Illinois State University

ISU ReD: Research and eData

Theses and Dissertations

3-7-2016

Woodland Period Rockshelter Use in the Upper Great Lakes: A Multiscalar Perspective from Grand Island, Michigan

Kelsey Hanson

Illinois State University, khanso3@ilstu.edu

Follow this and additional works at: <https://ir.library.illinoisstate.edu/etd>

Part of the [History of Art, Architecture, and Archaeology Commons](#)

Recommended Citation

Hanson, Kelsey, "Woodland Period Rockshelter Use in the Upper Great Lakes: A Multiscalar Perspective from Grand Island, Michigan" (2016). *Theses and Dissertations*. 505.

<https://ir.library.illinoisstate.edu/etd/505>

This Thesis is brought to you for free and open access by ISU ReD: Research and eData. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of ISU ReD: Research and eData. For more information, please contact ISURed@ilstu.edu.

WOODLAND PERIOD ROCKSHELTER USE IN THE UPPER GREAT LAKES:
A MULTISCALAR PERSPECTIVE FROM
GRAND ISLAND, MICHIGAN

Kelsey E. Hanson

156 Pages

Despite the integral role that caves and rockshelters have traditionally played in archaeological inquiry throughout North America, they have largely been neglected as a focus of study in the Upper Great Lakes region and recorded regional examples have been poorly integrated into regional discourse. Most rockshelters in the Upper Great Lakes region formed as sea caves during higher lake level stages and became increasingly terrestrial as lake levels receded, resulting in an abundance of rockshelters and other shoreline features that are now inland from the current shoreline. Recorded rockshelters in the region have contained human burials, copper caches, rock art, and varying amounts of lithics, ceramics, and fire-cracked rock. Additionally, a considerable amount of regional ethnohistoric accounts demonstrate the importance of rockshelters, especially those near water, as powerful transformative spaces that served as nodes between different realms of the Algonquin universe and homes to other-than-human entities, called *manitous*. Oral histories suggest that the power associated with these settings could be accessed through certain activities, such as fasting and producing rock

art, imbuing individuals with knowledge and social capital (e.g. Copway 1850). Despite these compelling accounts, recorded examples of archaeological rockshelter use, and the relative abundance of rockshelters in the region, very few have been subjected to formal archaeological investigation.

To address this disparity, archaeological testing of selected rockshelter locations on Grand Island was conducted under the direction of the Grand Island Archaeological Program in June of 2015 to assess the research potential of these features. Field work successfully identified two Woodland period rockshelter sites located on Grand Island's southern shore: Moss Cave (FS 09-10-03-1076) and Miner's Pit Cave (FS 09-10-03-1077). Rockshelter site use is examined based on analyses of artifact assemblages from these sites, including the results of lithic microwear analysis, macrobotanical analysis and AMS dating, and their respective geomorphic settings are investigated to interpret timing of rockshelter formation and availability. Using a multiscalar approach, these site-level patterns are articulated with contemporaneous habitation sites on Grand Island and similar rockshelter sites in the Upper Great Lakes to draw comparisons. Informed by a theoretical framework that seeks to accommodate the multiplicity and complexity of hunter-gatherer relationships with the landscape, and supported by ethnohistorical accounts, this research seeks to expand the interpretive potential of rockshelters in the Upper Great Lakes by arguing that they were likely considered places of ritual significance that provided a setting to communicate with *manitous*.

KEYWORDS: Grand Island, Rockshelters, Upper Great Lakes, Woodland Period

WOODLAND PERIOD ROCKSHELTER USE IN THE UPPER GREAT LAKES:
A MULTISCALAR PERSPECTIVE FROM
GRAND ISLAND, MICHIGAN

KELSEY E. HANSON

A Thesis Submitted in Partial
Fulfillment of the Requirements
for the Degree of

MASTER OF SCIENCE

Department of Sociology and Anthropology

ILLINOIS STATE UNIVERSITY

2016

© 2016 Kelsey E. Hanson

WOODLAND PERIOD ROCKSHELTER USE IN THE UPPER GREAT LAKES:
A MULTISCALAR PERSPECTIVE FROM
GRAND ISLAND, MICHIGAN

KELSEY E. HANSON

COMMITTEE MEMBERS:

James M. Skibo, Chair

Eric C. Drake

John C. Kostelnick

ACKNOWLEDGMENTS

There are a number of individuals whose guidance and advice have been critical to my completion of this endeavor. First and foremost, I must express my sincerest gratitude to my committee chair, academic advisor, and mentor, Dr. James M. Skibo. I truly cannot thank you enough for providing me with unwavering support, encouragement, and guidance, while giving me the freedom to pursue this research with some degree of independence. I have learned so much from you and without your support, the timely completion of this project would not have been possible. Eric Drake, thank you for continually encouraging me to push interpretive boundaries. You have been both encouraging and critical, which has had an enormous effect on how I have approached and interpreted this research. Thank you to Dr. John Kostelnick for assisting with the GIS analysis, Dr. G. Logan Miller and James W. Hill III for conducting lithic use-wear analysis, and Dr. Kathryn Parker for providing macrobotanical analysis. I also must extend my thanks to some exceptional members of my graduate cohort. Thank you Paula Bryant for always providing both humorous and level-headed solutions to my problems, and James W. Hill III, for your unwavering enthusiasm.

Finally, I cannot thank my family enough for the support they have given me over the years. To my parents, Darlene and Ken Hanson, and my brother Kyle, your unwavering love, support, and patience has made all of this possible.

K. E. H.

CONTENTS

	Page
ACKNOWLEDGMENTS	i
CONTENTS	ii
TABLES	vi
FIGURES	vii
CHAPTER	
I. CAVES AND ROCKSHELTERS: AN INTRODUCTION	1
Introduction	1
Terminology of Caves and Rockshelters	3
Study Area: Grand Island	5
Research Questions	6
Review of Chapters	8
II. REGIONAL OVERVIEW	10
The Upper Great Lakes Region	10
Grand Island Glacial History	11
Bedrock Geology	12
Post-Glacial Lake Levels and their Geomorphic Features	13
Rockshelter Formation in the Upper Great Lakes	17
Previously Recorded Rockshelter Sites	19
Spider Cave	20
Cave B-95	23
Rock Shelter Cache	26
Massee Rock Shelter	26
Susan Cave	27

Cave-of-the-Woods	28
Skull Cave	29
Orienta Rockshelter	30
Discussion of Recorded Rockshelter Sites	31
III. THEORETICAL FRAMEWORKS	34
Overview of Theoretical Frameworks in Cave and Rockshelter Studies	34
Complementary Theoretical Frameworks	37
Ritual Activity among Hunter-Gatherers	37
Cultural Landscapes	40
Taskscapes, Persistent Places, and Social Memory	42
Ethnohistoric Perspective	44
Importance of Landscape Features in the Algonquin Universe	44
Activities Associated with Upper Great Lakes Rockshelters	45
Gender-Specific Activities	46
Offerings to Ensure Safe Travel	47
Production of Rock Art	47
Discussion	48
IV. METHODOLOGIES	50
Project Overview	50
Methodologies	55
Field Methodology	55
Shovel Testing	55
Site Naming Process	57
Assemblage Analysis Methodology	57
Ceramics	58
Lithics	60

Flaked Stone Tools	60
Lithic Debitage	61
Fire-Cracked Rock	64
Macrobotanical Analysis	65
Geomorphic and Spatial Analysis Methodology	66
V. RESULTS OF ANALYSIS	70
Moss Cave (FS 09-10-03-1076)	70
Field Investigations	70
Assemblage Analysis	78
Miner's Pit Cave (FS 09-10-03-1077)	80
Field Investigations	80
Assemblage Analysis	87
Bootlegger's Cove (FS 09-10-03-1078)	93
Field Investigations	93
Assemblage Analysis	99
Spatial Analysis of Rockshelter Site Locations	102
Discussion of Recorded Rockshelter Sites	110
VI. WOODLAND PERIOD ROCKSHELTER USE IN THE UPPER GREAT LAKES: A MULTISCALAR INTERPRETATION	112
Multiscalar Interpretations of Rockshelter Use	112
Site-Level: Rockshelters	113
Locale: Grand Island	115
Regional: Upper Great Lakes	116
Discussion	127
Recommendations for Future Research	120
Conclusions	121
REFERENCES	126
APPENDIX A: Artifact Catalogues	144

APPENDIX B: Results of AMS Dating of Wood Charcoal
Sample from TU-1 Feature 1 at Miner's Pit
Cave (09-10-03-1077)

154

TABLES

Table	Page
1. Post-Glacial Lake Phases and Associated Geomorphic Evidence (from Anderton 1993, 1995, 2005; Farrand and Drexler 1985; Yuen 1988)	14
2. Grand Island 2015 Rockshelter Site Names	57
3. Flake Categories and their Characteristics (after Dunham et al. 1997)	62
4. Moss Cave (FS 09-10-03-1076) Debitage Raw Material Distribution	79
5. Moss Cave (FS 09-10-03-1076) Flake Type Distribution	80
6. Miner's Pit Cave (FS 09-10-03-1077) Debitage Raw Material Distribution	91
7. Miner's Pit Cave (FS 09-10-03-1077) Flake Type Distribution	91
8. Radiocarbon Assay for TU-1 Feature 1 at Miner's Pit Cave (FS 09-10-03-1077)	93
9. Bootlegger's Cove (FS 09-10-03-1078) Debitage Raw Material Distribution	100
10. Bootlegger's Cove (FS 09-10-03-1078) Flake Type Distribution	100

FIGURES

Figure	Page
1. Approximate Boundaries of Upper Great Lakes Region as Defined in Text	11
2. Locations of Previously Recorded Rockshelter Sites in the Upper Great Lakes	21
3. Rockshelter Survey Coverage: Timber Wolf Parcel and Black Bear Parcel	52
4. Rockshelter Survey Coverage: Peregrine Falcon Parcel	53
5. Rockshelter Survey Coverage: NW Thumb Parcel	54
6. Grand Island Glacial Lake Level Changes (9,500 BP to Present)	69
7. Locations of Recorded Rockshelter Sites on Grand Island	71
8. Moss Cave (FS 09-10-03-1076) Site Map	72
9. Moss Cave (FS 09-10-03-1076) Rockshelter Overview; Westerly Section, Facing Northeast	73
10. Moss Cave (FS 09-10-03-1076) Rockshelter Overview; Showing Interior and Dripline, Facing East	73
11. Moss Cave (FS 09-10-03-1076) Rockshelter Overview; Showing Interior and Dripline, Facing Southeast	74
12. Moss Cave (FS 09-10-03-1076) Test Trench in Plan View	77
13. West Wall Profile of the Test Trench at Moss Cave (FS 09-10-03-1076)	78

14.	Miner's Pit Cave (FS 09-10-03-1077) Site Map	81
15.	Overview of TW-02 Rockshelter at Miner's Pit Cave (FS 09-10-03-1077) from Base of Slope, Facing North-Northeast	82
16.	Overview of TW-03 Rockshelter at Miner's Pit Cave (FS 09-10-03-1077) from Base of Slope, Facing North	82
17.	West Wall of TU-1 at Miner's Pit Cave (FS 09-10-03-1077)	85
18.	Feature 1 in Plan View. Previously Excavated STP is Visible in the Southeast Corner	86
19.	Exterior Surfaces of Ceramic Sherds from Miner's Pit Cave (09-10-03-1077)	88
20.	Interior Surfaces of Ceramic Sherds from Miner's Pit Cave (09-10-03-1077)	88
21.	White Quartzite Flake Tool from TU-1 Level 4 at Miner's Pit Cave (09-10-03-1077)	89
22.	Invasive Polish (Indicated by Arrows) Indicative of Cutting Soft Materials on White Quartzite Flake from Miner's Pit Cave (09-10-03-1077)	90
23.	Bootlegger's Cove (09-10-03-1078) Site Map	95
24.	Rockshelter Overview at Bootlegger's Cove Complex (09-10-03-1078) Facing South-Southwest	96
25.	View of Terrace below Rockshelters at Bootlegger's Cove (09-10-03-1078)	96
26.	Historic Metal Artifacts Recovered from Bootlegger's Cove (09-10-03-1078)	97
27.	Red Quartzite Biface Fragment from T2 STP5 at Bootlegger's Cove (FS 09-10-03-1078)	101
28.	Bright Polish (Indicated by Arrows) and Edge Damage Scars Indicative of Cutting Hard Material (e.g. Bone or Wood) on Red Quartzite Biface Fragment from T2 STP5	101

29.	Approximate Extent of Glacial Lake Minong (9,500 BP) in Relation to Moss Cave (1076) and Miner's Pit Cave (1077)	104
30.	Approximate Extent of Glacial Lake Nipissing (4,500–4,700 BP) in Relation to Moss Cave (1076) and Miner's Pit Cave (1077)	105
31.	Approximate Extent of Glacial Lake Algoma (3,200 BP–Present) in Relation to Moss Cave (1076) and Miner's Pit Cave (1077)	106
32.	Approximate Extent of Glacial Lake Minong (9,500 BP) in Relation to Bootlegger's Cove (1078)	107
33.	Approximate Extent of Glacial Lake Nipissing (4,500–4,700 BP) in Relation to Bootlegger's Cove (1078)	108
34.	Approximate Extent of Glacial Lake Algoma (3,200 BP–present) in Relation to Bootlegger's Cove (1078)	109

CHAPTER I

CAVES AND ROCKSHELTERS: AN INTRODUCTION

Introduction

Caves and rockshelters play an integral role in archaeological inquiry because of their potential for excellent preservation and deep stratigraphic integrity allowing for the construction of regional chronologies. While caves and rockshelters are among the most visible and frequently excavated archaeological sites, their roles are often poorly understood and have not been consistently integrated into regional interpretations. Caves and rockshelters in North America have been primarily interpreted as convenient habitation settings for hunter-gatherer populations understood in terms of their practical, functional advantages (Bonsall and Tolan-Smith 1997; Brush et al. 2010; Burns and Raber 2012; Franklin et al. 2010; Walthall 1998). This approach often results in mutually exclusive categories of utilitarian *or* ritual function, which undermines the fluidity of hunter-gatherer uses of landscapes. Recent scholarship is beginning to revisit this discussion to argue that caves and rockshelters are highly dynamic settings that do not easily fit into one category or the other, but rather served a range of purposes that deserve sincere reconsideration (Claassen 2011, 2012, 2015; Crothers 2012; Homsey-Messer 2015; Moyes 2012; Walker 2010). It is this documented variation that requires more critical engagement that goes beyond static interpretive categories. This body of emergent

cave and rockshelter research is complemented by wider discussions of hunter-gatherer social dynamics, as researchers argue that a great deal of evidence suggests that hunter-gatherer groups operated beyond strict economic requirements and that expressed ritualized actions are integrated into almost all aspects of hunter-gatherer life (Claassen 2015; Sassaman 2010; Walker 2010). Additionally, recent refinements of landscape archaeology have provided approaches to better understand hunter-gatherer engagements with their landscapes. The research presented here seeks to contribute to this growing dialogue with an example from the southern shore of Lake Superior of Michigan in the Upper Great Lakes region.

The Upper Great Lakes region poses a great deal of challenges for archaeological research as a result of generally poor preservation and highly mobile prehistoric inhabitants, resulting in generally ephemeral archaeological information that requires refined recovery methods and a great deal of patience. However, archaeologists are in a uniquely advantageous position in this region because a considerable amount of ethnohistoric accounts exist that document indigenous lifeways, beliefs, and practices before and after sustained European settlement. Additionally, contemporary Native American groups maintain active relationships with the landscape, allowing for discussions of continuity or discontinuity in practice that would not be possible in other regions of the Eastern Woodlands with greater degrees of tribal displacement. (Norder 2007; Weeks 2012:88; Zedeño et al. 2001).

While caves and rockshelters are not necessarily common geologic features in the Upper Great Lakes compared to other regions, the sites that have been recorded in the region represent a dynamic array of social functions. Despite this, caves and rockshelters

have largely been neglected as a focus of study in the Upper Great Lakes. When recorded, they are often done so as a side note and are poorly integrated into regional discourses. To address this disparity, the research presented here seeks to introduce the rockshelters of the Upper Great Lakes region to emergent scholarship by investigating the nature of rockshelter use in the region, the unique purposes they may have served, and their potential contribution to regional discourse of hunter-gatherer landscape use.

Terminology of Caves and Rockshelters

While caves and rockshelters are prominent features within the landscape that are frequently investigated by archaeologists, geologists, and biologists, these features are defined differently depending upon which discipline one is operating within, resulting in a great deal of terminological nuances. Among geologists, caves and rockshelters are classified by their formation processes. These include solution caves, volcanic caves, glacier caves, littoral caves, and others (Klimchouk 2003:204). While these terms are useful among geologists, they do not transfer in an equally meaningful way for the archaeological community. While the formation processes certainly have a direct effect on the structure and composition of caves and rockshelters, which undoubtedly had an effect on the range of activities possible within, it is doubtful that prehistoric usage was entirely dependent upon these processes.

Therefore, an archaeological study of the human usage of caves, requires a classification system that goes beyond formation process to highlight perception and use. The most commonly utilized classification system only differentiates between caves and rockshelters, where the primary distinction rests in the amount of natural light allowed to

enter. Under this classification system, a *rockshelter* refers to a sheltered space overhung by a natural exposure of rock that allows for relatively constant natural light. In contrast, a *cave* is a space that contains a “dark zone” where natural light does reach (Moyes 2012:6; Sherwood and Goldberg 2001:146-147). Unfortunately, these distinctions have not been systematically adopted when naming or discussing sites, resulting in sites that are named and discussed as “caves,” but are physically rockshelters.

In reality, despite the relative simplicity of these definitions, the distinction is not always obvious because of the vast amount of geologic variation. However, the quality of light allowed to enter a cave is considered a critical distinction because of its powerful influence on the activities possible within (Moyes 2012:5). Further, while natural light is perhaps the most obvious and certainly the most commonly cited qualifier in the distinction between a cave and a rockshelter, cave dark zones and rockshelters are dramatically different in relative temperature, humidity, sediment types and accumulation rates, and resources. These differences have a critical effect on prehistoric uses and sensory experiences, as well as archaeological investigative and interpretative techniques (Moyes 2012:5-6; Sherwood and Goldberg 2001:146-147).

In an attempt to clarify these distinctions early, the features discussed in this research are geologically considered littoral caves or “sea caves” formed by coastal wave action during higher glacial lake level stages, but are archaeologically considered rockshelters as they became increasingly terrestrial during lake level stabilization, resulting in rock overhangs more characteristic of rockshelters. More specific detail of the formation and archaeological use of these features is presented in Chapter 2. In the general discussions of theoretical frameworks and interpretive paradigms that follow,

caves and rockshelters are both discussed. However, because no true caves exist in the Upper Great Lakes, interpretive discussions of the results of Grand Island field work and previously recorded sites in the Upper Great Lakes will exclusively refer to rockshelters.

Study Area: Grand Island

Situated on the southern shore of Lake Superior, Grand Island offers a unique opportunity to explore rockshelter use in the Upper Great Lakes region. A backcountry guide produced by Michael Neiger, an adventure guide from Marquette, Michigan, recently documented over 150 rockshelters of varying dimensions along the coasts of the island (Neiger 2012), none of which have received formal archaeological investigation. As a Hiawatha National Forest Service property that has been managed since January 1990, the Grand Island National Recreation Area has been relatively well protected from Euroamerican development. Since its acquisition, cultural resource management surveys and university field schools have identified 169 archaeological sites, 77 of which are prehistoric, 82 historic, and 10 multicomponent sites, indicating that the island has been inhabited since at least the Late Archaic (Dunham 2004a:107).

The Grand Island Archaeological Program, initiated in 2001, is a cooperative program between Illinois State University and the Hiawatha National Forest that has sought to expand upon the existing archaeological survey work through targeted, interpretive-level investigations. The use of refined excavation strategies permitting the recovery of buried features, botanical and faunal data, and very small artifacts, has facilitated more focused interpretations of specific activities throughout the course of Grand Island's occupations, spanning from at least the Late Archaic through the Historic

period (Drake and Dunham 2004; Drake et al. 2009; Dunham 2004a, 2004b; Dunham et al. 1997; Franzen 1998, 2004; Roberts 1991; Skibo 2015; Skibo et al. 2004, 2009). The results of these investigations have helped provide insight into the complicated prehistory of Grand Island's periods of occupation in a region that is still very poorly understood.

Under the guidance and support of this program, a survey of selected rockshelter locations on Grand Island was conducted in June 2015, the results of which are analyzed and presented here. This project was pursued for two primary reasons. First, the archaeological study and interpretation of rockshelters has enjoyed a resurgence of interest in the greater Eastern Woodlands, but has been largely absent in the Upper Great Lakes. A formal survey of these features provides an opportunity to introduce this region to this conversation. Second, because rockshelters often provide well-protected settings because of higher sedimentation rates coupled with reduced rates of erosion, they have the potential to provide well-stratified sites, which is fairly uncommon in the Upper Great Lakes region.

Research Questions

Informed by the results of fieldwork conducted in June 2015 as part of the Grand Island Archaeological Program, evidence of rockshelter use is presented here and examined in context with regional archaeological, ethnohistoric, and geomorphic information, allowing for an opportunity to examine varying negotiations of space within a hunter-gatherer cultural landscape. In an attempt to expand upon our regional understanding of rockshelter use in the Upper Great Lakes through both testing of new locations and integration with previously recorded rockshelter sites and relevant

ethnohistorical information, the research that follows is framed around the following research questions:

1. When and how were the rockshelters on Grand Island formed?
2. Were these rockshelters utilized? If so, to what extent?
3. If prehistoric use can be demonstrated archaeologically, does rockshelter use exhibit a discernable change between the known occupation periods of Grand Island?
4. Can regional ethnohistorical accounts be effectively used to aid in the interpretation of rockshelter use?
5. How does the pattern of rockshelter usage on Grand Island inform our understanding of rockshelter use in the Upper Great Lakes region?

This research fills a necessary gap by not only providing an avenue for understanding potential expressions of ritual activity among hunter-gatherer populations, but also provides preliminary answers to larger questions of hunter-gatherer landscape use. By exploring the possible role of rockshelters in hunter-gatherer cultural landscapes, this research not only represents an important contribution to a more comprehensive and holistic understanding of the lifeways of the highly mobile populations often neglected in previous research, but also introduces the Upper Great Lakes region to the discussion.

Review of Chapters

This modest introductory chapter has sought to introduce the reader to the nature of the research that follows through a broad discussion of cave and rockshelter research, a presentation of the nuances of cave and rockshelter terminology, a brief overview of the Grand Island Archaeological Program, and the research questions that have guided this research.

Chapter 2 provides an overview of the Upper Great Lakes region, first by delineating a geographic boundary for the region as well as a general discussion of its floral, faunal, and environmental characteristics. Because the physical landscape of the Upper Great Lakes region has been so profoundly shaped by glacial activity in the last 11,000 years, an overview is provided of the most recent glaciations, their associated lake level stages, and the geomorphic effects of these phases that are observable on Grand Island. The formation processes of the rockshelters that are the primary subject of inquiry here are then described. Next, all previously recorded rockshelter sites in the Upper Great Lakes region are presented, their respective locations and artifact assemblages are compared, and the various investigative and interpretive strategies employed at these locations are discussed.

Chapter 3 opens with a discussion of the varying theoretical frameworks traditionally employed in cave and rockshelter studies. After providing a critique of some of these traditional frameworks and the pervasiveness of the temporary hunting camp interpretation, some innovative examples are used to illustrate some of the recent efforts made to transcend the restrictive interpretive categories typically used in similar studies.

The chapter then continues to outline the theoretical frameworks that have guided the interpretations that follow. These frameworks include concepts of ritual among hunter-gatherers, concepts of cultural landscapes, taskscapes, persistent places, and social memory. Next, relevant ethnohistoric accounts are presented to illustrate of the importance of landscape features in the Algonquin universe and some of the various activities that are said to have occurred in Upper Great Lakes rockshelters. Finally, these concepts and frameworks are used to argue that Upper Great Lakes rockshelters likely represented important ceremonial spaces that carry ritual significance because they offer a setting to interact with other-than-human entities.

Chapter 4 provides an overview of both field and laboratory methodologies employed in this study. Chapter 5 presents the results of fieldwork, assemblage analysis, and spatial analysis, and closes with a comparison of the three rockshelter sites identified in 2015. Finally, Chapter 6 presents a multiscalar interpretation of rockshelter use, including discussions at the following spatial levels: site, locale, and region, followed by recommendations for future research, and conclusions of this research.

CHAPTER II

REGIONAL OVERVIEW

The Upper Great Lakes Region

While the limits of the Upper Great Lakes region can be defined by various geological, ecological, hydrological and archaeological boundaries, for the purpose of the following discussions, the Upper Great Lakes region is defined based upon observed archaeological and cultural similarities. As such, the Upper Great Lakes encompasses the northern and southern shores of Lake Superior and the northern extents of Lake Michigan and Lake Huron (Figure 1). Archaeologically, this region includes elements of both the greater Eastern Woodlands and Canadian Shield cultural traditions, but has ultimately resulted in adaptive strategies and cultural expressions that are unique to the area.

The Upper Great Lakes region, as defined here, includes a blending of the floral, faunal, and environmental characteristics common to its north and south. The Canadian Biotic Province encompasses much of the Lake Superior basin and some portions of the northern Lake Michigan and Lake Huron basins, which is characterized by mixed forests of hemlock, white pine, and northern hardwoods (Mason 1981). The climatic conditions of the Canadian Biotic Province are characterized by cold winters with significant snow fall and cool summers and premodern vegetation consisted of a northern conifer-

hardwood forest (Ball 1993). Much of the province is characterized by heavily glaciated landscapes in which many of the soils are derived from glacial tills and outwash plains (Blewett et al. 2009; Dorr and Eschman 1970; Hill 2007; Loope and Anderton 2002).

Figure 1. Approximate Boundaries of Upper Great Lakes Region as Defined in Text.

Grand Island Glacial History

The Upper Great Lakes region has been subjected to a sequence of glacial advances and retreats throughout the Quaternary, resulting in “one of the most complicated and picturesque physical landscapes in the Midwest” (Blewett et al. 2009:249). Grand Island, located on Lake Superior’s southern shore, has been heavily

shaped and modified by glacial mechanisms, most notably in the last 11,000 years. An understanding of the dynamic geologic consequences related to deglaciation is critical for any discussion of prehistoric occupations in the region because post-glacial lake level changes have had a dramatic effect on the availability and nature of physical landforms (Jackson et al. 2000; Johnston et al. 2007; Joseph and Neilson 2009; Kincare and Larson 2009; Legg and Anderton 2010; Phillips 1988, 1993). The following section describes Grand Island's bedrock geology, known glacial lake phases, and the geomorphic effects of these phases that can be observed on Grand Island.

Bedrock Geology

Located at the northern limit of the Michigan Structural Basin, a series of various sedimentary rocks that gently dip towards the Lower Peninsula, Grand Island contains three discrete bedrock formations (Dorr and Eschman 1970; Hamblin 1958). These formations include a basal unit of Jacobsville Sandstone, a coarse red sandstone from the Late Pre-Cambrian and Early Cambrian, which is overlain by Munising Formation Sandstone, a fine-textured, light grey Cambrian age sandstone. The Munising Formation contains three distinct members: the Miner's Castle Member, the Chapel Rock member, and a basal conglomerate. The basal conglomerate is dominated by quartzite pebbles, but also contains a considerable amount of vein quartz and chert, with some small amounts of slate, iron, basalt, granite, and sandstone (Anderton 2004; Hamblin 1958). Finally, Grand Island is partially capped by the Au Train Formation, a unit of Ordovician age sandy dolomites and dolomitic sandstones, in three isolated locations at Grand Island's highest elevations (Anderton 2004:116; Hamblin 1958: Plate 2).

Post-Glacial Lake Levels and their Geomorphic Features

Continental glacial advances and retreats throughout the Quaternary have had a dramatic effect on the landscape and subsequent prehistoric settlement strategies on Grand Island (Anderton 1993, 1995, 2004; Bradley 1985). After several episodes of glaciation, Grand Island was permanently ice-free and available for sustained human occupation after the retreat of Marquette Advance at about 11,200 BP (Anderton 2004:120). This is further confirmed by radiocarbon dates taken from the base of Echo Lake, near the center of Grand Island, dating to $10,221 \pm 335$ cal BP (Anderton 2004:120; Drexler 1981:231). While episodes of glaciations certainly had an effect on Grand Island's geologic configuration before this time, much of those geomorphic markers were likely erased by the Marquette Advance (Anderton 2004:116; Drexler et al. 1983; Farrand and Drexler 1985).

Thick glacial deposits and characteristic landforms formed by glacial retreats such as moraines, eskers, and drumlins can be found south of Munising, Michigan, but Grand Island is located north of this surficial depositional zone (Ball 1993:21; Blewett et al. 2009:254). As such, Grand Island's sediments comprise of a thin layer of sandy loam or reworked glacial material that overlies bedrock, which is indicative of a rapid advance and retreat of a thin ice sheet (Ball 1993:21). Grand Island's unique geomorphology is largely the result of post-glacial lake level fluctuations. The retreat of the Marquette Advance led to fluctuating glacial lake levels caused by differential isostatic rebound rates and regional formation and modification of outlets for glacial water, resulting in a unique system of terraces, beaches, gully systems, and wave-cut benches that mark some of the extents of these post-glacial mechanisms and their effects on the island's bedrock

geology, glacial erosion, and lacustrine processes (Anderton 1993, 2004; Ball 1993:21).

Known glacial lake phases and the geomorphic evidence present on Grand Island is summarized below in Table 1.

Table 1. Post-Glacial Lake Phases and Associated Geomorphic Evidence (from Anderton 1993, 1995, 2004; Farrand and Drexler 1985; Yuen 1988)		
Lake Phase	Cal BP	Geomorphic Evidence
Post-Duluth	11,200 – 11,100	Unclear; high scarps ranging from 225 to 240 meters may reflect retreat of Au Train Formation capstone (mesa and scarp) rather than shorelines.
Minong	10,700	Unclear; may have been obscured by later Nipissing shoreline.
Houghton	8,900	Submerged remains of forest at 60 meters depth on floor of East Channel. Gully system etched into uplands above 192 meters.
Nipissing I	5,400	Prominent wave-cut shoreline at about 192 meters rimming much of the island. Island separated into three lobes.
Nipissing II	4,450	Extensive depositional coastal landforms between about 186 to 192 meters, including the Williams Landing Spit, Duck Lake Cuspate Barrier, and others.
Post-Nipissing to Modern	Post – 4,4500	Beach ridge complex/Tombolo between east and west lobes of island below 186 meters. Flooding of lowest beach ridges at head of Murray Bay due to post-1400–1200 cal BP transgression.

Shortly after the retreat of the Marquette Advance, water levels fluctuated as outlets throughout the Lake Superior Basin opened. At this time, Glacial Lake Duluth, located in western Superior, began to drain eastward resulting in a series of marginal high lake stands, referred to as the Post-Duluth Phase. While some have claimed that prominent high elevation scarps on Grand Island are remnants of Post-Duluth shorelines (Dorr and Eschman 1970; Yuen 1988), Anderton (2004:116-120) convincingly argues

that these features are instead mesa-and-scarp landforms. Unlike true paleoshorelines that can be traced for great distances at a relatively unwavering elevation that should encircle the island, the features in question only occur on western exposures. Mesa-and-scarp features form when a relatively resistant rock is underlain by less-resistant rock which is undercut through erosive action. On Grand Island, these scarp features are formed amidst the overlying resistant dolomitic Au Train Formation which is exposed by erosion of the underlying weaker sandstones of the Munising and Jacobsville Formations.

Lake Minong formed between 11,200 and 10,700 cal BP, shortly after the Post-Duluth Phase as ice continued to retreat north (Anderton 2004:120; Farrand and Drexler 1985). Based on the presence of a wave-cut scarp near Trout Point, Yuen (1988) argues that Lake Minong shorelines are traceable on Grand Island at an elevation range of 202 and 199 m. However, Anderton (2004:120) argues that this scarp is an isolated feature formed by localized geomorphic processes that does not align with better candidates for Minong shorelines located elsewhere along Lake Superior's southern shore (Farrand and Drexler 1985:25, 29). As such, Anderton argues that any geomorphic traces of Lake Minong's shorelines are likely not present on Grand Island as they have likely been obscured by later high lake phases (2004:120).

Lake levels began to fall dramatically after 10,700 BP, resulting in levels significantly lower than present by 8,900 BP. This is referred to as the Houghton Low Phase, which represents the lowest lake phase in Lake Superior. The remains of a submerged forest at the bottom of the East Channel on the east side of Grand Island dating to 8777 ± 157 cal BP indicates that lake levels dropped to at least 60 meters below modern levels (Anderton 2004:121). The rapid draining of Lake Minong resulted in an

extensive gully system dissecting much of the upland glacial sediments related to dramatic fluvial erosion. After 8,900 BP water levels began to rise in what is known as the Rising Nipissing Phase (Anderton 2004; Farrand and Drexler 1985; Larsen 1985). During this transition, prehistoric groups would have been forced to adapt to a continually rising shoreline. Consequently, the Archaic period of the Lake Superior Basin is primarily limited to the Late Archaic as the archaeological traces of coastally adapted groups during the Early and Middle Archaic are likely currently submerged, a phenomenon referred to as the Middle Archaic Hiatus (Anderton 2004:121; Larsen 1985).

Lake levels rose above modern levels during the Nipissing Lake Phase resulting in well-developed paleoshoreline features. During the Nipissing Phase, low areas of Grand Island were submerged and the island is separated into three lobes: two on either side of the then-flooded Echo Lake Lowlands and the Thumb is separated from the western side of the island. The Nipissing I shoreline, formed at approximately 5,400 BP, represents the maximum water level attained during the Rising Nipissing Phase and can be found at approximately 192 meters where it truncates the gullies formed during the Houghton Low Phase. The Nipissing II shoreline represents a slight drop in Lake Nipissing at 4,450 BP, which is found at approximately 186 m on Grand Island. A series of beach ridges, spits, and barriers formed at this time including the William Landings Spit, the Duck Lake Cuspate Barrier, and the Muskrat Point Cuspate Barrier (Anderton 1993, 2004). These locations especially and the rest of the Nipissing shorelines were used extensively prehistorically, particularly during the Late Archaic (Anderton 1993, 1995, 2004; Dunham and Anderton 1999; Franzen 1998).

After 4,450 BP, lake levels began to slowly fall to their modern levels, with some fluctuations. Differential isostatic rebound associated with the draining of Lake Nipissing resulted in paleoshoreline features that are found at different elevations than their original levels. For example, the original Lake Nipissing shoreline was at 184 m in the Lake Superior basin and is now uplifted to 192 m near Grand Island (Anderton 2004; Johnston 2004). This vertical uplift continues today at a rate of approximately 27 cm per century in some portions of the Lake Superior basin (Farrand and Drexler 1985). The variation in lake levels that took place after the draining of Lake Nipissing resulted in a fluctuating shoreline environment that would have required continual negotiation from Late Archaic and Woodland inhabitants of the island (Anderton 2004:127; Drake and Dunham 2004; Dunham 2004a).

Rockshelter Formation in the Upper Great Lakes

Changes in lake levels related to deglaciation can result in a number of relict shoreline features such as beach ridges, wave-cut bluffs, sea caves, and sea stacks—all of which can be found throughout the Upper Great Lakes. Littoral caves, or sea caves, are created by lakeshore weathering and erosion processes and often feature amphitheater-like openings that vary greatly in height, but are often quite shallow (Mylroie and Mylroie 2013; Sage and Sage 2006). Moore (1954:71) provides an outline of the requirements of littoral cave formation:

The prerequisite conditions of [littoral] cave formation are:
1) the presence of a sea cliff which is in direct contact with the erosive forces of waves and currents; 2) the exposed face of the cliff must contain certain geologic structures, or

textures, which will allow the establishment of differential erosion; 3) the rock of which the cliff is composed much be of a sufficiently resistant nature so as to prevent rapid formation of a protective beach at its base.

Beyond these initial prerequisites, the development of a littoral cave is also dependent on factors effecting wave energy, such as wind direction and wave energy differences at wave interfaces (Myloie and Myloie 2013:11).

As lake levels change, these shoreline features can become submerged or lifted above the original lake level. Initially formed by wave action on rocky coastlines, “isostatic rebound following deglaciation has been especially efficient at removing caves [and other features] formed at sea level to elevations above that datum” (Lace 2013:8). For the purpose of this study, these features are geologically considered littoral caves, but are archaeologically or functionally considered as rockshelters when they occur in terrestrial locations along paleoshorelines and wave-cut benches. An understanding of the timing of their formation and subsequent availability is critical for any interpretation of their archaeological use.

As features not only located at but created by the interface of terrestrial and open water environments, littoral caves exhibit characteristics that cannot be adequately described by the existing interpretations provided by inland rockshelters and caves. The archaeological study of littoral caves is a relatively recent phenomenon that has been invigorated by the rapidly developing archaeological study of coastal settings. Michael Lace and John Myloie (2013) aptly state that “[c]ontrary to their historical treatment as marginal landscapes within the sweep of human evolution, coastal landscapes have emerged as critical components in reconstructing prehistoric migration and settlement

patterns on a global scale” (Lace and Mylroie 2013:115). Anthropogenic uses of littoral caves have been observed in a diverse set of climates and regions representing a wide temporal range of use throughout prehistory and among modern indigenous cultures (Lace and Mylroie 2013; examples include Erlandson 1999, 2007, Heyden 2005; Lace 2012; Rissolo 2005) Further, there is a growing body of research dedicated to the ritualized uses of these settings as evidenced by rock art and its association with patterned human activities.

Previously Recorded Rockshelter Sites

A variety of shoreline features in the Upper Great Lakes region are initially formed by lakeshore weathering mechanisms and are often found terrestrially following isostatic rebound and falls in glacial lake levels (Blewett 2009). Historic photographs and descriptions of shoreline features indicate that they can develop and be destroyed relatively quickly (Finney 2004; Sage and Sage 2006).

Rockshelters formed as littoral caves with evidence of human use have been recorded on Isle Royale (Bastian 1963; Clark 1987, 1989, 1995; West 1929), Mackinac Island (Fitting 1975; Sage and Sage 2006), the Garden Peninsula (Fitting 1968), and northern Wisconsin (Boszhardt 2013a, 2013b). These rockshelter sites have yielded assemblages including lithic debitage and fire-cracked rock, as well as human burials, copper caches, and rock art, suggesting a great diversity of uses. Additionally, the locations of these sites follow some notable trends (Figure 2). All previously recorded sites are located in the Upper Great Lakes and are situated at points that are located

slightly inland along paleoshorelines, a testament to their formation during higher lake level stages. Of these, two are located on Mackinac Island (20MK62 and 20MK81), three on the coasts of Isle Royale (20IR2, 20IR14, and 20IR136), two are located in the Burnt Bluff area on the Garden Peninsula (20DE3 and 20DE120), and one in Wisconsin (47Ba-0574). While rockshelters have been recorded in Minnesota, recorded sites are limited to the southeastern portion of the state and are therefore not applicable to a discussion of littoral cave use (Scott Anfinson, personal communication 2014). Similarly, while one rockshelter from Wisconsin is discussed below, the vast majority of recorded rockshelter sites are located in the Driftless Area of southwestern Wisconsin (Robert Boszhardt, personal communication 2014), and are therefore omitted from discussion.

Spider Cave

Spider Cave (20DE3) is an exceptional rockshelter and rock art site located in a large wave-cut niche about 90 feet long and 30 feet deep just below Burnt Bluff on the western coast of the Garden Peninsula in Delta County, Michigan. Much of what is known about Spider Cave is due in part to the efforts of the site's original owner, Henry Lang, who built a large wooden staircase in the 1960s, allowing the public to view the rock art. As a consequence of the site's rapid deterioration and the high potential for liability, the State of Michigan purchased the site and dismantled the staircase.

Figure 2. Locations of Previously Recorded Rockshelter Sites in the Upper Great Lakes.

In 1963, surveys and excavations in the Burnt Bluff area were conducted under the direction of Charles Cleland and Barry Kent of the University of Michigan (Cleland and Peske 1968). The purpose of this survey was twofold: (1) to map all caves and rockshelters with respect to a datum point for each cave, and (2) to conduct a series of excavations in promising shelter settings. Survey focused on the relict shorelines in which the caves and rockshelters were formed. In the field, the four major beach ridges were assigned arbitrary letters A, B, C, and D (A represented the modern shoreline and B, C, and D were assigned to beaches with increasing elevations). Their survey indicated that the B shoreline, associated with the Nipissing Lake Phase, was the most productive in terms of numbers of rockshelters and caves and contained almost all evidence of

human occupation (Janzen 1968:61). During this survey, the dimensions of each rockshelter and cave were recorded and assigned an “Excavation Potential” code (1 – Ignore, 2 – Possible, 3 – Good), which assigned potential by considering size and amount of rockfill. In total, 165 caves and rockshelters were recorded and mapped and six were excavated.

The test excavations at Spider Cave uncovered 90 stone and antler projectile points with almost no other artifact types. Of the projectile points recovered, most were Middle Woodland styles, often with broken tips and impact scars (Sabo III 1975). Spider Cave also has two groups of associated rock art that range in color from red to blue, which were likely produced using pulverized copper and iron materials (Jackson et al. 1996:77). One group lies just outside of the entrance to Spider Cave, while the other group is approximately on quarter mile north. Perhaps the best known figure is the “Spiderman,” which is a depiction of a “human figure attached with umbilical-like lines to a spider- or sunburst-like figure” (Jackson et al. 1996:77). These rock paintings are considered the only authentic such paintings in Michigan. Although the precise meanings of them are mixed, they share stylistic characteristics with Canadian Shield rock art traditions and may be related (Eger 1981; Lugthart 1968; Zurel 2009). Charles and Peske (1968) argue that the unusual assemblage, coupled with the rock art on the exterior of the cave suggests that

... the local Middle Woodland people regarded Spider Cave within a religious context. This was expressed by firing both chipped-stone, antler points, and harpoons into the shelter. Such acts could have been accomplished from either the beach or from a canoe on the occasion of either special visits or in casual passing. Perhaps the firing of a projectile point into the cave was regarded as an offering

for good fortune in hunting or as a ritual act to assure prosperity [1968:60].

Given the special nature of Spider Cave, it was listed on the National Register of Historic Places in 1971.

Recently, Ruuska and Armitage (2015) chronicled the changes in physical integrity using surveys, historical maps, deeds, photographs, ethnohistoric and ethnographic writings, and ethnohistoric interviews to interpret the natural and cultural processes (sensu Schiffer 1983) that have had a role in the degradation of the paintings at Spider Cave in the last 165 years. The authors argue that heritage management has largely neglected participation from Ojibway communities, stating that “they may have the greatest claims to legitimacy towards the site, but have been the most peripheral in its management from 1848 through 2014” (2015:41). Continued management of this important site should, as suggested, be conducted through co-management, emphasizing “expanded consultation, collaboration and co-management with local indigenous communities” (Ruuska and Armitage 2015:17) to ensure that both Western and Ojibway concerns are adequately met. Further, they argue that much of the degradation of the paintings could have been avoided if such a co-management approach had been pursued.

Cave B-95

Cave B-95 (20DE120), also located on the west coast of the Garden Peninsula, was first identified by the University of Michigan in 1965 during their surveys and test excavations. The rockshelter was chosen for excavation because of its large size and ease of access. Formed by coastal wave action during glacial Lake Nipissing, Cave B-95 is

fairly fragile, but its roof is supported by a large pillar that may have saved it from collapse (Prahl and Farrand 1968:16-18).

Lithic artifacts recovered included one corner-notched and one side-notched projectile point, both made of chalcedony and loosely Middle Woodland in age, seven chert flakes, most of which originated from the same core, and one “cigar-shaped” groundstone artifact made of brown quartzite, loosely interpreted as “fishing paraphernalia” (Janzen 1968: 72-75). Bone artifacts included an awl made from an unidentified mammal, an awl made from the humerus of a loon (*Gavia immer*), and a tool of unknown function made from a polished section of moose (*Alces alces*) scapula (Janzen 1968: 75-77). Four pieces of fabric were recovered, representing three distinct weave patterns: simple braiding, plain twining, and twilled plaiting. Tentatively, the material was identified as juniper bark. One piece called a “Chippewa Flag” exhibited areas of differential dye application with zones of blue, neutral, and red (Janzen 1968: 78; Jones 1968: 95-97). The excellent preservation conditions of the cave allowed for the recovery of five wooden objects as well: an “arrow-shaped” white cedar slat, a white cedar implement, a needle-shaped piece of white cedar, a rectangular birch artifact, and a birchbark mat and three conifer poles, which were associated with a dual infant burial, described below (Janzen 1968:78-81). While only fourteen artifacts were recovered from Cave B-95, the preservation conditions were excellent, as indicated by the presence of fabric and wooden artifacts. As of 1986, Cave B-95 is considered Eligible for National Register of Historic Places placement (MASF 2014).

A total of 247 human bones were recovered during test excavations, representing a minimum of six individuals. While the preservation of bone was quite phenomenal, as

evidenced by the presence of “one rib on which cartilaginous material was still attached” (Janzen 1968: 81), the site had been disturbed by rodent activity which had comingled the skeletal material. However, one burial was identified *in situ*. This burial contained two infants who “had been placed on a birchbark mat which rested on three parallel conifer poles” (Janzen 1968: 83). A ^{14}C date from one of the supporting poles yielded a date of AD 375 ± 130 , placing the burial and much of the occupation debris firmly within the Middle Woodland period. Several of the skeletal elements had clear evidence of cut marks that microscopic examination indicated were not recent. Both young adult clavicles exhibited cut marks on their distal ends in the area of attachment of the trapezius and deltoid. Additionally, transverse and lateral cuts were noted on the radius of a young adult individual. Janzen notes that postmortem corpse preparation is known ethnographically, but also notes that these cut marks “may reflect cannibalistic practices” (1968: 83).

Based on the presence of what has been interpreted as domestic refuse, Janzen (1968:87-93) argues that Cave B-95 was at least partially used for habitation, albeit for a very short amount of time. Because Cave B-95 is located within 462 yards of the Spider Cave site and appear to be contemporaneous, Janzen argues that the two are likely related, suggesting that Cave B-95 was a habitation site and the Spider Cave site was the associated ceremonial center. However, he does note that the age ranges of the interred individuals do not reflect a typical family unit, suggesting ceremonial burial use. In discussing both Cave B-95 and Spider Cave, John Halsey suggests that the Burnt Bluff area “held a special position in the physical and spiritual lives of the early inhabitants of

the land at the northern end of Lake Michigan” and that a better understanding of this use may be benefited by a better understanding of similar sites within the region (1995:10).

Rock Shelter Cache

The Rock Shelter Cache (20IR2) was reported by Fred Dustin in 1931 as a cache of copper implements located “in a rockshelter on the west side of the neck of water connecting Wood Lake with Siskiwit Lake with Wood Lake” on Isle Royale (Dustin 1931:11). The artifacts were not described by Dustin and attempts to locate the site in 1990 by Park Service archaeologists were unsuccessful. Clark (1995) notes that “there are a number of cracks and shallow overhangs in which a cache may have been deposited and subsequently found, but we found nothing” (Clark 1995:157). However, Clark does not describe the extent to which these numerous cracks and overhangs were investigated and argues that there is still a possibility for intact deposits in the vicinity. Without more information, the site has not been evaluated for National Register nomination (MASF 2014).

Massee Rock Shelter

Also located on Isle Royale, the Massee Rock Shelter (20IR4) is a Late Woodland period ossuary located in a rock cleft in a sandstone outcrop west of Point Houghton. The site was first discovered in 1908 by the children of E. T. Seglem, a summer resident from Chicago and formally recorded by the McDonald-Massee Expedition in 1928 who photographed the removal of additional skeletal material from the site, but did not

provide a plan view of the materials *in situ*. Along with the skeletal material, one stylistically undiagnostic biface was found in association.

The University of Michigan Museum of Anthropology (UMMA) relocated the site in 1960 and removed the remaining skeletal material, as well as a second bifacial tool. Based on the unusually good state of preservation of the skeletal material, Bastian (1963:57) argued that this may be indicative of a Late Woodland or early historic date range. This was confirmed by a series of radiocarbon dates from non-diagnostic bone samples that yielded a calibrated date range of AD 1270-1400 (Clark 1995:47). In 1989, the National Park Service placed a series of shovel tests in the area outside of the rock cleft in an attempt to identify associated activity areas, but all shovel tests were negative (Clark 1989). Osteological analysis conducted by Sauer indicated that the skeletal remains represented the secondary interment of at least 15 individuals with some evidence of postmortem alteration of long bones, scalping, and a variety of pathological conditions (Sauer 1990; Sauer and Clark 1991). The Masee Rock Shelter has currently been left unevaluated for National Register nomination, but the current site record notes that the site represents a “unique site type, although all remains [have been] removed” (MASF 2014).

Susan Cave

Susan Cave (20IR136) is a rockshelter located on Isle Royale that was named and tested by the McDonald-Masee Expedition in 1928. West (1929) noted that the cave had fire-blackened walls and ceiling. West’s description of their test excavation reports that “in trenching the accumulations on this floor to a depth of three feet, [they] found, all the

way down, stones showing the action of fire. Strata of charcoal were also encountered, indicating that it had been occupied for a considerable period of time in the past” (West 1929:22). In his report of nearby archaeological survey and testing, Caven P. Clark noted that although the site was outside of his survey area, further testing was warranted because “there are few natural rockshelter on Isle Royale and it seems likely that the benefits of this locality would have been overlooked in prehistory” (Clark 1986:23). However, in 1995, Clark noted that no cultural material has been recovered from the site (Clark 1995:123).

Susan Cave was visited by Barbara Mead in 1998 who “noted that the floor of the cave is covered by large pointy rocks, unsuitable for sleeping or sitting except in emergency” (MASF 2014) and was thus recommended as being ineligible for inclusion on the National Register.

Cave-of-the-Woods

Located on Mackinac Island, Cave-of-the-Woods (20MK62) is a rockshelter formed by glacial Lake Algonquin measuring 25 feet in depth, 20 feet in width, and 4 feet in height. The site was investigated in 1972 through the Mackinac Island Archaeological Survey (MIS) under the direction of Lyle Stone, Staff Archaeologist of the Mackinac Island State Park Commission, and under the field supervision of James E. Fitting. While a noted tourist attraction, Cave-of-the-Woods is located outside of the well-traveled portion of the island. Sediments were poorly developed in the rockshelter and the floor was littered with roof fall. Fitting notes that fieldwork was particularly difficult because of the travel logistics inherent with working on Mackinac Island without motorized

vehicles. Further, excavation was difficult within the rockshelter because of its dimensions, namely its low ceiling (Fitting 1975:103-104, 108-110).

The crew had originally opened a four-foot-wide trench near the back of the rockshelter, but this strategy was abandoned because of the “logistics of excavation, the low artifact yield, and the ... irregular bedrock floor” (Fitting 1975:111). Instead, the crew tested the cave with a single 4-by-5-foot unit that encountered lithic debitage and historic material. George Sabo III’s analysis of the lithic material suggested that it may have been natural (Sabo III 1975:126-130).

The sparse prehistoric and historic materials in combination with the rocky floor that would not have been “conducive to habitation,” Cave-of-the-Woods is considered Not Eligible for listing on the National Register (MASF 2014).

Skull Cave

Also located on Mackinac Island, Skull Cave (20MK81) is a shallow rockshelter located “on the west side of a limestone stack that originated during the glacial Lake Algonquin wave cutting of the shoreline” (Finney 2004:116). 20MK81’s name is derived from the human bones reportedly discovered by a British fur trader, Alexander Henry. According to Henry, Skull Cave served as a hiding spot for him during the uprising of Pontiac’s Rebellion of 1763. However, after spending the night he awoke “with some feelings of horror” when he discovered that he had been “lying on nothing less than a heap of human bones and skulls which covered the floor” (Henry 1921:110). Today, Skull Cave is listed as a Michigan Historic Site, but has not been formally evaluated for

inclusion on the National Register of Historic Places as no formal archaeological investigations have been conducted (MASF 2014).

Oriente Rockshelter

Located in a sandstone canyon rim in a series of glacial lake terraces on the Bayfield Peninsula of Wisconsin on the south shore of Lake Superior, the Oriente Rockshelter (47Ba-0574), was first encountered by a local caver and formally visited by Dr. Robert Boszhardt in October 2012. The Oriente Rockshelter is a large southwest-facing shelter measuring about 10 meters in width, 2 meters in height, and 3 meters in depth. While the rockshelter has not been formally tested, Dr. Boszhardt noted smudged ceilings indicative of prehistoric or historic activities, several pieces of historic graffiti, and petroglyphs that are likely Native in origin. These petroglyphs were sometimes isolated and occurred in sets in other instances. According to Dr. Boszhardt's notes, the

... grooves are "V"-shaped in cross section, and many are placed in areas where the adjacent rock surfaces appears to have been ground smooth. Some are isolated, others are clearly in sets; one set consists of 4-5 parallel grooves. ... The size of the grooves suggest axe-sharpening, but some could also be for sharpening bone tools (e.g. awls) [Boszhardt 2013b].

No pictographs were observed, but Boszhardt noted that lighting was poor. While no archaeological testing was done, Boszhardt certainly recognized the significance of the location, noting that the Oriente Rockshelter is "one of, if not, the first known rockshelter site in this region, and it provides tremendous opportunities" (Boszhardt 2013b). While this claim of the location being the first and only rockshelter in the region is not true,

certainly its size, configuration, and the presence of rock art make this site an ideal candidate for future research.

Discussion of Recorded Rockshelter Sites

The rockshelter sites described here share a great deal of similarities in locational and dimensional characteristics, suggesting similar formation processes. Based on the available field notes and reports, all recorded rockshelter sites can likely be attributed to formation in a littoral environment that was subsequently uplifted through deglaciation-related isostatic rebound events. Many were formed in wave-cut benches or bedrock exposures within paleoshorelines, many of which are sandstone features, although some on Mackinac Island are recorded as limestone or dolomite features.

In general, rockshelter sites have been infrequently subjected to formal archaeological investigation and interpretations are generally short-sighted because of the uniqueness of the site type. Interpretations of many Upper Great Lakes rockshelters are severely hindered because many of the recorded rockshelter sites in the region rely solely on amateur reports and historic accounts, such as Skull Cave (20IR136), some of which have not been successfully relocated, such as the Rock Shelter Cache (20IR2). While the existing reports and accounts are important to consider, the lack of archaeological verification severely limits their role in regional discussions of rockshelter use. Some rockshelter sites have only recently been identified and have not been formally tested, such as the Orienta Rockshelter in Wisconsin. This may, in part, be a result of a general assumption that the Upper Great Lakes region does not contain rockshelters. This assumption is particularly prevalent in states like Wisconsin and Minnesota, where

rockshelters are a common site type, but are more plentiful in the southern portions of the states.

Evaluations of rockshelters often rely heavily on presumed habitability of the rockshelter, which is primarily determined by the degree of roof fall observed (for examples, refer to the above discussions of Susan Cave and Cave-of-the-Woods). This observation, while an important consideration for excavation logistics, dramatically undermines the geologic processes at work in these settings and ignores others indicators of human presence that were often noted but considered insignificant, such as fire-blackened walls or fire-cracked rock. This trend in evaluation assumes that the setting's current shape and configuration has remained static and does not take into consideration that the roof fall sometimes encountered may have been the result of relatively recent spalling episodes. Even if it can be demonstrated stratigraphically that the floor had always been compromised by roof fall, these evaluations assume that this was an undesirable quality for prehistoric groups, ignoring the possibility that rocks could have been cleared away if deemed necessary or that perhaps, it wasn't a characteristic of concern. This interpretation also assumes that rockshelters' only purpose was to provide shelter. While this may be true, it also may not be capture the totality of possible uses.

The UMMA 1965 Burnt Bluff surveys represent a notable exception to this general trend. While the survey methods employed demonstrate that testing was heavily influenced by the assumption that a rockshelter's large size is an indication of prehistoric preference, as evidenced by the categories of Excavation Potential used which almost exclusively omits small shelters (Janzen 1968:61-67), their research represents a concerted interdisciplinary effort to understand the unique site types identified. In order

to better integrate recorded rockshelter use into regional discourse, it is the aim of the research that follows to not only present new information gleaned from surveys and test excavations, but to provide possible regional interpretations for Upper Great Lakes rockshelters that recognize structural and functional variability.

CHAPTER III

THEORETICAL FRAMEWORKS

Overview of Theoretical Frameworks in Cave and Rockshelter Studies

Archaeological interpretations of caves and rockshelters have long been the result of a variety of different theoretical approaches. Because these varying frameworks have such a profound role in resulting interpretations, a discussion of the frameworks that guide the arguments that follow is absolutely critical. In general, studies of cave and rockshelter settings have been built around the assumption that ‘utilitarian’ and ‘ritual’ activity exist in isolation, resulting in mutually exclusive interpretations of function. The frameworks described here represent general trends seen elsewhere globally, but discussion is limited to an explicitly North American perspective with examples primarily derived from the Eastern Woodlands.

Historically, caves and rockshelters have served as important archaeological repositories because these settings often provide conditions conducive to the preservation of a variety of materials in well-stratified deposits. This provides unprecedented opportunities to construct regional chronologies and to reconstruct paleoenvironments in ways unparalleled by open air sites. As a result of these important preservation qualities, cave and rockshelter sites and their assemblages often serve as the basis for establishing

regional culture histories. As such, the composition and variability of artifact assemblages and their associated activities and behaviors are often considered representative of entire regions and time periods. Interestingly, despite the important role caves and rockshelters serve in constructing regional chronologies, the interpretation of these settings have largely been neglected.

Researchers are now beginning to recognize the need to transcend cultural historical interest by using complementary anthropological approaches that seek to better understand their role among the prehistoric people that visited them (Burns and Raber 2010:278). This has resulted in extensive discussions about what activities were conducted in these settings as opposed to their open-air counterparts. One of the most pervasive interpretations of caves and rockshelters is that they were primarily temporary hunting camps, or as ephemeral or seasonally occupied locations where a variety of so-called “domestic” activities are performed (Burns and Raber 2010:278). This approach emphasizes the practical advantages of these settings as places providing immediate natural shelter from the elements that are highly visible on the landscape, and invite reoccupation (Brush et al. 2010; Burns and Raber 2012:258; Franklin et al. 2010; Straus 1990:277-278, 1997; Walthall 1998, 1999). Citing these practical advantages, rockshelters are then understood to have multiple adaptive functions to suit a variety of needs, including cache locations, logistical hunting camps, seasonal base camps, bivouacs (“motels”) associated with travel and trade, and special purpose sites (Burns and Raber 2010:269). Using this approach, cave and rockshelter settings are considered functional spaces utilized for their practical advantages by default, and ritual activity is only assigned when assemblages cannot be understood economically, resulting in mutually

exclusive interpretations. This is representative of an underlying assumption that the “economic” is separable from the rest of social life, an assumption that is characteristic of capitalism, but should not necessarily be applied to non-capitalist social formations. In practice, this approach often results in a false dichotomy of function that undermines the nuances of social life.

Renee Walker (2012) provides an important critique of this approach through her discussion of faunal remains at Dust Cave in Alabama, arguing that archaeological interpretation should expand its relatively narrow view of rockshelters to consider their dynamic role as sacred space as well. Other scholars have picked up on this critique, arguing that caves and rockshelters represent dynamic settings that served a great variety of prehistoric uses that cannot be adequately placed into categories of ritual or utilitarian, but are best interpreted using holistic approaches that seek to accommodate the richness of social life as individuals go about the tasks of attending to their needs and the needs of others, including other-than-human entities that exist within a spiritual realm.

Additionally, these approaches recognize that various aspects of social life (i.e. economic, political, and ritual) are inseparable and cannot be understood in isolation. Excellent examples of case studies challenging restricted interpretive paradigms can be found in the Midwest (Diaz-Granados et al. 2015; Pedde and Prufer 2001; Stelle 2012; Wagner 2004), Southeast (Claassen 2009, 2011; Claassen and Compton 2011; Crothers 2012; Homsey-Messer 2015; Prufer and Prufer 2012; Sabo III et al. 2012; Salzer and Rajnovich 2001; Simek et al. 2012, 2013), Southwest (Nicolay 2012), Mesoamerica (Heyden 2005; Moyes and Brady 2012; Rissolo 2005), and the Caribbean (Lace 2012).

Similarly, the following research intends to incorporate these considerations by utilizing a

suite of complementary theoretical frameworks to interpret Upper Great Lakes rockshelters and their role within a larger cultural landscape. These approaches, described in more detail below, include concepts of ritual, cultural landscapes, taskscapes, social memory, and ethnohistoric analogy.

Complementary Theoretical Frameworks

Ritual Activity among Hunter-Gatherers

Within the archaeological community, the term *ritual* is often used as a catchall term to describe depositional activity that cannot be easily understood functionally with respect to subsistence practices. This is further complicated by the ephemerality of hunter-gatherer archaeology, characterized primarily by sparse artifact scatters and infrequently encountered evidenced of prolonged stay, such as hearth features.

Several researchers have identified the need to first start with a reconsideration of how we define ritual in the archaeological record (Kyriakidis 2007; Moyes 2012), especially among hunter-gatherers (Jordan 2008; Zvelebil and Jordan 1999). Traditional approaches to identifying ritual in the archaeological record have argued that ritual activity is only understood in relation or in contrast to economic or utilitarian activities, resulting in a “Durkheimian” sacred-profane dichotomy (Bell 1997: 24; Durkheim 1915: 52, 56, 461). Using this approach, ritual activity in the archaeological record is identified only when acceptable ritual features are present, such as rock-art, votive deposits, and burials (Bonsall and Tolan-Smith 1997: 217). However, more contemporary researchers

argue that this strict binary opposition is arguably “too static and does not express the complexity of religious or symbolic expression in many non-Western societies” (Moyes 2012:7).

Catherine Bell (1997) has had a particularly important role in this discussion, arguing that ritual activity is pervasive in social life and cannot be isolated or adequately defined. Although her contributions have been primarily directed to contemporary cultural studies, they have had a profound role in shaping the interpretation of ritual in the archaeological record. Bell’s approach does not provide a “definitive interpretation of a set of ritual actions” but rather seeks to highlight the multiplicity of ritual action. In fact, “this approach can, therefore, actually undermine reliance on concepts like ritual, especially the notion of ritual as a universal phenomenon with a persistent, coherent structure that makes it tend to work roughly the same way everywhere” (Bell 1998:218). Rather than understand ritual only in terms of formalized religious practices, Bell argues that ritual pervades our social interactions and can take a great variety of forms that are expressed in multiple dimensions through complex interplays of tradition, communication, and performance. Similarly, many researchers argue that function is far from static and likely changed and developed within relatively short time spans, resulting in simultaneous secular and sacred expressions. For example, while Bonsall and Tolan-Smith (1997) have argued that economic and ritual activities can be identified by using a list of qualifying characteristics, they also acknowledge that “we know from ethnography, ethnohistory, and everyday experience that many aspects of economic behavior have a ritual dimension, while ritual behavior can often have an economic aspect” (Bonsall and Tolan-Smith 1997:217).

This perspective is particularly well illustrated by Jean Clottes, a prominent figure in French rock art studies in her discussion of an example from Emmanuel Anati and Diane Ménéard's 1989 book, *Les Origines de l'Art et l'Formation de l'Espirit humain*:

What *we* call the supernatural world is immanent to what *we* call the real, everyday world. In Australia, traditional Aranta hunters used to make drawings on rocks before hunting. When asked why they were doing this by ethnologist Lewis Mountford, they were quite astounded by the silliness of the question and replied, "But how can we go hunting if we do not paint first?" Drawing an animal on the rock – which for us might be a ritual act – was obviously for them as much a part of the hunting process as preparing their weapons and stalking their game [Clottes 2012:16].

Similar sentiments are consistently demonstrated in other ethnographic and ethnohistoric accounts, strongly suggesting that the archaeological interpretation of hunter-gatherer ritual must consider the limitations of a Western sacred-secular dichotomy currently dominating archaeological interpretive discourse. From this perspective, ritual activity is best understood as a set of actions dictated by tradition and beliefs that can have religious, economic, social, and political dimensions. It is important to recognize that our modern concepts and definitions of ritual represent different relationships with ritual activities than can be expected among hunter-gatherer groups. Further, the ritual activities that we define may have been so deeply engrained in daily life that our analytical social categories distinctions would not have been equally meaningful. As such, when considering rockshelters with these concepts in mind, it becomes possible to explore how the rockshelter context can alter or effect the significance and meaning of seemingly mundane or utilitarian activities.

Cultural Landscapes

Landscape archaeology is a segment of archaeological inquiry that encourages archaeologists to expand interpretive emphasis from site-specific interpretations to consider broader humanistic landscapes that emphasize experience and use. The approach operates on the relatively simple premise that sites in archaeology are arbitrarily defined and that an overemphasis on archaeological sites may do more to obscure actual behavior than it is able to reveal. Landscape archaeology considers a *landscape* as a multi-dimensional analytical “entity that exists by virtue of how it is perceived, experienced, and contextualized” by the people that occupy it (Knapp and Ashmore 1999:1). A landscape is considered actively inhabited space that “embodies more than a neutral, binary relationship between people and nature” (Knapp and Ashmore 1999). Landscape approaches strive to diffuse Western perspectives that tend to compartmentalize the environment into categories and locations whose recorded boundaries are typically arbitrary. Using landscapes as an analytical entity allows for discussions of social, political, and economic concerns to be considered in relation to each other, rather than in isolation. This provides a comprehensive framework from which to interpret environmental and social strategies, allowing for the study of both artifact rich and poor areas in order to suggest why certain areas are preferred for certain activities, while others are seemingly avoided.

As such, landscapes are not synonymous with natural environments or ecosystems. Traditionally, a given region is understood in terms of ecosystems, which refer to physical and biological systems with somewhat self-contained boundaries. For example, watersheds are commonly used by anthropologists and biologists as units of analysis because their boundaries are physically delineated and result in unique soils,

plants, and animals that likely required specific actions from human groups to utilize them. However, geographic boundaries imposed by humans do not necessarily coincide with biological boundaries, but instead are socially constructed. These socially constructed boundaries that often transcend biological boundaries are considered *cultural landscapes*. According to Zedeño (1997:126) and Zedeño et al. (2001:31), cultural landscapes can be defined as “a network of interactions between people, places, and resources” that can be characterized by the following three basic dimensions:

- (1) Formal, or the physical characteristics and properties of the natural ecosystem upon which they are constructed;
- (2) Relational, or the interactive (behavioral, social, symbolic) links that connect people with land and resources at various scales; and
- (3) Historical, or the sequences of links that result from the social construction of the environment through time (Zedeño 2001:31).

Based on this model, a cultural landscape cannot exist without historical or relational dimensions.

The study of landscape archaeology is of particular relevance to the discussion of cave and rockshelter function. As highly visible fixed locations, rockshelters tend to function as *places* within a landscape that ethnohistoric and ethnoarchaeological research suggests were often incorporated into an emic mental map of the landscape (Burns and

Raber 2010:270; Binford 1983; Gorecki 1991). A landscape approach is used as a primary framework for the research that follows because it is “relevant to archaeology’s goal to explain humanity’s past through its ability to facilitate the recognition and evaluation of the dynamic, interdependent relationships that people maintain with the physical, social, and cultural dimensions of their environments across space and over time” (Anschuetz et al. 2001:159). Additionally, a landscape approach provides an interpretive framework that in many cases is more consistent with indigenous perspectives, allowing for the incorporation of ethnohistoric information and providing opportunities for dialogue between archaeological and contemporary indigenous communities in terms of both interpretation and protection.

Taskscapes, Persistent Places, and Social Memory

Within a given cultural landscape, certain landscape features acquire significance and influence the way in which the landscape is defined and utilized. As Anschuetz et al. aptly state, “Although a landscape approach recognizes the inherent fluidity and permeability of narrowly delimited boundaries, the persistence of particular ‘places’ within may serve to define a landscape” (Anschuetz et al. 2001:186).” Ingold (1993, 2000) provides an important expansion of the concepts offered by a landscape approach to suggest that a “taskscape” operates as a meaningful concept to explain the creation of persistent places. According to Ingold, “just as the landscape is an array of related features, so – by analogy – the taskscape is an array of related activities” (1993:158). Using this approach, the landscape is defined, understood, and ascribed significance

through actions that take place within it. Activities taking place within the landscape form an intricate web of social relations between humans and other humans, between humans and living animals and plants, and between humans and ‘other-than-human’ entities, such as spirits, who occupy the landscape (Ingold 2000:92). The significance of a persistent place can be the result of human interactions with the resources it provides, such as a lithic quarry, a locale for collecting certain plants, or perhaps a rocky shoal for fishing during fall spawning. While these places are likely significant because of the resources they provide, a given landscape also contains places of cultural and symbolic value. When spiritual entities are involved, significance may be attributed by virtue of spiritual involvement in certain places, thereby transforming seemingly mundane activities or spaces into ritualized settings. This approach challenges us to recognize that hunter-gatherers did not exist within a fixed backdrop of environmental resources, but lived and interacted within an actively negotiated and ever-changing taskscape. Unlike landscapes, taskscapes continually change by virtue of the activities occurring and the complex relationships between humans and other entities.

The intimate knowledge of a given taskscape and the creation of persistent places within is likely created and perpetuated by processes of social memory. Connerton’s (1989) concepts of small-scale habit-memory and long-term group memory provide a potential framework from which to understand the creation and maintenance of persistent places in the taskscape and the role of producing and reinforcing their associated social practices and behaviors. When combined with Ingold’s (1993) concepts of taskscapes, it can be argued that persistent places acquire ritual significance by the virtue of the settings’ role in facilitating human interactions with other-than-human entities. This

significance is then passed down and maintained through repetitive performative practice, which becomes embodied as long-term group memory. Some researchers working in the Upper Great Lakes region have used ethnographically informed landscape approaches to argue that to the Algonquin people, many natural features, such as caves, represent particularly potent sacred places and their use is often dictated by ritual reenactments of creation stories (Arsenault 2004; Creese 2011; Norder 2007, 2012; Norder and Carroll 2011; Rajnovich 1994; Weeks 2012). These researchers argue that the prehistoric function of these settings cannot be understood in isolation, but must be placed in a relational landscape in order to understand their use as embodiments of larger ideological concepts.

Ethnohistoric Perspective

Importance of Landscape Features in the Algonquin Universe

Throughout the Upper Great Lakes, ethnohistoric accounts provide a substantial amount of insight into the significance of natural landscape features and their role in the spiritual lives of the Algonquin. For Algonquin groups, the world is inhabited by other-than-human entities called *manitous*, which represent spiritual forces that are manifest in every conceivable aspect of the world: animals, plants, and the natural environment (Rajnovich 1994:35). The concept of *manitous* is largely dependent upon context and in some instances may refer to spirits, but can also have a more fundamental definition understood as essence, attributes, substance, or mysteries (Johnston 1982:6). To complement this, the Algonquin universe is layered with distinct realms of Sky, Earth,

Underwater, and Underground, which are “connected in places such as deep lakes, whirlpools, caves, and crevices” (Rajnovich 1994:35). While the *manitous* are manifest everywhere and embody everything, their presences were considered strongest in these nodes in the landscape, which were considered the ‘homes of the *manitous*’ (Rajnovich 1994:35; Johnston 1982:33).

The significance of caves is consistently attributed to its ability to provide shelter and as a place to communicate with *Gitchimanitou* (the Great Spirit). Contemporary Ojibwa consultants state that the fact that these caves formed underwater and is now above water and inland contributes greatly to its ceremonial significance. According to Zedeño et al., “the importance attributed to water by Ojibway people, and the power of water to connect all forms of life, seem to support the logic that attributes particular power to this geographic location” (2001:145). According to an interview conducted with contemporary descendants of the Bad River and Red Cliff Bands of Lake Superior Chippewa, a small cave that they visited was considered a “powerful and ceremonial place the importance of is enhanced by the fact that it was carved by the water and was once submerged” (Zedeño et al. 2001:142).

Activities Associated with Upper Great Lakes Rockshelters

Both ethnohistoric and ethnographic accounts refer to a variety of rituals and activities that were conducted in rockshelter settings, many of which cite their relationships with water and *manitous* who inhabit them as primary reasons for

conducting certain activities in these places. These narratives provide important insight into complex interactions and engagements with the natural world.

Gender-Specific Activities. According to ethnohistoric accounts, male hunters and warriors used sandstone shoreline caves as refuges or hiding places (Conway and Conway 1990:67). Oral histories also mention that caves were customary places for women's coming of age fasting and seclusion before marriage (Zedeño et al. 2001:72), which is consistent with ethnohistoric accounts. Ojibway historian George Copway described an interaction with an Ojibway woman named Shah-won-o-equa (Lady of the South) in 1842 who described a pivotal time when she fasted and dreamed in a cave when she was young. She explained that she went to a cave near Grand Island to make a soft bed of cedar boughs and spent ten days fasting, singing, and dreaming. She explained that she "hurried [there] to learn the secrets of the herbs and flowers" and that she "fasted [there] in seclusion, waiting for [the] fathers to teach them to [her]" (Rajnovich 1994:26; Copway 1850:20). When she emerged from her ten days' fast, she returned home as a powerful medicine woman. This narrative reinforces the notion that certain landscape features hold certain power. The cave that she used offered her the seclusion and spiritual power necessary to complete the rites required for her transformation into a medicine woman, which serves as a powerful reminder that the cave setting is a critical component of spiritual communication.

Offerings to Ensure Safe Travel. As landscape features that represent homes of *manitous*, it is considered customary among the Ojibwa to offer tobacco during journeys

in these potent places to ensure their safe travel. According to Basil Johnston, an Anishinaabe writer, linguist, and ethnologist,

Where that presence [of *manitous*] was greatest – at the top of a mountain, in a whirlpool, in a cave, on a small island, or in a cavern in rocks at the water’s edge – the Anishnabeg would offer tobacco to the mysteries who abided there. The offering was given partially to appease, and partially to acknowledge a presence. For whatever reason the act was performed, it was always done with reverence and holiness [Johnston 1982:33].

Several 18th century explorers in Northern Minnesota have observed Ojibwa individuals shooting arrows with leaves of tobacco attached into rock clefts and caves for this reason while paddling past in their canoes (Cleland and Peske 1968:59-60; Coues 1965:15-16; MacKenzie 1966:LIV; Nute 1941:24, 25, 34, 36; Tooker 1991:81-82). Some informants have suggested that similar practices in these settings were done by shamans in search of powerful medicine, similar to those described above. Narratives from Saskatchewan, Manitoba, and Ontario describe mountains, cliffs, and caves as being homes for powerful Medicine *Manitous*. At these locations, “specially gifted shamans had the power to enter the rocks and exchange tobacco for medicine” (Rajnovich 1994:66; Dewdney and Kidd 1973:14).

Production of Rock Art. Throughout the Canadian Shield and some portions of the Upper Great Lakes, cave and rockshelter locations are often accompanied by rock art. According to an informant from Lac La Ronge in Saskatchewan in 1965, the rock art at these locations represent places where dreams occurred to shamans who had approached the rock faces, and the *manitous* residing there, when they were in need of assistance (Rajnovich 1994:66; Jones 1981:72). The medicine *manitous* described in these

narratives may be related to the *maymaygwayshiwuk*, which are “little hairy water creatures ... sometimes interpreted as rock medicine men” understood to be “benign but mischievous spirits” among the Cree and Ojibway (Dewdney 1971:3; Rajnovich 1994:67-68).

Discussion

In the Upper Great Lakes, caves and rockshelters are often considered important ceremonial spaces that carry ritual significance because they offer a setting to interact with other-than-human entities. The significance attributed to cave and rockshelter settings in the Upper Great Lakes may be understood as a palimpsest of small-scale activity between humans and other-than-human entities repeated over generations, resulting in the development of performative ritual practice through the enactment of symbolic dialogues. The ethnohistoric accounts discussed here indicate that the rockshelter setting represents the most important qualifier for the activities conducted within.

Some archaeological work has been done that explores some of the aspects of caves and rockshelters. For example, tobacco offerings and production of rock art may have a great deal of antiquity. The Spider Cave site, located on the Garden Peninsula of Michigan and described in more detail in Chapter 2, may exhibit evidence of these practices dating to at least the Middle Woodland period (Cleland and Peske 1968:59-60). Similarly, many studies have been conducted in the Canadian Shield that investigate the role of rock art in Algonquin cultural landscapes (Arsenault 2004; Creese 2011; Norder

and Carroll 2011). However, these previous studies have largely investigated the ritual lives of the Algonquin in isolation from the rest of social life. The research that follows seeks to integrate varying dimensions of social life to argue that the rockshelters in the Upper Great Lakes region served as important persistent places in the hunter-gatherer taskscape that acquired ceremonial significance by virtue of their perceived role in facilitating communication with *manitous*.

CHAPTER IV

METHODOLOGIES

Project Overview

Under the guidance and supervision of the Grand Island Archaeological Program, a rockshelter survey was conducted on Grand Island in June 2015 to investigate the island's rockshelters and their associated landforms for evidence of prehistoric and historic usage. The project was conducted under Section 110 of the National Historic Preservation Act, which requires that federal agencies ensure that historic properties under the agency's jurisdiction are identified, evaluated, maintained, and nominated to the National Register of Historic Places where appropriate. As geologic features that have received increased attention throughout the region as archaeologically and culturally sensitive landscape features, the preemptive assessment of their significance is particularly helpful in outlining protective management strategies for these resources.

The project area is divided into four survey parcels (Figures 3-5), which were placed in areas corresponding to the locations of rockshelters recorded in a backcountry guide by Michael Neiger (2012), described in more detail below. While the survey parcel names correspond with complex names provided by Neiger, the survey boundaries of these locations were amended to provide adequate and systematic coverage of adjacent habitable landforms.

The Timber Wolf parcel is located on the southern shore of Grand Island (Figure 3), approximately 240 meters northwest of the Ferry Dock at Williams Landing in the northwest quadrant of the junction of Center Road and the West Rim Trail. The parcel is approximately 325 meters N-S and 574 meters E-W. The Black Bear parcel consists of an approximately 200 meter wide section along the west side of Duck Lake Road on the west coast of Murray Bay (Figure 3). The parcel begins approximately 200 meters east of the junction of Center Road and Duck Lake Road and continues for approximately one mile until the junction of an unnamed road, south of the Murray Bay landing and campsite. The Peregrine Falcon parcel (Figure 4) is located west of the West Rim Trail approximately 1.7 miles north-northwest of Mather Lodge on the northwest coast of Grand Island. The parcel includes the eastern portion of a very steep drainage system and measures approximately 940 meters N-S and 200 meters E-W. The NW Thumb parcel is located on the northwest coast of the Thumb following a logging trail that runs along this coast (Figure 5). The parcel begins at the junction of the logging trail and the Thumb Trail, following the logging trail until Troup Point. The parcel measures approximately 1.2 miles NE-SW. The parcel's width ranges from approximately 15 meters on either side of the logging trail centerline in the southern half to approximately 300 meters E-W at Trout Point. In total, 206.99 acres were subjected to pedestrian survey and/or shovel testing under the auspices of this project.

Figure 3. Rockshelter Survey Coverage: Timber Wolf Parcel and Black Bear Parcel.

Figure 4. Rockshelter Survey Coverage: Peregrine Falcon Parcel.

Figure 5. Rockshelter Survey Coverage. NW Thumb Parcel.

Methodologies

Field Methodology

Shovel Testing. A pedestrian walkover survey was first conducted within each survey parcel to identify rockshelters viable for testing, using Neiger's backcountry map and provided UTM coordinates as a guide. Rockshelter locations were first verified and then assessed for accessibility, stability, and integrity. This was critical because Neiger's definition of a "cave" was, in all practicality, much different than an archaeological or geological definition, as discussed in Chapter 1. Neiger defined a "cave" as "any rock formation allowing one to take shelter from the elements" (personal communication, 2015). Preliminary survey efforts indicated that this often included small, restricted grottos and crevices, sea caves at modern sea level, and spaces between recently fallen boulders. These types of features were omitted from formal investigation because they often lacked testable surfaces or were too small to allow entry. Instead, rockshelters were tested only if they were large enough to permit entry and had surfaces stable enough to permit shovel testing.

Shovel testing was the primary means of data collection. The placement of shovel test pits (STPs) in viable rockshelters was done using a modified transect system that was largely determined by the locations of natural landforms. Rather than aligning transects in a grid following cardinal directions at equally spaced intervals, shovel test transects were judgmentally placed to allow full exploration of rockshelter-specific landforms, giving preference to areas of level ground and well-drained soils. This system provided the same

organizational simplicity as a grid system, but allowed STPs to fully explore natural contours and landforms while avoiding areas of steep slope and poorly drained soil.

The number of STPs placed within each rockshelter varied based on the rockshelter's overall shape and configuration. However, when possible, at least two transects of STPs were excavated. Using a basic cruciform pattern, the first transect ran parallel to the back of the rockshelter and the second transect was placed perpendicular. STPs were placed at approximately five meter intervals, but this was occasionally adjusted based on the size of the rockshelter. When used, this basic cruciform pattern provided an adequate and time-sensitive technique to assess archaeological usage and formation processes. In addition, this approach also provided a methodological baseline from which to compare rockshelters based on the presence or absence of occupations. When possible, this cruciform transect system was repeated above and below the rockshelter to fully explore surrounding or adjacent areas of use. If a cruciform system could not be implemented because of the restricted or unstable nature of a rockshelter, then at least two STPs were judgmentally placed in or around each rockshelter.

At the onset of this project, the extent of sediment deposition in each rockshelter was unknown. As such, every effort was made to distinguish between episodes of roof collapse versus the base of the rockshelter to ensure that all potentially inhabited surfaces were tested. In order to do this, STPs were only terminated when sandstone was impassable with available tools (i.e. shovel, rock hammer, and Pulaski—a handheld firefighting tool that combines an ax with an adz). Typically, this did not occur until a depth of approximately 85 cm, but STPs were excavated to a minimum depth of 35 cm.

Site Naming Process. Throughout the testing process, individuals rockshelters were given a variety of names depending on whether the locations tested were positive for cultural material or not. The Survey Parcel refers to the survey area that the rockshelter was located. The Field ID is a two part code where the first two letters represent an abbreviation of the Survey Parcel name and the following numbers refer to the order that the rockshelters were encountered and recorded. When possible, the Field ID was designated sequentially along cardinal directions. The FS Tag Number and FS Site Number represent arbitrary identification numbers that are assigned by the USDA Forest Service for cultural resource inventory purposes and are designated as they are recorded. In this survey, FS Tag # and FS Site # were reserved for sites that were positive for cultural material. Although these sites are not true caves, the Site Names designated correspond with the names given in Neiger's (2012) backcountry guide for continuity.

Table 2. Grand Island 2015 Rockshelter Site Names				
Survey Parcel	Field ID	FS Tag #	FS Site #	Site Name
Timber Wolf	TW-01	905	09-10-03-1076	Moss Cave
	TW-02	906	09-10-03-1077	Miner's Pit Cave
	TW-03	906	09-10-03-1077	Miner's Pit Cave
NW Thumb	NW-01	908	09-10-03-1078	Bootlegger's Cove
Black Bear	BB-01	N/A	N/A	N/A
Peregrine Falcon	PG-01	N/A	N/A	N/A

Assemblage Analysis Methodology

The prehistoric assemblages from the three rockshelter sites identified in the 2015 survey are characteristically small with limited internal variability, primarily dominated

by lithic debitage and fire-cracked rock (FCR). This is not inconsistent with contemporaneous prehistoric sites from Grand Island and throughout the Upper Great Lakes (Benchley et al. 1988:88-101; Dunham et al. 1997:90-91, Drake and Dunham 2004; Drake et al. 2009).

The following sections present the artifact analysis methodologies employed for each artifact class represented, and then provides results and interpretations for each rockshelter site based on each material class: ceramics, lithics, macrobotanicals, and hearth features. In order to maintain consistency among other archaeological investigations from Grand Island, methodologies are largely consistent with those employed in relevant cultural resource reports submitted to the Hiawatha National Forest (Benchley et al. 1988; Dunham et al. 1997). Additionally, the methodologies employed in these reports were developed to best interpret Upper Great Lakes assemblages, which are dominated by artifact classes that are often neglected in other methodologies, like fire-cracked rock (FCR).

The research goals for this artifact analysis are as follows: (1) to identify the nature and range of activities at each site, (2) to identify the lithic reduction sequence represented at each site, (3) to characterize aspects of raw material procurement and use, and (4) the identification of temporally sensitive artifacts.

Ceramics. Shovel testing and test excavations yielded a very small amount of prehistoric ceramics (n=3), found only at Miner's Pit Cave. Recovery of ceramics in the field was particularly difficult because the rockshelters investigated are carved out of sandstone, making differentiation between ceramics and sandstone fragments

challenging. Six pieces that were bagged and recorded in the field as ceramic sherds were discarded once further examination determined that the pieces were coarse micaceous sandstone. Characterized by small, highly fragmented pieces, analysis of the ceramic assemblage presented difficulty in identifying physical characteristics such as surface treatments, decorative elements, and vessel form. Despite these shortcomings, ceramics are a relatively rare artifact class in the Upper Great Lakes and represent a critical component of temporal and functional interpretation. While the ceramic assemblage was extremely small, the recorded characteristics allow for comparison with regional typologies and chronological trends.

Recorded ceramic characteristics include the following: count, weight, sherd type, sherd size, sherd thickness, temper type, temper size, exterior surface treatment, and use-alteration. Sherd type characterized sherds by the portion of the vessel likely represented (i.e. rim, neck, body, base). Sherd size discriminated between small sherdlets (1 cm² or less in size), large sherdlets (1-4 cm² in size), small sherds (4-9 cm² or larger in size), and large sherds (> 9 cm² in size) (after Dunham et al. 1997:93). Sherd thickness was measured in order to compare with recorded regional and temporal variations, and make assessments of their potential function. In the Upper Peninsula, prehistoric ceramics are dominated by grit temper, but care was taken to look for sand and shell temper as well (Dunham et al. 1997:93). Temper size was recorded using a handheld magnifying lens and was organized into the following size categories: fine (0-1 mm), fine to medium (1-2 mm), coarse (2-3 mm), very coarse (3+ mm), and poorly sorted (random mix of particle sizes) (after Dunham et al. 1997:94; Fitting 1965:12). Surface treatments such as cordmarking, fabric impression, and smoothing represent “additions and modifications to

the surface of pottery that can affect technofunctional performance” and were noted when present (Kooiman 2012:46; see Skibo and Schiffer 2013). Similarly, the presence or absence of use-alteration traces such as exterior sooting, exterior carbonization, and attrition was recorded. In one case, the entire sherd was blackened. In this case, attrition was not recorded because the blackening was likely an unintentional consequence, perhaps as the result of vessel failure while over the fire, rather than the result of activity-specific attrition patterns (Kooiman 2012:46). As no rim sherds were recovered, estimations of vessel size were not pursued. Similarly, as no decorated sherds were recovered, decorative elements are not discussed.

Lithics. Lithic industries of the Upper Great Lakes are characterized by their use of locally available raw materials, especially quartzite, quartz, and chert from secondary gravel sources (Drake et al. 2009). On Grand Island, these raw materials are primarily derived in the form of cobbles from the orthoquartzite conglomerate forming the basal member Munising Formation, which outcrops in several locations on the island (Benchley et al. 1988:5-6; Hamblin 1958). The lithic assemblages described here are divided into the following categories: flaked stone tools, lithic debitage, cores, and fire-cracked rock.

Flaked Stone Tools. Only three flaked stone tools were identified in the lithic assemblages, but standard morphological and metric attributes were recorded for each artifact. These included count, shape, transverse cross section, length, width, thickness, and raw material. In addition, the tools were subjected to microwear analysis by Dr. G. Logan Miller and James W. Hill III in February of 2016 using an Olympus model BXM

metallurgical microscope equipped with bright field, dark field, and polarized illumination. Using the methodologies developed by Semenov (1964) and later modified by Keeley (1980), artifacts were examined for evidence of micropolishes, striations, and damage scars that form on the edges of chipped stone tools which are indicative of specific tasks on certain materials. Prior to analysis, the artifacts were photographed and cleaned in an ultrasonic cleaner in a bath of soap and then in water. According to the report, raw material composition required special consideration as the vast majority of lithic microwear analysis has been dedicated to cryptocrystalline materials (Miller and Hill 2016). Comparatively, macrocrystalline materials such as quartz and quartzite have received very little attention in microwear analysis, with the notable exception of some recent experimental work (see discussion in Clemente Conte et al. 2015 and Aranda et al. 2014 for more recent work). As such, the analysis of use-wear on such materials is still in its infancy and without experimental studies use-wear could not be attributed to particular materials. However, Miller and Hill III are confident that their evaluation of relative hardness of the material and manner of use (e.g. cutting, scraping, etc.) is sound.

Lithic Debitage. Debitage represents a much more ubiquitous artifact type than formal tools, and therefore required a more detailed categorization strategy to quantify observed variation. Following the strategy employed by Dunham et al. (1997:96-98), flakes were classified based on flake size, morphology, and cross-section, resulting in a classification system that highlights different stages in the lithic reduction sequence. Flake size classes are grouped in 10 mm intervals (e.g. Size Class 1 = 0-10 mm; Size Class 2 = 11-20 mm; Size Class 3 = 21-30 mm, etc.). Measurements for size class were taken from the largest axis present. The major flake categories represented are

decortication flakes, secondary decortication flakes, secondary flakes, and shatter (Table 4.2). Decortication flakes, secondary decortication flakes, and secondary flakes are further subdivided into blocky and flat varieties primarily based on the shape of the flake's cross-section.

Table 3. Flake Categories and their Characteristics (after Dunham et al. 1997)			
Flake Category	Description	Further Subdivisions	Code
Decortication Flakes	Characterized by the presence of cortex on a minimum of 1/3 of the dorsal face.	Blocky: Relatively large with thick, angular cross-sections, often have simple striking platforms.	BDF
		Flat: Smaller in size, often have thinner, biconvex, lenticular, or flat cross-sections.	FDF
Secondary Decortication Flakes	Secondary flake (see below) with cortex on margin.	Blocky: See BSF description, but with cortex.	BSDF
		Flat: See FSF description, but with cortex.	FSDF
Secondary Flakes	Characterized by the lack of cortex and the presence of flake scars from flake scars on dorsal surfaces.	Blocky: Thick, angular cross-sections; Large, robust, unprepared or minimally prepared striking platforms; Prominent bulbs of percussion.	BSF
		Flat: Relatively small with thin, scalene, lenticular, or flat cross-section with diminutive striking platforms and bulbs of percussion.	FSF
Shatter	Irregular, angular pieces of raw material lacking any clear or consistent evidence of flake removal.		N/A

Decortication flakes represent the initial stages of lithic reduction. They are characterized by the retention of cortex on at least one-third of the dorsal face. The subdivision into blocky and flat decortication is based primarily on the cross-section, but relative size and thickness are also defining characteristics. Blocky decortication flakes, characterized by relatively large size, angular cross-sections, and simple striking platforms, are considered the result of heavy percussion flaking. In contrast, flat decortication flakes are typically smaller and thinner with biconvex, lenticular, or flat cross-sections. Flat decortication flakes are also attributable to early stages of reduction, but may represent cobble edges or flakes removed after the initial cortex surface has been removed.

Secondary flakes represent the next stages of core reduction and tool manufacture and are characterized by a lack of cortex and the presence of flake scars on dorsal surfaces. Blocky secondary flakes are characterized by thick, angular cross-sections with large, minimally prepared striking platforms and prominent bulbs of percussions. Dorsal surfaces often have few, but large flake scars. Blocky secondary flakes are closely associated with the production of flake tools and biface blanks. Secondary decortication flakes share characteristics with both decortication and secondary flakes and represent a transitional category between the two. These flakes are best understood as large secondary flakes with large, relatively thick cross-sections with cortex present on one or more of its margins. Flat secondary flakes represent the debris from several activities including late stages of core reduction, tool manufacture, and maintenance activities. These flakes are relatively small and thin with scalene, lenticular, or flat cross-sections.

Very small flat secondary flakes are typically associated with final stages of tool manufacture and resharpening activities.

The final flake category is shatter, which is defined as “irregular, angular pieces of raw material that lack any clear and consistent evidence of flake removal” (Dunham et al. 1997:97). Shatter can occur at any stage in the reduction sequence, but is often associated with heavy percussion flaking.

The coding system described in Table 3 is intended to simplify the artifact tables presented in the following sections. The distinction of “Fragment” is added to any flake whose margins are not intact. When possible or appropriate, an indication is made in the table as to which portion (i.e. proximal or distal) is present. As such, a blocky secondary flake whose margins are not intact is considered a blocky secondary flake fragment and is coded as BSFF.

Fire-Cracked Rock. FCR is a notably ubiquitous artifact type in the Upper Great Lakes. For the purpose of this analysis, FCR is defined as any rock that exhibits morphological or physical attributes characteristic of thermal alteration. A discussion of terminology may be relevant here, as some researchers argue that the term Thermally Modified Rock (TMR) is more widely applicable (citation needed). This terminological distinction may be useful here as sandstone does not necessarily break in the characteristic ways that quartzite FCR does, but examination clearly demonstrates that the pieces were subjected to high heat, likely as a result of human activity. Individual pieces of FCR were counted, weighed, refit when possible, and the raw material type was noted. Raw materials of FCR on Grand Island are primarily quartzite, but some well

cemented sandstones were also recorded as FCR. Some pieces of FCR may be better characterized as cores, and vice versa. Some FCR appears to be knapped at some point, making a formal distinction between FCR and intentionally flaked artifacts challenging. FCR was considered primarily based on the following characteristics: irregularity of fracture lines, crazing on external cortex and ventral surfaces. Lithic artifacts that may have been heat treated were considered by the “freshness” of the ventral surfaces.

Macrobotanical Analysis. Analysis of floral remains was limited to the analysis of sediment recovered from a single hearth feature from Test Unit (TU) 1 at Moss Cave. This flotation sample weighed 1.565 kg before processing and was processed using a bucket flotation technique on January 12, 2016 in the Prehistoric Archaeology Lab at Illinois State University. The method described here would have been made much easier if it had been conducted outdoors, where water and sterile sediment could have been disposed of easily. However, because of time constraints, the sample was processed indoors without access to an easily manipulated source of running water (water had to be moved from the sink to buckets using a pitcher) or a drain that could handle sediment disposal. As such, the bucket flotation process was interrupted several times in order to dispose of excess water and sediment.

First, a five-gallon bucket was filled halfway with cool, clean water and approximately one half of the flotation sample was slowly added to the water. The sediment and water mixture was then stirred by hand in an effort to separate the organic material from the sediment matrix. The mixture was stirred quickly enough so that a show-moving whirlpool was created. While the mixture was still moving, the water was

poured over a 1 mm steel mesh Kitchen Aid sieve and into a second five-gallon bucket. The contents of the sieve were then placed in a coffee filter to dry. This process was repeated five times until the water ran clear. Towards the final flotations, the sand particles were so fine that they too, were suspended and it became very difficult to separate the organic material from the sand matrix. Because of this difficulty, some small pieces of charcoal were still in the remaining sediment, but could not be effectively retrieved. During this process, the most abundant visible remains were charcoal fragments and some small roots. The organic materials from the light fraction were allowed to dry for five full days.

The sediment remaining in the bucket, representing the heavy fraction, was then allowed to dry. While other sources recommend wet sieving the remaining sediment, this proved impractical without an effective method of providing a constant stream of water and without access to a drain that could handle excess sediments. Instead, the heavy fraction was passed through a 2 mm steel mesh Kitchen Aid sieve. Recovered material was dominated by sandstone pieces.

The recovered material from both the light and heavy fraction was bagged and sent to Dr. Kathryn Parker for analysis, the results of which are discussed in Chapter 5.

Geomorphic and Spatial Analysis Methodology

An understanding of geologic changes related to post-Pleistocene deglaciation, as discussed in Chapter 2, is critical for any discussion of Grand Island's prehistoric

occupations because glacial lake level changes have had a dramatic effect on the availability of landforms and the formation of rockshelters. Created through wave action, rockshelters on Grand Island were originally formed as littoral caves located at coastal interfaces. As lake levels receded, these littoral caves became increasingly terrestrial and would have been increasingly available for archaeologically discernable use.

In order to determine the relative timing of this availability, a paleoshoreline reconstruction model was created using a 30-meter Digital Elevation Model (DEM) in the Spatial Analyst module in ArcGIS 10.2. The DEM was produced by the U.S. Geological Survey (USGS) in 2013 and acquired from the Michigan Geographic Data Library, a resource provided by the Michigan Department of Technology, Management, and Budget. Based on published elevations of past lake level stages primarily derived from the interpretation of associated geomorphic evidence (Anderton 1993, 1995, 2004; Farrand and Drexler 1985; Yuen 1988), a visual representation of known glacial lakes helps to demonstrate their relationship with the rockshelters identified during pedestrian survey and testing.

The visual representation was created by creating three different layers in ArcGIS 10.2 representing different glacial lake stages based on the elevations and respective geomorphic evidence discussed in Chapter 2. Figure 6 shows the map with all three layers made visible. For example, the Nipissing I shoreline (4,450 BP) has been recorded on Grand Island as a prominent wave-cut shoreline at approximately 192 meters above the mean lake level. In order to create a layer representing the shoreline configuration during this lake level stage, a Boolean operation was created to discriminate between

elevations of the DEM base layer that are above and below 192 meters above the mean lake level. The resulting layer was then processed so that the portions of the DEM that are higher than 192 meters were made transparent.

By examining the rockshelter sites' recorded locations in relation to the changing lake levels, preliminary interpretations of the timing of their formation can be formulated. It is assumed that a rockshelter's location at or near the shoreline can be interpreted as a likely formation phase. Without the consistent recovery of dateable materials, this approach helps to establish the earliest possible date that the rockshelters could have been utilized. This reconstruction is a coarse simulation of lake level stages and does not take into account the nuances of mechanisms like isostatic rebound. Additionally, it must be noted that the Algoma Phase (3,200 BP – Present) changed quite rapidly and by the latter half of this period, approximately during the Terminal Woodland period, the lake levels were essentially at their modern levels. In the subsequent chapter, each rockshelter site is discussed in relation to this model, providing an opportunity to discuss timing of availability.

Figure 6. Grand Island Glacial Lake Level Changes (9,500 BP to Present). Rockshelter locations are represented by red dots. The light blue represents the Lake Minong phase; intermediate blue represents the Lake Nipissing phase; and dark blue represents the Algoma phase.

CHAPTER V

RESULTS OF ANALYSIS

Pedestrian survey and shovel testing successfully identified three sites: two on the southern shore of Grand Island, Moss Cave (FS 09-10-03-1076) and Miner's Pit Cave (09-10-03-1077), both of which are located just west of Williams Landing in the Timber Wolf parcel, and one on a northeast-projecting landform on Trout Point in the NW Thumb parcel, named Bootlegger's Cove (FS 09-10-03-1078) (Figure 7).

Moss Cave (FS 09-10-03-1076)

Field Investigations

First identified on Wednesday, June 10, 2015, Moss Cave represents a pre-European Contact era rockshelter and lithic scatter site on the southern shore of Grand Island. The rockshelter is a large, fairly shallow wave-cut sandstone rockshelter located approximately 330 meters north of the existing Lake Superior shoreline in a sandstone bedrock exposure at an elevation of 188.3 meters within a linear beach ridge complex (Figure 8). There are three discrete sections of the rockshelter likely formed by differential undercutting during higher lake level stages (Figures 9-11). The first, most

Figure 7. Locations of Recorded Rockshelter Sites on Grand Island.

Figure 8. Moss Cave (FS 09-10-03-1076) Site Map.

Figure 9. Moss Cave (FS 09-10-03-1076) Rockshelter Overview; Westerly Section, Facing Northeast.

Figure 10. Moss Cave (FS 09-10-03-1076) Rockshelter Overview; Showing Interior and Dripline, Facing East

Figure 11. Moss Cave (FS 09-10-03-1076) Rockshelter Overview; Showing Interior and Dripline, Facing Southeast.

westerly section faces south-southwest and is 2.2 meters high, 4.8 meters wide, and 2.4 meters deep. The central section is southwest-facing and is 2.6 meters high, 8.7 meters wide, and 2.5 meters deep. The final section faces south-southwest and is 2 meters high, 6.4 meters wide, and 2.9 meters deep. The rockshelter is situated above a perched dune and swale complex with several intermediate linear beach ridges, one of which is located approximately 40 meters southwest of the rockshelter.

Shovel tests were placed judgmentally throughout the area to establish site boundaries and to determine site formation processes. Shovel testing within the modern rockshelter dripline was limited to two STPs because much of the rockshelter's interior was exposed bedrock with minimal sediment development. Similarly, shovel testing on top of the rockshelter was limited to two shovel tests because the area was very dense with fallen trees and there was only approximately 10-15 cm of sediment before encountering impassable sandstone.

Of the 22 shovel tests, three were positive for cultural material, all of which were located in a concentration approximately 30 meters southwest of the rockshelter on a beach ridge (Figure 8). STP 1 contained three pieces of quartzite fire cracked rock (FCR). STP 2 was placed 5 meters west of STP 1 and contained four chert flakes and nine quartzite flakes. STP 3 was placed approximately 10 meters north of STP 1 (adjusted from 5 meters to avoid a large fallen tree) and contained two pieces of quartzite FCR and two pieces of quartz FCR. Some historic metal artifacts—likely related to historic logging activity—were noted on the surface just southwest of STP 3, but were not collected.

A test trench measuring 0.5 x 2.6 meters was excavated perpendicular to the back of the rockshelter to better interpret the formation processes at work at this location (Figures 12 and 13). As the test trench was intended to be exploratory, all material was screened, but was not excavated in natural or arbitrary levels. Excavation yielded 14 pieces of FCR (13 quartzite and one sandstone) and one quartz flake. Because of the chosen excavation strategy and difficulty inherent with excavating this trench with excessive roots and sandstone, it is difficult to determine exactly which stratum the artifacts came from, but much of it was encountered at the north end of Stratum II, approximately 30-40 cm below the surface (Figure 13). Stratigraphic interpretation of the profile walls identified at least one distinct period of roof collapse (Stratum V in Figure 13), under which all cultural material was found. This suggests that the original rockshelter dripline was at least one meter beyond its current extent, a testament to the fragility of Grand Island rockshelters.

Figure 12. Moss Cave (FS 09-10-03-1076) Test Trench in Plan View.

03-1076 Test Trench Profile West Wall

Level	Munsell	Description
I	10 YR 2/2	Duff / Organic layer. Loamy sand matrix with roots.
IA	10 YR 2/2	Loamy Sand. Same as Level I without roots.
II	10YR 3/4	Sand and decomposed sandstone. FCR found in this level.
III	10 YR 3/4	Same as II, but mostly comprised of rounded beach cobbles.
IV	10 YR 5/4	Sand and eroded sandstone.
V	N/A	Sandstone. Possible roof fall.

Figure 13. West Wall Profile of the Test Trench at Moss Cave (FS 09-10-03-1076)

Assemblage Analysis

The lithic assemblage from Moss Cass was fairly sparse, including a total of 15 lithic artifacts recovered from shovel testing represented by one tested cobble and 14 flakes. The tested cobble is a small ovoid quartzite cobble with a flattened ovoid cross-section. This piece exhibits the removal of a single, unifacial flake covering roughly one-

third of the ventral surface. Similar artifacts have been interpreted as rejected tool blanks, rather than cores used for the production of usable flakes (Dunham et al. 1997:132).

Flakes were recovered from STP 2 and the Test Trench and are primarily represented by quartzite (64.29%), with lesser amounts of chert (28.57%) and quartz (7.14%) present (Table 4). An analysis of the distribution of flake types by raw material (Table 5) provides some insight into what stage of the reduction sequence each raw material represents. Chert and quartz flakes are primarily represented by flat secondary flakes, suggesting late stage manufacture or retouch activities. Only one of the four chert flakes can be categorized as one of the four known chert types for the region, suggesting that the remaining chert flakes were likely acquired as glacially derived cobbles or pebbles. Compared to the chert and quartz debitage, quartzite flakes are primarily represented by flat decortication flakes or blocky secondary decortication flakes, indicative of early stages of core reduction. Most of the quartzite flakes are quite small, primarily represented by Size Class 1 and 2 (refer to page 62). So while almost all of the flakes have cortex present, their size suggests that small quartzite cobbles were being used as tool blanks, such as the tested cobble encountered in the Test Trench.

Table 4. Moss Cave (FS 09-10-03-1076) Debitage Raw Material Distribution				
	Count	Percentage (%)	Weight (g)	Percentage (%)
Chert	4	28.57	0.68	12.62
Quartzite	9	64.29	4.54	84.23
Quartz	1	7.14	0.17	3.15
Totals	14	100.00	5.39	100.00

Table 5. Moss Cave (FS 09-10-03-1076) Flake Type Distribution							
		Chert		Quartzite		Quartz	
		Count	Percent (%)	Count	Percent (%)	Count	Percent (%)
Decortication Flakes	Blocky	0	0	0	0	0	0
	Flat	0	0	3	33.33	0	0
Secondary Decortication Flakes	Blocky	1	25.00	4	44.44	0	0
	Flat	0	0	0	0	0	0
Secondary Flakes	Blocky	0	0	0	0	0	0
	Flat	3	75.00	2	22.22	1	100.00
Totals		4	100.00	9	99.99	1	100.00

Fire-cracked rock (FCR) is represented by 22 specimens, weighing a total of 450.17 g. Almost all FCR fragments are quartzite, but one sandstone and two quartz pieces were recovered. With the exception of the quartz flake recovered from the Test Trench, all of the lithic debitage recovered are spatially restricted to STP 2 (see Figure 8).

Miner's Pit Cave (FS 09-10-03-0177)

Field Investigations

Miner's Pit Cave encompasses two rockshelters (Field IDs: TW-02 and TW-03) that are located approximately 200 meters southeast of Moss Cave on a low, south-facing landform in a sandstone bedrock outcrop at an elevation of 189.6 meters (Figure 14). TW-02 is a small south-southwest facing rockshelter on the west side of the landform, measuring 0.85 meters high, 6.6 meters wide, and 0.7 meters deep (Figure 15). TW-03 is a larger, south-facing rockshelter located on the southern face of the bedrock exposure, measuring 2.7 meters high, 5.5 meters wide, and 4.3 meters deep (Figure 16). Originally,

TW-02 and TW-03 were recorded as separate sites, but were later combined under the same site number because of their close proximity to one another, separated only by a zone of large sandstone boulders, likely related to an episode of roof collapse. The entire bedrock outcrop measures approximately 100 meters in length with two zones of collapsed sandstone suggesting that the entire outcrop may have been one fairly continuous rockshelter at one time.

Figure 14. Miner's Pit Cave (FS 09-10-03-1077) Site Map

Figure 15. Overview of TW-02 Rockshelter at Miner's Pit Cave (FS 09-10-03-1077) from Base of Slope, Facing North-Northeast.

Figure 16. Overview of TW-03 Rockshelter at Miner's Pit Cave (FS 09-10-03-1077) from Base of Slope, Facing North.

In total, 21 STPs were excavated at Miner's Pit Cave (Figure 14), seven in front of TW-02, nine in front of TW-03, and five on the terrace above both rockshelters. Shovel testing at TW-02 only yielded two pieces of possible quartzite FCR which refit together from T2 STP3, and shovel testing on the terrace above the bedrock outcrop failed to yield any cultural material. TW-03 contained two positive STPs (T1 STP3 and T2 STP4) and a positive 1 x 1 m test excavation unit, all of which were located outside of the existing dripline. T1 STP3 contained one chert flake, one quartz flake, and one piece of FCR. This STP also contained a layer of burned sandstone accompanied by a zone of ephemeral charcoal at a depth of approximately 50 cm. T2 STP4 contained one quartzite flake and two pieces of grit-tempered pottery.

Burned sandstone accompanied by ephemeral charcoal and the presence of pottery in warranted the excavation of a 1 x 1 m test unit adjacent to the positive STPs. A 1 x 1 m test unit was placed approximately 15 cm east of T2 STP4, bisecting the north of half of T1 STP3. Bisecting T1 STP3 was partially done out of spatial necessity as the available, testable area was quite limited. Fortunately, this necessity allowed for the controlled exploration of the charcoal and burned sandstone encountered in T1 STP3. The matrix of this unit was primarily dominated by sand and sandstone at various stages of erosion or decomposition and sandstone from episodes of roof collapse, making excavation extremely challenging and necessitating the exclusive use of trowels in arbitrary 10 cm levels.

Levels 1, 2, and 3 were negative for cultural material and were almost completely dominated by varying amounts of sandstone *éboulis*. A zone of 10YR2/2 (very dark

brown) sediment with some small roots, charcoal, and oxidized sandstone was encountered at the base of Level 3 in the west half of the unit at 59 cmbd. It was originally designated as Feature 1, but upon excavation it was determined that the “feature” was very thin—only 1 cm in depth—and quickly retreated into the west wall. Furthermore, this thin layer of dark sediment appeared later in the north, south, and west walls, suggesting that this may be indicative of a buried surface. Level 4 contained much more sediment than previous levels and has been loosely interpreted as a stable period between episodes of roof collapse. Near the base of Level 4, a large quartzite decortication flake and three chert flakes were encountered.

Feature 1, a hearth feature, was encountered within the first three cm of Level 5 (77cmbd) in the southwest corner, bisected by the west wall (Figures 17 and 18). The feature contained a considerable amount of charcoal and was cradled by pieces of burned sandstone related to a dramatic episode of roof collapse. A sizeable piece of charcoal was recovered as an AMS radiocarbon testing and all fill from Feature 1 was bagged for flotation. Care was taken during this process to identify any artifacts, but none were encountered. Unlike the “feature” encountered in Level 3, Feature 1 had very distinct edges in plan view, despite being surrounded by angular sandstone *éboulis*.

FS 09-10-03-1077 (Miner's Pit Cave)
TU-1 West Wall Profile

Figure 17. West Wall of TU-1 at Miner's Pit Cave (FS 09-10-03-1077). The red 'X' in Feature 1 indicates the location of the AMS sample. Sandstone rocks labeled A, B, and C refer to different periods of roof collapse.

Figure 18. Feature 1 in Plan View. Previously Excavated STP is Visible in the Southeast Corner.

Level 5 in the remainder of the unit was very shallow because a large, flat sandstone boulder was encountered near the base at 71 cmbd, leaving only the southern quarter of the unit and a small portion of the southeast corner to excavate. Artifacts from Level 5 included one grit-tempered, cord-marked ceramic sherd, three chert flakes, and one quartz flake.

Level 6 was excavated where available to a depth of 100 cmbd, which was only possible in the SW corner. A single chert flake was encountered within the first 5 cm of this level. The unit was terminated once considerable amounts of beach cobbles were encountered, indicating that we had gone beyond the zone of human occupation as indicated by T1 STP3. An examination of the profile walls, particularly the west wall, suggests that there were two dramatic period of roof collapse – one before the human occupation encountered in Levels 4 and 5, and one that occurred afterwards in the first three levels.

Assemblage Analysis

Miner's Pit Cave is the only rockshelter site investigated during this field season containing ceramic materials. While this discussion is limited to only three sherds recovered from T2 STP4 and TU 1 Level 5, these artifacts provide important clues into the activities taking place at this location. All three ceramic sherds are small, fragmented, grit-tempered body sherds, two of which are considered large sherdlets (1-4 cm² in size) and one is a small sherdlet (1 cm² or less in size) (Figures 19 and 20).

Figure 19. Exterior Surfaces of Ceramic Sherds from Miner's Pit Cave (09-10-03-1077). "A" is from TU-1 Level 5 and "B" and "C" are from T2 STP4.

Figure 20. Interior Surfaces of Ceramic Sherds from Miner's Pit Cave (09-10-03-1077). "A" is from TU-1 Level 5 and "B" and "C" are from T2 STP4.

Terminal Woodland pottery is often characterized by cord-marked, globular forms with more complex decoration than the preceding Initial Woodland period with features such as collars, rim castellations, and cord impressions (Kooiman 2010:12; Mason 1981:299). Based on the small ceramics sample here, characterized as grit-tempered and relatively thinned walled, the sherds from Miner's Pit Cave likely represent the remains of Terminal Woodland cooking vessel.

Testing at Miner's Pit Cave yielded one white quartzite blocky secondary decortication flake tool from TU-1 Level 4 (Figure 21). Microwear analysis conducted by Dr. G. Logan Miller and James W. Hill III revealed invasive, but discontinuous polish on a small portion of one of its edges on both ventral and dorsal sides (Figure 22). Striations present within the polish indicate that the tool was utilized in a cutting motion, but without clear experimental data for comparison, this use-wear cannot be attributed with a particular material (i.e. wood, bone, hide, etc.).

Figure 21. White Quartzite Flake Tool from TU-1 Level 4 at Miner's Pit Cave (09-10-03-1077)

At Miner's Pit Cave, the lithic assemblage is dominated by chert flakes (66.67%), but quartzite (16.67%) and quartz (16.67%) represent a notable segment of the assemblage (Table 6). While by count, quartzite is a fairly diminutive contribution to the assemblage, the two flakes represent 76.17% of the assemblage by weight, which is also indicative of the size of the flakes present (Table 7). The chert assemblage is primarily represented by flat secondary flakes (50%), blocky secondary flakes (25%), and blocky decortication flakes (25%), all of which are very small in size, which suggests later stages of tool manufacture or retouch. Comparatively, the quartzite assemblage is represented

Figure 22. Invasive Polish (Indicated by Arrows) Indicative of Cutting Soft Materials on White Quartzite Flake from Miner's Pit Cave (09-10-03-1077). Magnification is 100X in Polarized, Dark-Field Lighting.

by blocky (50%) and flat (50%) decortication flakes, indicative of intermediate stages of core reduction or flake tool production. Quartz flakes are represented by one blocky decortication flake and one flat secondary flake.

Table 6. Miner's Pit Cave (FS 09-10-03-1077) Debitage Raw Material Distribution				
	Count	Percentage (%)	Weight (g)	Percentage (%)
Chert	8	66.67	15.07	21.7
Quartzite	2	16.67	52.9	76.17
Quartz	2	16.67	1.48	2.13
Totals	12	100.01	69.45	100.00

Table 7. Miner's Pit Cave (FS 09-10-03-1077) Flake Type Distribution							
		Chert		Quartzite		Quartz	
		Count	Percent (%)	Count	Percent (%)	Count	Percent (%)
Decortication Flakes	Blocky	2	25.00	0	0	1	50.00
	Flat	0	0	0	0	0	0
Secondary Decortication Flakes	Blocky	0	0	1	50.00	0	0
	Flat	0	0	1	50.00	0	0
Secondary Flakes	Blocky	2	25.00	0	0	0	0
	Flat	4	50.00	0	0	1	50.00
Totals		8	100.00	2	100.00	2	100.00

Interestingly, only one piece of sandstone FCR was encountered at Miner's Pit Cave. This represents a substantial distinction between the Moss Cave and Bootlegger's Cove assemblages, which are often dominated by FCR. However, it should be noted that Feature 1 appeared to have been constructed using available sandstone *éboulis*, which exhibited heavy thermal modification. While not collected for laboratory analysis, this may offer an explanation for the apparent lack of quartzite FCR.

All sediment from Feature 1, encountered at 77 cmbd in Level 5 of TU 1 was processed using the bucket flotation method described in Chapter 3 and analyzed for macrobotanical remains by Dr. Kathryn Parker. Both the light and heavy fraction was examined using a standard 10x/30x magnification dissecting microscope. The heavy fraction contained unburned modern rootlets, conifer needles, and manganese nodules, which were extracted and discarded. All charred and semi-charred botanical materials were saved for identification and quantification. The light fraction contained fragments of carbonized wood and small diameter dicot and monocot stems, as well as mineral nodules and recent plant detritus. A subsample of charred stem fragments were extracted and combined with similar stems from the heavy fraction. The large fraction (> 2 mm) consisted almost entirely of conifer wood, most of which was carbonized and some partially uncarbonized. Wood fragments weighed a total of 10.75 g, a 20 fragment subsample of which indicated that all were conifer fragments, most likely Eastern hemlock (*Tsuga canadensis*). A total of 25 mixed small diameter stems included gracile dicot and conifer fragments, as well as two monocot. Ten glossy, irregular-shaped resin fragments were the only other carbonized botanical remains.

Additionally, a sample of wood charcoal was removed from Feature 1 and sent to Beta Analytic for AMS dating (Table 8; Appendix B) resulting in an uncalibrated Conventional Radiocarbon Age of 420 ± 30 BP (Beta-428958: 1077 TU1 F1; wood charcoal; $\delta^{13}\text{C} = -22.2\text{‰}$). For the date 420 ± 30 the two possible calibrated age ranges are cal AD 1435 to 1490 (cal BP 515 to 460) and cal AD 1605 to 1610 (Cal BP 345 to 340) ($p = .05$) (Calibrated at 2σ). This date range firmly places the feature's date to the Terminal Woodland period (Drake and Dunham 2004).

Table 8. Radiocarbon Assay for TU-1 Feature 1 at Miner's Pit Cave (FS 09-10-03-1077)		
Laboratory Number	Uncalibrated Conventional Radiocarbon Age ($\pm 1\sigma$)	Calendar Age Range (Calibrated at 2σ)
Beta-428958 : 1077 TU 1 F1	420 $\pm$ 30 BP	Cal AD 1435 to 1490 (Cal BP 515 to 460) Cal AD 1605 to 1610 (Cal BP 345 to 340)

Bootlegger's Cove (09-10-03-1078)

Field Investigations

Bootlegger's Cove represents a complex of six rockshelters located in an east and southeast-facing arc along a ridge on the east side of Trout Point (Figure 23). The entire complex is referred to as Bootlegger's Cove, and the six rockshelters are named as follows from north to south: Hemlock Cave, Black Bear Cave, Jug Cave, Lantern Cave, Skull Cave, and Pillar Cave. The site is comprised of two main terraces—one fairly stable ridge adjacent to the rockshelters at an elevation of 201 meters and a wide terrace below overlooking Lake Superior at an elevation of 192 meters. Both terraces form an arc on the eastern side of Trout Point and are connected by a fairly steep slope. A third, much smaller terrace is located just south of Pillar Cave, about two meters below the rockshelter's ground surface. A conglomerate of quartzite and chert cobbles is exposed in the cliff wall associated with this third terrace. A pile of these cobbles was observed directly below the exposure, perhaps making the area attractive because of its easy access to lithic raw materials.

Because of the steep slope connecting the two terraces, the standard cruciform pattern of transects was not implemented. Instead, Transect 1 ran along the dripline of the rockshelters and Transect 2 was placed along the terrace below. At least two STPs were placed in each of the six rockshelters when possible – 11 in total. No STPs were placed in Skull Cave because the floor was almost completely comprised of a shallow marsh, and three were placed in Pillar Cave because it was much larger than the rest. All STPs in Transect 1 were negative and were generally characterized by medium sand with minimal pieces of angular, yet partially eroded sandstone pieces. Subtle variation in sediment color was noted, but is likely attributable to different mineral compositions of the eroding sandstone. Given its fairly direct exposure along the Lake Superior coast, the rate of decomposition or erosion of sandstone *éboulis* related to roof collapse or spalling episodes is likely much faster than in other more well-protected locales.

Figure 23. Bootlegger's Cove (09-10-03-1078) Site Map.

Figure 24. Rockshelter Overview at Bootlegger's Cove Complex (09-10-03-1078) Facing South-Southwest.

Figure 25. View of Terrace below Rockshelters at Bootlegger's Cove (09-10-03-1078).

A small cluster of metal historic artifacts were observed in Jug Cave. These included a steel stove damper (patented on July 20, 1916 by Griswold Manufacturing Company; Patent #: 1,146,907; Serial No. 848,751) (Figure 26A), four metal woodstove legs (Figure 26B), portions of a cold blast kerosene lamp (Figure 26C), and several pieces of miscellaneous sheet metal fragments. Despite what the name implies, which was likely assigned recently, these historic artifacts are likely related to historic logging activity in the area and had been collected at one point and tucked behind a sandstone boulder located in the southern corner of the rockshelter. It is unclear whether or not these were stored in this manner directly after use, or if they had been collected and stored in this location recently.

Figure 26. Historic Metal Artifacts Recovered from Bootlegger's Cove (09-10-03-1078). 26A is a flue damper, 26B four woodstove legs, and 26C are various portions of a cold blast kerosene lamp.

Comparatively, all six STPs in Transect 2 were positive, containing a very dense assemblage of quartzite flakes, cores, and FCR. Interestingly, many of the artifacts encountered were found within the humus layers (approximately 0-10 cm), suggesting that they may have accumulated as the original rockshelter ridge above eroded away. Artifacts were encountered in some cases at depths of 66 cm, but STPs were more often terminated due to sterile soil and impassable sandstone around 50 cm.

T2 STP1 contained 25 pieces of FCR, two quartzite flakes (one utilized), one quartzite biface, and one quartzite core. T2 STP2 contained 20 pieces of thermally modified sandstone, 31 pieces of FCR, 8 quartzite flakes, 3 quartz flakes, one piece of quartz shatter, one quartzite core, and seven pieces of micaceous granite. T2 STP3 contained 38 pieces of FCR, 6 quartzite flakes, and one quartzite attempted biface or utilized flake. T2 STP4 contained two pieces of FCR, one piece of thermally modified sandstone, one flake, and one quartzite core. T2 STP5 contained one quartzite biface, three quartzite flakes, and 27 pieces of FCR. T2 STP6 contained one quartzite flake, two pieces of water-rolled quartzite cobble fragments (likely natural), three pieces of FCR, and one quartzite core. A considerable amount of quartz and quartzite FCR was also noted eroding out of the sides of the terrace into Lake Superior below, but was not collected.

While the artifacts in Transect 2 cannot directly be associated with the rockshelters above, if erosion episodes were the reason that artifacts were found at such shallow depths, then it is possible that they are eroding from above. Given the area's

direct exposure to the perils of Lake Superior, the rate of rockshelter and terrace erosion through freeze-thaw activity and wind erosion is likely much more dramatic than in other, more well-protected areas. However, a controlled unit was not placed at this location because of time constraints, which would have been helpful in clarifying the stratigraphic sequences and erosive processes at play at this location. Based on the large amounts of quartzite artifacts, Bootleggers Cove seems to represent an Archaic period site based on relative raw material percentages (Drake et al. 2009) that was continually reoccupied, resulting in the large accumulation of FCR and other related tools. The associated conglomerate exposure at the southern limit of the site may also suggest that this site was related to quarrying activities. If not directly related to quarrying, it may have served as a favorable site for other activities because of the easy accessibility of raw materials.

Assemblage Analysis

Compared to both Moss Cave and Miner's Pit Cave, Bootlegger's Cove is dominated by quartzite debitage (80%), with some quartz (15%) and chert (5%) flakes present (Table 9). By weight, quartzite makes up 96.07% of the assemblage, which is primarily represented by blocky decortication flakes (12.5%), blocky secondary decortication flakes (18.75%), flat secondary decortication flakes (6.25%), blocky secondary flakes (18.75%), and flat secondary flakes (43.75%) (Table 10), representing almost the full suite of the lithic reduction sequence.

Table 9. Bootlegger's Cove (FS 09-10-03-1078) Debitage Raw Material Distribution				
	Count	Percentage (%)	Weight (g)	Percentage (%)
Chert	1	5.00	0.52	0.66
Quartzite	16	80.00	76.13	96.07
Quartz	3	15.00	2.59	3.27
Totals	20	100.00	79.24	100.00

Table 10. Bootlegger's Cove (FS 09-10-03-1078) Flake Type Distribution							
		Chert		Quartzite		Quartz	
		Count	Percent (%)	Count	Percent (%)	Count	Percent (%)
Decortication Flakes	Blocky	0	0	2	12.5	1	33.33
	Flat	0	0	0	0	1	33.33
Secondary Decortication Flakes	Blocky	1	100.00	3	18.75	0	0
	Flat	0	0	1	6.25	0	0
Secondary Flakes	Blocky	0	0	3	18.75	0	0
	Flat	0	0	7	43.75	1	33.33
Totals		1	100.00	16	100.00	3	99.99

Microwear analysis on a red quartzite biface fragment recovered from T2 STP5 conducted by Dr. G. Logan Miller and James Hill III revealed a bright but discontinuous polish along the entire edge, as well as edge damage scars (Figures 27 and 28). The polish was non-invasive and largely restricted to the edge of the tool, indicative of use on a hard material (e.g. bone or wood).

Figure 27. Red Quartzite Biface Fragment from T2 STP5 at Bootlegger's Cove (FS 09-10-03-1078).

Figure 28. Bright Polish (Indicated by Arrows) and Edge Damage Scars Indicative of Cutting Hard Material (e.g. Bone or Wood) on Red Quartzite Biface Fragment from T2 STP5. Magnification is 100X in Polarized, Bright-Field Lighting.

Spatial Analysis of Rockshelter Site Locations

At Moss Cave and Miner's Pit Cave on the southern shore, the rockshelters would have been underwater during the Lake Minong phase at 9,500 BP (Figure 29). The Houghton Low Phase is not represented because the shoreline would have been much lower than the current shoreline, having no direct effect on the formation of the rockshelters. During the Nipissing Phase, the rockshelters are directly adjacent to the shoreline (Figure 30), suggesting that they were likely formed during this time of relatively stable lake levels. By the Algoma Phase, the lakes receded enough to allow access to the rockshelters (Figure 31), suggesting that Moss Cave and Miner's Pit Cave would have been available for use by 3,200 BP. This interpretation is further refined by the AMS dates yielded from Miner's Pit Cave, which place this rockshelter's use in the Terminal Woodland period. By this time, the lake level was essential at its modern levels, indicating that the rockshelter was used when it was at least 300 meters from the shoreline.

Without the benefit of a controlled test unit to interpret stratigraphic nuances and to aid in the recovery of materials suitable for dating, date ranges of possible use at Bootlegger's Cove are perhaps best represented by geomorphic interpretation and association with nearby sites. Because Bootlegger's Cove is located within a cliff and terrace system and not within a linear beach complex like Moss Cave and Miner's Pit Cave, this simulation is more difficult to discern because changes in lake level are not clearly visually represented in maps. However, it is clear that Bootlegger's Cove was formed well after the high water phases of Lake Minong around 9,500 BP (Figure 32).

While the landform of Trout Point was likely available shortly after Lake Minong's recession, the rockshelters may be a relatively recent phenomenon formed during the Lake Nipissing Phase and made available shortly after, resulting in a possible occupation date between 9,500 and 3,200 BP (Figures 33 and 34). Comparisons with the nearby Trout Point 1 site supports this interpretation, which has been tentatively considered a terminal Late Archaic site.

Overall, the GIS approach provides a visual representation of past lake stages that allows for the interpretation of the rockshelters' locations relative to the changing shape and configuration of landforms. This provides an interpretive tool that allows for the establishment of an approximate formation phase for the rockshelters and allows for the recognition that the rockshelters have had an inland, rather than coastal, location for approximately 3,200 years. This approach is best suited for the interpretation of known rockshelter locations and would be of little use for the discovery of new rockshelter locations without the integration of geologic information. Future applications of this approach would likely benefit from the use of more detailed DEMs. The 30-meter DEM used here obscured some topographic details that may have been useful for interpretation. Additionally, the resulting maps from this approach are slightly misleading without an understanding of glacial history because they represent maximum extents of lake levels. The shorelines in the last 11,000 years were incredibly dynamic settings that were continually being modified by other deglaciation-related mechanisms, such as isostatic rebound, which cannot be adequately represented using this approach. Despite this, this coarse simulation is an effective visualization technique for the present study.

Figure 29. Approximate Extent of Glacial Lake Minong (9,500 BP) in Relation to Moss Cave (1076) and Miner's Pit Cave (1077)

Figure 30. Approximate Extent of Glacial Lake Nipissing (4,500 – 4,700 BP) in Relation to Moss Cave (1076) and Miner's Pit Cave (1077)

Figure 31. Approximate Extent of Glacial Lake Algoma (3,200 BP – Present) in Relation to Moss Cave (1076) and Miner's Pit Cave (1077)

Figure 32. Approximate Extent of Glacial Lake Minong (9,500 BP) in Relation to Bootlegger's Cove (1078)

Figure 33. Approximate Extent of Glacial Lake Nipissing (4,500 – 4,700 BP) in Relation to Bootlegger's Cove (1078)

Figure 34. Approximate Extent of Glacial Lake Algoma (3,200 BP to present) in Relation to Bootlegger's Cove (1078)

Discussion of Recorded Rockshelter Sites

While rockshelters are located in many areas along Grand Island's shores, the locations of rockshelters with evidence of human occupation may offer important clues into possible selection criteria. The locations of the rockshelters identified here emphasize a selection for stable areas as rockshelters without human occupation appear to be located in areas characterized by deep stream valleys where fluvial erosion during the Houghton Low lake phase has heavily dissected the upland hillsides. These areas are incredibly unstable and any resulting rockshelters would be constantly modified.

In contrast, rockshelters with evidence of use appear to emphasize a selection for rockshelters with southern exposures located in stable beach ridge complexes. The southern exposures of the rockshelters may be related to the amount of sunlight allowed to enter throughout the day. Southern exposures allow for the maximum amount of sunlight throughout the duration of the day, allowing for comfortable use of the space for extended amounts of time. Compared to east-facing rockshelters, for example, sunlight will only be able to enter during the morning and early afternoon. This may have been an important consideration if the rockshelter space was being used for any long duration of time. Additionally, the rockshelters with evidence of human occupation identified in this survey are strikingly limited to areas within linear beach ridge complexes near productive cusped barriers. Both Moss Cave and Miner's Pit Cave are directly adjacent to the Williams Landing Spit, which has been highlighted as an archaeologically productive area verified by the identification of several contemporaneous habitation sites, suggesting that the rockshelters may be considered special use sites related to these

contemporaneous habitation sites. Overall, it appears that the assemblages at both Moss Cave and Miner's Pit Cave represent activities taken place during a period of relative stability of the rockshelter. The Terminal Woodland AMS date provided by Feature 1 at Miner's Pit Cave is consistent with the material types represented in contemporaneous assemblages nearby (Drake and Dunham 2004, Dunham et al. 1997).

Bootlegger's Cove is located near the well-known Trout Point 1 site, which has been loosely interpreted as a productive Terminal Archaic fishing station because of its access to rocky shoals and a reliable quartzite source for tool manufacture (Benchley et al. 1988). Based on the similarity in artifact classes and geomorphic settings, Bootlegger's Cove and Trout Point 1 are likely contemporaneous and may have served similar functions. While both the rockshelters and the conglomerate exposure may have made this area an attractive setting to collect quartzite and process it into flake tools, to build fires, and perhaps process fish caught from the rocky shoal below, rockshelter use cannot be demonstrated on the basis of archaeological evidence from this season's testing. Therefore, because unequivocal evidence of rockshelter use could not be demonstrated at Bootlegger's Cove, this location will be omitted from further discussion and the interpretations that follow are limited to discussions of Moss Cave and Miner's Pit Cave on Grand Island's southern shore.

CHAPTER VI

WOODLAND PERIOD ROCKSHELTER USE IN THE UPPER GREAT LAKES: A MULTISCALAR INTERPRETATION

Multiscalar Interpretations of Rockshelter Use

The following chapter provides interpretations of rockshelter use at multiple spatial scales in the Upper Great Lakes. First, a site-level scale provides a discussion of the activities represented at each rockshelter site identified in 2015. These interpretations rely primarily on information from artifact assemblages, results from AMS dating, and geomorphic interpretations of the timing of rockshelter formation and availability to identify the range and timeframe of possible activities represented. Next, these rockshelter sites are discussed in relation to known nearby contemporaneous habitation sites on Grand Island in an attempt to better understand how they may be related to one another by comparing their characteristics. Finally, a regional discussion places Grand Island's rockshelters in context with the rest of the Upper Great Lakes region's rockshelters.

Most contemporary discussions of rockshelter use focus primarily on site-level interpretations, resulting in restricted interpretative schemes that do not adequately place

rockshelter use into a behaviorally-relevant framework. The multiscale interpretations used here allow for the investigation of social relations at different scales of action. What may appear mundane at one scale, may appear quite variable at another. Additionally, this approach provides an opportunity to shift between different spatial lenses to explore the potential for site-level results to inform wider regional discourse while simultaneously identifying varying levels of certainty and abstraction with existing data. Combined, all three spatial scales allow for the integration of multiple sources of information, providing opportunities of departure from the traditional narrative of hunter-gatherers to emphasize the possible significance of rockshelters within hunter-gatherer taskscape in the Upper Great Lakes.

Site-Level: Rockshelters

The methodology employed in the identification and interpretation of Grand Island's rockshelters was primarily based on shovel testing with some limited excavations. Because the goal of shovel testing is to delineate site boundaries as indicated by the presence and absence of cultural material, the interpretive resolution of the 2015 field work is very coarse. However, based purely on the artifact assemblages recovered during shovel testing, all three rockshelters represent settings for various stages of stone tool manufacture or retouch, exclusively utilizing locally derived lithic materials. Microwear analysis of tools from Miner's Pit Cave provided evidence that indicates that some of these tools were being used onsite to cut hard materials, suggesting that the rockshelters served as settings for processing bone or wood. At Miner's Pit Cave, the

recovery of ceramic fragments and the identification of a hearth feature using locally available hemlock wood may be representative of food preparation.

Additionally, spatial analysis of past glacial lake level stages indicates that these rockshelters were used well after they were formed and were located inland at a considerable distance from the shoreline. This interpretation is further supported at Miner's Pit Cave by the results of AMS dates indicating a Terminal Woodland date. At this time, lake levels were essentially at their modern levels, indicating a conscious choice to use these slightly inland settings. Inland locations represent an important difference in locational trends compared to Grand Island Terminal Woodland sites, which are almost exclusively located in coastal settings (Drake and Dunham 2004). During this time of fluctuating lake levels, the vegetation in the area was likely shifting as well. It is then possible that there was very little vegetation in the immediate vicinity of the rockshelters at this time, perhaps making the rockshelters more visible from the coast. Additionally, both Moss Cave and Miner's Pit Cave are south-facing rockshelters, suggesting that they may have been chosen for use because the southern exposure allowed for the maximum amount of natural light to enter throughout the day.

Overall, shovel testing efforts demonstrate that rockshelters were utilized to some degree on Grand Island during the Terminal Woodland period. Clear evidence of rockshelter use is limited to the southern shore of Grand Island, which is characterized by stable linear beach ridges and near contemporaneous habitation sites with access to both aquatic and terrestrial resources. Interpretations of these rockshelters' use in a wider fabric of social life may be best informed by expanding the interpretive scale to include

contemporaneous sites nearby and similar recorded rockshelter sites in the Upper Great Lakes.

Locale: Grand Island

In order to make the claim that rockshelters in the Upper Great Lakes region served a ceremonial role in the social lives of prehistoric groups without the benefit of characteristically ‘ritual’ features or objects (i.e. rock art, caches of exotic materials, etc.), comparisons must be drawn from contemporaneous sites in the locale to demonstrate what constitutes as an example of a habitation site. On Grand Island, eight sites with Terminal Woodland period occupations have been identified that can be considered contemporaneous to the use of Moss Cave and Miner’s Pit Cave. These include 03-754, 03-803 (Gete Odena), 03-811, 03-821, 03-823, 03-825 (Popper), 03-832, 03-929 (Drake and Dunham 2004). These sites are often exclusively located in coastal settings, in places where both terrestrial and aquatic resources are easily accessible. Terminal Woodland period occupations are characterized by a great diversity of artifacts including net sinkers, grit-tempered pottery sherds, utilized flakes, end scrapers, bipolar lithics, fire-cracked rock, as well as subsurface hearth and storage pit features, reflecting a variety of fishing, processing, cooking, and stone tool manufacture activities. Drake and Dunham (2004:135) argue that both Initial and Terminal Woodland period sites on Grand Island were occupied by small groups as seasonal aggregation sites as locations to harvest seasonally spawning fish and for hunting, gathering, and quartzite procurement activities based on locally available resources.

When known Terminal Woodland period habitation sites are compared with the nearby Terminal Woodland rockshelter sites, some notable differences emerge. First, artifact assemblages in Grand Island rockshelters almost exclusively consist of lithic debitage, fire-cracked rock, and some very small amounts of ceramic sherds. Comparatively, contemporaneous habitation sites are characterized by diverse artifact assemblages reflecting a variety of activities, as well as features indicative of longer term storage and processing activities. Additionally, Terminal Woodland habitation sites are almost exclusively restricted to coastal settings, providing access to both terrestrial and aquatic resources. In contrast, the rockshelters identified here are notably offset from both the coasts and from these primary habitation sites, suggesting that they might be temporally related, but can be considered special use sites that were chosen in relatively remote areas.

Regional: Upper Great Lakes

Previously recorded rockshelter sites in the Upper Great Lakes, as described in Chapter 2, contain a diverse range of assemblages ranging from ephemeral lithic and fire-cracked rock scatters to elaborate burials and rock art panels. Combined with the ethnohistoric accounts described in Chapter 3 that consistently refer to the significance of rockshelters, caves, and rock clefts as being homes of the *manitous*, where activities done there would allow communication with these other-than-human entities, it appears that rockshelters in this region can be reasonably interpreted as sacred spaces. From a regional perspective, evidence of rockshelter use in the Upper Great Lakes can be traced to at least

the Middle Woodland period at Spider Cave and Cave B-95, suggesting that these practices may have a great deal of antiquity.

Contemporaneous coastal Terminal Woodland habitation sites throughout the region exhibit long term seasonal occupations indicative of residential seasonal aggregation locales, many of which have multiple components with occupations before and after the Terminal Woodland. Dunham (2014) has argued that these coastal aggregation sites may be understood as persistent places providing temporal continuity and diverse seasonal resources. Similarly, the use of nearby rockshelters may correspond with these seasonal aggregation activities.

Discussion

When understood in relation to similar regional rockshelter sites, habitation sites and ethnohistorical information, the interpretation of Grand Island's rockshelters may be conceptually expanded to argue that these settings represented potent sacred spaces in which activities that would be considered mundane elsewhere are transformed into communicative actions with other-than-human entities. The activities represented in the rockshelters may have become ritualized simply by virtue of the importance of the location. The seemingly simple act of producing stone tools, or perhaps preparing a meal at Miner's Pit Cave, may have had much different connotations when conducted in a rockshelter setting. When examined in isolation, the rockshelter sites appear to be ephemerally used spaces, perhaps used as temporary encampments. But when compared

to contemporaneous habitation sites, it appears that these sites are consciously chosen away from them, but nearby.

When informed by regional information, it seems possible that the activities occurring in Grand Island's rockshelters may have included those mentioned ethnohistorically. These activities could have included vision quests, customary fasting and seclusion rituals, communication or gift-giving between humans and *manitous*, or the production of rock art. Notably, these recorded activities would have left very ephemeral material traces, with the exception of rock art. However, no rock art was found during the 2015 surveys. This is interesting because the northern limits of the Upper Great Lakes region contains an incredibly rich rock art tradition characterized primarily by red ocher painted pictographs found throughout the Canadian Shield (Arsenault 2004; Colson 2007; Creese 2011; Dewdney and Kidd 1962; Norder and Carroll 2011; Rajnovich 1994). It seems surprising that this rock art tradition is so extensively recorded on the north shore of Lake Superior, but is almost entirely lacking from the southern shore, with the exception of the Burnt Bluff pictographs (Lugthart 1968; Zurel 2009). This may be partially explained by the differences in the nature of the bedrock in these regions. The north shore is largely characterized by resistant Precambrian granite and gneiss, while much of the southern shore is dominated by relatively friable Cambrian sandstones (Dorr 1970; Hamblin 1958). The lack of rock art in these sandstone-dominated areas may be partially explained by the integrity of this bedrock, especially when faced with the forces of Lake Superior freeze-thaw action.

This does not, however, mean that rock art was not produced on Grand Island or nearby. A nearby Woodland period site, 03-754, contained a great deal of hematite likely from the Iron Ridge area at various stages of processing with groundstone tools found in association. Rock art of the Canadian Shield utilized red pigments, which were likely created by processing raw hematite into a powder and adding plant or animal oil as a binding agent. Processed hematite has also been used for dyes and paints for pottery. As such, the production of paint for rock art cannot be strictly demonstrated, but cannot be expressly discounted either. Considering the considerable distances traveled to bring hematite to Grand Island, it may be related to some of the ritual activities described here.

Based on the archaeological and ethnohistoric information, it appears that rockshelters in the Upper Great Lakes region served as important landscape features that represent persistent places within the hunter-gatherer taskscape by virtue of the spiritual involvement in these settings. Several ethnohistorical accounts indicate that the significance of these settings was brought about by individual interactions and *manitous*, imbuing the individual with social capital that was honored and reinforced outside of the rockshelter setting. For example, an individual who went to a rockshelter to fast and dream was said to learn secrets from the spiritual entities who reside there. Upon leaving this location, the individual would return to the rest of society with a change in social status that was reinforced and perpetuated upon their return. While some of the details of this process are unclear, this demonstrates the power inherent with certain landscape features in the Algonquin cultural landscape that in some cases can exhibit archaeologically discernable patterns of use that can be refined by regional information and locational attributes.

Recommendations for Future Research

As has been stated throughout, the interpretation of the field work conducted in 2015 was severely limited by the scale of field investigations. Controlled testing of sites identified here and elsewhere would provide more refined information regarding the nature of rockshelter use in the area. Further, lipid residue analysis of the interior surfaces of the pottery sherds recovered from Miner's Pit Cave would be particularly helpful in clarifying the activities taking place at this location. Similar rockshelters exist throughout the Upper Great Lakes, particularly in the Pictured Rocks National Lakeshore, northern Wisconsin, northern Minnesota, and on Isle Royale, very few of which have received formal investigation. Future research would benefit from first identifying additional sites using a combination of shovel testing techniques and non-invasive metal detectors and then transitioning into controlled testing of promising locations. More refined testing could include the excavation of test excavation units, ensuring that close attention is paid to the stratigraphic nuances of rockshelter formation and degradation.

Additionally, the strength of the claims made here could be tested by investigating the possible relationships between recorded rockshelter sites in the Upper Great Lakes and nearby, contemporaneous habitation sites. As has been described in Chapter 2, many of the previously recorded rockshelter sites in the region have been poorly integrated into regional discourse. The perspectives provided from Grand Island's rockshelters demonstrate that the interpretive power of these settings is greatly diminished when understood only in isolation and it is likely that many of the recorded rockshelters on Isle Royale, Mackinac Island, and the Garden Peninsula could be better

understood if placed in multiscalar context to explore their relationships with known nearby habitation sites.

Conclusions

Rockshelters in the Upper Great Lakes region have been largely neglected from formal archaeological investigation and have been poorly integrated into regional discourse. The interpretation of these features is no small task as they are often characterized by ephemeral artifact deposits, which are made more difficult to interpret by the complicated stratigraphic processes at work in these locations. However, despite these limitations, when placed in context with known regional settlement and subsistence patterns, when compared to similar rockshelter sites in the region, and when examined with consideration for ethnohistorical accounts of their use and significance, these features are granted the potential to inform understandings of hunter-gatherer relationships with the landscape that would not have been apparent if examined only at the site-level.

The original research questions presented in Chapter 1 set out to determine the formation and nature of use of rockshelters on Grand Island, and the degree to which their use could be integrated with regional archaeological and ethnohistorical information. As discussed in Chapter 2, the rockshelters in question on Grand Island were formed as sea caves as a result of post-glacial changes in lake levels. During different glacial lake level stages, wave-cut sea caves formed at the interface between waves and exposed sandstone cliffs. As lake levels receded, these wave-cut sea caves

became increasingly terrestrial and available for human use. The timing of this formation likely occurred during the Nipissing lake level stage, as evidenced by geomorphic evidence and GIS-derived paleoshoreline reconstructions, which corresponds with the Late Archaic period.

Shovel testing efforts resulted in the identification of two Woodland period rockshelter sites containing lithic debitage, small amounts of pottery, and a hearth feature at one of the locations, indicating that rockshelters were utilized to some extent in an archaeologically discernable way. Based on archaeological survey results and interpretations from GIS-derived paleoshoreline reconstructions, it tentatively appears that the rockshelters were formed during the Late Archaic period, made available for use by the Initial Woodland period, and primarily utilized during the Terminal Woodland period. This corresponds with a time of increased seasonal aggregation at nearby coastal locations, suggesting that the use of nearby rockshelters may be related to these seasonal aggregation activities. Based solely on the archaeological assemblages from Grand Island's rockshelters, formal interpretations of use are admittedly somewhat restricted. However, when informed by regional ethnohistoric information and theoretical concepts that seek to better incorporate hunter-gatherer landscape use, these settings are afforded more significance.

Traditionally, the significance of rockshelter settings is restricted to a determination of ritual or utilitarian significance. Interpretations of rockshelters as utilitarian space emphasize the practical advantages of rockshelters as highly visible settings providing temporary shelter as hunting camps or for temporary habitation, while

ritual function is designated for rockshelter settings when characteristically ‘ritual’ artifacts or features are present, such as rock art and votive deposits. This approach often results in a false dichotomy of ritual *or* utilitarian function that undermines the social nuances of actual use among hunter-gatherer populations. However, when rockshelters are understood in relation to multiple scales of analysis and multiple types of data, the conceptual boundaries that have often restricted interpretations of rockshelter settings can be diffused to allow for more nuanced discussions of hunter-gatherer landscape use. As such, the question should no longer be whether or not caves and rockshelters were used as ritual *or* utilitarian space. We know from ethnography and ethnohistory that among most hunter-gatherer groups, there is no separation of the ‘sacred’ and the ‘secular’ as we see in Western interpretations. Among the Algonquin, the universe is actively inhabited by humans, animals, plants, and *manitous*, which interact in certain settings and locations and at certain times, resulting in a dynamic, actively inhabited, and continually changing cultural landscape. If we can make the argument that rockshelters are infrequently visited places embodied with spiritual significance as settings for human-*manitou* interactions, then the activities that occurred within them carried very different social connotations when conducted in the rockshelter than elsewhere. In this context, seemingly mundane activities such as cooking with a vessel or sharpening a stone tool can become ritualized by virtue of their location. By understanding rockshelters within a wider hunter-gatherer taskscape where landscape features may become persistent places through repeated actions, it can be argued that rockshelters may gain ritual significance through a palimpsest of small-scale communicative activities between humans and *manitous*. Over

time, as these small-scale activities are repeated through generations, these actions may develop into performative ritual practice through the enactment of symbolic dialogues.

In addition to the archaeological and ethnohistorical evidence for the significance of rockshelters in the Upper Great Lakes, recent ethnographic surveys among contemporary descendants of Ojibwa bands have consistently indicated that these settings are considered powerful ceremonial places because of the relationships to the *manitous* and their connections to water through their formation (Zedeño et al. 2001). These interviews are remarkably consistent with various ethnohistoric accounts and indicate that contemporary indigenous groups maintain relationships with rockshelters that actively acknowledge historical relationships with these places. If nothing else, the results of this research indicate that rockshelters in the Upper Great Lakes are important features that deserve more concerted attention. Recent efforts have argued that heritage management of the Burnt Bluff area, particularly Spider Cave, must take indigenous perspectives into consideration to ensure that cultural resources are properly maintained and protected (Ruuska and Armitage 2015). Similarly, the perspective from Grand Island's rockshelters represents a powerful example of how a comprehensive understanding of hunter-gatherer lifeways cannot be understood with archaeological information alone, but must be informed multiple lines of evidence at multiple scales of analysis.

In sum, archaeological, ethnohistorical, and ethnographic information suggests that not only were rockshelters in the Upper Great Lakes region utilized, but they were intimately woven into the social lives of Terminal Woodland populations. As homes for the *manitous* and as nodes between different realms of the Algonquin universe,

rockshelters served as powerful transformative spaces whose inherent power could be harnessed as social capital by individuals, imbuing them with knowledge, wisdom, and power that had an important influence on their social status. The rockshelters of this region challenge archaeologists to consider different dimensions of ritual and social lives of hunter-gatherers that likely do not exhibit the same strict interpretive boundaries as Western understandings of religion.

The tentative claims made here of rockshelter use in the Upper Great Lakes are presented with the primary goal of expanding the conversation of hunter-gatherer social life in the region by providing both data and a theoretical framework that accommodates both archaeological and indigenous interpretations. This research has sought to provide a range of potential interpretations that transcend traditional interpretive frameworks of hunter-gatherers in the region. Future research in the area is absolutely critical in order to maintain this dialogue and determine whether or not these claims hold true with time.

REFERENCES

Anati, Emmanuel, and Diane Ménard

- 1989 *Les Origines de l'Art et l'Formation de l'Espirit humain*. Editions Albin Michel.

Anderton, John

- 1993 *Paleoshoreline Geoarchaeology in the Northern Great Lakes, Hiawatha National Forest*. U.S. Department of Agriculture, Forest Service, Hiawatha National Forest, Heritage Program Monograph 1. Escanaba, Michigan.
- 1995 *Paleoshoreline Geoarchaeology in the Northern Great Lakes: An Interdisciplinary Approach to Prehistoric Coastal Settlement*. Unpublished PhD Dissertation, UW-Madison.
- 2004 The Geoarchaeological Context of Grand Island. *Midcontinental Journal of Archaeology* 29(2): 113-132.

Anderton, John B., Robert Legg, and Robert Regis

- 2009 Geoarchaeological Approaches to Site Location Modeling and Archaeological Survey in the Pictured Rocks National Lakeshore, Michigan. *The Wisconsin Archeologist* 90(1&2):19-30.

Anschuetz, Kurt F., Richard H. Wilshusen, and Cherie L. Scheick

- 2001 An Archaeology of Landscapes: Perspectives and Directions. *Journal of Archaeological Research* 9(2):157-211.

Aranda, Victoria, Antoni Canals, and Andreu Olle

- 2014 Experimental Program for the Detection of Use Wear in Quartzite. In *International Conference on Use-Wear Analysis: Use-Wear 2012*, edited by J. Marreiros et al., pp. 45-55. Cambridge Scholars Publishing, Newcastle upon Tyne.

Arsenault, Daniel

- 2004 From Natural Settings to Spiritual Places in the Algonkian Sacred

Landscape: An Archaeological, Ethnohistorical, and Ethnographic Analysis of Canadian Shield Rock-Art. In *Pictures in Place: The Figured Landscape of Rock-Art*, edited by Christopher Chippindale and George Nash, pp. 289-311.

Ball, Janet

- 1993 *Ethnobotany, Land Use Patterns and Historic Landscape Evaluation: Grand Island, Michigan*. United States Department of Agriculture, Forest Service, Eastern Region, Hiawatha National Forest. Heritage Program Monograph 2. Escanaba, Michigan.

Bastian, Tyler J.

- 1963 Archaeological Survey of Isle Royale National Park, Michigan, 1960-1962. University of Michigan, Museum of Anthropology.

Bell, Catherine

- 1997 *Ritual: Perspectives and Dimensions*. New York: Oxford University Press.

Benchley, Elizabeth D., Derrick J. Marcucci, Cheong-Yip Yuen, and Kristen L. Griffin

- 1988 Final Report of Archaeological Investigations and Data Recovery at the Trout Point 1 Site, Alger County, Michigan. USDA Forest Service, Hiawatha National Forest, Contract No. 53-5480-7-00096. University of Wisconsin-Milwaukee Archaeological Research Laboratory. Report of Investigations, No. 89.

Binford, Lewis R.

- 1983 *In Pursuit of the Past: Decoding the Archaeological Record*. Thames and Hudson, New York.

Blewett, William L.

- 2009 *Understanding Ancient Shorelines in the National Parklands of the Great Lakes* Pictured Rocks Resource Report. Submitted to National Park Service, Washington, DC.

Blewett, William L., David P. Lusch, and Randall J. Schaetzl

- 2009 The Physical Landscape: A Glacial Legacy. In *Michigan Geography and Geology*, edited by Randall Schaetzl (editor in chief), Joe Darden, and Danita Brandt, 249-273, Boston: Pearson Custom Publishing.

Bonsall, Clive, and Christopher Tolan-Smith

- 1997 The Human Use of Caves. In *The Human Use of Caves*, ed. Clive Bonsall

and Christopher Tolan-Smith, 217-219. BAR International Series 667. Oxford: Archaeopress.

Boszhardt, Robert

2013a A Reconnaissance to Houghton Falls State Natural Area 8-18 and 8-19, 2013. Unpublished manuscript in possession of the author.

2013b A Reconnaissance to the Orienta Rockshelter (47Ba-0574). Unpublished manuscript in possession of the author.

Bradley, Raymond S.

1985 *Quaternary Paleoclimatology: Methods of Paleoclimatic Reconstruction*. Unwin Hyman, Boston.

Brush, Nigel P., Nick Kardulias, and Scott Donaldson

2010 The Facts and Fiction of Rockshelter Function. *North American Archaeologist* 31(3-4): 305-322.

Burns, Jonathan A.

2005 What About Behavior?: Methodological Implications for Rockshelter Excavation and Spatial Analysis. *North American Archaeologist* 26(3):267-282.

Burns, Jonathan A., and Paul A. Raber

2012 Rockshelters in Behavioral Context: Archaeological Perspectives from Eastern North America. *North American Archaeologist* 31(3-4): 257-285.

Claassen, Cheryl

2011 Rockshelters as Women's Retreats: Understanding Newt Kash. *American Antiquity* 76(4) : 628-641.

2012 Reevaluating Cave Records: The Case for Ritual Caves in the Eastern United States. In *Sacred Darkness: A Global Perspective on the Ritual Use of Caves*, edited by Holley Moyes, 211-224. Boulder, CO: University Press of Colorado.

2015 *Beliefs and Rituals in Archaic Eastern North America*. Tuscaloosa: University of Alabama Press.

Claassen, Cheryl and Mary E. Compton

2011 Rock Features of Western North Carolina. In *The Archaeology of North Carolina: Three Archaeological Symposia*, edited by Charles R. Ewen,

Thomas R. Whyte, and R. P. Stephen Davis, Jr. North Carolina
Archaeological Council Publication Number 30.

Clark, Caven P.

- 1987 Archaeological Survey: Rock Harbor Area, Isle Royale National Park, 1986. Cultural Resource Management Report No. 14, Michigan Technological University.
- 1989 Preliminary Report: 1989 Archaeological Survey at Isle Royale National Park. Ms on file at Isle Royale National Park.
- 1995 Archaeological Survey and Testing, Isle Royale National Park, 1987-1990 Seasons. Occasional Studies in Anthropology, No. 32, Midwest Archaeological Center.

Cleland, Charles E. and G. Richard Peske

- 1968 The Spider Cave Site. In *The Prehistory of the Burnt Bluff Area*. 34. University of Michigan, Museum of Anthropology, Anthropological Papers.

Clemente Conte, I., T. Lazuén Fernández, L. Astruc, and A. C. Rodríguez Rodríguez

- 2015 Use-Wear Analysis of Non-Flint Lithic Raw Materials: The Case of Quartz/Quartzite and Obsidian. In *Use-Wear and Residue Analysis in Archaeology*, edited by J. M. Marrieros et al, pp. 59-81. Springer, New York.

Colson, Alicia J. M.

- 2007 What do these Symbols Mean? A Critical Review of the Images Found on the Rocks of the Canadian Shield with Specific Reference to the Pictographs of the Lake of the Woods. *Revista de Arqueología Americana* 25:101-185.

Colwell-Chanthaphonh, Chip, T. J. Ferguson, Dorothy Lippert, Randall H. McGuire, George P. Nicholas, Joe E. Watkins, and Larry J. Zimmerman

- 2010 The Premise and Promise of Indigenous Archaeology. *American Antiquity* 75(2):228-238.

Colwell-Chanthaphonh, Chip, and T. J. Ferguson

- 2010 Intersecting Magisteria: Bridging Archaeological Science and Traditional Knowledge. *Journal of Social Archaeology* 10(3):325-346.

Connerton, Paul

- 1989 *How Societies Remember*. Cambridge University Press.

Conway, Thor, and Julie Conway

- 1990 *Spirits on Stone: The Agawa Pictographs*. San Luis Obispo, CA: Heritage Discoveries.

Copway, George

- 1850 *The Traditional History and Characteristic Sketches of the Ojibway Nation*. Charles Gilpin, London.

Coues, Elliott, ed.

- 1965 *The Manuscript Journals of Alexander Henry and of David Thompson, 1799-1814*. 2 Vols. Ross and Hains, Inc., Minneapolis.

Creese, John L.

- 2011 Algonquian Rock Art and the Landscape of Power. *Journal of Social Archaeology* 11(1): 3-20.

Crothers, George

- 2012 Early Woodland Ritual Use in Caves in Eastern North America. *American Antiquity* 77(3): 524-541.

Crumley, Carole L.

- 1999 Sacred Landscapes: Constructed and Conceptualized. In *Archaeologies of Landscape: Contemporary Perspectives*, edited by A. Bernard Knapp and Wendy Ashmore, 269-276. Oxford: Blackwell Publishing.

Dewdney, Selwyn

- 1971 Insights on Vision Sites: A Matter of Relevance. Royal Ontario Museum, Archaeological Newsletter 105.

Dewdney, Selwyn, and Kenneth Kidd

- 1962 *Indian Rock Paintings of the Great Lakes*. The University of Toronto Press. Toronto.

Diaz-Granados, Carol, James R. Duncan, and F. Kent Reilly III, editors

- 2015 *Picture Cave: Unraveling the Mysteries of the Mississippian Cosmos*. Austin: University of Texas Press.

Dorr, J. A., and D. F. Eschman

- 1970 *Geology of Michigan*. University of Michigan Press, Ann Arbor, Michigan.

Drake, Eric C., and Sean B. Dunham

- 2004 The Woodland Period Occupation of Grand Island. *Midcontinental Journal of Archaeology* 29(2):133-165.

Drake, Eric C., John G. Franzen, and James M. Skibo

- 2009 Chronological Patterns of Lithic Raw Material Choice in the Grand Island-Munising Bay Locality of Michigan's Upper Peninsula: Archaeological Implications for Inter- and Intra-site Comparisons. *The Wisconsin Archeologist* 90(1&2):131-148.

Drexler, Christopher W.

- 1981 Outlet Channels for the Post-Duluth of the Upper Peninsula of Michigan. Unpublished PhD dissertation, Department of Geology, University of Michigan, Ann Arbor, Michigan.

Drexler, Christopher W., William R. Farrand, and J. D. Hughes

- 1983 Correlation of Glacial Lakes in the Superior Basin with Eastward Discharge Events from Lake Agassiz. In *Glacial Lake Agassiz*, edited by J. T. Teller and L. Clayton, pp. 309-329. Special Paper 26. Geological Association of Canada, St. John's.

Dudzick, Mark J.

- 1995 Visions in Stone: The Rock Art of Minnesota. *The Minnesota Archaeologist* 54:99-108.

Dunham, Sean B.

- 2004a Grand Island: Fifteen Years of Archaeology. *Midcontinental Journal of Archaeology* 29(2): 107-112.
- 2004b The Stone Quarry Cottage Site: Mid-Nineteenth-Century Settlement on Grand Island. *Midcontinental Journal of Archaeology* 29(2):191-218.
- 2014 Late Woodland Settlement and Subsistence in the Eastern Upper Peninsula of Michigan. Unpublished PhD dissertation, Department of Anthropology, Michigan State University, East Lansing.

Dunham, Sean B., and John B. Anderton

- 1999 Late Archaic Radiocarbon Dates from the Popper Site, Grand Island, Michigan. *The Michigan Archaeologist* 45:1-22.

Dunham, Sean B., Michael J. Hambacher, and Mark C. Branstner

- 1997 *1996 Cultural Resource Surveys and Test Excavations: Hiawatha National Forest*. Great Lakes Research Associates, Inc. Submitted to USDA Forest Service, Hiawatha National Forest, Contract No. 53-54BO-6-01061.

Durkheim, Emile

- 1915 *The Elementary Forms of Religious Life*. Trans. J.W. Swain. New York: Free Press, 1965.

Eger, Leslie

- 1981 Spider Cave – 2,000 Years Ago. *Win Awenen Nisitotam* 3(10): 2-3.

Erlandson, Jon

- 1999 The Sea Caves of Southeast Alaska. *Archaeology at the University of Oregon* 2:6-9.
- 2007 Sea Change: The Paleocoastal Occupations of Daisy Cave. In *Seeking Our Past: An Introduction to North American Archaeology*, edited by S. W. Neusius and G. T. Gross, pp. 135-143. Oxford University Press, New York.

Farrand, William R.

- 2001 Archaeological Sediments in Rockshelters and Caves. In *Sediments in Archaeological Context*, edited by Julie K. Stein and William R. Farrand, pp. 29-66. University of Utah Press: Salt Lake City.

Farrand, William R., and Christopher W. Drexler

- 1985 Late Wisconsinan and Holocene History of the Lake Superior Basin. Quaternary Evolution of the Great Lakes. Geological Association of Canada, Special Paper 30.

Finney, Fred A.

- 2004 American Indian Sites and Monuments in Postcards from Michigan. *The Michigan Archaeologist* 50-52(1-4): 95-161.

Fitting, James

- 1965 *Late Woodland Cultures of Southeastern Michigan*. University of Michigan Museum of Anthropology, Anthropological Papers 24. Ann Arbor.
- 1968 *The Prehistory of the Burnt Bluff Area*. University of Michigan, Museum of Anthropology, Anthropological Papers No. 34.

- 1975 An Archaeological Survey of Mackinac Island. In *Archaeological Site Survey in the Mackinac Straits*. Mackinac Island State Park Commission, pp. 91-164. Lansing.

Franklin, Jay, Renee Walker, Maureen Hays, and Chase Beck

- 2010 Late Archaic Site Use at Sachsen Cave Shelter, Upper Cumberland Plateau, Tennessee. *North American Archaeologist* 31(3-4): 447-479.

Franzen, John G.

- 1998 *Archaeological Test Excavations, Monitoring, and Surface Collection, Hiawatha National Forest, Michigan*. Heritage Program Monograph No. 10. USDA Forest Service, Hiawatha National Forest, Escanaba, Michigan.
- 2004 Wintering at Little Island Rock: A Fur Trade Site on Grand Island. *Midcontinental Journal of Archaeology* 29(2):219-248.

Gorecki, Paul P

- 1991 Horticulturalists as Hunter-Gatherers: Rock Shelter Usage in Papua New Guinea, in *Ethnoarchaeological Approaches to Mobile Campsites*, C. S. Gamble and W. A. Boismier (editors), International Monographs in Prehistory, Ethnoarchaeological Series 1, Ann Arbor, Michigan, pp. 237-262.

Halsey, John R.

- 1995 Prehistory on the Garden Peninsula. Paper presented at Fayette Heritage Day, Fayette State Historical Park, August 12, 1995.

Hamblin, WM. Kenneth

- 1958 *Cambrian Sandstones of Northern Michigan*. Publication 51. Michigan Department of Conservation, Geological Survey Division, Lansing, Michigan.

Henry, Alexander

- 1921 *Alexander Henry's Travel's and Adventures in the Years 1760-1776*, edited by Milo M. Quaife. R. R. Donnelly and Sons: Chicago. Reprinted. Originally published in 1809 as *Travels and Adventures in Canada and the Indian Territories between the Years 1760 and 1776*. New York.

Heyden, Doris

- 2005 Rites of Passage and Other Ceremonies in Caves. In *The Maw of the Earth Monster: Mesoamerican Ritual Cave Use*, edited by James E. Brady and Keith M. Prufer. Austin: University of Texas Press, pp. 21-34.

Hill, Christopher L.

- 2007 Geoarchaeology and Late Glacial Landscapes in the Western Lake Superior Region, Central North America. *Geoarchaeology* 22(1):15-47.

Homsey-Messer, Lara

- 2015 Revisiting the Role of Caves and Rockshelters in the Hunter-Gatherer Taskscape of the Archaic Midsouth. *American Antiquity* 80(2): 332-352.

Ingold, Tim

- 1993 The Temporality of the Landscape. *World Archaeology* 25(2):152-174.
2000 *The Perception of the Environment: Essays on Livelihood, Dwelling, and Skill*. London: Routledge.

Jackson, Lawrence J., Christopher Ellis, Alan V. Morgan, and John H. McAndrews

- 2000 Glacial Lake Levels and Eastern Great Lakes Palaeo-Indians. *Geoarchaeology* 15(5):415-440.

Jackson, Misty M., Jessica J. Dolanski, John R. Halsey, and Bruce A. Phillips.

- 1996 A Preliminary Inventory of Archaeological and Historical Sites in Michigan State Parks and Recreation Areas, edited by John R. Halsey. Office of the State Archaeologist.

Janzen, Donald E.

- 1968 Excavations and Survey at Burnt Bluff in 1965. In *The Prehistory of the Burnt Bluff Area*. University of Michigan, Museum of Anthropology, Anthropological Papers No. 34.

Johnston, Basil

- 1982 *Ojibway Ceremonies*. Lincoln: University of Nebraska Press.

Johnston, John W.

- 2004 *Changes in Water Level, Vertical Ground Movement, Shoreline Behavior and Climate in the Lake Superior Basin During the Last 5,000 Years*. Unpublished PhD Dissertation, Indiana University.

Johnston, John W., Todd A. Thompson, Douglas A. Wilcox, and Steve J. Baedke

- 2007 Geomorphic and Sedimentologic Evidence for the Separation of Lake Superior from Lake Michigan and Huron. *Journal of Paleolimnology* 37(3):349-364.

Jones, Tim E. H.

- 1981 *The Aboriginal Rock Paintings of the Churchill River*. Saskatchewan Department of Culture and Youth, Anthropological Series 4.

Jordan, Peter

- 2008 Northern Landscapes, Northern Mind: On the Trail of an 'Archaeology of Hunter-Gatherer Belief'. In *Belief in the Past: Theoretical Approaches to the Archaeology of Religion* Walnut Creek, CA: Left Coast Press.

Joseph, Richard L., and Scott W. Neilson

- 2009 Geoarchaeological Investigations at Two Intermediate Indian Sites near Happy Valley-Goose Bay, Labrador: Implications for Late Holocene Paleoshoreline Reconstruction and Settlement Patterning in Western Hamilton Inlet. *Canadian Journal of Archaeology* 33:92-114.

Keeley, Lawrence H.

- 1980 *Experimental Determination of Stone Tool Uses: A Microwear Analysis*. Chicago: University of Chicago Press.

Kincare, Kevin, and Grahame J. Larson

- 2009 Evolution of the Great Lakes. In *Michigan Geography and Geology*, edited by Randall Schaetzel (editor in chief), Joe Darden, and Danita Brandt, 174-190, Boston: Pearson Custom Publishing.

Klimchouk, Alexander

- 2003 Caves. In *Encyclopedia of Cave and Karst Science*, ed. John Gunn, 203-205. Dearborn, NY: Fitzroy.

Knapp, A. Bernard, and Wendy Ashmore

- 1999 Archaeological Landscapes: Constructed, Conceptualized, Ideational. In *Archaeologies of Landscape: Contemporary Perspectives*, ed. A. Bernard Knapp and Wendy Ashmore, pp.1-30. Oxford: Blackwell Publishing.

Kooiman, Susan

- 2012 Old Pots, New Approaches: A Functional Analysis of Woodland Pottery from Lake Superior's Southern Shore. Unpublished Master's thesis, Department of Sociology and Anthropology, Illinois State University, Normal.

Kristensen, Todd J., and Donald H. Holly Jr.

- 2013 Birds, Burials, and Sacred Cosmology of the Indigenous Beothuk of Newfoundland, Canada. *Cambridge Archaeological Journal* 23(1):41-53.

Kyriakidis, Evangelos

- 2007 *The Archaeology of Ritual*. Los Angeles: Cotsen Institute of Archaeology.

Lace, Michael J.

- 2012 Anthropogenic Use, Modification, and Preservation of Coastal Cave Resources in Puerto Rico. *Journal of Island and Coastal Archaeology* 7:378-403.

Lace, Michael J., and John E. Mylroie

- 2013 The Biological and Archaeological Significance of Coastal Cave and Karst Features. In *Coastal Karst Landforms*, edited by Michael J. Lace and John E. Mylroie, pp. 3-14. Dordrecht: Springer Netherlands.

Larsen, Curtis E.

- 1985 Geoarchaeological Interpretation of Great Lakes Lakeshore Environments. In *Archaeological Sediments in Context*, edited by Julie K. Stein and William R. Farrand. Peopling of the Americas Edited Series No. 1, Institute for Quaternary Studies, University of Maine, Orono, p. 99-110.

Legg, Robert J., and John B. Anderton

- 2010 Using Paleoshoreline and Site Location Modeling in the Northern Great Lakes: Geoarchaeological Approaches to Prehistoric Archaeological Survey in the Pictured Rocks National Lakeshore. *Geoarchaeology* 25(6):772-783.

Loope, Walter L., and John B. Anderton

- 2002 Deglaciation and Holocene Landscape Evolution in Eastern Upper Michigan: A Field Guide for the 48th Midwest Friends of the Pleistocene Field Conference. Grand Marais and Munising, Michigan, May 31-June 2, 2002.

Lugthart, Douglas W.

- 1968 The Burnt Bluff Rock Paintings. In *The Prehistory of the Burnt Bluff Area*. 34. University of Michigan, Museum of Anthropology, Anthropological Papers.

MacKenzie, Alexander

- 1801 *Voyages from Montreal through the Continent of North America to the Frozen and Pacific Oceans in the Years 1789 and 1793*. Toronto: The Radisson Society of Canada.

Mason, Ronald J.

- 1981 *Great Lakes Archaeology*. Academic Press, New York.
- Michigan Archaeological Site File (MASF)
- 2014 Michigan State Historic Preservation Office, Lansing, Michigan.
Accessed, August 28, 2014.
- Miller, G. Logan, and James W. Hill III
- 2016 Microwear Analysis of Quartzite Tools from Grand Island Rockshelters.
Unpublished manuscript in possession of the author.
- Molyneaux, Brian
- 1983 The Study of Prehistoric Sacred Places: Evidence from Lower Manitou Lake. Archaeology Paper 2, Royal Ontario Museum.
- Moore, D.G.
- 1954 Origin and Development of Sea Caves. *National Speleological Bulletin* 16:71-76.
- Moyes, Holley
- 2012 Introduction. In *Sacred Darkness: A Global Perspective on the Ritual Use of Caves*, ed. Holley Moyes, 1-11. Boulder, CO: University Press of Colorado.
- Moyes, Holley and James E. Brady
- 2012 Caves as Sacred Space in Mesoamerica. In *Sacred Darkness: A Global Perspective on the Ritual Use of Caves*, ed. Holley Moyes. Boulder, CO: University Press of Colorado
- Mylroie, John E., and Joan R. Mylroie
- 2013 Pseudokarst Caves in the Littoral Environment. In *Coastal Karst Landforms*, edited by Michael J. Lace and John E. Mylroie, pp. 3-14. Dordrecht: Springer Netherlands.
- Neiger, Michael A.
- 2012 Exploring Grand Island: A GPS-Enabled, USGS-Map-Based, Backcountry Guide to the Trails, Campsites, Beaches, Overlooks, Old Growth, Waterfalls, Historic Sites, Caves, and Shipwrecks of the Grand Island National Recreation Area, Lake Superior, Munising, Michigan. Map available at www.ExtremeTrailMaps.com.
- Nicolay, Scott

- 2012 Footsteps in the Dark Zone: Ritual Cave Use in Southwest Prehistory. In *Sacred Darkness: A Global Perspective on the Ritual Use of Caves*, edited by Holley Moyes. Boulder, CO: University Press of Colorado.

Norder, John W.

- 2007 Iktomi and the Land of the Maymaygwayshi: Understanding Lived Experience in the Practice of Archaeology among American Indians/First Nations. *Archaeologies: Journal of the World Archaeological Congress* 3(3):230-248.
- 2012 The Creation and Endurance of Memory and Place Among First Nations of Northwestern Ontario, Canada. *International Journal of Historical Archaeology* 16:385-400.

Norder, John W., and Jon W. Carroll

- 2011 Applied Geospatial Perspectives on the Rock Art of the Lake of the Woods Region of Ontario, Canada. *International Journal of Applied Geospatial Research* 2(4):77-92.

Nute, Grace Lee

- 1941 *The Voyageur's Highway*. The Minnesota Historical Society. St. Paul.

Parker, Kathryn

- 2016 Results of Botanical Analysis: Site 03-1077, Feature 1. Unpublished manuscript in possession of the author.

Pedde, Sara E., and Olaf H. Prufer

- 2001 Hendrick's Cave, Rockshelters, and Late Archaic Mortuary Practices in Ohio. In *Archaic Transitions in Ohio and Kentucky Prehistory*, ed. Olaf H. Prufer, Sara E. Pedde, and Richard S. Meindl, 328-54. Kent, OH: Kent State University Press.

Phillips, Brian A. M.

- 1988 Paleogeographic Reconstruction of Shoreline Archaeological Sites around Thunder Bay, Ontario. *Geoarchaeology* 3(2):127-138.
- 1993 A Time-Space Model for the Distribution of Shoreline Archaeological Sites in the Lake Superior Basin. *Geoarchaeology* 8(2):87-107.

Prufer, Olaf H., and Keith M. Prufer

- 2012 Ceremonial Use of Caves and Rockshelters in Ohio. In *Sacred Darkness: A Global Perspective on the Ritual Use of Caves*, ed. Holley Moyes, 225-235. Boulder, CO: University Press of Colorado.

Rajnovich, Grace

- 1994 *Reading Rock Art: Interpreting the Indian Rock Paintings of the Canadian Shield*. Toronto: Natural Heritage/Natural History Inc.

Riley, Mark, David C. Harvey, Tony Brown, and Sara Mills

- 2005 Narrating Landscape: The Potential of Oral History for Landscape Archaeology. *Public Archaeology* 4(1): 15-26.

Rissolo, Dominique

- 2005 Beneath the Yalahua: Emerging Patterns of Ancient Maya Ritual Cave Use from Northern Quintana Roo, Mexico. In *In the Maw of the Earth Monster: Mesoamerican Cave Use*, edited by James E. Brady and Keith M. Prufer. Austin: University of Texas Press.

Roberts, Norene A.

- 1991 *Cultural Resources Overview and National Register Evaluation of Historic Structures, Grand Island National Recreation Area, Michigan*. R/V Cultural Resource Consultants. Submitted to USDA Forest Service, Hiawatha National Forest, Contract No. 53-54B0—0-000435.

Ruuska, Alex K., and Ruth Ann Armitage

- 2015 Spider Man Cave: The Desecration of the Burnt Bluff Cultural Site and Its Implications for Future Heritage Management. *Wisconsin Archeologist* 96(1):27-44.

Sabo III, George

- 1975 Chipped Stone. In *Archaeological Site Survey in the Mackinac Straits*. Mackinac Island State Park Commission, pp. 127-131. Lansing.

Sabo III, George, Jerry E. Hilliard, and Jami J. Lockhart

- 2012 The Ritual Use of Caves and Rockshelters in Ozark Prehistory. In *Sacred Darkness: A Global Perspective on the Ritual Use of Caves*, edited by Holley Moyes. Boulder, CO: University Press of Colorado.

Sage, Ronald P., and Victoria L. Sage

- 2006 Glacial Lakes Algonquin and Nipissing Shoreline Bedrock Features: Mackinac Island, Michigan. Field Trip Guidebook, Volume 52, Part 2. Institute on Lake Superior Geology, Sault Ste. Marie, Ontario.

Salzer, Robert J., and Grace Rajnovich

- 2001 *The Gottschall Rockshelter: An Archaeological Mystery*. St. Paul, MN: Prairie Smoke Press.
- Sassaman, Kenneth
- 2010 *The Eastern Archaic: Historicized*. Plymouth, UK: AltaMira Press.
- Sauer, Norman J.
- 1990 An Analysis of the Human Skeletal Remains from the Massee Rockshelter, Isle Royale National park, Michigan State University.
- Sauer, Norman J., and Caven Clark
- 1991 The Massee Rockshelter: A Prehistoric Mortuary Site on Isle Royale, Lake Superior. *The Michigan Archaeologist* 37(3):141-161.
- Schiffer, Michael B.
- 1983 Toward the Identification of Formation Processes. *American Antiquity* 48:675-706.
- Semenov, Sergei A.
- 1964 *Prehistoric Technology*. Barnes and Noble, NY (translated by M.W. Thompson).
- Sherwood, Sarah C., and Paul Goldberg
- 2001 A Geoarchaeological Framework for the Study of Karstic Cave Sites in the Eastern Woodlands. *Midcontinental Journal of Archaeology* 26(2):145-167.
- Simek, Jan F., Alan Cressler, and Joseph Douglas
- 2012 A New Overview of Prehistoric Cave Art in the Southeast. In *Sacred Darkness: A Global Perspective on the Ritual Use of Caves*, ed. Holley Moyes, 195-209. Boulder, CO: University Press of Colorado
- Simek, Jan F., Alan Cressler, Nicholas P. Herrmann, and Sarah C. Sherwood
- 2013 Sacred Landscapes of the South-Eastern USA: Prehistoric Rock and Cave Art in Tennessee. *Antiquity* 87(336):430-446.
- Skibo, James M.
- 2015 The Adoption of Pottery in the Eastern United States: A Performance Based Approach. In *Explorations in Behavioral Archaeology*, edited by William Walker and James Skibo. University of Utah Press, Salt Lake City.

Skibo, James M., and Michael B. Schiffer

2013 *Understanding Pottery Function*. Springer New York.

Skibo, James M., Terrance J. Martin, Eric C. Drake, and John G. Franzen

2004 Gete Odena: Grand Island's Post-Contact Occupation at Williams Landing. *Midcontinental Journal of Archaeology* 29(2):167-189.

Skibo, James M., Mary E. Malainey, and Eric C. Drake

2009 Stone Boiling, Fire-Cracked Rock, and Nut Oil: Exploring the Origins of Pottery Making on Grand Island. *Wisconsin Archaeologist* 90(1&2):47-64.

Stelle, Lenville J.

2012 The Rock Art of the Blood of the Ancestors Grotto (11SA5557): The Archaeology of Religious Theater. *Illinois Archaeology* 24(1): 1-70.

Stewart, Andrew M., Darren Keith, and Joan Scottie

2004 Caribou Crossings and Cultural Meanings: Placing Traditional Knowledge and Archaeology in Context in an Inuit Landscape. *Journal of Archaeological Method and Theory* 11(2):183-211.

Straus, Lawrence Guy

1990 Underground Archaeology: Perspectives on Caves and Rockshelters. In *Archaeological Method and Theory*, vol. 2, edited by Michael B. Schiffer, 255-304. Tucson: University of Arizona Press.

1997 Convenient Cavities: Some Human Uses of Caves and Rockshelters. In *The Human Use of Caves*, edited by Clive Bonsall and Christopher Tolan-Smith. BAR International Series 667.

Tooker, Elisabeth

1991 *An Ethnography of the Huron Indians, 1615-1649*. Syracuse, NY: Syracuse University Press.

Wagner, Stephen C.

2004 Ritual Activity at Gottschall Rockshelter, Iowa County, Wisconsin. Unpublished Master's thesis, Department of Anthropology, Northern Illinois University, Dekalb.

Walker, Renee

2010 Paleoindian and Archaic Activities at Dust Cave, Alabama: The Secular and the Sacred. *North American Archaeologist* 31(3-4): 427-445.

Walthall, John A.

- 1998 Rockshelters and Hunter-Gatherer Adaptation to the Pleistocene/Holocene Transition. *American Antiquity* 63(2): 223-238.
- 1999 Mortuary Behavior and Early Holocene Land Use in the North American Midcontinent. *North American Archaeologist* 20(1):1-30.

Weeks, Rex

- 2012 Mide Rock-Paintings: Archaeology by Formal and Informed Methods. *Cambridge Archaeological Journal* 22(2): 187-207.

West, George A.

- 1929 Copper: Its Mining and Use by the Aborigines of the Lake Superior Region: Report of the McDonald-Massee Isle Royale Expedition, 1928. Milwaukee Public Museum.

Whiteley, Peter M.

- 2002 Archaeology and Oral Tradition: The Scientific Importance of Dialogue. *American Antiquity* 67(3):405-415.

Yuen, Cheon-Yip

- 1988 Post-Glacial Geology. Final Report of Archaeological Investigations and Data Recovery at the Trout Point 1 Site, Alger County, Michigan. USDA Forest Service, Hiawatha National Forest, Contract No. 53-5480-7-00096, pp.28-39. University of Wisconsin-Milwaukee Archaeological Research Laboratory. Report of Investigations, No. 89.

Zedeño, María Nieves

- 1997 Landscape, Land Use, and the History of Territory Formation: An Example from the Puebloan Southwest. *Journal of Archaeological Method and Theory* (4):63-107.
- 2008 Traditional Knowledge, Ritual Behavior, and Contemporary Interpretations of the Archaeological Record – An Ojibwe Perspective. In *Belief in the Past: Theoretical Approaches to the Archaeology of Religion*. Walnut Creek, CA: Left Coast Press.

Zedeño, María Nieves, Diane Austin, and Richard Stoffle

- 1997 Landmark and Landscape: A Contextual Approach to the Management of Resources. *Culture and Agriculture* 19(3):123-129.

Zedeño, María Nieves, Richard W. Stoffle, Fabio Pittaluga, Genevieve Dewey-Hefley, R. Christopher Basaldú, and María Porter

- 2001 Traditional Ojibway Resources in the Western Great Lakes. Prepared for the National Park Service, Midwest Region. Bureau of Applied Research in Anthropology, University of Arizona, Tucson.

Zurel, Richard L.

- 2009 Michigan's Rock Art. In *Retrieving Michigan's Buried Past*, edited by John R. Halsey and Michael M. Staffer. Bloomfield Hills, pp. 249-252. Volume 64 of Bulletin, Cranbrook Institute of Science, Bloomfield Hills, Michigan.

Zvelebil, M., and P. Jordan

- 1999 Hunter Fisher Gatherer Ritual Landscapes: Questions of Time, Space, and Representation. In *Rock Art as Social Representation*, edited by J. Goldhahn, pp. 101-127. BAR International Series 794. Oxford University Press, Oxford.