TW	KABE	BE, BH	F	P
21SL202	1987-03	LL, TW	KABE	BE, BH	F	P
21SL208	1987-09	LL, BD	RAIN	BE	F	PI
21SL212	1987-13	AR, LL, BD, SL, HA	KABE	MF	G	P
21SL226	1980-31	LL, BD	SAND	BE	F	U
21SL237	1980-01	LL, TW, HE	NAMA	BE, SB, BH	G	U
21SL250	1980-37	LL, BD	SAND	BE, BH, RO	F	PI
21SL893	1999-05	AR, LL, BD, HA	SAND	BE, BH	G	P
21SL897	2001-05	LL, BD, HE	KABE	RO	G	P
21SL898	2001-06	AR, LL, BD	KABE	BH	G	P
21SL903	2002-01	BD, LL	KABE	BH, RO	G	P
21SL904	2002-02	BD, LL	KABE	BH, RO	G	P

Notes: Column headings correspond to variable names in Table 5; individual entries are coded according to the value labels in Table 5.

Table 12. Sites with Blackduck components.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
—	1985-03	HE, BD	RAIN	BH	G	PI
—	1985-04	LL, BD, HE	RAIN	RO	G	P
—	1991-02	BD	KABE	BH, RO	P	P
—	1991-03	BD	KABE	BH, RO	P	P
—	1991-05	BD	KABE	BH, RO	P	P
—	1991-06	LL, BD	NAMA	BH, RO	P	P
—	1991-07	BD	RAIN	RO	F	P
—	1992-05	LL, BD	KABE	BH, RO	F	P
—	1992-12	BD	RAIN	RO	F	P
—	1995-01	LL, BD	RAIN	RO	P	P
21KC011	67-06	LL, BD, HE	RAIN	SB	F	U
21KC013	67-08	AR, LL, BD, SK, SL, HA, HE	RAIN	BE, BH	G	P
21KC014	67-09	LL, BD	RAIN	BE, BH	G	P
21KC015	67-10	BD	RAIN	BE, BH	G	PI
21KC017	67-12	LL, BD	RAIN	BE, BH	F	PI
21KC018	66-01	BD	RAIN	BE	F	PI
21KC021	66-04	BD	RAIN	BE	F	PI
21SL010	49-04	BD, HA	KABE	BE	F	U
21SL017	15-01,54	LL, BD, SL, HE, SK	RAIN	BE, BH	G	P
21SL018	F/44	BD	RAIN	RO, SB	G	PI
21SL022	60-02	LL, BD, HA	KABE	BE, BH	G	PI
21SL023	60-04	LL, BD	KABE	BE, BH	G	P
21SL024	61-04	LL, BD	KABE	BE, BH	F	PI
21SL028	62-02	LL, BD	KABE	BH	F	PI
21SL032	49-05	LL, BD, SL	KABE	BE	F	PI
21SL033	49-06	LL, BD, SK	KABE	BE	G	PI
21SL036	49-03	LL, BD, HA	KABE	BE, BH	F	P
21SL038	44-01	LL, BD, HE	KABE	BE, BH	F	PI
21SL040	45-02	LL, BD	KABE	BE	F	U
21SL041	45-01	LL, BD	KABE	BE, BH	F	PI
21SL042	44-02	BD	KABE	BE	F	R
21SL043	44-03	LL, BD	KABE	BE	F	R
21SL044	44-04	BD	KABE	BE, MF	F	PI
21SL052	23-03	LL, BD, HA	NAMA	BE, BH	G	P
21SL053	23-02	LL, BD, HA	NAMA	BE, BH	G	P
21SL055	22-02	LL, BD	NAMA	BH	G	P
21SL056	22-04	AR, BD	NAMA	BE	P	U
21SL059	25-03	BD	NAMA	BE	P	U

Table 12. Continued.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
21SL060	19-01	LL, BD	NAMA	BE	F	R
21SL063	19-04	LL, BD	NAMA	BH	F	U
21SL073	05-02	LL, BD	NAMA	BH	G	P
21SL074	04-02	LL, BD, SL	SAND	RO	G	P
21SL076	03-01	LL, BD, SL, HA	SAND	BH, RO	G	P
21SL078	03-04	BD, HE, HA	SAND	RO	P	U
21SL081	01-07	LL, BD	CRAN	BH	F	U
21SL082	01-06	AR, LL, SL, BD, HA	CRAN	BH, BE	G	P
21SL083	01-05	LL, BD, HA	CRAN	BH	G	P
21SL084	02-01	LL, BD, HA	SAND	BH, RO	G	P
21SL085	25-02	BD	RAIN	BE	G	R
21SL092	27-03	LL, BD	RAIN	BE, BH	G	PI
21SL094	27-04	BD	RAIN	BE, RO	G	PI
21SL096	36-06	BD	RAIN	BE	G	R
21SL114	1987-02	LL, BD	KABE	BE	G	U
21SL119	1986-15	LL, BD	NAMA	BE, RO, SB	G	PI
21SL124	—	BD	NAMA	BE, BH	P	U
21SL125	—	LL, BD	NAMA	BE, BH	G	R
21SL126	—	LL, BD, SL	NAMA	BE	G	PI
21SL137	21WI1	LL, BD, HA	NAMA	BH	G	P
21SL141	21MT51	LL, BD, SK, DB, HA	NAMA	BH	G	P
21SL152	—	LL, BD	SAND	BE, BH	G	PI
21SL156	1986-19	LL, BD, SK, SL, HA	NAMA	BE, BH	G	PI
21SL157	—	BD	NAMA	SB	F	U
21SL171	1986-05	LL, BD, SK, SL, HA	SAND	BH, RO	G	P
21SL172	1986-04	LL, BD, HA	SAND	BH, RO	G	P
21SL173	1986-26	LL, BD, HA	SAND	RO	G	P
21SL176	1986-12	LL, BD	MUKO	BH, RO	G	PI
21SL178	1986-08	LL, BD, SL, HE	SAND	RO	G	PI
21SL179	1986-07	BD	SAND	BH	F	R
21SL181	1986-28	LL, BD	NAMA	BH, RO	F	PI
21SL183	1986-22	LL, BD, SK, HA	NAMA	BE, BH	G	P
21SL189	1986-03	BD, SL, HE	KABE	BH	G	PI
21SL200	1987-18	AR, LL, BD	NAMA	BE, RO	G	PI
21SL203	1987-04	BD	NAMA	BE, BH	F	R
21SL208	1987-09	LL, BD	RAIN	BE	F	PI
21SL209	1987-10	BD	NAMA	RO, MF	F	R
21SL211	1987-12	HE, BD	KABE	BE, BH	F	U

Table 12. Concluded.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
21SL212	1987-13	AR, LL, BD, SL, HA	KABE	MF	G	P
21SL222	1988-02	BD	NAMA	RO	F	P
21SL226	1980-31	LL, BD	SAND	BE	F	U
21SL242	1980-13	BD	RAIN	BE, BH	G	PI
21SL250	1980-37	LL, BD	SAND	BE, BH, RO	F	PI
21SL893	1999-05	AR, LL, BD, HA	SAND	BE, BH	G	P
21SL895	2001-03	BD	KABE	BH	G	P
21SL897	2001-05	LL, BD, HE	KABE	RO	G	P
21SL898	2001-06	AR, LL, BD	KABE	BH	G	P
21SL899	2001-07	BD	SAND	BH	G	PI
21SL903	2002-01	BD, LL	KABE	BH, RO	G	P
21SL904	2002-02	BD, LL	KABE	BH, RO	G	P

Notes: Column headings correspond to variable names in Table 5; individual entries are coded according to the value labels in Table 5.

Table 13. Sites with Selkirk components.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
21KC013	67-08	AR, LL, BD, SK, SL, HA, HE	RAIN	BE, BH	G	P
21SL017	15-01, 54	LL, BD, SL, HE, SK	RAIN	BE, BH	G	P
21SL033	49-06	LL, BD, SK	KABE	BE	G	PI
21SL050	30-01	SK	NAMA	BE, BH	G	P
21SL141	21MT51	LL, BD, SK, DB, HA	NAMA	BH	G	P
21SL153	—	SK	NAMA	MF	G	PI
21SL156	1986-19	LL, BD, SK, SL, HA	NAMA	BE, BH	G	PI
21SL171	1986-05	LL, BD, SK, SL, HA	SAND	BH, RO	G	P
21SL175	1986-14	LL, SL, SK	MUKO	RO	G	P
21SL183	1986-22	LL, BD, SK, HA	NAMA	BE, BH	G	P

Notes: Column headings correspond to variable labels listed in Table 5, and individual entries above correspond to the value labels in Table 5.

Table 14. Sites with Sandy Lake components.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
21KC013	67-08	AR, LL, BD, SK, SL, HA, HE	RAIN	BE, BH	G	P
21SL017	15-01,54	LL, BD, SL, HE, SK	RAIN	BE, BH	G	P
21SL032	49-05	LL, BD, SL	KABE	BE	F	PI
21SL074	04-02	LL, BD, SL	SAND	RO	G	P
21SL076	03-01	LL, BD, SL, HA	SAND	BH, RO	G	P
21SL082	01-06	AR, LL, SL, BD, HA	CRAN	BH, BE	G	P
21SL126	—	LL, BD, SL	NAMA	BE	G	PI
21SL131	—	LL, SL	NAMA	BE	F	U
21SL156	1986-19	LL, BD, SK, SL, HA	NAMA	BE, BH	G	PI
21SL171	1986-05	LL, BD, SK, SL, HA	SAND	BH, RO	G	P
21SL175	1986-14	LL, SL, SK	MUKO	RO	G	P
21SL178	1986-08	LL, BD, SL, HE	SAND	RO	G	PI
21SL189	1986-03	BD, SL, HE	KABE	BH	G	PI
21SL198	1987-16	SL	NAMA	BE	F	U
21SL212	1987-13	AR, LL, BD, SL, HA	KABE	MF	G	P
21SL213	1987-14	SL	KABE	BH	F	U
21SL215	1987-24	SL	RAIN	RO	F	R

Notes: Column headings correspond to variable labels listed in Table 5, and individual entries above correspond to the value labels in Table 5.

Table 15. Sites with undefined Terminal Woodland components.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
—	1980-06	TW	RAIN	BE	F	R
—	1980-22	TW	NAMA	BE	F	R
—	1980-40	TW, HA	NAMA	BE, BH	F	U
—	1992-10	TW	KABE	BH	F	P
—	1999-01	TW	NAMA	BE	F	PI
—	1999-03	TW	NAMA	MF	F	PI
21SL011	61-01	TW	KABE	BE	F	U
21SL026	61-03	LL, TW	KABE	BE	F	U
21SL035	50-01	AR, LL, TW	KABE	BE, BH	G	P
21SL046	44-06	TW	KABE	BE	P	U
21SL047	32-03	AR, LL, TW, HA	KABE	RO, BH, BE	G	P
21SL051	30-02	TW, ON, HA?	NAMA	BH, BE	G	PI
21SL054	22-01	TW, HA	NAMA	BE, BH	F	PI
21SL093	27-06	TW	RAIN	BE, BH	G	PI
21SL097	36-05	TW	RAIN	BE	G	R
21SL098	27-01	TW	RAIN	BE	G	R
21SL099	37-01	TW	RAIN	BE	G	U
21SL102	40-01	TW	RAIN	BE	G	R
21SL106	39-05	TW, HE	RAIN	BE	P	U
21SL107	39-02	TW	RAIN	BE, BH, RO	F	PI
21SL115	60-03	LL, TW, HA	KABE	BE, BH	G	U
21SL129	—	TW	NAMA	BE	F	PI
21SL177	1986-09	LL, TW	SAND	BH	G	PI
21SL188	1986-10	LL, TW	KABE	RO	G	P
21SL193	1987-27	TW	KABE	BE, RO, BH	F	PI
21SL196	1987-20	TW	NAMA	SB	F	U
21SL197	1987-15	LL, TW, HE	KABE	RO	G	PI
21SL201	1987-01	LL, TW	KABE	BE, BH	F	P
21SL202	1987-03	LL, TW	KABE	BE, BH	F	P
21SL216	1987-25	TW	RAIN	RO, MF	F	R
21SL219	1988-05	TW	SAND	RO	F	PI
21SL223	1988-01	TW	NAMA	BH	F	PI
21SL225	1980-33	TW	SAND	BE, RO	F	R
21SL228	1980-32	TW	SAND	RO	F	R
21SL229	1980-29	TW	SAND	BE	F	R
21SL237	1980-01	LL, TW, HE	NAMA	BE, SB, BH	G	U
21SL240	1980-05	TW	RAIN	BE	F	R
21SL246	1980-08	TW	RAIN	BE	F	R
21SL248	1980-10	TW	RAIN	BE, BH	F	R
21SL251	1980-03	TW	NAMA	BE	F	R
21SL252	1980-04	TW	NAMA	BE	F	R

Notes: Column headings correspond to variable labels listed in Table 5, and individual entries above correspond to the value labels in Table 5.

Table 16. Sites with historic Native American components.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
—	1980-40	TW, HA	NAMA	BE, BH	F	U
—	1986-16	HA	CRAN	BH	G	P
—	1989-02	HA	KABE	RO	F	P
—	1991-08	HA	CRAN	UP	F	PI
—	1992-04	PR, HA?	NAMA	RO	F	P
—	1992-13	HA	NAMA	BH, RO	F	P
—	1994-01	HE, HA	KABE	BH	F	P
—	1995-02	HA	NAMA	BH	P	P
—	2000-03	HA	KWN	UP	P	P
—	2000-04	HA	RAIN	BH	P	P
—	22-06	HA?	NAMA	RO	P	U
—	31-05	HA	NAMA	RO	P	P
—	31-06	HA	NAMA	BH, BE	F	P
—	32-04	HA	KABE	UP	P	U
—	F/40	HA	NAMA	UP	F	P
—	F/48	HA	RAIN	BH	F	P
21KC013	67-08	AR, LL, BD, SK, SL, HA, HE	RAIN	BE, BH	G	P
21KC022	66-05	HA	RAIN	BE	P	U
21SL010	49-04	BD, HA	KABE	BE	F	U
21SL021	60-01	AR, WO, HA	KABE	BE, RO	F	P
21SL022	60-02	LL, BD, HA	KABE	BE, BH	G	PI
21SL036	49-03	LL, BD, HA	KABE	BE, BH	F	P
21SL047	32-03	AR, LL, TW, HA	KABE	RO, BH, BE	G	P
21SL051	30-02	TW, ON, HA?	NAMA	BH, BE	G	PI
21SL052	23-03	LL, BD, HA	NAMA	BE, BH	G	P
21SL053	23-02	LL, BD, HA	NAMA	BE, BH	G	P
21SL054	22-01	TW, HA	NAMA	BE, BH	F	PI
21SL076	03-01	LL, BD, SL, HA	SAND	BH, RO	G	P
21SL078	03-04	BD, HE, HA	SAND	RO	P	U
21SL082	01-06	AR, LL, SL, BD, HA	CRAN	BH, BE	G	P
21SL083	01-05	LL, BD, HA	CRAN	BH	G	P
21SL084	02-01	LL, BD, HA	SAND	BH, RO	G	P
21SL115	60-03	LL, TW, HA	KABE	BE, BH	G	U
21SL131	—	LL, SL, HA	NAMA	BE	F	U
21SL134	—	LL, HE, HA	NAMA	BE, CB	F	PI
21SL137	21WI1	LL, BD, HA	NAMA	BH	G	P
21SL141	21MT51	LL, BD, SK, DB, HA	NAMA	BH	G	P
21SL156	1986-19	LL, BD, SK, SL, HA	NAMA	BE, BH	G	PI
21SL171	1986-05	LL, BD, SK, SL, HA	SAND	BH, RO	G	P
21SL172	1986-04	LL, BD, HA	SAND	BH, RO	G	P

Table 16. Concluded.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
21SL173	1986-26	LL, BD, HA	SAND	RO	G	P
21SL182	1986-23	PR, HA	NAMA	BH	F	P
21SL183	1986-22	LL, BD, SK, HA	NAMA	BE, BH	G	P
21SL191	1986-27	LL, HA	SAND	BE, BH, RO	G	P
21SL199	1987-17	LL, HA	NAMA	RO	G	PI
21SL210	1987-11	PR, HE, HA	KABE	BH	G	PI
21SL212	1987-13	AR, LL, BD, SL, HA	KABE	MF	G	P
21SL254	1980-15	HA	NAMA	BE	F	U
21SL893	1999-05	AR, LL, BD, HA	SAND	BE, BH	G	P
21SL901	2001-09	HA	CRAN	BH	G	P
21SL907	2002-05	HA	CRAN	BH	G	P

Notes: Column headings correspond to variable labels in Table 5, and individual entries above correspond to value labels in Table 5.

Table 17. Sites with Historic Euroamerican components.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
—	01-04	HE?	CRAN	BH	P	U
—	02-03	HE	SAND	RO	G	P
—	04-01	HE	SAND	BH	P	U
—	07-01	HE	NAMA	BH	P	PI
—	07-02	HE	NAMA	BH	P	U
—	16-01	HE	RAIN	UN	P	PI
—	16-03	HE	RAIN	UN	P	U
—	17-01	HE	NAMA	UN	P	U
—	19-10	HE	NAMA	UN	P	U
—	1985-01	HE	RAIN	RO	G	PI
—	1985-02	HE	RAIN	BH	G	PI
—	1985-03	HE, BD	RAIN	BH	G	PI
—	1985-04	LL, BD, HE	RAIN	RO	G	P
—	1985-05	HE	RAIN	RO	G	PI
—	1985-06	HE	RAIN	RO	G	PI
—	1985-07	HE	RAIN	BH	F	U
—	1985-08	PR, HE	RAIN	BH	F	PI
—	1985-09	HE	RAIN	BE	F	PI
—	1985-10	HE	RAIN	RO	F	PI
—	1985-11	HE	RAIN	BH	G	P
—	1985-12	HE	RAIN	BH	G	P
—	1985-13	HE	RAIN	RO	G	P
—	1985-14	HE	RAIN	RO	F	P
—	1985-15	HE	RAIN	RO	F	P
—	1985-18	HE	RAIN	BE	F	U
—	1985-19	HE	RAIN	RO	G	P
—	1992-01	HE	RAIN	RO	P	P
—	1992-14	HE	RAIN	RO	P	P
—	1992-15	HE	NAMA	BH, RO	P	U
—	1992-16	HE	RAIN	RO	F	P
—	1994-01	HE, HA	KABE	BH	F	P
—	1999-02	HE	NAMA	MF	F	PI
—	1999-07	HE	KABE	BH	F	P
—	22-03	HE	NAMA	UP	P	U
—	25-04	HE	NAMA	UP	P	U
—	25-06	HE	NAMA	UP	P	U
—	27-02	HE	RAIN	UP	G	U
—	31-01	HE, HLC	KABE	UP	P	U
—	31-08	HE	NAMA	BH	P	U
—	32-01	HE	KABE	UP	P	U
—	33-01	PR, HE	KABE	UP	P	PI
—	36-04	HE	RAIN	UP	G	PI

Table 17. Continued.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
—	39-01	HE	RAIN	UP	G	PI
—	52-02	HE	WAR	BH	G	P
—	54-01	HE	RAIN	RO	P	U
—	57-01	HE	RAIN	BH	F	P
—	57-02	HE	RAIN	UP	F	P
—	67-02	HE	RAIN	UN	P	U
—	67-04	HE	RAIN	UP	F	P
—	67-05	HE	RAIN	UP	P	P
—	F/01	HE	NAMA	LB	G	P
—	F/02	HE	NAMA	RO	F	P
—	F/03	HE	NAMA	LB	F	P
—	F/05	HE	NAMA	UP	F	PI
—	F/06	HE	NAMA	UP	F	PI
—	F/07	HE	NAMA	UP	F	PI
—	F/08	HE	NAMA	BH	G	P
—	F/09	HE	NAMA	UP	F	PI
—	F/10	HE	NAMA	RO	F	PI
—	F/11	HE	NAMA	UP	G	U
—	F/12	HE	NAMA	UP	G	U
—	F/13	HE	NAMA	RO	F	PI
—	F/14	HE	NAMA	UP	G	P
—	F/15	HE	NAMA	UP	F	PI
—	F/16	HE	NAMA	UP	F	PI
—	F/17	HE	RAIN	UP	F	PI
—	F/18	HE	NAMA	UP	G	U
—	F/19	HE	NAMA	UP	G	U
—	F/20	HE	RAIN	UP	G	PI
—	F/21	HE	NAMA	LB	F	PI
—	F/22	HE	NAMA	UP	G	PI
—	F/23	HE	RAIN	BH	F	U
—	F/24	HE	RAIN	RO	F	U
—	F/25	HE	RAIN	RO	F	U
—	F/26	HE	NAMA	UP	G	P
—	F/27	HE	RAIN	UP	G	PI
—	F/28	HE	RAIN	RO	F	U
—	F/29	HE	RAIN	RO	F	U
—	F/30	HE	RAIN	UP	F	PI
—	F/31	HE	RAIN	UP	F	U
—	F/32	HE	RAIN	LB	F	PI
—	F/33	HE	RAIN	BH	F	P
—	F/34	HE	RAIN	LB	F	P
—	F/36	HE	RAIN	UP	F	U

Table 17. Concluded.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
—	F/37	HE	RAIN	UP	F	U
—	F/38	HE	NAMA	UP	F	U
—	F/41	HE	NAMA	BH	F	PI
—	F/47	HE	RAIN	BH, UP	F	PI
—	F/50	HE	RAIN	BH, UP	F	PI
—	F/51	HE	RAIN	UP	F	PI
—	F/53	HE	RAIN	UP	F	PI
21KC011	67-06	LL, BD, HE	RAIN	SB	F	U
21KC013	67-08	AR, LL, BD, SK, SL, HA, HE	RAIN	BE, BH	G	P
21KC020	66-03	WO, HE	RAIN	BE	F	U
21KC090	2001-01	HE	RAIN	BH	G	P
21SL017	15-01,54	LL, BD, SL, HE, SK	RAIN	BE, BH	G	P
21SL038	44-01	LL, BD, HE	KABE	BE, BH	F	PI
21SL072	05-01	PR, HE	NAMA	UP	P	PI
21SL078	03-04	BD, HE, HA	SAND	RO	P	U
21SL080	02-04	WO, HE	SAND	BE	P	U
21SL095	27-05	PR, HE	RAIN	BE	F	R
21SL106	39-05	TW, HE	RAIN	BE	P	U
21SL108	39-03,4	PR, HE	RAIN	BE, BH	F	PI
21SL134	—	LL, HE, HA	NAMA	BE, CB	F	PI
21SL140	21LM1	HE	KABE	BH	P	PI
21SL154	—	LL, HE	RAIN	BE	F	P
21SL178	1986-08	LL, BD, SL, HE	SAND	RO	G	PI
21SL180	1986-06	HE, HLC	SAND	BH	P	PI
21SL187	1986-11	LL, HE	KABE	RO	G	P
21SL189	1986-03	BD, SL, HE	KABE	BH	G	PI
21SL190	1986-02	HE	KABE	BH, RO	F	PI
21SL197	1987-15	LL, TW, HE	KABE	RO	G	PI
21SL206	1987-07	HE	RAIN	BE	F	P
21SL207	1987-08	PR, HE	RAIN	BE	F	U
21SL210	1987-11	PR, HE, HA	KABE	BH	G	PI
21SL211	1987-12	HE, BD	KABE	BE, BH	F	U
21SL220	1988-06	PR, HE	SAND	RO	F	PI
21SL237	1980-01	LL, TW, HE	NAMA	BE, SB, BH	G	U
21SL257	1980-18	WO, HE	NAMA	BE	F	U
21SL258	1980-19	PR, HE	NAMA	BE	F	U
21SL897	2001-05	LL, BD, HE	KABE	RO	G	P
21SL908	20-02	HE	NAMA	UP	G	P
21SL910	2002-08	HE	KABE	BH	G	P

Notes: Column headings correspond to variable labels in Table 5, and individual entries above correspond to value labels in Table 5.

Table 18. Historic logging camp sites.

MINNNUM	FIELDSITE	AFFILIATION	LAKE	SETTING	DOC	INTG
—	1980-20	HLC	NAMA	BH	G	P
—	1985-17	HLC	RAIN	RO	F	PI
—	1986-24	HLC	SAND	BH	P	U
—	31-01	HE, HLC	KABE	UP	P	U
—	31-04	HLC	NAMA	UP	P	U
—	33-03	HLC	KABE	UP	P	U
—	41-01	HLC	RAIN	UP	G	P
—	F/52	HLC	RAIN	BH	F	PI
21SL158	—	HLC	NAMA	RO	G	P
21SL159	36-03	HLC	RAIN	BH, RO	G	P
21SL160	—	HLC	NAMA	RO	G	P
21SL161	—	HLC	NAMA	RO	G	P
21SL170	1986-13	HLC	CRAN	BH, BE	F	P
21SL180	1986-06	HE, HLC	SAND	BH	P	PI

Notes: Column headings correspond to variable labels listed in Table 5, and individual entries above correspond to the value labels in Table 5.

FIGURES

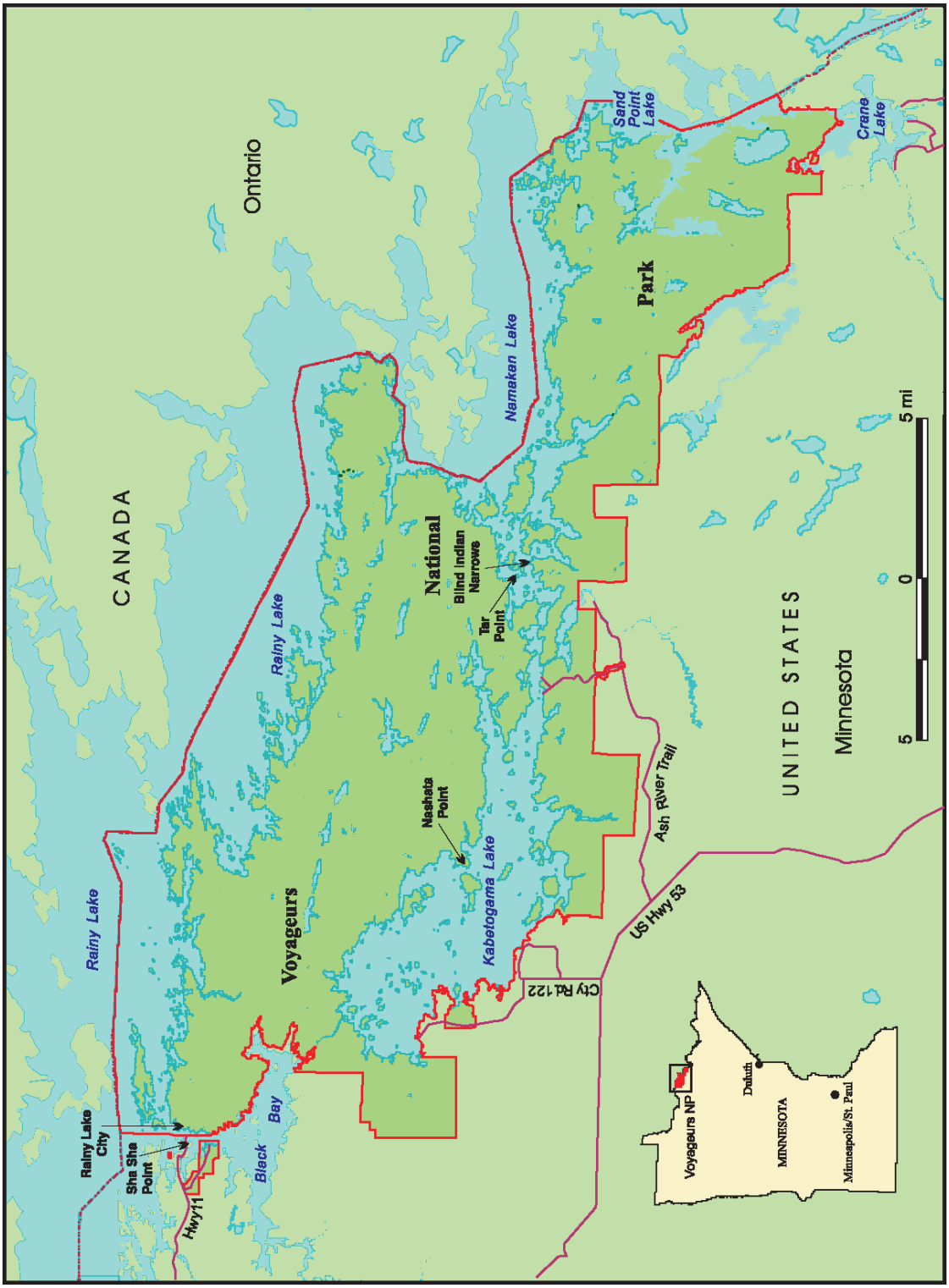

Figure 1. Voyageurs National Park and a portion of the Border Lakes Region.

Figure 2. Late Paleoindian lanceolate Agate Basin point from Kabetogama Lake, Voyageurs NP.

Figure 3. Archaic Points. All depicted actual size.

Figure 4. Archaic projectile points. All depicted actual size.

Figure 5. Copper knife. Depicted actual size.

Figure 6. Gouge from 21KC13, surface. Top row actual size, bottom row slightly enlarged.

Dorsal view | Side view | Ventral view

End view of working edge

Figure 7. Gouge from site 21SL35, surface. Depicted actual size.

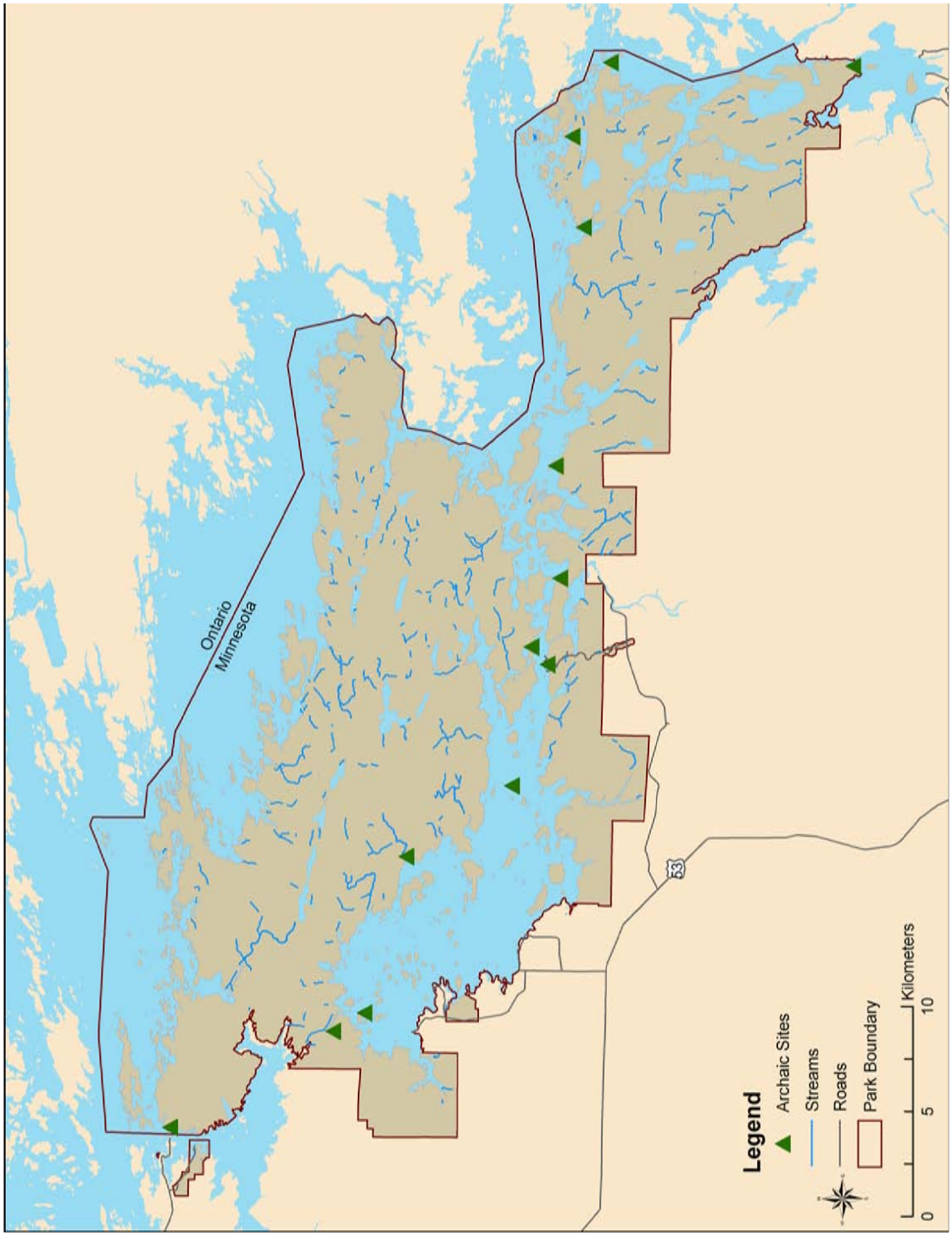

Figure 8. The distribution of sites with Archaic components within Voyageurs NP.

Figure 9. Laurel pottery. Top two rows: Laurel Dentate; bottom two rows: Laurel Oblique. Depicted actual size.

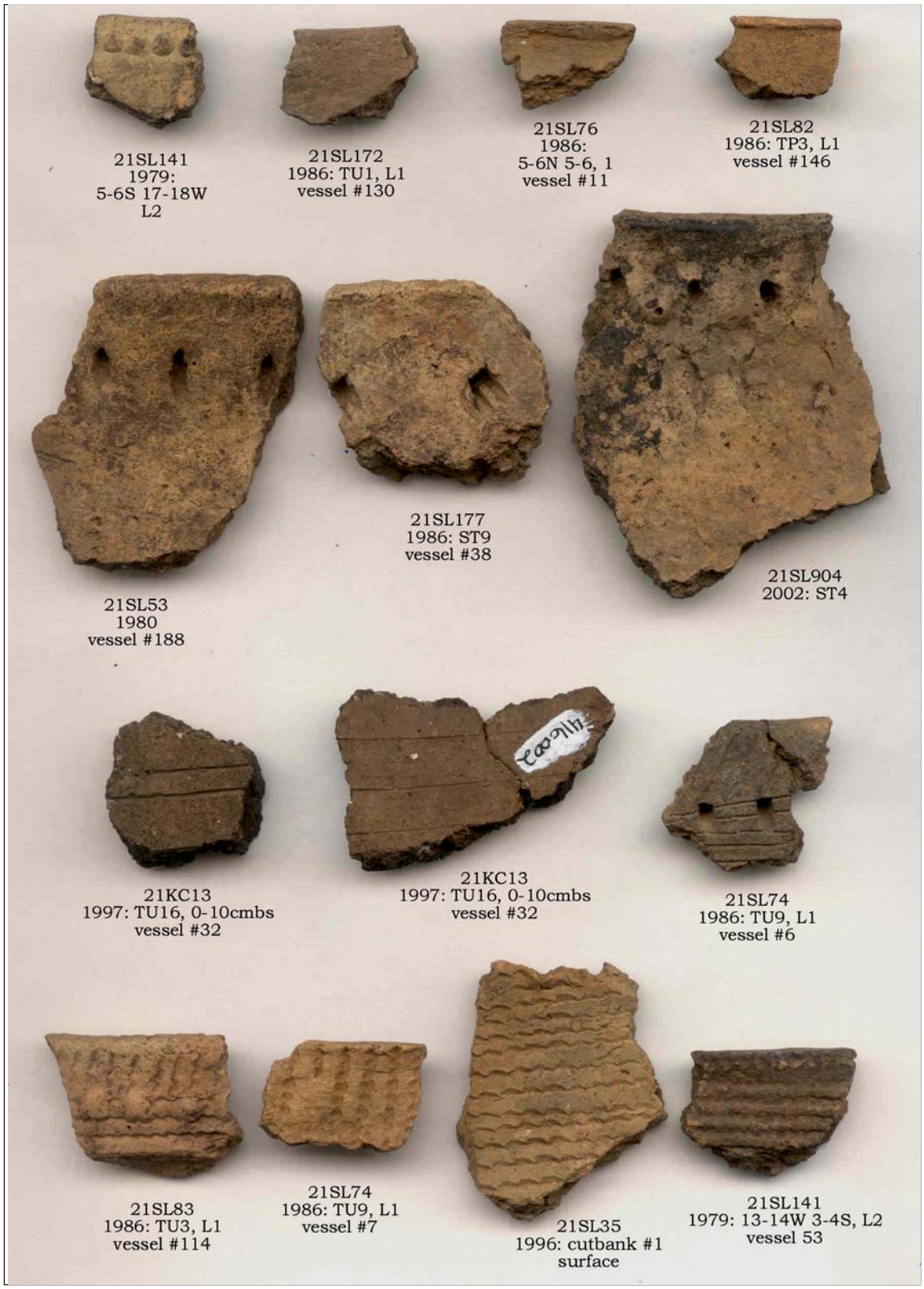

Figure 10. Laurel pottery. Top row: Laurel Bossed and Laurel Plain; Row 2: Laurel Punctate and Laurel Boss and Punctate; Row 3: Laurel Incised; Bottom row: Laurel Pseudo-Scallop Shell. All depicted actual size.

Figure 11. Middle Woodland projectile points. All depicted actual size.

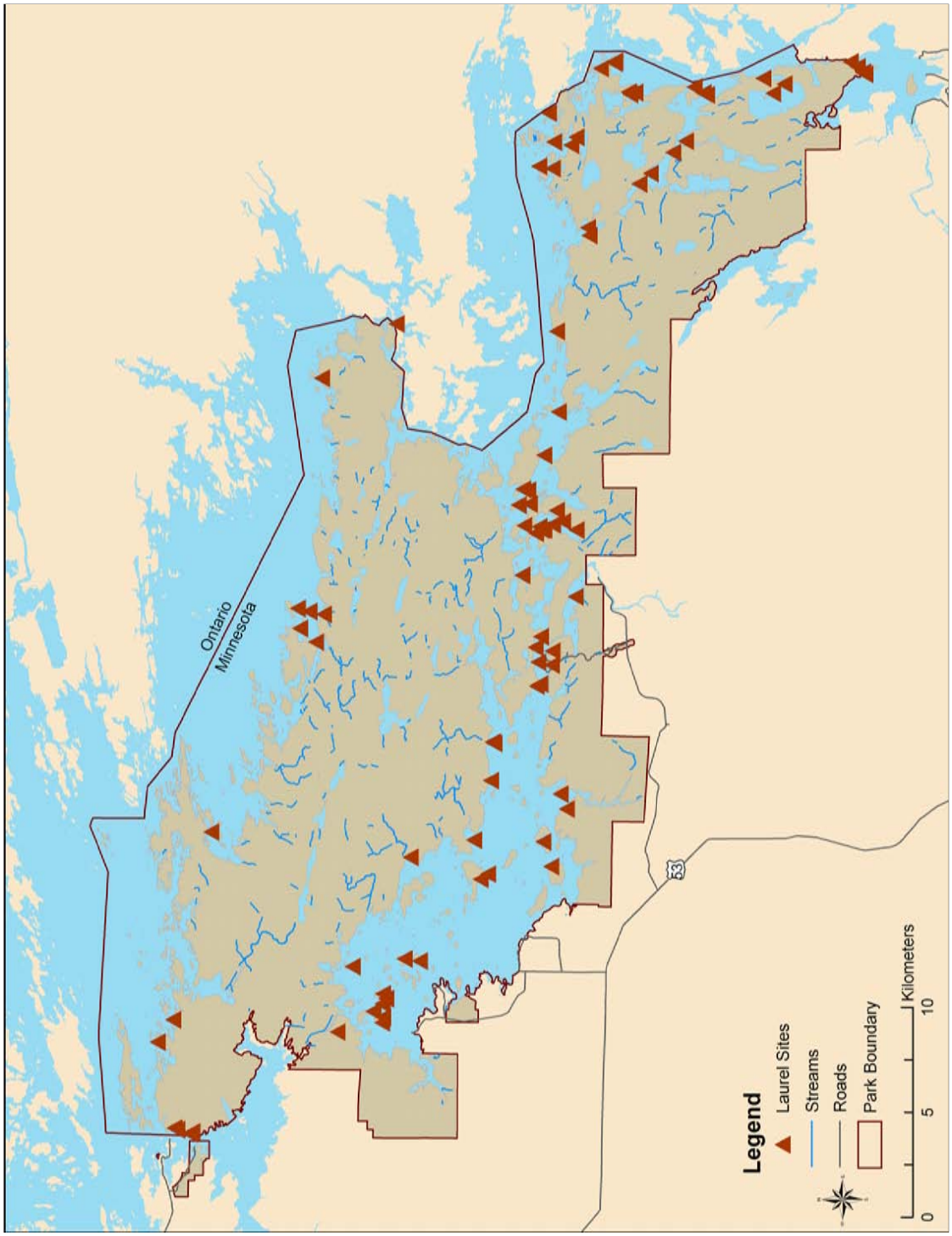

Figure 12. The distribution of sites with Laurel components within Voyageurs NP.

Figure 13. Blackduck pottery. Top two rows: Early Blackduck; bottom two rows: Middle Blackduck. All depicted actual size.

Figure 14. Blackduck pottery. Late Blackduck examples. All depicted actual size.

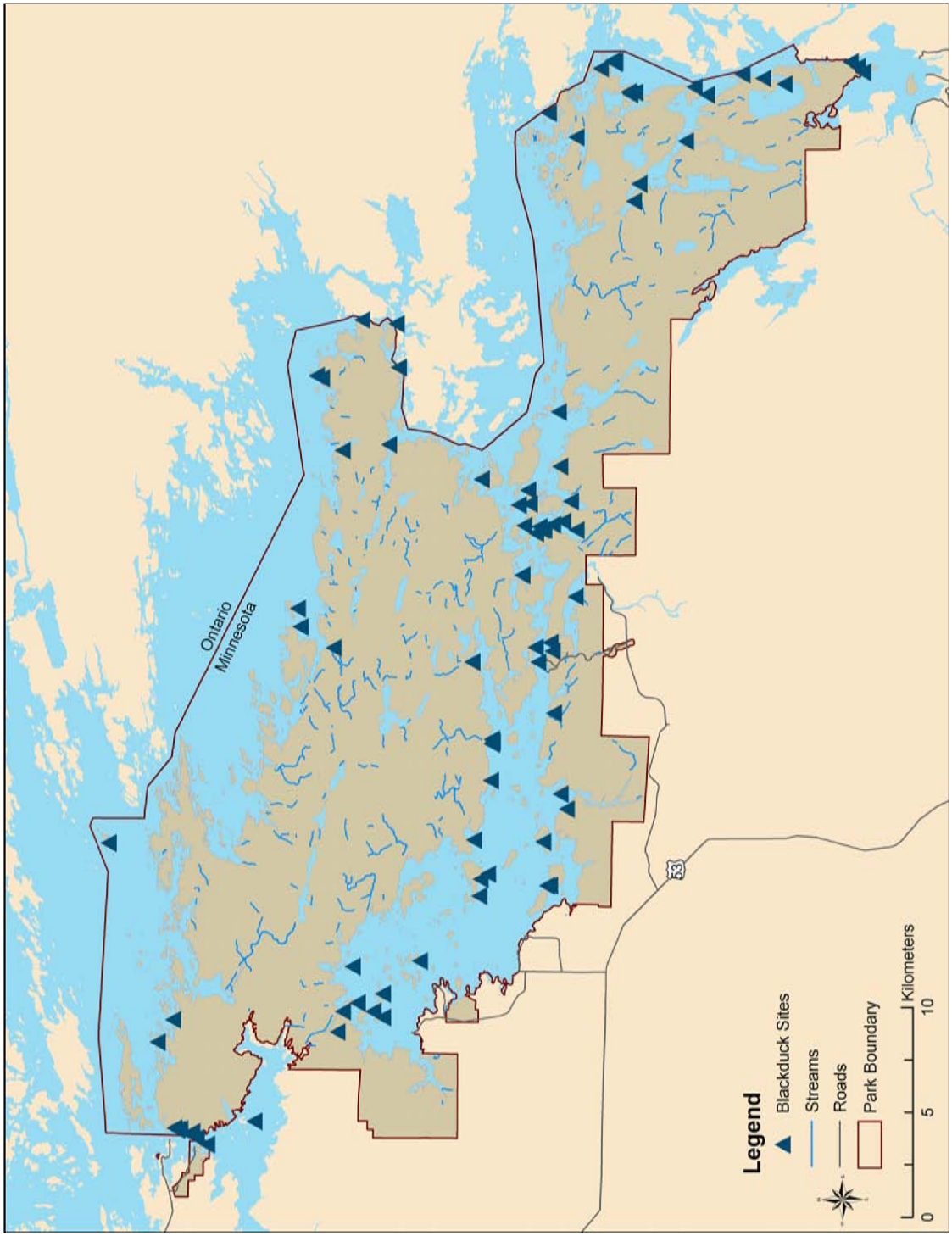

Figure 15. The distribution of sites with Blackduck components within Voyageurs NP.

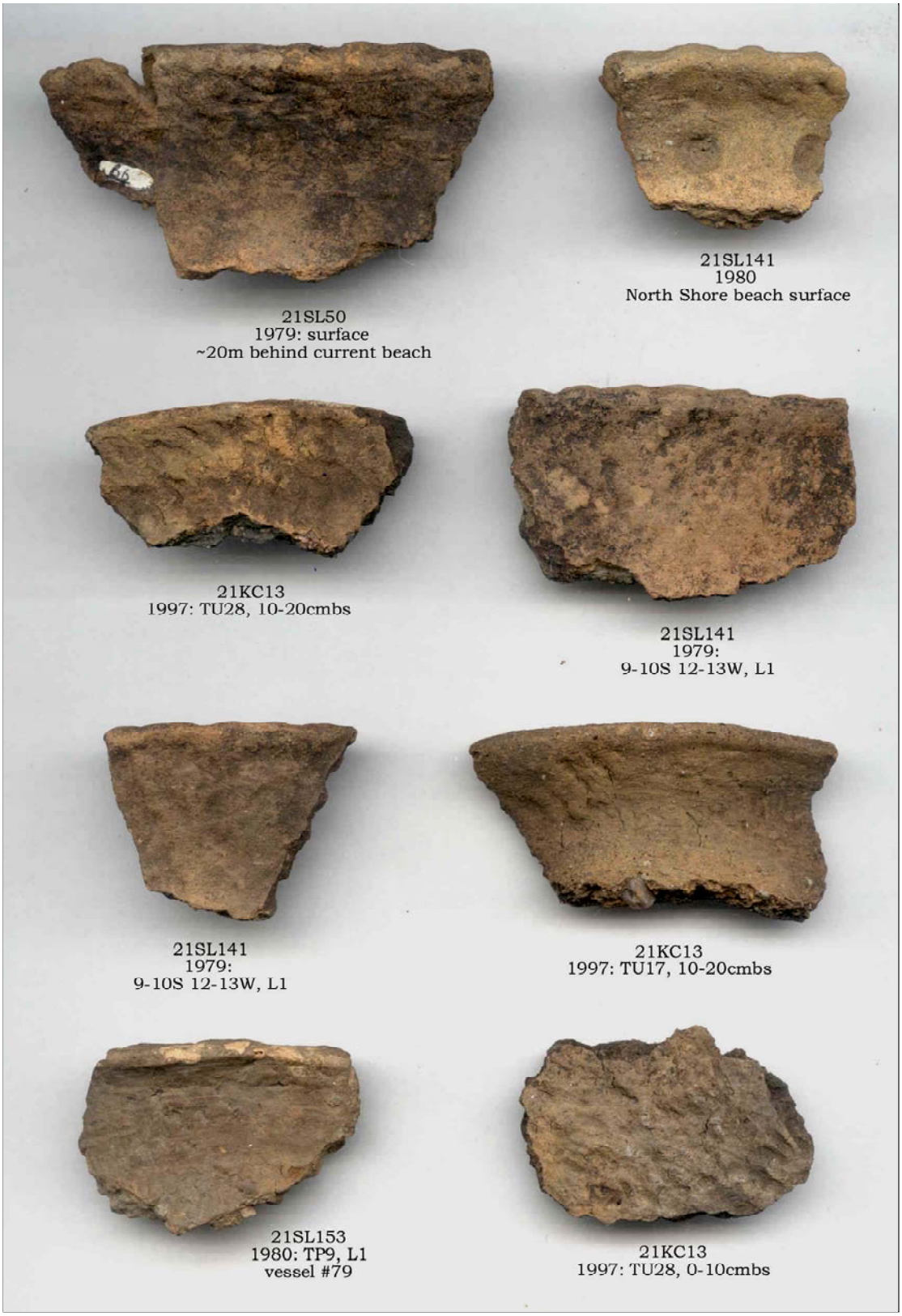

Figure 16. Selkirk pottery rims. All depicted actual size.

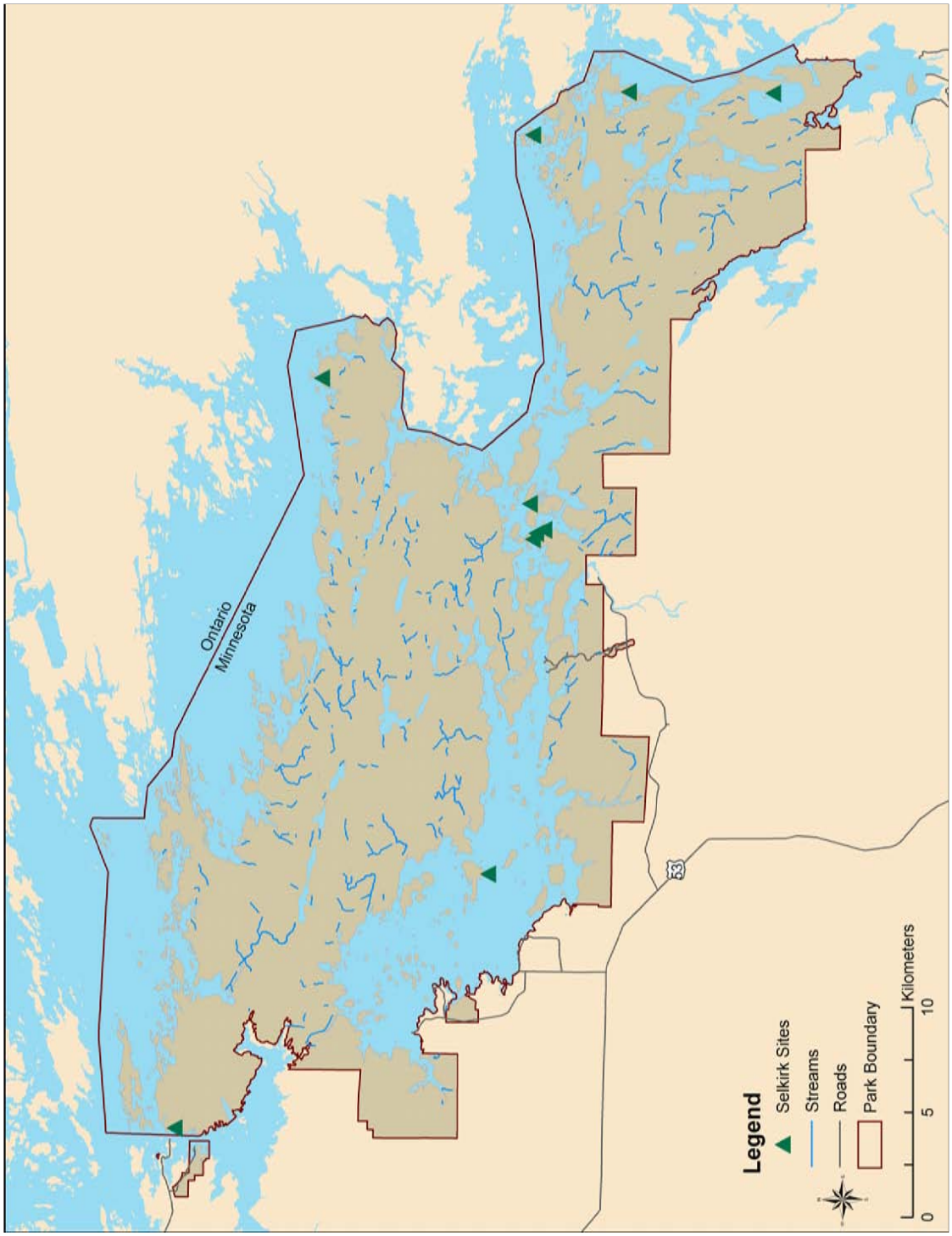

Figure 17. The distribution of sites with Selkirk components within Voyageurs NP.

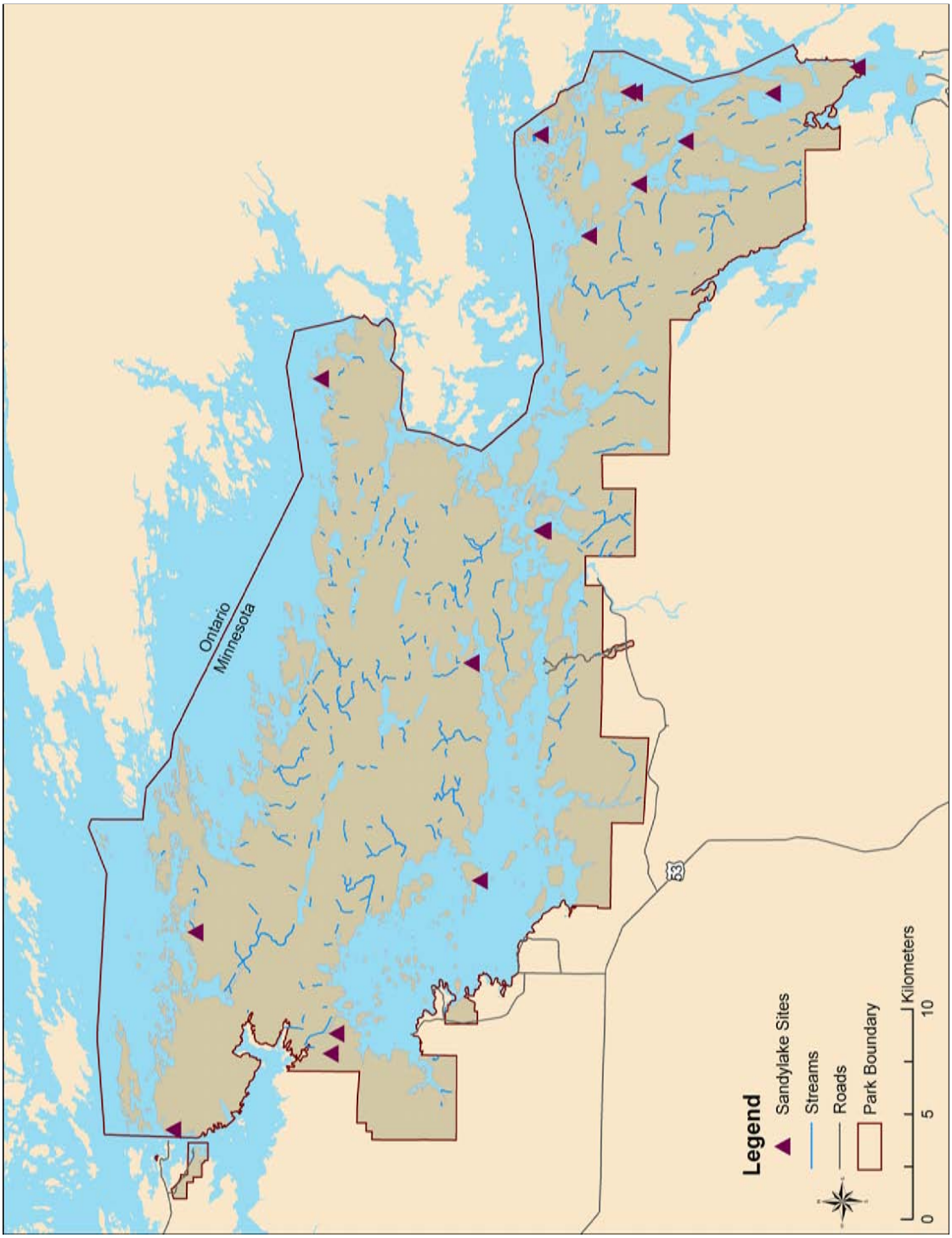

Figure 18. The distribution of sites with Sandy Lake components within Voyageurs NP.

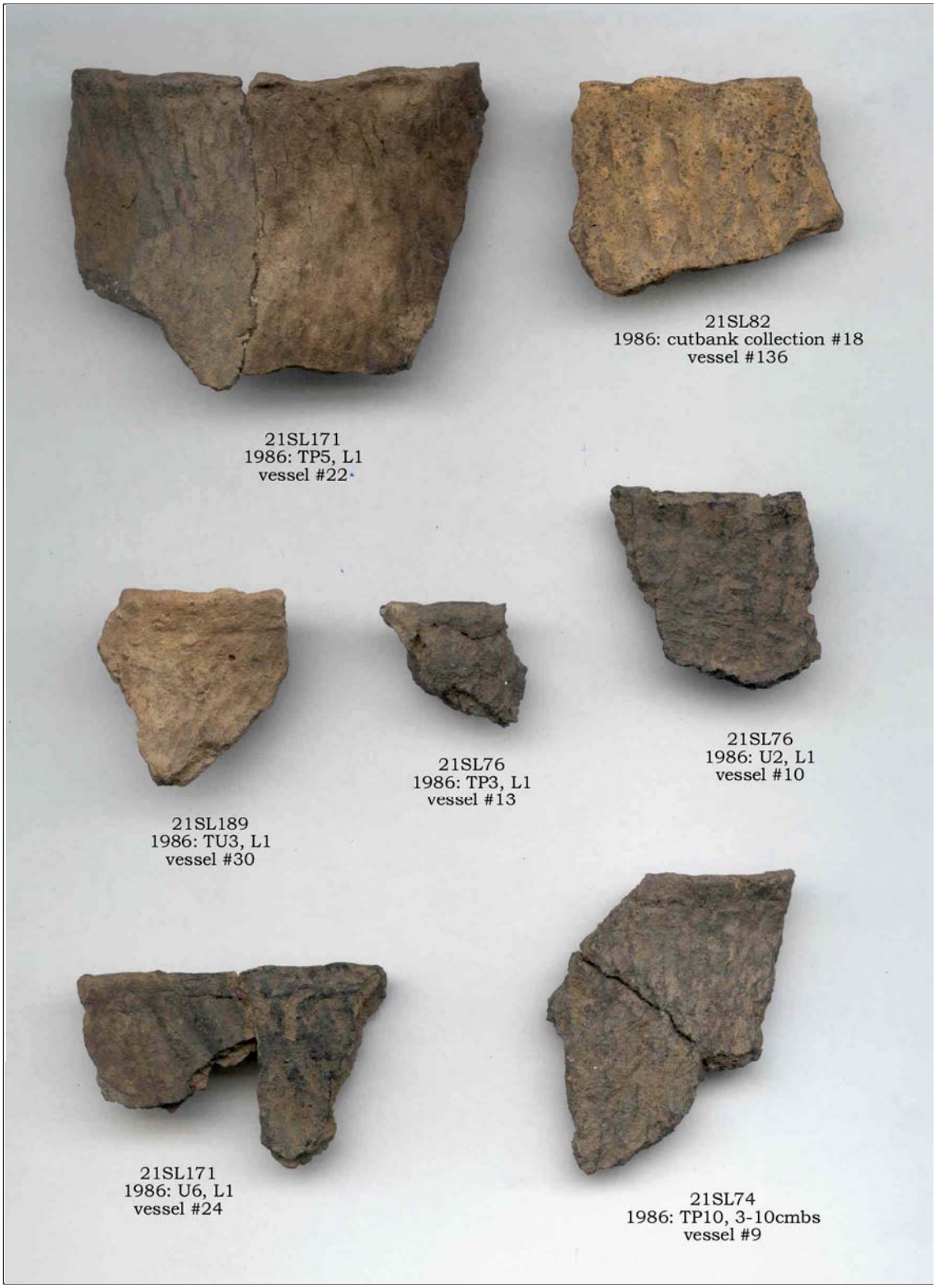

Figure 19. Sandy Lake pottery rims. All depicted actual size.

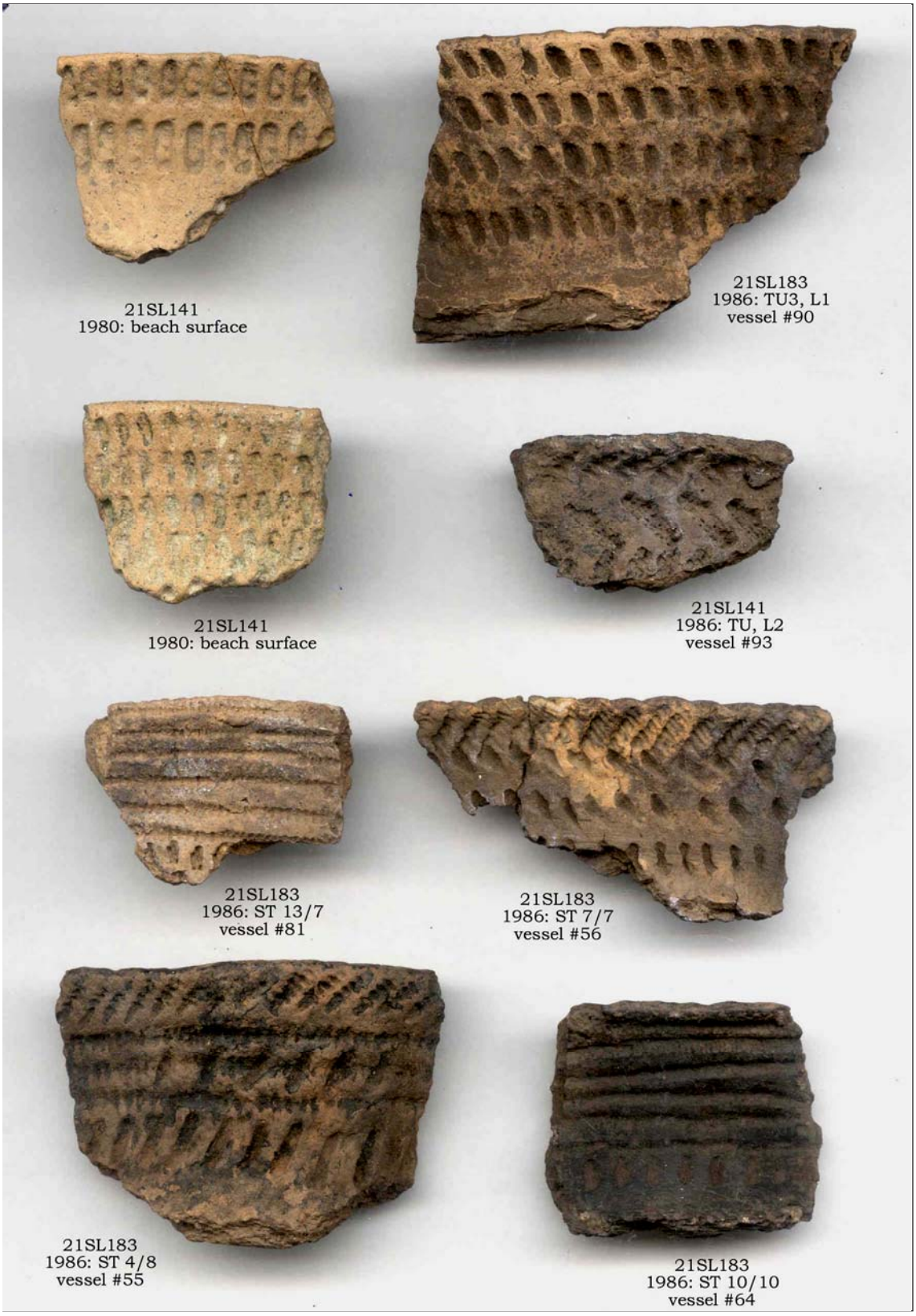

Figure 20. Duck Bay and Bird Lake pottery. Top two rows: Duck Bay; bottom two rows: Bird Lake. All depicted actual size.

Figure 21. Oneota pottery vessel. 21SL51, 1999: edge of cutbank, ~10cmbs. Note strap handle on left and perforation for repair on right. Depicted actual size.

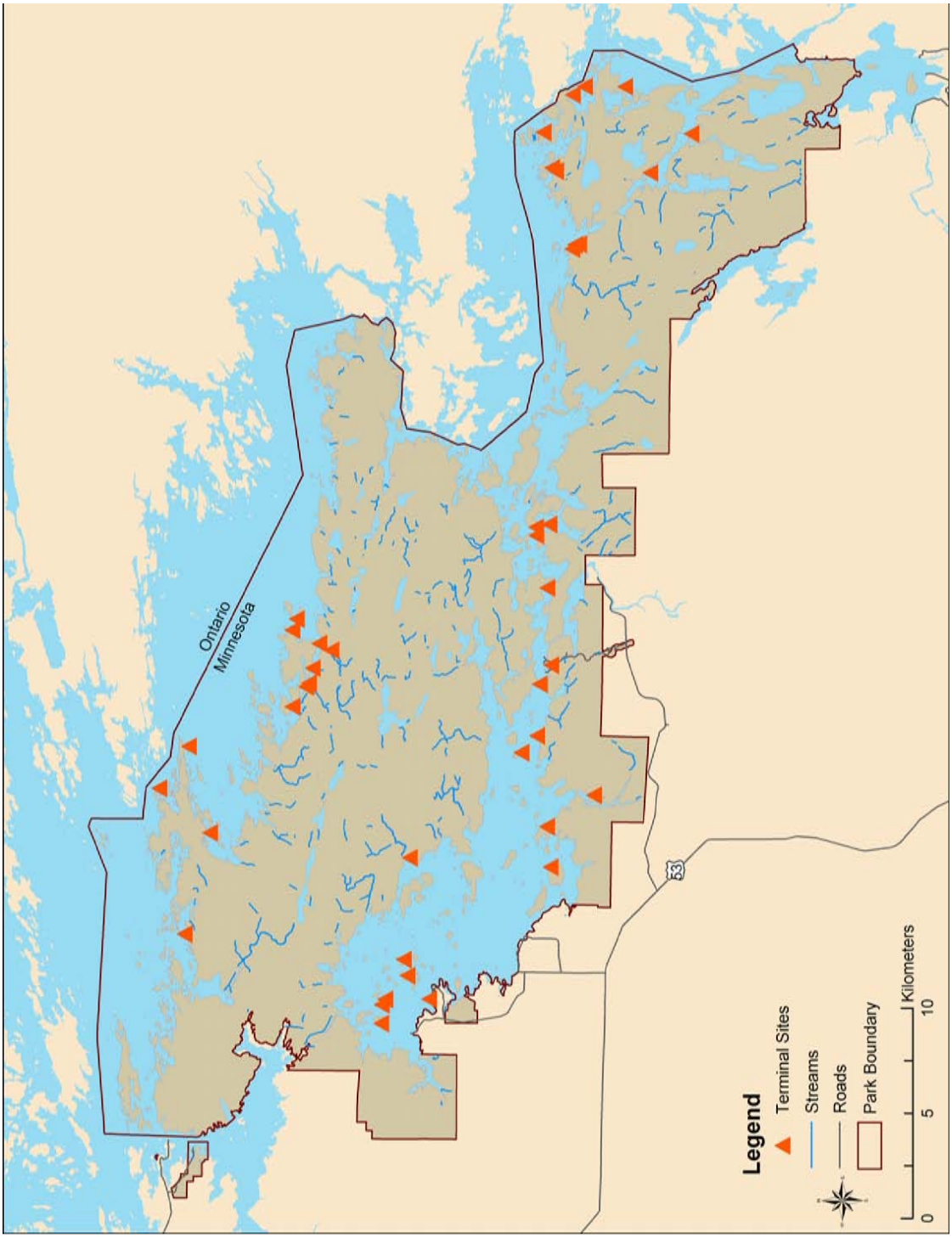

Figure 22. The distribution of sites with other Terminal Woodland components within Voyageurs NP

Figure 23. Tobacco pipes. All depicted actual size.

Figure 24. Late Woodland arrow points. All depicted actual size.

Figure 25. Scrapers. All depicted actual size.

Dorsal view

Lateral view

Figure 26. Hammerstone from 21SL131, surface. Depicted actual size.

Figure 27. Hammerstone/anvil from 21SL141, Unit 3-4 S/13-14 W, Level 1. Depicted actual size.

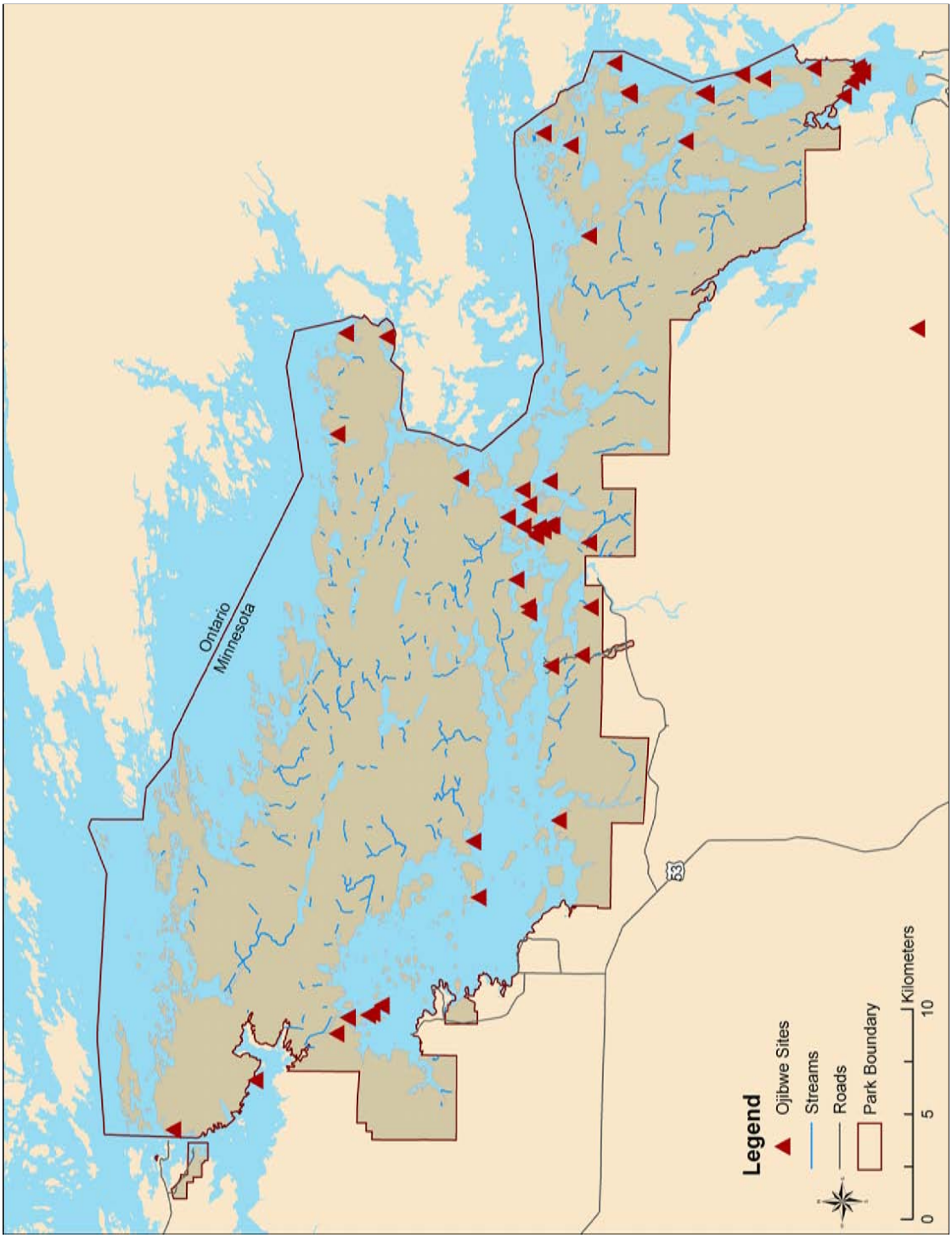

Figure 28. The distribution of sites with Ojibwe components within Voyageurs NP.

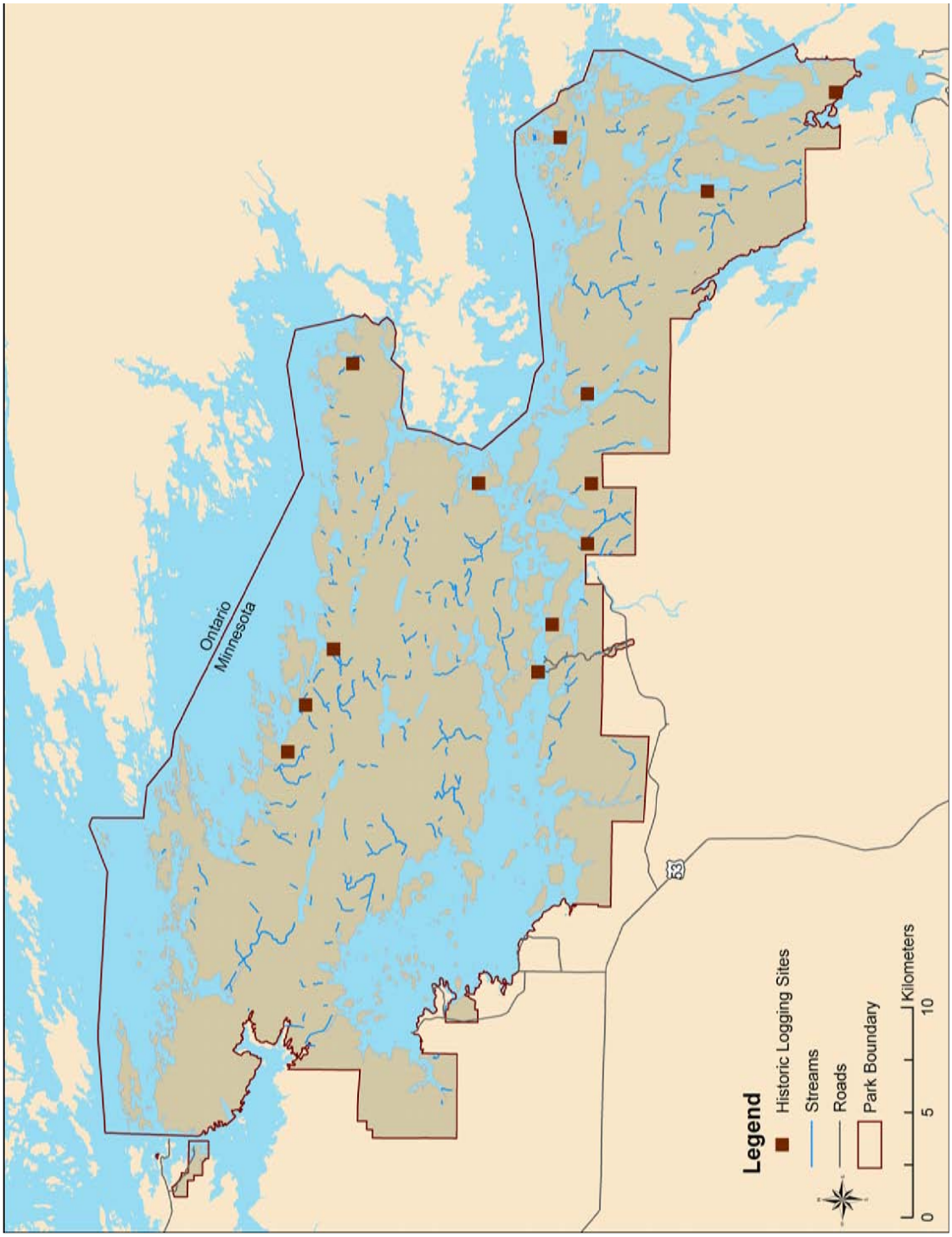

Figure 29. The distribution of archeologically recorded logging camps within Voyageurs NP.