

APPROVAL PAGE FOR GRADUATE THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR DEGREE
OF MASTER OF ARTS AT CALIFORNIA STATE UNIVERSITY, LOS ANGELES
BY

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THE POLITICAL APPROPRIATION OF CAVES IN
THE UPPER BELIZE VALLEY

A Thesis

Presented to

The Faculty of the Department of Anthropology
California State University, Los Angeles

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

By

Michael J. Mirro

December 2007

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ACKNOWLEDGEMENTS

First, I would like to thank Jaime Awe, of the Department of Archaeology in Belmopan, Belize for providing me with the research opportunities in Belize, and specifically, allowing me to co-direct research at Barton Creek Cave. Thank you Jaime for sending Vanessa and I to Actun Tunichil Muknal in the summer of 1996; that one trip changed my life forever.

Thank you Dr. James Brady for guiding me through the process of completing the thesis and for your endless patience over the last four years. I appreciate all the time and effort above and beyond the call of duty that you invested in assisting me.

I would specifically like to thank Reiko Ishihara and Christophe Helmke for teaching me the ins-and-outs of Maya ceramics and spending countless hours with me classifying sherds. Without your help, I would never have had enough data to write this thesis. Also, Christophe, I appreciate all the discussions and ideas you have introduced me to since we first started with BVAR in 1996.

Thank you Cameron Griffith for your constant support while we were down in Belize. You were instrumental in solving the endless logistical problems that arose during the field season as well as making us all enjoy ourselves during the weekends. As well, I appreciate the comradery of the BVAR/WBRCF staff. Thank you Christina Halperin, Eric White, Jeff Ransom, Sherry Gibbs, Jocelyn Ferguson, Ranju Song, Pete Zubrzycki,

Jennifer Piehl, David Lee, Bruce Minkin, Raphael Guerra, Jim Conlon, Jennifer Ehret, and Allan Moore

I appreciate the efforts of Caitlin O'grady, Chris Morehart, John Spenard, Brent Woodfill, Gina Zavala, and Molly Fierer-Donaldson for helping keep operations running smooth both during investigations in Barton Creek Cave and at camp. Without all your help, it would not have been possible to accomplish that amount of research that we did.

I am grateful to David and Eleanor Larsen who provided invaluable assistance through lighting, mapping, and photography. Thank you for your generosity and ingenious lighting system that made underground archaeology much easier. In addition, I appreciate the help of all the caves from the NSS who contributed time and efforts toward producing the overall map of the cave.

Thank you everyone at the Cahal Pech Village for years of great food and providing a wonderful home away from home. I also thank, in Belize, Aaron and Jimmy Juan, Elton, Edwin, and Bernard Neal, Mark, Ronan, and Ted for all their help and for making us feel at home in Belize. I will never forget all of the jungle wisdom taught to me by Jose Mai, Agapito, Don Valentine, Jim Puuc, and Tigre and appreciate the twist of humor they added to our lives in the wild.

Thank you Dr. Martz for your comments and assistance writing this thesis and making my days at Calstate enjoyable. Also, thank you Marie Bruno, Dr. Cristales-Baker, Dr. Oring, Dr. Ackerman, Dr. Klein, Dr. Ngin, and the rest of the Anthropology Department staff for making my days in the graduate program a positive and fulfilling

experience. I would also like to thank every one at work, especially Susan Goldberg for giving me time and resources toward completing my thesis.

I appreciate the constant encouragement of all my friend and family that kept me on track and working forward toward finishing the thesis. Thank you Mom and Dad for being great parents and supporting my endless stream of interests and pursuits. Vanessa and Isabella, you have been so great and patient waiting for me to finish this thesis. I could never have gotten through this without you Vanessa. Thank you for your support, love, encouragement, companionship, comments, and for being such a wonderful wife and best friend. I dedicate this thesis to you. Finally, I also dedicate this thesis to Doug Weinberg who brought happiness and good times into my life and of all the lives of all the people he met.

ABSTRACT

Political Appropriation of Caves in The Upper Belize Valley

By

Michael J. Mirro

The problem of associating caves with specific centers or polities has been a problem in the field of cave archaeology for some time. This thesis explores new methods for documenting the political appropriation of caves distant from centers in the Belize River Valley during the Late Classic Maya period (A.D 590 to 890). It focuses on polities that may have been utilizing Barton Creek Cave and draws on methods developed in settlement archaeology for assessing relationships between small sites and large centers and for defining political boundaries. Specifically, the thesis examines several ceramic types whose distribution in the Belize Valley is thought to follow political boundaries. Examination of the ceramic sample at Barton Creek Cave suggests that it is affiliated with a polity in the eastern part of the Belize Valley. Analyses of ceramic data from other caves in the valley support this claim and demonstrate that several different patterns are evident. These three patterns are as follows: 1) caves can be affiliated with one single polity through time; 2) caves may be in contested areas and that their affiliation changes over time as political powers

expand and diminish; and 3) caves are in politically neutral areas and accessible by multiple political entities.

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1.0 INTRODUCTION

The ancient Maya considered caves to be sacred places of great ritual significance. The abundance of artifacts and human remains in caves confirms that the Maya used these places extensively. Some researchers have proposed that the Maya perceived cave entrances as portals to Xibalba, the Maya underworld, where Chac, the Maya god of rain, thunder, and lightning resided (Brady and Stone 1986; MacLeod and Puleston 1978; Thompson 1975). Modern Maya descendants suggest that caves may actually have been seen as entrances to *Tierra Madre*, or Mother Earth (Sergio Garza, personal communication 2004; Halperin et al. 2003). There is agreement that caves were connected to the central concerns of an agricultural people: rain and fertility. Recently, cave archaeologists have suggested that the ancient Maya appropriated caves as symbols of political power.

It is well documented in the literature that Maya polities appropriated caves (Brady 1989, 1997; Brady and Fahsen 1991; Brady and Veni 1992; Halperin 2000a). In many instances, caves are incorporated into, or buried beneath, the largest pyramids at Maya centers (Heyden 1975, 1998; Millon 1981; Thompson 1938) or within highly restricted areas in the elite precinct, thus limiting access to non-elites (Brady 1997; Halperin 2000a). Artificial caves excavated into the volcanic tuff beneath many centers act as a further testament to the importance of this association (Brady and Veni 1992). However, little consideration is given to understanding the appropriation of caves by a

polity in instances where the cave is *not* located in or near the elite precinct, but found several kilometers (km) away from major settlement.

This thesis purposes to explore new methods for documenting the political appropriation by specific polities of caves distant from centers in the Belize River Valley during the Late Classic Maya period (A.D 590 to 890). Specifically, this investigation focuses on polities in the Belize Valley that may have used Barton Creek Cave. The study draws on methods developed in settlement archaeology for assessing relationships between small sites and large centers and for defining political boundaries. Specifically, the thesis examines the relative abundance of several ceramic types whose distribution in the Belize Valley is thought to follow political boundaries.

2.0 LITERATURE REVIEW

While caves in Central America have intrigued archaeologists for the past one and a half centuries, systematic archaeological investigations and theory-building questions have only surfaced in recent years. The general lack of regard for caves by archaeologists has resulted in cursory site reports, superficial surveys, and mostly non question-oriented studies from the earlier periods of Maya research. Systematic cave studies scientifically documenting the cultural remains in caves occurred in the mid-twentieth century; however, investigators largely ignored greater social issues and settlement-based context. Modern cave archaeologists bring this idea into focus in the late 1980s beginning with the publication of the first dissertation on caves (Brady 1989) and syntheses of existing cave literature.

2.1 The Development of Cave Archaeological Studies

2.1.1 The Early Period (1840 – 1917)

Caves in the Maya region are first documented to contain ancient remains in the 1840s when John Lloyd Stephens and Frederick Catherwood made their epic explorations of Maya sites in the Yucatan, Central America, and Chiapas

(Stephens 1841, 1843). Other early investigators of Maya cave sites (Gann 1894-95; Gordon 1898; Mercer 1897; Thompson 1897, Seler 1901) produced detailed publications with high methodological standards for the day; however, their efforts fail to influence the field of Maya archaeology (Brady 2003). Outside of this small group, archaeologists of the time neglect to include caves in their research efforts at Maya centers. Major cave studies include Henry Mercer's *Hill Caves of the Yucatan* (1897) and Edward H. Thompson's (1965) dredging of the Cenote de Sacrificio in Chichen Itza between 1904 and 1907. Unfortunately, the report on the dredging was not published until the 1960s; however, the results of the excavation of the Cenote were widely known at the time (Brady 2003). Despite the production of several high quality reports, cave studies do not take off at this time, in part due to an absence of synthesis.

2.1.2 The Inter-War Period (1917-1945)

Few cave studies take place during the Inter-War Period; however, one exception is the multiyear investigation at Pusilha sponsored by the British Museum and directed by T. A. Joyce, in which a cave is reported on within the site and excavation notes and maps detail the cave contents (Gruning 1930; Joyce 1929:440-447; Joyce et al. 1928).

Starting in the mid-1920s great advances were made in the field of Maya archaeology with large institutions, like the Carnegie Institution of Washington, funding projects, which Norman Hammond (1982: 20) termed this period, the “Period of Institutional Domination.” Caves did not form part of the institutional paradigm and therefore, they are ignored and the whole subject becomes marginalized as a topic of investigation. Reports that were written tended to include short site descriptions and the investigators were more focused on collecting outstanding artifacts than studying caves (Brady 1989). Unfortunately, caves were not a specific focus of research until the 1990s (Brady 2003) and the few cave studies from this period failed to meet the quality standards of the day, or even of the previous period in terms of methods or comprehensiveness.

2.1.3 The Post-War Period (1945-1985)

During this period, cave studies go through a revival with the re-emergence of descriptive reports and an increase in field time spent at the sites. The Carnegie Institute’s study of the northern Yucatan center of Mayapan incorporates caves into its research and produces several reports (Smith 1954a, 1954b, 1956; Stromsvik 1956), which include cave data. They document relationships between caves and surface architecture and formally analyze artifacts (Pollock and Ray 1957; Smith 1971).

In the 1960s E. Wyllys Andrews IV, working with the Tulane University Middle American Research Institute produced monographs that reports on Balancanche and La Gruta de Chac near Chichen Itza (Andrews 1961, 1965, 1971). He detailed a modern Maya ceremony in the cave as well as published the results of the archaeological investigations at Balancanche and produced an in-depth monograph on Gruta de Chac. While these projects produced quality publications, the general negative feeling toward studying caves at this time is undeniable considering Andrews conducted his work on Sundays with volunteer labor (Brady 1989).

David Pendergast, then Commissioner of Archaeology of Belize, produced a series of monographs on several caves from Belize. He is one of the few archaeologists who systematically collected artifacts and formally analyzed ceramic and faunal material (Pendergast 1969, 1971, 1974). His reports, some of the best produced to date, are written to the same level of detail as surface sites (Brady 1989); however, they are derived from short salvage operations and after the publication Pendergast no longer pursues caves as a field of study.

Nevertheless, while these studies highlight the better work of time, there is still a trend of marginalization and low importance for the study of caves. Further, reports produced during this time do not maintain the standards and quality of surface archaeology or, when they do, as in the case of Pendergast, they are salvage operations rather than field seasons. Norman Hammond sums up the

general feeling of Mayanists of the time in his statement “whether residence in caves was permanent, periodic or sporadic, regular or only for ritual and refuge, we do not yet know...” (1981: 177).

2.1.4 The Recent Period (1985-present)

Modern cave studies emerge with the publication of James Brady’s (1989) dissertation on *Naj Tunich* in Guatemala, which details the history of cave studies and includes a chapter on the “Use and Meaning of Caves” thus, bringing together the maturing field’s body of literature. Brady’s (1989) dissertation is important because it synthesizes a larger body of literature on cave use than previous researches and explains caves in terms of symbolic function and suggests an importance far greater than early scholars propose. Juan Luis Bonor Villarejo (1989) also produced a book at this time consisting of general summaries of all known Maya caves. Further, it is during this period that current methods and theoretical problems are developed.

Other archaeologists at the time also begin presenting systematic descriptions and theory-based articles (Bassie-Sweet 1991, 1996; Bonor 1989; Stone 1995). Ethnographic and ethnohistoric research (Garcia-Zambrano 1994; Sandstrom 1991; Vogt 1969, 1976, 1981) is incorporated into the study of caves as a means of adding meaning to these ritual sites.

In the 1990s, the Petexbatun Regional Cave Survey and the Western Belize Regional Cave Project (WBRCP) began multi-season regional projects bringing in students and staff from a variety of backgrounds, including geology, speleology, and archaeology. The Petexbatun project (1990-1993) produces in-depth reports on caves and associated surface archaeology, as well as several theoretical articles (Brady 1997; Brady et al. 1997; Brady et al. 1997; Scott 1997). The Western Belize Regional Cave Project (WBRCP; 1996 to present) provides graduate students with an opportunity to conduct interdisciplinary cave studies, many of whom continue to be active in cave research throughout Belize, Guatemala and Mexico (Helmke et al. 2004; Griffith and Jack 2005; Jack 2004; Gibbs 2000; Halperin 2000a, 2005; Ishihara 2002; Moyes 2001, 2005a, 2005b, 2006; Owen 2002, 2005; Mirro 2003; Mirro and Mirro 2004; Morehart 2002, 2005; Morehart et al. 2004).

The Recent Period sees the appearance for the first time of a group of archaeologists specializing in caves and beginning a trend of cave-focused Master's theses and dissertations. Funding becomes available to cave studies as granting institutions begin accepting the importance of caves in Maya culture. Later in this period, graduates move into teaching positions in academic departments and include cave studies in their course work; this exposes students to a new element of Maya archaeology with the potential of influencing the next generation of cave specialists. Presently, a small core of researchers (Brady

1988, 1989, 1992, 1997; Brady and Prufer 1999; Brady et al. 1997; Brady and Veni 1992; Heyden 1998, 2000; Ishihara 2002, 2007; Moyes 2006; Peterson 2006; Prufer 2002; Rissolo 2001, 2003; Woodfill 2007) continues to pursue and stress the importance of caves in the sacred landscape and is leading cave archaeology into mainstream study.

2.2 Development of Cave Archaeological Theory

2.2.1 Early Cave Archaeological Theory (1950-1985)

From the 1840s into the 1950s, the emerging subfield of Maya cave archaeology amassed an abundance of site reports and descriptions of artifact assemblages from early cave studies. However, it is not until the late 1950s that the first real synthesis and model for cave use is published (Brady and Prufer 2005). Sir J. Eric Thompson (1959, 1975) produced the first important major synthesis of Maya cave data and argued for the predominantly ritual focus for caves. Later, Heyden (1975), and MacLeod and Puleston (1979) publish models for cave use; however, the later researchers do not cite nor base their ideas on Thompson or each other. It is not until the Recent Period that a thorough look at existing literature and ideas is undertaken.

Thompson lists eight categories of cave use: 1) sources of drinking water; 2) sources of “virgin” water for religious rites; 3) religious rites; 4) burials, ossuaries, and

cremations; 5) art galleries, perhaps in connection with religious rites; 6) repositories of ceremonially discarded utensils; 7) places of refuge (a minor use); and 8) other uses (Thompson 1975: xiv). While Thompson must be commended on his synthesis, there are several shortcomings in his theory. First, he fragments the central role of ritual into collection points for virgin water, repositories for ceremonial discarded utensils, and art galleries, in addition to religious rites. These categories are aspects of ritual, are related, and should be collapsed under one class rather than as categories of equal status to ritual (Brady and Prufer 2005). Thompson (1938) makes an important point, noting the association of Maya structures with caves, citing the *High Priests Grave*; however, he never develops the idea. While Thompson's work outlines the use of caves, he fails to discuss the greater meaning of caves to the ancient Maya and does not demonstrate how cave ritual fits into the Maya social structure.

While Thompson's work concentrated on the function of caves, Doris Heyden (1973, 1975, 1981) focused on the meaning and significance of caves (Brady and Prufer 2005) that she based on ethnographic research (Heyden 1973). Although Heyden did not focus on the Maya area, her work is important because many basic ritual beliefs are pan-Mesoamerican. In her work, Heyden drew much of her research from ethnohistoric and ethnographic sources and presented her data in terms of social organization. She realized the importance of caves in Mesoamerica with the observation that site name glyphs incorporate the Nahuatl word for cave. She relates caves to rites of passage, such as ascension rituals, birth and death, and other life cycle events, rather than agricultural

ceremonies (Brady and Prufer 2005). Caves are also places of cosmological genesis, creation, and fertility where gods performed mythological events leading toward the inception of man and corn (Heyden 1981). She maintained that caves are of great ritual and cosmological significance to Mesoamericans. If Heyden had reviewed Thompson's work (Thompson 1975) at time, she could have built upon his framework of cave uses (Brady and Prufer 2005).

As a departure from standard approaches in cave archaeology of the time, David Grove (1973) published an article on the relationship of cave motif and Olmec carved stone thrones through the detailed study of relief-carvings on Altar 4 at La Venta and several rock-art panels from Oxtotitlan, a cave in the mountains of Guerrero, Mexico. His research is an important contribution to cave archaeology because of the incorporation of cave themes into Olmec iconography and how caves are a central element of the legitimization of Olmec kingship. According to Grove, the jaguar mouth, carved as a niche on an altar, is representative of the jaguar-monster mouth, which according to Olmec mythology and as depicted in Mexican codices is an entrance to the underworld. The figure seated in this niche then has an underworld association. A rope connecting other individuals on the altar to the figure in the niche is known to be the human rope of kinship from ethno-historical sources, and represents kin ties, which suggests that an entire lineage derives its origin and power from a cave. Thematically and stylistically similar to the niche on the altar, a polychrome painting of a richly adorned figure seated on a jaguar head over the entrance to the cave, where the cave

represents the jaguar's mouth, reinforces the concept that the niche on the altar symbolizes a cave. While not tying a site or ruler to a specific cave, Grove presents strong evidence for Mesoamerican elite validating their position by association with caves. Later, with the publication of articles describing monumental structures built over caves, this concept becomes an important model (Brady 1997).

Barbara MacLeod and Dennis Puleston (1979) adopted a somewhat different approach to the meaning of caves. They synthesized ethnohistoric documents (most notably the *Popol Vuh*), ethnographic works, along with their extensive cave archaeological experience, and asserted that caves are associated with the underworld while also relating them to rain, game, lightning, and maize. In MacLeod and Puleston's interpretation of the *Popul Vuh*, they believed the underworld is associated with death, contradicting their later concepts, which relate to life (Owen 2002). MacLeod and Puleston also neglect to incorporate Thompson's theories on cave use or Heyden's ideas regarding religious meaning (Brady and Prufer 2005); rather, they attempt to recreate theories of Maya cave use without building on or refuting established models.

2.2.2 Recent Cave Archaeology Theory (1985 to present)

Since 1985, the theoretical understanding of caves begins to grow as many new ideas are published. Data from ethnographic, archaeological, ethnohistoric, site reports, and other sources were merged together to expose a multiplicity of uses and meanings of

caves. In a section titled “Supernatural Associations of Caves,” Brady used ethnographic sources highlighting findings similar to those of MacLeod and Puleston (1979) and Heyden (1981). Caves were associated with a variety of earth symbols such as rain, fertility, lightning, wealth, and game; other observed symbols have agricultural connotations. The ambivalent nature and Earth-based themes of caves were an important departure from Puleston and MacLeod’s interpretations of caves as *Xibalba*, the Maya underworld. This is meaningful because the most prevalent symbolic associations with caves was fertility and rain, or places of creation and birth. Examples are illustrated in the erotic symbolism associated with ancient Maya rock art observed in some caves (Brady 1988, 1989; Grove 1973). Finally, evidence suggests that caves were associated with the divine status of rulers, and that their lineage was legitimized by connections to caves. This integration of data is important because it provided archaeologists with a platform upon which to base interpretations of fieldwork, which was not available to earlier archaeologists and may therefore explain the lack of interpretive work in many early reports.

It becomes clear that caves have multifaceted roles in ancient Maya society and serve different needs for members of different levels of society. Studies are demonstrating that caves are places of human sacrifice (Brady 1989; Gibbs 2000; Owen 2002; Reents-Budet and MacLeod 1986), places of pilgrimage (Brady 2005; Patel 2005; Sandstrom 2005), and repositories for offerings (Thompson 1975). The discovery of clay mining (Brady and Rissolo 2006), speleothem mining (Brady et al. 1997), and that caves

served as places where shamans can receive (find) seeing stones (Brady and Prufer 1999) suggest that the Maya were incorporating materials from the cave into surface activities and ritual and that materials found within the cave possess supernatural power. Finally, the connection of caves with site cores (Brady 1997; Halperin 2005), speleothems in site architecture (Peterson et al. 2005), evidence of bloodletting (Awe et al. 1998), and elite tombs (Brady 1989; Garza et al. 2001) begin to illustrate the complex relationship the elite classes held with these sacred features as sources of power (Brady 1989; Grove 1973). This range of roles demonstrates that people from different segments of society must have accessed caves at different times; however, it is not clear who are the participants of rituals that are related to archaeological remains observed in caves. Thus, determining the role of human agency in caves is an important aspect in explaining how caves fit into Maya society.

The study of Mesoamerican settlement since World War II has pursued processualist theoretical models, which offered little consideration of the sacred nature of landscape (Brady 1997). Research questions were generally resource-based, examining architecture and settlement relative to physical resources rather than considering cosmology and sacred features in the landscape as determinates for building. Settlement theories have largely ignored the placement of sites based on sacred geography and the incorporation of natural features into sites. However, a review of ethnographic, ethnohistoric, and new archaeological data demonstrates that sacred features, such as

caves, are important in the foundation and location of sites and villages (Garcia-Zambrano 1994).

2.2.3 Political Appropriation of Caves

The recognition of the political appropriation of caves did not occur until well into the Recent Period, despite a number of earlier reports describing caves within site centers (Andersen 1962; Digby 1958; Heyden 1973, 1975, 1981; Lothrop 1924; Lundell 1934; Millon 1981; Sanders 1955; Smith 1954a, 1954b, 1956; Thompson 1938). The first to recognize the association between caves and settlements, or more specifically, monumental architecture, were Thompson and Heyden; however, both failed to recognize it as a pan-Mesoamerican pattern. In *The Role of Caves in Maya Culture*, Thompson (1959), citing *The High Priest's Grave* (Thompson 1938), notes the existence of a cave beneath a pyramid at Chichen Itza and recognizes it as being of utmost importance. The cave contained a number of burials and rare artifacts (such as an onyx vase) attesting to the cave's importance. Not ready to develop the idea (Brady 2005), Thompson relegated its role to "Other Uses" and did not expand upon the subject of political appropriation of the cave. As well, Heyden (1975) describes the cave below the Pyramid of the Sun at Teotihuacán and recognizes the association between the structure and the cave as very significant. The cave extends from the base of the axial staircase to center of the pyramid terminating in a four lobed chamber. Millon (1981) believes that pyramid was

intentionally built in that specific location because of the presence of the cave.

Unfortunately, Heyden did not feel that this was a common pattern throughout Mesoamerica (Brady 2005: f-13).

One of the strongest examples of an association between caves and architecture is the discovery of artificial caves excavated beneath several centers in the Guatemala highlands (Brady 1991; Brady and Veni 1992). The enormous amount of work alone to cut these caves from the rock indicates their importance to these centers' occupants. Man-made caves have been identified not only in the highlands but throughout Mesoamerica, including Teotihuacán (Manzanilla et al. 1994), Honduras (Strong 1935), and the southern lowlands (Hermes Cifuentes 1993). This suggests that caves were important, or possibly necessary, in validating the center as a sacred space, and where caves were naturally absent the Maya would construct them.

In his study of historic documents, which describe Mesoamerican colonial settlement practices, Garcia-Zambrano (1994) presents data on foundation rituals, which include the incorporation of sacred landscape features as important elements in the selection of a location for a village. He states:

Mesoamerican migrants searched for an environment with specific characteristics that comprised several symbolic levels. The finding of such a site precluded all rituals of foundation. Such a place had to recall the mythical moment when the earth was created: an aquatic universe framed by four mountains with a fifth elevation protruding in the middle of the water. The mountain at the core had to be dotted with caves and springs, and sometimes be surrounded by smaller hills. A setting like this duplicated, and forever would freeze, the primordial scene when the

waters and the sky separated and the earth sprouted upward (Garcia-Zambrano 1994:218).

When appropriate settings lack natural resources, the Maya modified the landscape to compensate. Thus, by selecting a landscape, which incorporates cosmic significance, the contact-period Maya legitimize their place in the cosmic universe by selecting homes that imitated the sacred universe rather than establishing villages near sites rich in resources. This model of the universe is well represented in ethnographic sources as well (Eliade 1979; Freidel et al. 1993; Redfield and Villa Rosa 1963).

At the site of Dos Pilas, the largest pyramid is directly over a cave with a large lake. Entrances to other caves are near or within several additional structures. Nearly all of these caves contain a rich assemblage of artifacts related to ceremonial activities (Brady 1997). The layout of the site emulates the model established by Garcia-Zambrano with the pyramid as the fifth elevation protruding in the middle with nearby water, caves, and springs. Another example of the Garcia-Zambrano model and an obvious linkage between caves and monumental architecture is at the site of Cahal Uitz Na in western Belize where a *sacbe* connects a major temple-pyramid with the entrance to a cave that contains ritual materials (Halperin 2005). Several large and highly utilized river caves also are within one kilometer of the site core. Considering the scale of the architecture, these two cases are clear examples of elite political appropriation of caves.

At this point, the appropriation of caves located in elite precincts of Maya centers is well documented. Brady (1997) has made a strong case for the significance of the

cave-architecture relationship by citing numerous examples across Mesoamerica.

Further, he finds aspects of this model are so important that, when natural features are absent, such as at several sites found in the volcanic highlands, man-made caves have been found tunneled beneath prominent architecture and plazas (Brady 1991; Brady and Veni 1992). Further, in the ethnographic and ethnohistoric literature, there are several analogous models that are based on a cave-centered universe and through foundation, rituals an attempt is made to emulate these models in establishing settlement. As previously noted, there are also ethnographic examples, which discuss the significance of caves and other landscape features remote from the village. This is important when considering the appropriation of caves remotely located from the elite precinct of Maya centers.

Evon Vogt (1981:119) states, "Tribal people the world over are noted for the extent to which they live into their natural environments" referring to the Zinacantanos of highland Chiapas, who are descendants of the ancient Maya. That is, each people has an intimate knowledge of the space surrounding their home where they label, classify, and name geographical features, each of which is associated with their ceremonial life and world view. In the Chiapas case, Vogt states that individuals were known to have names for 1,063 places within a few kilometers of their village as well as names for other prominent features, such as mountains, in the distance. Many of these places, including caves, springs, and any hole into the earth, have been sacralized, that is, given meaning in a ceremonial sense. Each significant feature was marked with a cross-shrine and

associated with ancestors or Tutelary Gods where they burn candles and leave offerings. These examples of modern sacred landscapes provide a window into the ancient Mesoamerican worldview, demonstrating the importance of geographic features as part of a living spiritual landscape rather than a set of exploitable resources. This example is also important because it shows the dispersed decentralized nature of sacred features. Important shrines and ceremonial loci are not concentrated in the village but across the landscape and sometimes at a distance from the nearest settlement. Alan Sandstrom (2005) documented a ritual performed by a combined group of Nahuatl and Otomí Indians from northern Veracruz, Mexico, in which people traveled for two days to a small cave on a distant volcano for a single ritual.

Ethnographic and ethnohistoric evidence provide a strong case for a cave-centered universe and explain the importance of caves located within Maya centers. Further, the Maya attempted to recreate the mythic origins of universe by establishing villages in areas emulating the cosmic setting that is rich in caves rather than building in areas with abundant resources. Archaeological studies support this notion by clearly establishing the cave-architecture relationship through the documentation of structures over caves or with the discovery of caves associated with important architectural groups. Thus, at this point there is a strong argument for the appropriation of caves by polities seen through the cave-architecture relationship. While many sites in the Maya area clearly fall in this category, many sites are found in a setting where caves are not formed. Evon Vogt

(1981) presents ideas through ethnography where sacred points are distributed across a village's territory.

Vogt (1981) demonstrates ethnographically that sacred landmarks are found throughout the area belonging to a village and that there is a strong pattern of use of these features, which include caves, holes, and springs. Archaeological data supports this point through the discovery of large highly utilized caves such as Naj Tunich that are not located near or clearly associated with any known center. Thus, there is a pattern of utilizing caves in both the center of sites, or villages, and afar both prehistorically and presently. In addition to establishing sites near caves, other models, such as appropriating distant caves were practiced by the Maya.

The important question and focus of this thesis, then, is to understand the utilization of caves by a polity in settings where, from a geological perspective, caves are not present or did not form within the elite precinct. Many centers in the Belize Valley are built in areas where natural caves cannot form. One strategy practiced by the Maya was to construct artificial caves, which were constructed beneath prominent architecture (Brady and Veni 1992). However, how do we document the appropriation of caves by polities where the architecture-cave relation is not present, or specifically, where caves, natural or man-made, are not found in direct proximity to the major architecture of a polity?

3.0 BARTON CREEK CAVE

3.1 Settlement in the Belize Valley

The Belize River is a large system, primarily fed by the Mopan and Macal rivers, that drains water from the Maya Mountains and swamps of eastern Peten and flows east into the Caribbean Sea (Wright et al. 1959). Two smaller sub-watersheds, Barton Creek and Roaring Creek, drain runoff from the Mountain Pine Ridge and feed the Upper Belize River from the south; other smaller creeks drain the highlands and rolling hills in the north.

The southern boundary of the Belize Valley comprises the Vaca Plateau, Mountain Pine Ridge, karst hills, and flat uplands. The Vaca Plateau, west of the Macal River, or southern branch of the Belize River, is a highly porous karst formation with little to no surface drainage; the terrain is hilly and pitted with caves (Reeder 1993a, 1993b; Reeder et al. 1998). Large flat and gently rolling uplands are east of the Macal near Barton and Roaring Creeks. West, along the banks of the Macal and bordering the Belize River floodplain, is a low ridge consisting of a series of knolls. South, near the head waters of Barton and Roaring Creek, the limestone rises in elevation becoming very rugged. Roaring and Barton Creek have deeply incised valleys through this area; many of the known caves in the Belize Valley are found in these foothills. Further south, is the Mountain Pine Ridge, a large uplifted granite massif, which is covered with dense

tropical pine forests contrasting dramatically with predominant Subtropical Moist Forest (Fedick 1994; Ford and Fedick 1992) covering the surrounding terrain.

Caves in the Belize Valley occur in a 2 km-wide belt north of a granite massif known as the Mountain Pine Ridge and approximately 12 to 15 km south of the Belize River. This belt of caves, generally paralleling the Belize River, forms along a feature known as the Northern Boundary Fault, which runs east - west across Belize. Uplift of a large granite massif known as the Pine Ridge through the limestone formed this network of faults that were subsequently expanded into passages (Miller 1996). Ancient Maya settlement in this area is evidenced by agricultural terraces and small mound clusters. In our study area, east of the Macal River, few, if any, caves are found beyond this belt.

Settlement in the Belize Valley is concentrated long the Belize River. Significant centers are spaced approximately every 12 to 14 km (Ball and Taschek 1991) and include, from east to west, Camelote, Blackman Eddy, Floral Park, Baking Pot, Cahal Pech, Buena Vista, and Xunantunich. El Pilar, Las Ruinas, Guacamayo, Pacbitun, and Cahal Uitz Na are located in the foothills north and south of the Valley with the exception of Cahal Uitz Na, no highland sites are associated with caves.

Settlement in the Belize Valley is relatively high when compared to the Tikal, Peten, and core Maya areas (Ford and Olson 1989:191). Willey et al. (1965) recorded more than 100 mounds per km² in the valley along the Belize River, which suggests that the area was a continuous strip of development following the fertile alluvial bottomlands.

Residence size and complexity, however, are much reduced in the Belize Valley as compared to the core area. In core areas, the standard residential unit generally is two or more structures, whereas in the Belize Valley approximately 20 percent of units consist of more than two. Nevertheless, the karst plateau above the valley exhibits more of a mosaic pattern based on a relatively consistent spacing between centers and agricultural land potential (Fedick 1989). East of the Upper Belize Valley, where the lands grade to flat wetlands with Pleistocene surficial sediments and limited agricultural potential, evidence of settlement is almost non-existent (Fedick 1989, 1994; Ford and Fedick 1992). Dates of settlement range in the Belize Valley from the Middle Preclassic Period (1000 B.C. to 400 B.C) into the Early Postclassic (A.D 900 to 1200; Healy 1990).

The fact that caves are limited to hills along the southern boundary of the Valley and most settlement occurs along the Belize River makes the Belize Valley an ideal case study to examine the relationship between caves located some distance from centers. Thus, investigation of the relationship between caves and centers of the Belize Valley requires methods other direct proximity than looking for the cave-architecture relationship.

3.2 Political History of the Belize Valley

The site of Xunantunich sits atop a ridge above the Mopan River east of the

Guatemala-Belize Border in the western end of the Belize Valley in a strategic location thought to be critical of its rise to power in the later half of the Late Classic (LC II) Period (LeCount 1996). Its history and rise directly correspond to balkanization of the political landscape of the Peten states and the political histories of Tikal, Naranjo, and Caracol. Circa A.D. 780, Tikal's ruling dynasty was in disorder and Caracol had not erected stelea for a century. For the next 40 years Naranjo fills the regional power gap (Ashmore and Leventhal 1993; Grube 1995), evidenced by its erection of 40 stelea, after which all construction at the center ceases. During Naranjo's prominence, Buena Vista del Cayo, a site several miles north of Xunantunich, apparently reached its zenith as a provincial center of Naranjo, collapsing concurrently. Ten years later, upon the decline of Naranjo, Xunantunich rises to regional prominence. Three stelea are erected at the center with stylistic similarities to Naranjo, the earliest specifically referencing the former site suggesting political or lineage ties between Naranjo and Xunantunich (Ashmore 1995).

3.3 Background on Cultural Use of Karst Features in the Belize Valley

Barton Creek is one of several large water caves within the previously defined band of caves in the southern Belize Valley. Typically these caves, classified by Miller (1996) as trunk-conduit, have passage dimensions 5 to 20 meters (m) in width and 5 to 30 m in height or greater with few constricted segments. Truck conduit caves are the longest

caves identified in the area and may extend for several kilometers, have multiple entrances, and are comprised of several hydrologically connected systems. The largest part of the system is found along the margins of valleys where a stream exits the cave. Cultural materials and modifications observed within this class of cave are typically on ledges and side passages above perennially flowing cave streams as documented in Aktun Tunichil Muknal (Awe et al. 1997; Gibbs 1998, 2000; Griffith 1998; Miller 1990; Moyes 2001), Aktun Yaxteel Ahau (Halperin 2000b; Miller 1990; Mirro and Awe 1999; Mirro and Halperin 2000; Owen and Gibbs 1999), Caves Branch (Reents 1980), Petroglyph Cave (Reents-Budet and MacLeod 1997, 1986), Footprint Cave (Graham et al. 1980), and others. Human remains, ceramic offerings, a variety lithic and groundstone artifacts, adornments, and other miscellaneous items are cached and arranged around small ash lenses and stone features. Evidence of Maya use within these caves is commonly found up to 500 or 600 m from an entrance, although cultural items are found 2 km into Footprint Cave (Graham et al. 1980).

Large dry caves and pit caves are frequent in the karst uplands along the southern margin of the Belize River Valley and Vaca Plateau. These caves while not as long as the river caves are generally several hundred meters long or longer or possess great volumes. Water tends to occur in small pools near active speleothems and in a few cases passages reach depths near the water table. Such local caves in this etic class include Chapat (Ferguson 2001; Griffith et al. 2003; Ishihara 2002), Chechem Ha (Ishihara et al. 2000; Moyes 2002, 2006), Flourcamp (also known as Uchenszub; Ishihara 2001; Schmidt

1977), Chuplal (Dema et al. 2002), Offering Cave (Cameron Griffith, personal communication 2000), Aktun Migdalia (Helmke and Ishihara 2001), Pit Cave (Mirro and Ransom field notes 2003), Aktun Yaxkan (Blak 1990; Marochov and Williams 1991), and Box Chi'ich (Blak 1990; Miller 1996; Marochov and Williams 1991). Streams sink into some of these caves acting as sources of water for portions of trunk-conduit systems. Typical of these caves are wall features, small platforms and altars, and wall or cut terraces in addition to cultural deposits similar in character to river caves. Chambers of great size can be found in these caves, and it seems that the Maya would take advantage of this fact and build larger sets of terraces as seen in some of chambers with Chapat (Griffith et al. 2003).

Large rock shelters are known to contain numerous burials both human and animal, and may be individuals of some importance (Gibbs 1998) as data from the Uayazba Kab (Ferguson and Gibbs 1999; Griffith 1998,1999) shows, or contrarily, may be places where rural communities (non-elite) buried their dead (Glassman and Bonor Villarejo 2002, 2005) based on excavations at Caves Branch Rock Shelter. Either way, excavations at rock shelters near the Belize River Valley show that a significant number of individuals have been interred within pit and cyst type burials (Ferguson and Gibbs 1999; Gibbs 1998), in contrast to the treatment of interments inside the dark zone of caves where individuals are placed on the surface, with few grave goods, in a more sacrificial or offering type setting (Gibbs 2000; Owen 2002). Ceramic offerings and small wall features can be found in small alcoves and ledges along the shelter wall

(Bonor 1995; Bonor and Glassman 1999; Bonor and Martinez Klemm 1995; Griffith 1998; Mirro and Ransom 1998)

A high frequency of small caves, pits, and rock shelters, few of which have true dark zones, are found throughout the karst uplands, valley slopes, and bottom lands. Wall features (Awe et al. 1998; Mirro et al. 1999), cached items and plastered floors have been identified in these features. Obsidian blades, small quantities of ceramics, lithic artifacts, and polychrome sherds have been documented in this type of karst features suggesting a multiplicity of functions and use by a multiple status groups. These caves are also most easily looted, and therefore the true nature of their use is difficult to ascertain. Examples of these types of caves include Actun Halal (Griffith and Helmke 2000, 2001; Griffith and Morehart 2001)

While these caves may differ in morphological attributes such as entrance type, depth, length, water flow, and passage size, the utilization of the karst environment clearly shows the significance of cave and cave-like features to the ancient Maya of the Belize River Valley and the rituals performed varied greatly.

3.4 Barton Creek Cave

Barton Creek Cave is located in west central Belize near the Guatemala border (Figure 1 and 2), approximately 13 km south of the Belize River in the upper reaches of

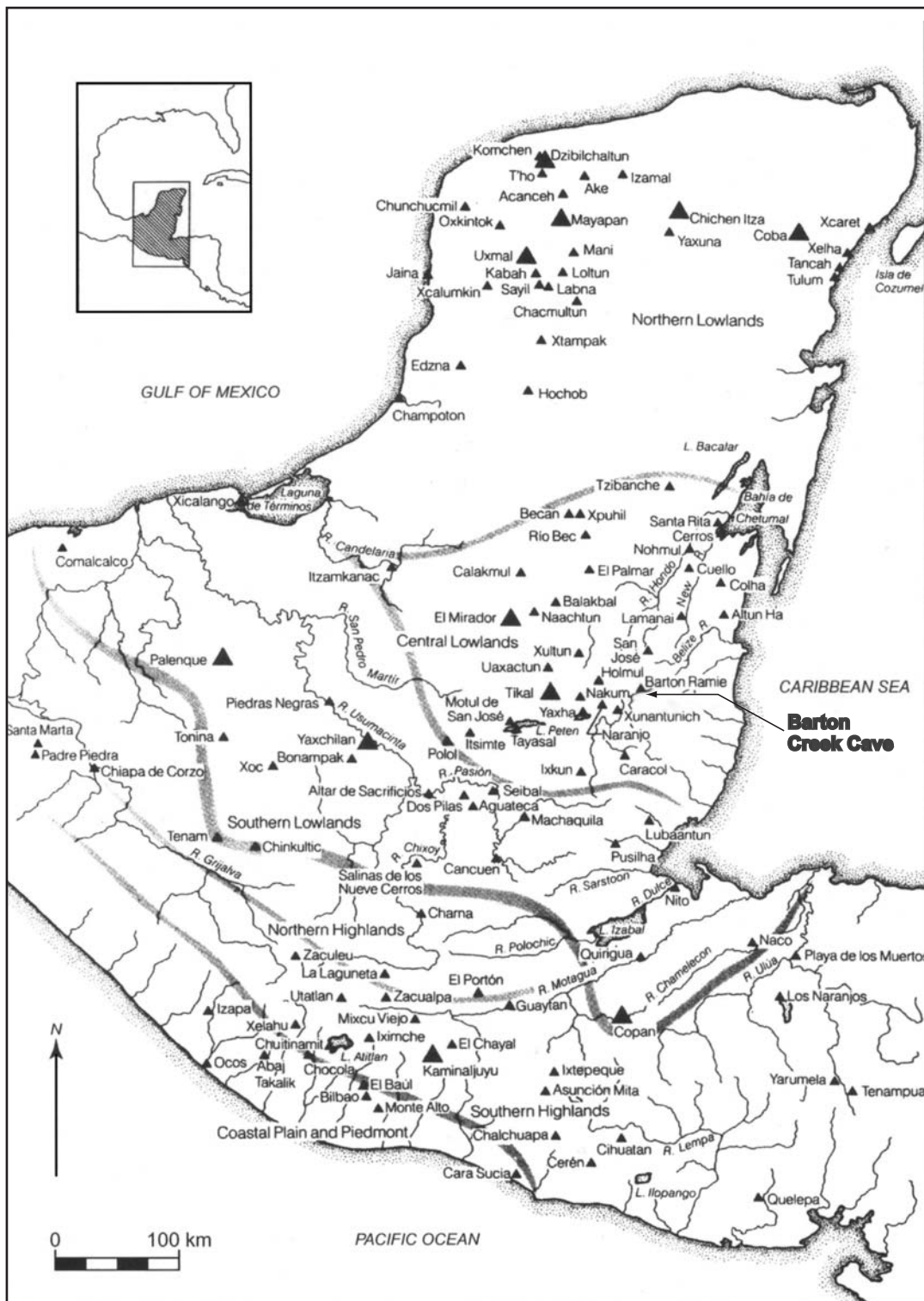


Figure 1: Map of the Maya region showing the location of Barton Creek Cave (Sharer 1994)

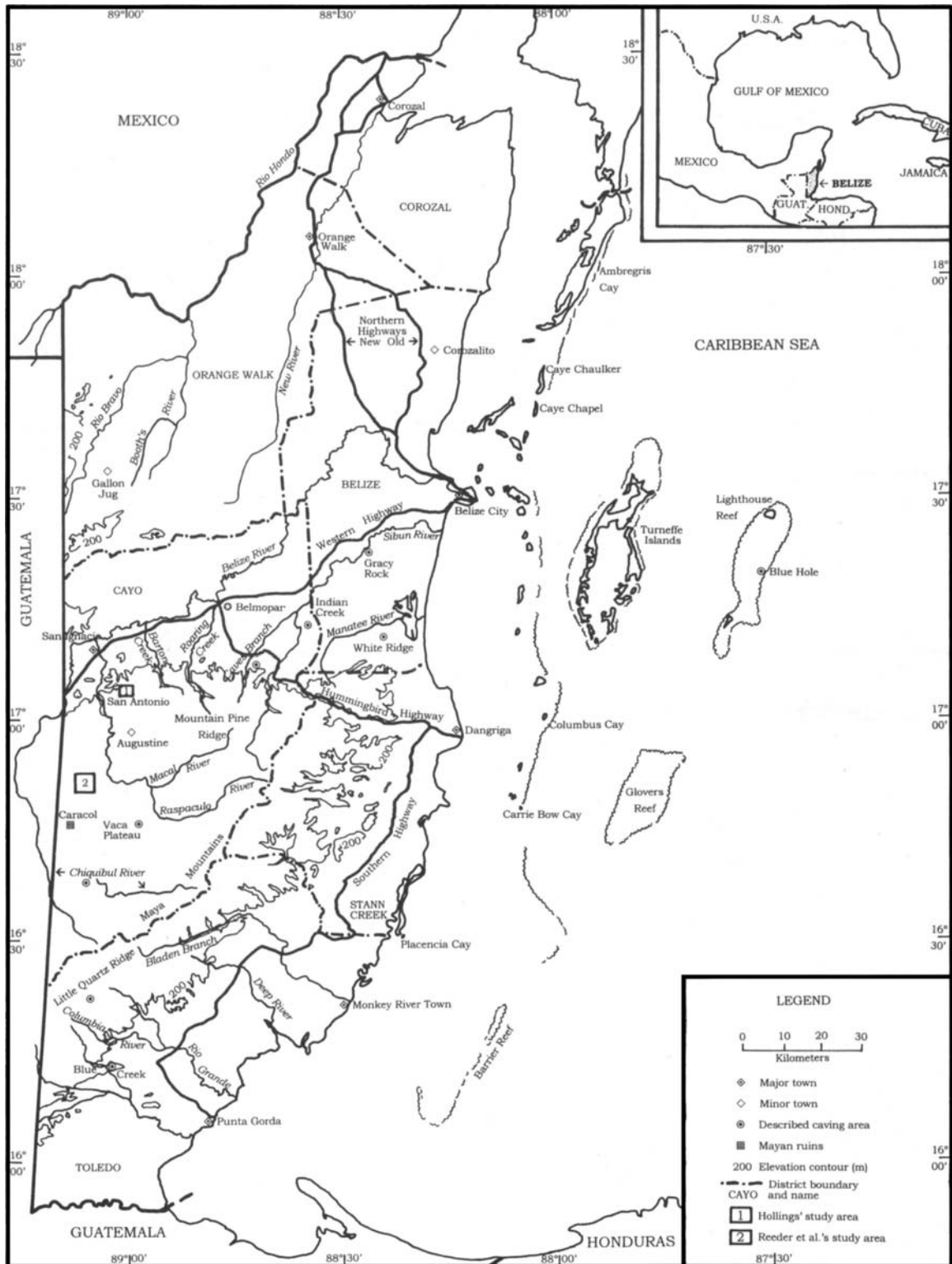


Figure 2: Map of Belize (Veni 1996)

the Barton Creek Valley. According to Thomas Miller's (1996) classification of caves, Barton Creek Cave is a trunk conduit cave that consists of a large main passage that acts as a conduit transporting materials from the highlands to the lowlands. Physically, the cave is very similar to Actun Tunichil Muknal, Actun Yaxteel Ahau, and Petroglyph. The portion of the cave with cultural remains contains a navigable waterway that runs below eight ledges and four flowstone-spans, which are old formations bridging the cave river. The cave terminates approximately 3 km from the entrance. Dye tracing and other hydrological experiments suggest that water feeding the Barton Creek Cave system enters the ground as far as 10 km from the entrance.

Ledges and flowstone spans in the cave are generally 3 to 12 m above the cave stream and vary between 3 to 40 m long. Speleothems, stalactites, stalagmites, flowstone, and other forms of calcite deposition are found in clusters and isolated instances on all ledges. Natural processes have had limited effects on the cultural deposits within the cave. Collapse and other taphonomic processes have affected only a few areas as this section of the cave is stable and water impacts are limited because most of the ledges are above the flood zone.

Three medium-sized Maya centers are located in the general vicinity of Barton Creek Cave (Figure 3). These include Cahal Uitz Na, situated in the Roaring Creek Valley 7.5 km east, the site of Pacbitun located on the karst plateau 9.4 km west, and Baking Pot, on the banks of the Belize River 12 km north. Near the Barton Creek Cave entrance, 12 small mounds and a mound cluster are present (Figure 4). Excavations

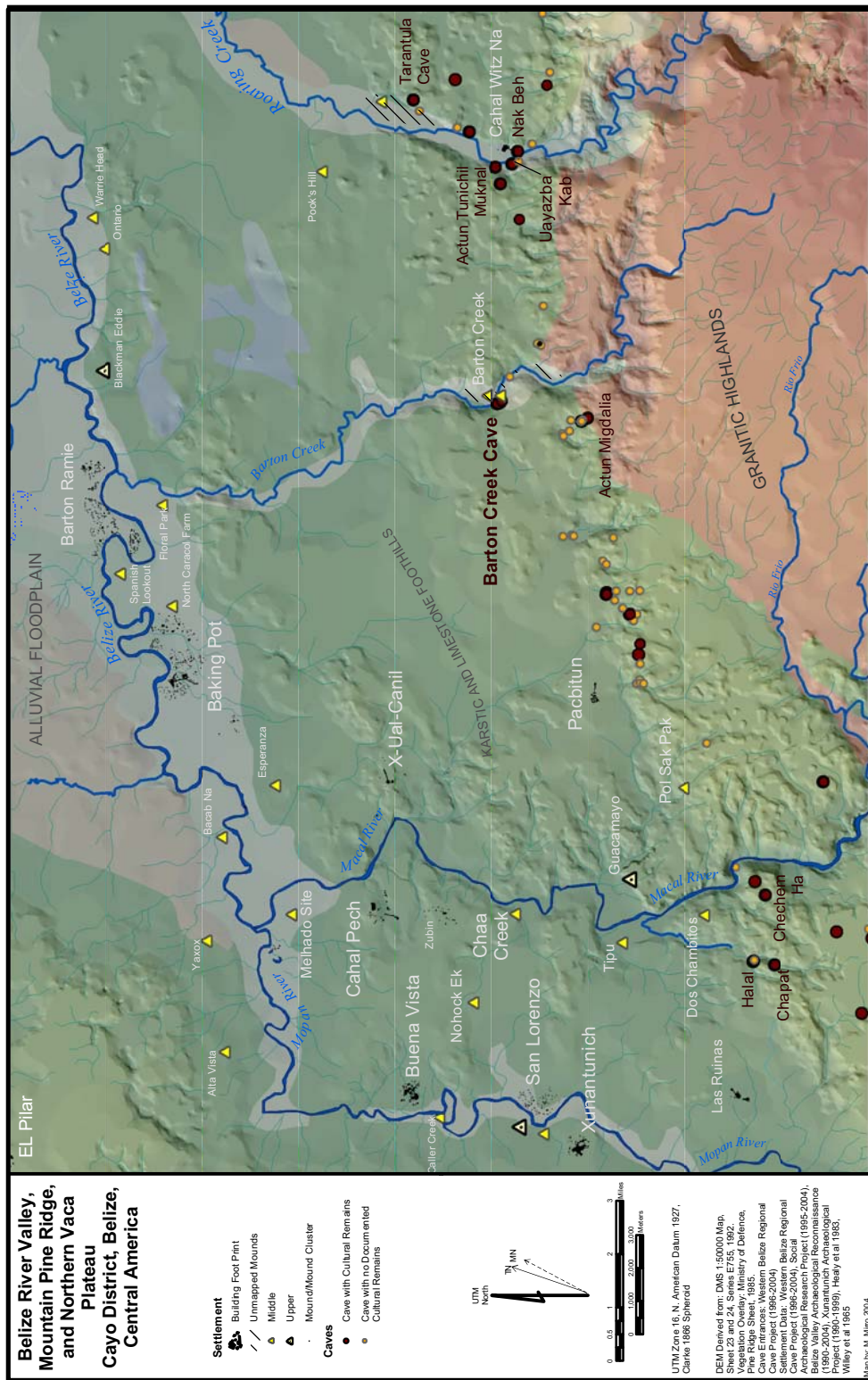


Figure 3: Map of the Belize Valley Showing the Location of Barton Creek Cave Relative to Major Maya Centers

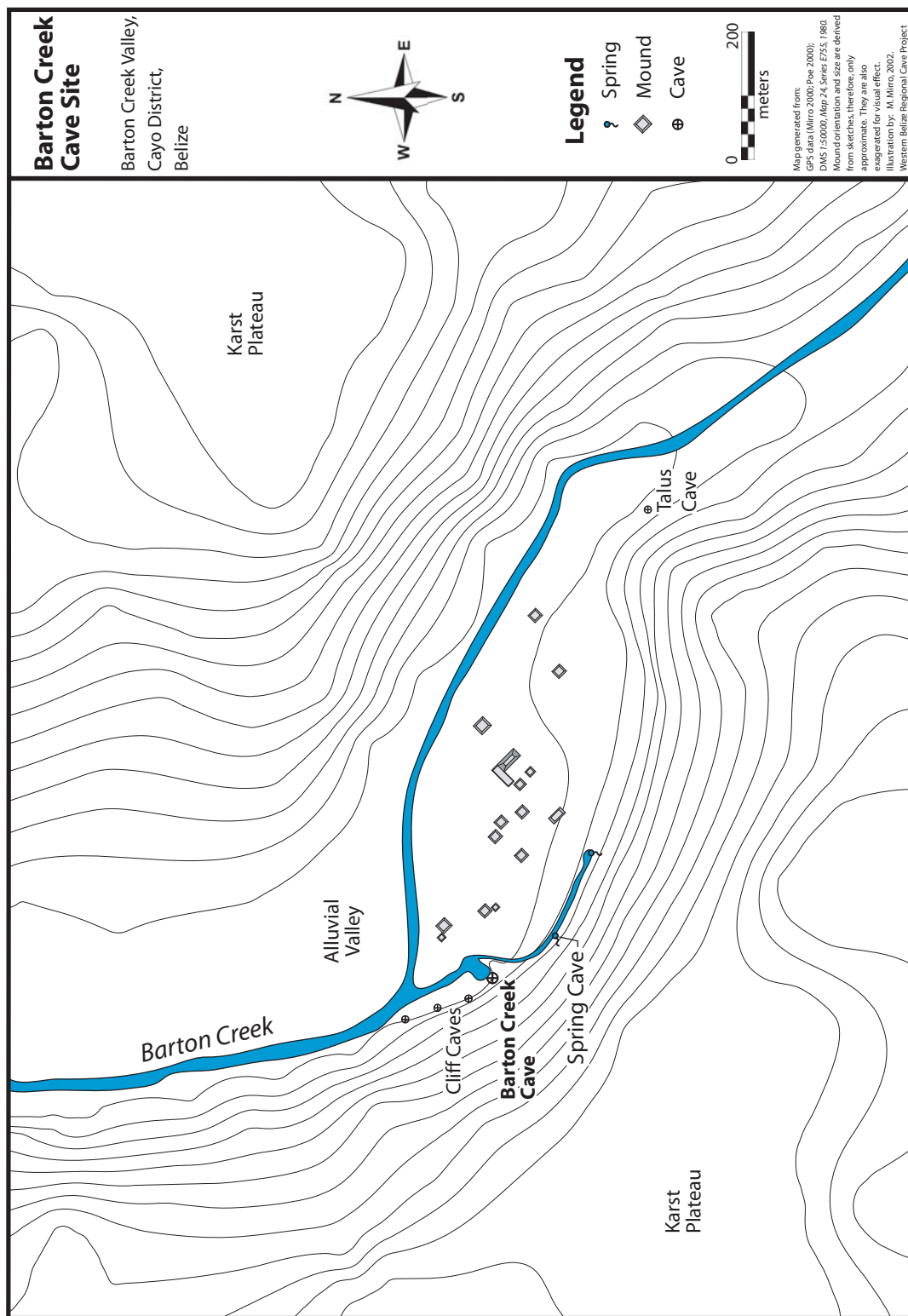


Figure 3: Map of the Belize Valley Showing the Location of Barton Creek Cave Relative to Major Maya Centers

reveal that these mounds date from the late facet of the Middle Preclassic (beginning 600 B.C.) through the Terminal Classic (ending A.D. 890); a low-density of single mounds and, more rarely, multi-structured groups are encountered up and down the valley. In the hills east of the cave, a number of small plazuela groups and small - to medium-sized mounds populate the area (Figure 5). While the cave is a distance from any center, it is, nevertheless, located in a settled area.

3.5 History of Research at Barton Creek Cave

The first archaeological investigation of Barton Creek Cave was conducted in 1974 by Barbara MacLeod and C. J. Rushin-Bell. At that time, the cave was relatively undisturbed and numerous artifacts and articulated skeletal remains, including a skull with jade inlay in the upper incisors, were observed (Owen 2002). According to both MacLeod and Rushin-Bell (Vanessa Owen, personal communication 1999) their investigations were cursory; no map or detailed report was produced. A brief trip report, which included several photographs, was purportedly prepared but is not currently on file with the Department of Archaeology; no other known copies are available. Since MacLeod and Rushin-Bell's investigation, the cave has been extensively looted.

Members of the Western Belize Regional Cave Project (WBRCP) initially became interested in Barton Creek Cave for preservation purposes. By the mid-1990s, Barton Creek Cave had gained reputation as one of the showcase tourist caves in Western

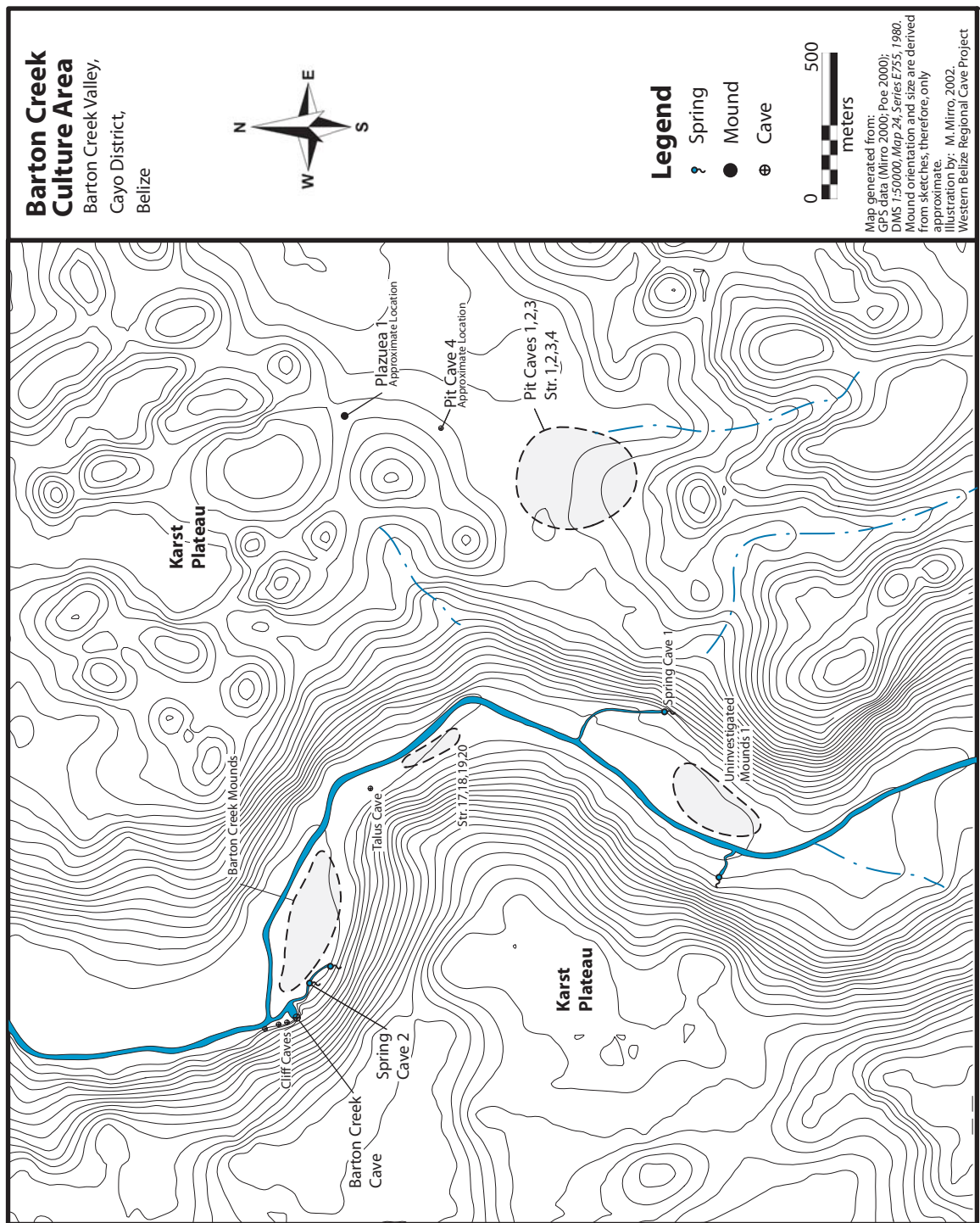


Figure 5: Map of Settlement in the Upper Barton Creek Valley

Belize. In 1998, WBRCP members Michael Mirro, Sherry Gibbs, and Vanessa Owen were instructed by the Department of Archaeology to determine the extent of disturbance to the cave as a result of looting and tourism and provide recommendations for possible preservation. The group inspected a ledge with an assemblage of human remains that appeared to retain some degree of integrity, prompting further investigations (Gibbs et al. 1999). The following year, Mirro and Owen conducted a general inventory of the cave's contents concluding that extensive and relatively intact archaeological features were present on nine of the ledges (Mirro et al. 2000). Formal investigations were undertaken in 2000 and 2003 by Mirro and Owen (Mirro and Owen 2001; Mirro 2003) that were intended to determine the extent of the archaeological deposits, establish a basic chronology, and assess site integrity. The investigation resulted in a thorough inventory of the cave and production of an extensive map of areas within the cave that were utilized by the Maya.

3.6 Research Methods at Barton Creek Cave

Barton Creek Cave was divided spatially into a multi-tiered set of analytical units. The largest unit is the ledge, which may consist of a series of connected shelves and flowstone spans. Access to all ledges is from the cave stream. Ledges were divided into areas, generally on the basis of natural boundaries such as significant changes in elevation, dense speleothem growths, or constrictions in passages. Between one and

seven areas were defined for each ledge. Areas were subdivided into lots. Lots were defined around deposits of cultural remains such as artifacts, human remains, manuports, modified speleothems, or any other evidence of human use. When necessary, lots were divided into sublots; examples include dividing lots into quadrants and levels in the case of unit excavation.

Specific information was collected at each lot including dimensions, artifact counts, proximity to speleothems, proximity to other cave features, such as walls or drops, impacts of looting, and any inferences as to its purpose or function. All diagnostics or unique artifacts were surface collected and curated with the WBRCP.

The cave was surveyed and mapped by cavers of the National Speleological Society (NSS) between 2000 and 2004. Temporary stations, or datums, were set at irregular intervals determined by the cave geography. Each datum was tied to the previous using a Brunton or Suunto compass, a clinometer, and either a metric tape or a Leica Disto (Electronic Distance Meter [EDM]). The passage was sketched using stations as guides. The map was produced at a scale of 1:1,000 to accommodate the great length of the cave.

Ledge maps, produced at a scale of 1:100, documented surface topography, lots, areas, formations, and other important features. Lots containing human remains or features of interest, such as stone alignments or vessel caches, were mapped at a scale of either 1:20 or 1:10 depending upon size or complexity. A variety of mapping techniques was employed depending upon the level of accuracy needed.

Collected artifacts were illustrated and typed according to appropriate typologies. All ceramic materials were typed and cross-dated using James C. Gifford's *Ceramics of Barton Ramie* (1976). Chris Morehart (2002) classified botanical remains to species and/or family as part of his Master's Thesis, *Ancient Maya Ritual Cave Utilization: A Paleoethnobotanical Perspective*. Vanessa Owen in her Master's Thesis, *An Investigation of Classic Maya Cave Mortuary Practices at Barton Creek Cave, Belize* (2002), analyzed the human remains. Owen calculated a minimum number of individuals (MNI) for the cave, as well as determined the age, sex, and health status of the individuals interred within the cave where possible. She suggested that the individuals may have been victims of human sacrifice.

3.7 Detailed Description of Archaeological Investigations at Barton Creek Cave

3.7.0 Introduction

The ancient Maya used Barton Creek Cave extensively. Artifacts and features have been documented within the first 600 m of cave passage on ledges and areas above the cave stream (Figure 6 and 7). The most common items include scatters of ceramics (n=135); however, a number other interesting features have been identified. While many of the features described below are described as individual entities, they generally

Barton Creek Cave

Barton Creek Valley, Cayo District, Belize, C.A.

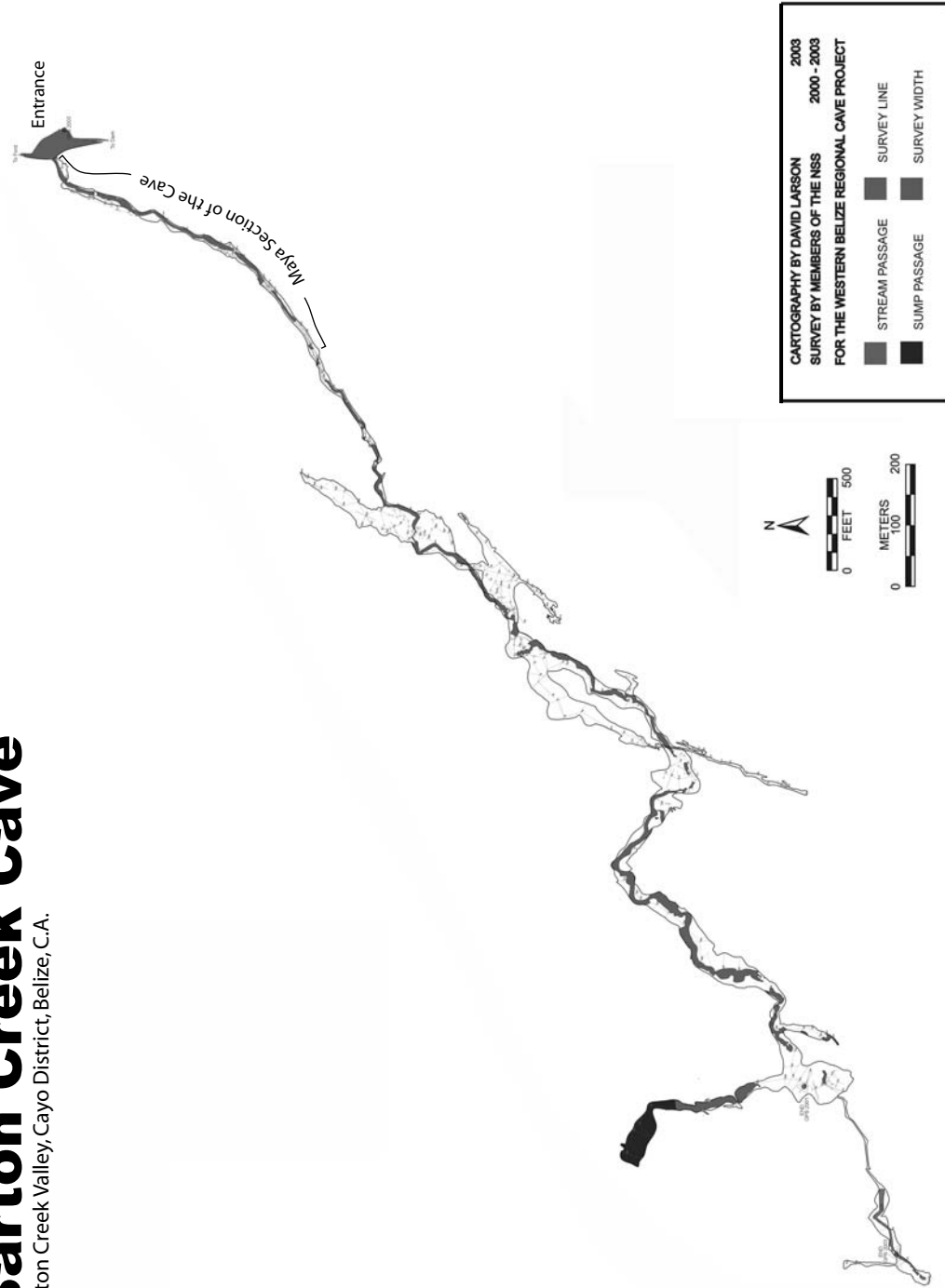


Figure 6: Map of Barton Creek Cave

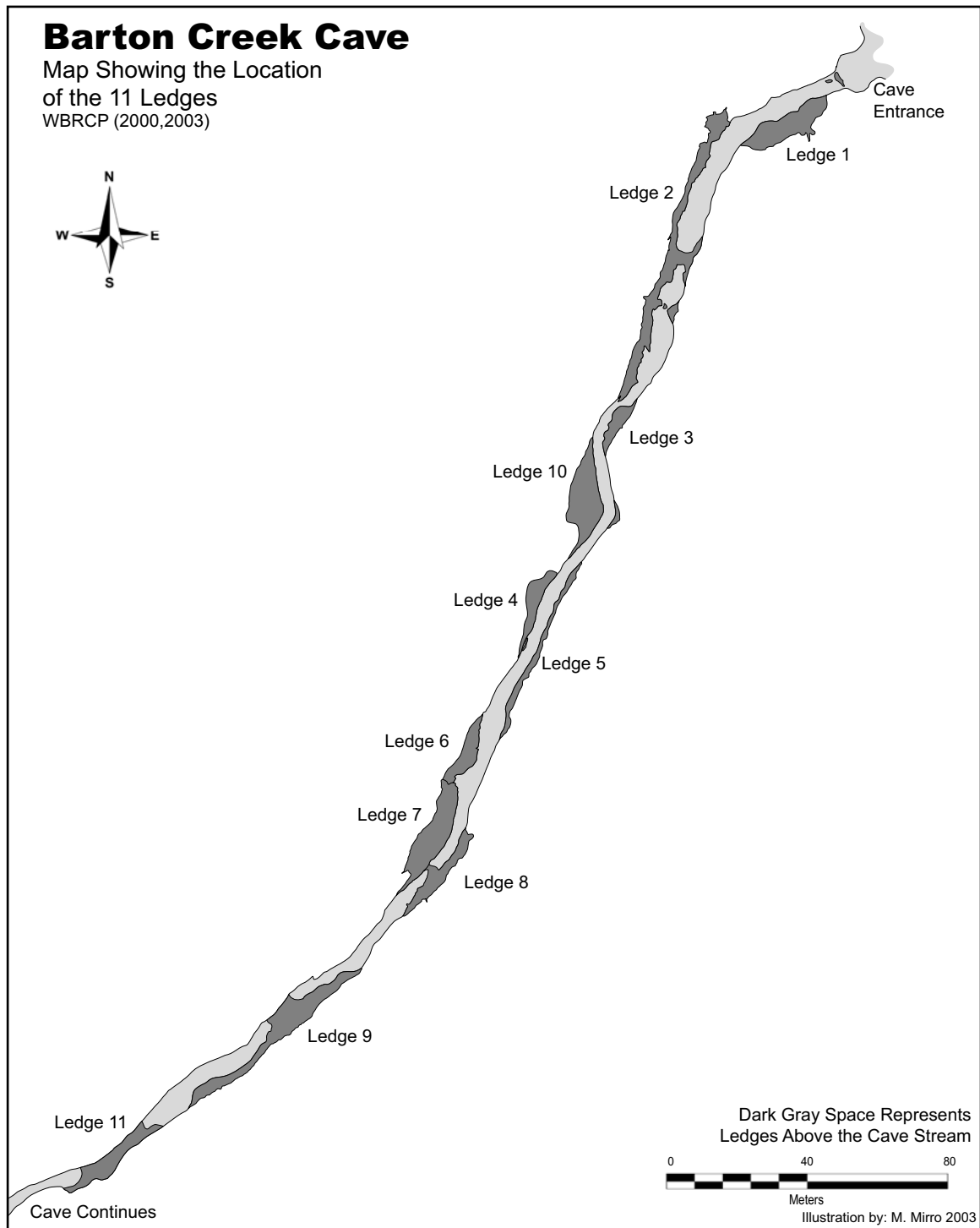


Figure 7: Map of Utilized portion of Barton Creek Cave

occurred in association with other features and artifacts forming a more complex arrangement within an area.

Over 36 ash lenses were documented through the cave. Generally, these consisted of 25 to 50 centimeters (cm) diameter concentrations of gray ash and charcoal. Corn, pepper, squash, legume, fabric, pine, and other tree species were identified within several of these features (Morehart 2001, 2002). Occasionally other artifacts such as ceramics, lithics, and adornments were associated with lenses. Many lenses are within dry rimstone pools; however, no obvious pattern as to their placement was discernable.

Another common feature found throughout the cave is stone features. Twenty-two stone features were documented on nearly all ledges and an additional 45 concentrations of stones were documented. Features commonly consisted of triangular arrangements, small linear features, tight clusters associated with ash, charcoal or sherds, stone piles, and, in one case, a small terrace. It is likely that the triangular arrangements were used to support vessels that are no longer present. The function of other stone features is less apparent. Another stone feature observed in several areas of the cave is a small dam. Several pools and depressions were observed to have gaps, which if it were to hold water would act as a drain. Blocking the drain, are several stones acting like a small dam. The additional stone concentrations are likely the remains of stone features that were disturbed either recently or during use by the Maya. Natural sources of stones were observed in dry plunge pools on several ledges, the cave stream, and outside the cave.

Caching of artifacts occurred on most ledges utilized by the Maya. For the purposes of this study, a cache was defined as a single or small set of artifacts or ecofacts intentionally placed within a small niche, alcove, crack, or crevasse. Six ceramic vessels and four vessel fragments or sherds were placed into niches or elevated and constricted ledges. In two separate areas, two manos were found cached in small concavities not much larger than the artifacts themselves. One mano was placed in a niche in a wall and the other within a small hole in a rimstone dam. An obsidian blade was observed in a small nook on an otherwise smooth surface of the cave wall about 1.5 m above the ground. Nearby, a spindle-whorl was also found in a similar context. In two instances, chert biface-fragments were wedged into small cracks on the side of a weathered rimstone dam. In addition to artifacts, six caches were found to contain speleothems and one contained several jute shells.

Cave modification, including speleothem breakage and drilling were observed in a few discrete locations. In caves where many formations are old and dry, it is difficult to determine if speleothem breakage is a result of the Maya, modern traffic, or natural processes. In these instances, broken speleothems were not documented. Active formations, generally, if broken in antiquity will show new growth providing a rough means of estimating when they were broken. Speleothem breakage documented in Barton Creek Cave reflects only instances where it could be determined with certainty that it was done by the ancient Maya. In two separate areas, cave formations were broken and their fragments were incorporated into stone features and caches. In another area, a

narrow sheet of flowstone closed access to a chamber. The Maya broke a “doorway” through the flowstone and incorporated some of the pieces into features in the chamber beyond.

Two drilled holes were observed in Barton Creek Cave. The drilled holes are biconical perforations into rimstone dams. The actual holes measure roughly 5 centimeters (cm) in diameter while outer diameter of the cone measures between 20 and 15 cm. The holes were found near a cliff and it is likely that they functioned as rigging points for rope to facilitate access to the ledge above (Ledge 2-Area A).

A significant number of human remains were documented in Barton Creek Cave. Nineteen sets of commingled and 14 sets of individual human remains were documented as well as six isolated human bones. Thirty-one individuals were definitively identified in the cave (Owen 2002) with an additional three or four discovered in a commingled deposit (Mirro and Mirro 2004). Six males, five females, two possible females, and three with indeterminate sex were identified. Eleven individuals were classified as young adults (age 18-34), nine children (3-12), three infant (0-3), three middle adult (34-55), three unknown adult (18+), two adolescent (12-18), zero old adult (55+).

Table 1: Length and Area of Areas and Ledges in Barton Creek Cave.

Ledge	Proximal Distance from Entrance	Distal Distance From Entrance	Length of Ledge	Area of Ledge (square m)	Area	Length of Area (m)	Area of Area (square m)
1	7	49	42	240			
2	45	162	126	482	A	16	76
					B	45	129
					C	41	153
					D	43	98
					E	7	10
					F	5	6
					H	7	12
3	150	183	26	106	A	24	50
					B	26	56
4	237	277	40	124			
5	231	307	78	130			
6	305	334	29	156	A	127	29
					B	29	10
7	334	381	50	343	A	50	316
					B	14	27
8	348	385	38	163	A	13	31
					B	24	64
					C	22	68
9	417	502	89	418	A	89	203
					B	54	215
10	180	230	48	309			
11	530	580	60	361			

Total Area: 2832

3.7.1 Ledge 1

Ledge 1 is begins 7 m beyond the cave entrance and extends along the eastern side of the cave passage. In general, the ledge gently slopes up from the cave river into several small chambers and passageways behind columns and between formations.

Massive speleothems dominate much of the surface area. Small plants, mosses, and lichens cover entrance facing formations and stones because of the ledge's proximity to the entrance and exposure to light. The ledge is divided into three areas designated as Areas A, B, and C. Area A is the lower area near the creek, Area B is located behind the large columns and stalagmites, and Area C is a series of small passages and ledges at the southernmost part of the ledge.

Ledge 1 was documented in 1999 and no subsequent formal investigations followed; therefore, methods varied and analysis is only cursory. Concentrations of artifacts were documented. Cultural materials inventoried in Area A include eight concentrations of sherds. The effects of modern intrusion are evident throughout the area; in a small niche within a column, 45 sherds have recently been cached. On the floor in small depressions and on small ledges are additional sherds.

In Area B, 17 isolated ceramics or concentrations of sherds were recorded with estimated count easily exceeding 500 ceramic specimens. Most of the sherds were discovered in depressions and rimstone pools on the cave floor and are very small in size likely due to trampling by foot traffic. Area C shows the least evidence of use by the Maya as only three jar sherds and a peccary tooth were identified. Looting and tourism appear to be common on the ledge, as many sherds that were observed during the initial reconnaissance of the cave in 1998 were not found in the 1999 inventory. Further, the highly fragmented nature of many of the sherds indicates that foot traffic in the area is heavy and shows a general lack of regard for artifacts.

3.7.2 Ledge 2

Ledge 2 is the largest and most complicated ledge investigated within Barton Creek Cave (Figure 8). The main portion of the ledge consists of Areas A through D, which are located along the western wall of the cave. Three additional areas (Area E, F and H) on the opposite wall of the cave are small ledges that can be accessed by climbing through formations that span the creek. The artifact assemblage observed on Ledge 2 is very diverse, dating from the Early Classic to the Late and Terminal Classic as determined through analysis of ceramic material. Additionally, a moderate number of chipped stone artifacts were observed on the ledge. Other artifacts recorded include ground stone artifacts, beads, and plant remains. Human remains, constituting a minimum of three individuals, were in Areas C and D, all of which are primary interments. Human intrusion and water flow have disturbed the remains of these individuals.

Ledge 2 in general, is a biologically active part of the cave, especially the northeastern side, which is closer to the entrance. Thick deposits of guano indicate a high density of bats crossing and roosting in the area. Seeds carried into the cave by fruit bats sprout below their roosts. Insects and spiders are common and live within the guano on the floor. Indirect sunlight reaches the northeastern half of the ledge, Areas A and B, providing energy for lichens on the walls and small plants. This active ecosystem has acted in both preserving and destroying artifacts and their context.

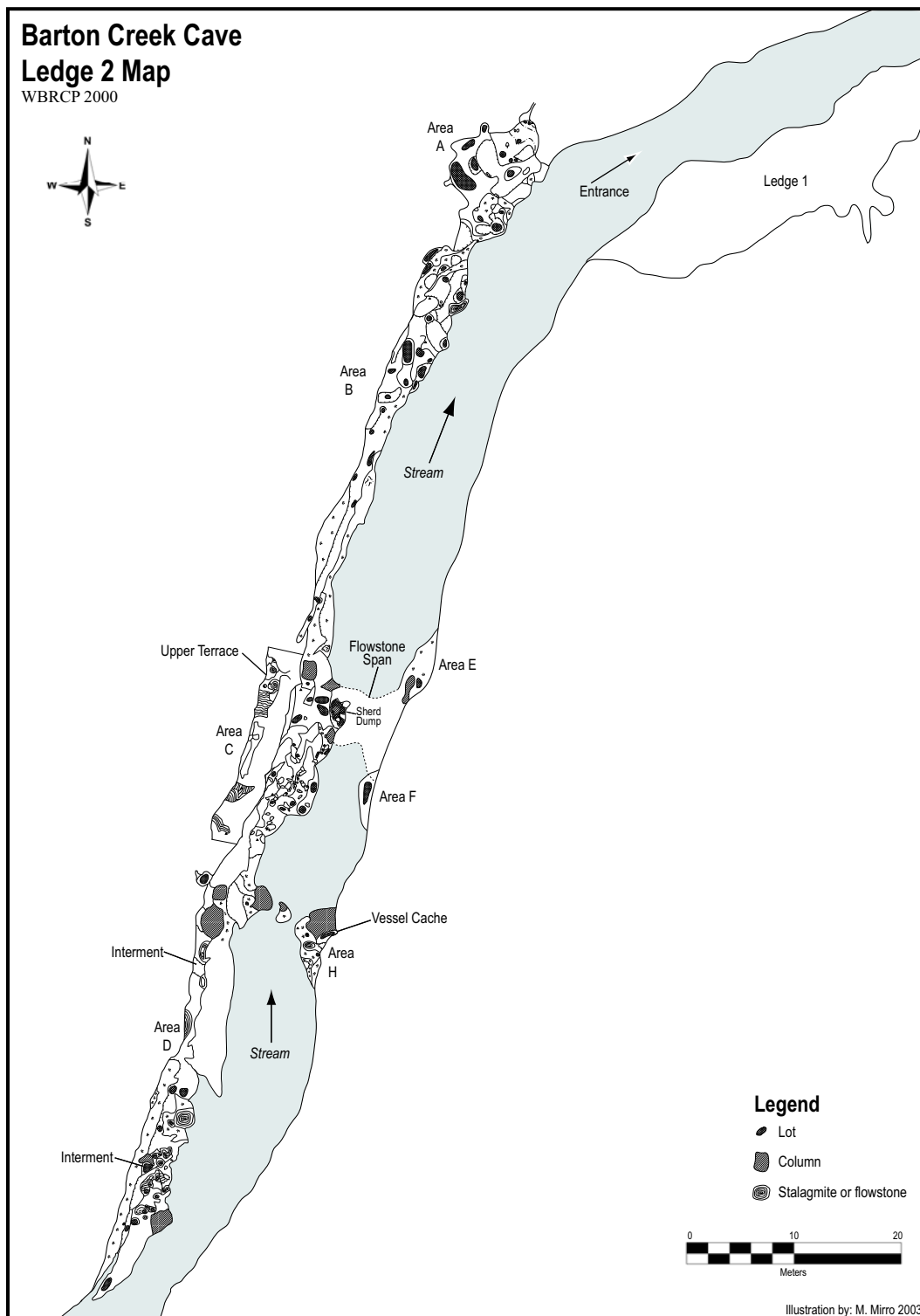


Figure 8: Map of Ledge 2

3.7.2.1 Area A

Located at the northern end of the ledge closest to the entrance, Area A is a small chamber elevated above other areas and formed in the pools behind immense rimstone dams and formations. Additional formations and accumulations of clay have formed a slightly sloping surface that served as a functional space for the Maya. Area A measures 14 by 8 m and has a ceiling height of no more than 10 m. A large open space continues above the northern end of the chamber; however, no exploration of this area was undertaken. The east side of the ledge drops off as a sheer cliff to the creek 15 m below. The area of the floor is 75 m². Thick accumulations of guano covering the floors and surfaces of Area A have concealed many of the artifacts and features. This has protected many of the artifacts from removal by looters and tourists who have ventured into the area.

Twenty-eight lots were documented in the Area A and were evenly distributed. Features include two ash lenses, two bi-conically drilled holes in rimstone dams, five stone features, and eight displaced or random stone clusters. Groundstone and lithic artifacts were identified on the ground surface, some of which have been recently displaced. One noteworthy lithic artifact is a large laurel leaf biface. As well, drilled phalanges (*sp.* unknown) were found in a small niche.

Approximately 673 ceramic artifacts were documented within Area A. Many of the sherds have recently been stacked on rimstone dams by looters. The remaining

sherds are evenly scattered in the pools and flowstone ledges that comprise the area's floor. One small intact bowl was cached in a niche.

The stone alignments consist of three linear arrangements of limestone and granite cobbles. Stones measure roughly 10 to 20 cm in diameter. One of the linear features is on top of a small boulder while the others are on the chamber floor near a wall. Several stone seem to act as a small dam blocking the drainage from a small rimstone pool. The fifth feature has not discernable pattern, consisting of three loosely cluster stones near a rimstone dam and a small (less than 5 cm diameter) in the cave wall.

3.7.2.2 Area B

Area B, characterized as a long and narrow terrace, is south of Area A with a surface consisting of numerous rimstone dams forming pools filled with clay and guano. The Maya used these pools as ritual spaces as evidenced by presence of numerous stone features, ceramics, and other artifacts. Formations in this area are rare compared with other areas of the ledge; however, in the southern portion is a large solitary stalactite and in the north is a large stalagmite as well as a few flowstone formations on the floor nearby. The area measures 46 m in overall length and varies in width between 1.5 to 4 m with an area of 130 m². The ceiling is roughly 8 to 10 m above the surface and the east side drops approximately 7 m above the creek.

At the southern end of Area B, a large formation cluster forms a boundary between Areas B and C. The formations span the creek and serve as access to Area C through a narrow gap between columns while a small tunnel above serves as access to Area E on the opposite side of the creek. During fieldwork, 27 lots were documented, which are distributed evenly over the entire area.

Evidence of Maya use is found throughout Area B with concentrations of sherds, artifacts, and manuports generally found within rimstone pools. Approximately 466 sherds were documented, excluding sherds not counted beneath guano in areas not cleared. Lithic artifacts include two chert cores, one obsidian blade, and a single flake. Other artifacts include a polished jade pebble and a spindle whorl.

While most lots are concentrations of sherds (n=18), several other feature types were observed within the Area B. Four sets of organized, or intentionally assembled stone features, which include small stone triangles and squares likely used for propping ceramic vessels, and seven sets of either displaced, dispersed, or random stone clusters were recorded. As well, two items were found cached in small niches in the cave wall. Several ash lenses, clustered beneath a stalactite, were also documented.

3.7.2.3 Area C

One of the highest densities of artifacts within Barton Creek Cave is found in Area C. The area itself is a chamber, separated from the creek by a large formation

cluster. The length of the area is 25 m and its width varies between 1.5 to 5 m. South of the formations, the ledge drops 3 to 4 m to the creek below. Along the western margin of the chamber, a large flake of stone has fractured off the cave wall, forming a narrow ledge above the chamber and a small narrow passage behind. Sherds and deliberately placed stones are found both behind and on top of these surfaces.

The speleothems at the northern end of the area consists of several columns, which have merged to form one large mass of flowstone that spans the cave creek. Several small chambers and niches are present between columns and masses of flowstone, several of which the Maya used as repositories for artifacts. At the southern end of the area, a second formation cluster spans the creek. A vertical climb through the formations accesses Area D and traversing through them over the creek accesses Area H.

Twenty-four lots were recorded in Area C, the majority of which were concentrated in the northeastern half of the area. Features include seven ash lenses, one stone feature, and three dispersed or random stone clusters. Two lithic items were found cached in small niches in a rimstone dam, and several isolated non-ceramic artifacts were found elsewhere, including a turtle back metate with a small concentration of ash in its concavity. Small concentrations of jute were associated with four lots.

The stone feature is a loose concentration of granite and limestone cobbles (10 to 20 cm in diameter) in the central part of the area. Several large jar sherds and the turtle back metate are located in close proximity to the stones.

Approximately 535 sherds were inventoried in the area. The majority of sherds in the area were apparently tossed in a pit near the northwest edge of the area. Other sherds were found associated with ash and in small concentrations within pools and niches. As well, an inverted jar was associated with the stone feature. The vessel appears “killed” evidenced by the removal of a large piece of the base.

A single cached jar covered with calcite was documented in a niche above the large flake. The jar measures roughly 35 cm in height and 30 cm in body diameter. Measurements were not possible for the neck as that portion of the vessel is thickly coated with calcite. This vessel also shows evidence of being killed, as a large piece of the base has been knocked out.

Thirteen human bones were identified within the sherd pit and near the inverted complete jar. Owen (2002) describes the interment as a child between 8 and 13 years of age. Due to disturbances, both modern and in antiquity, it could not be ascertained if the interment was primary or secondary.

3.7.2.4 Area D

Area D is a narrow terrace several meters above other portions of the ledge. Dense speleothems are found in both the northern and southern extremes of the area, while the central portion contains relatively few. Many of the columns have merged to form large structures with small alcoves and niches. Two sets of human remains are

located within the area, both in shallow pools and both deteriorated by drip water.

This portion of the ledge measures 42 m along the wall and is approximately 1.5 m in width in the northern section and 4 m in the southern section with a total area of 88 m². Fourteen lots were documented in Area D, the majority of which were sherd scatters (188 sherds). Two sets of interred human remains were identified in two shallow depressions. A scatter of charcoal, several stacked stones blocking drainage from a weathered pool, and one scattered or dispersed stone feature were also noted.

The human remains consisted of disarticulated interments of an adult (18 to 24 years in age) and one child. Most of the bone in the bone features has been impacted by dripping water. Beneath each bone cluster is an ash lens. Because both sets of bone are beneath dripping water, the quality of the bone is very poor and much of the material has washed from the ledge.

3.7.2.5 Area H

Area H is one of the few undisturbed areas in the cave. It contains a vessel cache in a small niche above a flowstone formation and a large jar on a flowstone ledge below. It is a very small area and is accessed by climbing through formations at the southern end of Area C to cross the creek. The length of the area is 6 m and the width is less than two with the total area amounting to less than 12 m². Most of this surface slopes and is not functional space. The creek is 3 to 4 m below. Two lots were documented in this area

consisting of a single ceramic vessel on the lower ledge and a vessel cache in a niche above.

The large jar has a neck diameter of 31 cm an estimate height of 35 cm. The base of the jar has been punched out, killing the vessel. The associated sherds could not be found. The vessel cache consists of a complete dish, a dish sherd from another vessel, 10 jar body sherds, and a nearly complete jar. The base of the jar has been punched out apparently killing the vessel and the associated sherd is not present within the alcove.

3.7.2.6 Area E

Located through the formations in the northern part of Area C, Area E is a small ledge with a small alcove. Inside the alcove, 25 sherds are on the floor. Access to this area is possible by carefully climbing through small tunnels in the large flowstone formation over the creek. The creek is approximately 5 m below and the area measures 6 m long by 1.5 m wide. The floor is pocked with small drip-water depressions and slopes to the creek.

3.7.2.7 Area F

Area F was not explored, but was visible across the creek from Area C. It is a small flowstone shelf with a rimstone pool forming a flat surface. Sherds and other

artifacts were visible within this pool. The shelf measures approximately 5 m in length and 1 m wide. The creek is 3 to 4 m below.

3.7.3 Ledge 3

Ledge 3 is a narrow three tiered ledge located on the eastern cave wall approximately 150 to 183 m from the cave entrance (Figure 9). This portion of the cave is around the first major bend in the main passage and is the first ledge completely in the dark zone. The lowest tier is a 9.3 by 3.5 m platform, approximately 2 m above normal creek flow. No artifacts are present at this level, as it is subject to flooding. The upper two terraces are above the peak flood level and artifact assemblages show little loss of integrity due to water; unfortunately, human traffic and looting have taken a toll on the remains.

3.7.3.1 Area A

The area, measuring 23 m in length, 5 m at its widest tapering off at the north and south end, has a surface area of 50 m²; the river is roughly 5 m below. The middle level, Area A, is highly decorated with cave formations. Many medium size stalagmites screen the inner ledge from the cave stream in the southern half. Two large columns create a

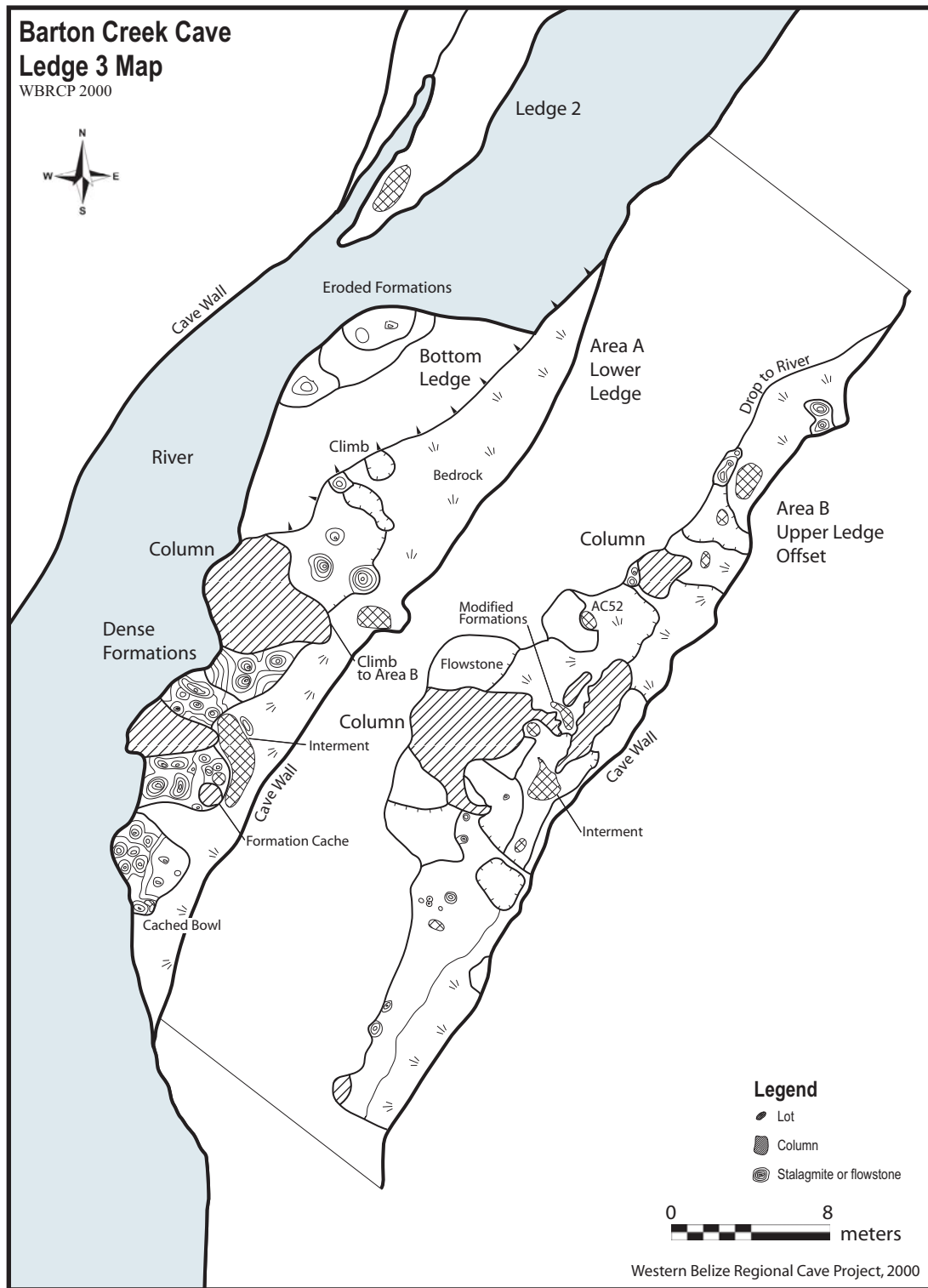


Figure 9: Map of Ledge 3

small chamber, the ceiling of which is covered with flowstone draperies. Access to this area is via a 2.5-m climb up crumbling flowstone, and is quite dangerous.

Five lots were documented in this area; these include one ash lens, interred human remains, cached ceramic sherds, vessel, and speleothems, and a complex arrangement of artifacts and ecofacts. The human remains were found overlying the ash lens and associated with a stone feature and a light scatter of artifacts and jute. The individual is within a rimstone pool between several large columns and flowstone formations. Approximately 32 large ceramic sherds belonging to several vessels are dispersed over the southern portion of the area.

3.7.3.1 Area B

The uppermost level, Area B, is a very significant area in the cave. The area is a natural ledge where flowstone and other formations formed creating small highly decorated chambers and a series of rimstone pools, which still occasionally fill with water. A large column dominates the central ledge area and closes in a significant ritual compartment. Draperies, stalactites, soda straws, and other impressive formations adorn the walls and ceiling. The area measures 25 m in length, is 5 m at its widest, is 1.5 to 2 m wide elsewhere, and has a surface area of 55.6 m². Access to this area is via an exposed difficult climb up a formation.

Nine lots were documented in Area B, which includes several cached speleothems, a small erected speleothem, various broken formations, and four randomly scattered stones. Approximately 63 ceramic sherds, including the jar associated with the human remains, were documented in the area. Ceramics are primarily observed in small pools and depressions on the ledge floor

This area contains the remains of one individual in a rimstone pool and a complete jar located in a small niche on the side of this same pool. The individual interred in this area is a 3.5 to 4.5 year old child that was placed in a prone position. Another interesting feature is a passageway that the Maya created by breaking through a drapery formation to access the pool from the climb. Other ceramic artifacts are present in other sections of this area.

3.7.4 Ledge 4

Ledge 4 is situated within a large cluster of speleothems on the west wall of the cave (Figure 10). Access to the ledge is gained by climbing up a slab of rock lying against the cave wall in the river, and then climbing a sheer wall above to an overall height of 5 or 6 m. The ledge is characterized by several chambers within the formations and terraces overlooking the river. The largest space is approximately 8 m long and 2 m wide and the total length of the ledge is 14 m and 3.5 m at the widest. The ledge is approximately 237 to 277 m from the cave entrance. The Maya utilized every portion of

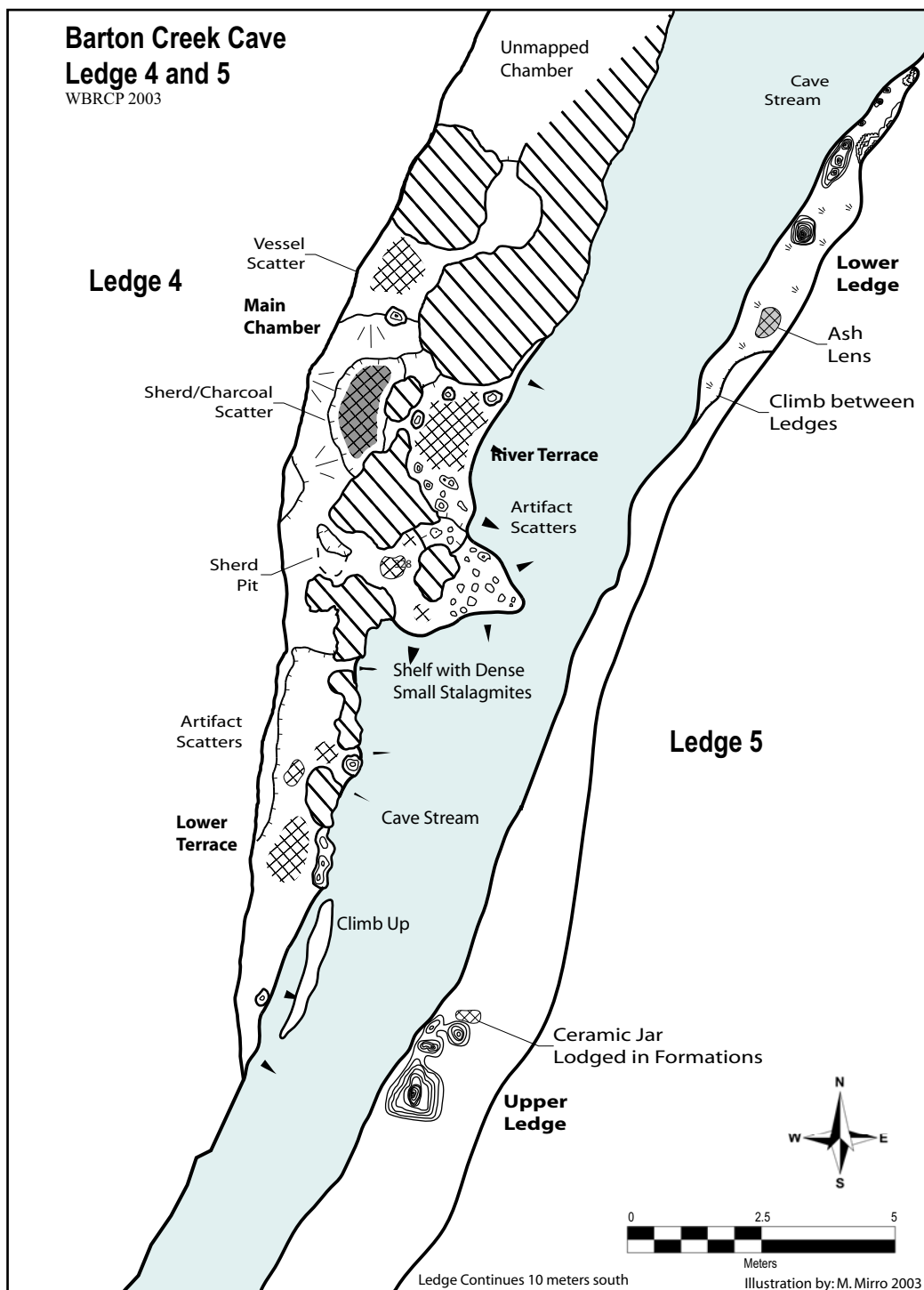


Figure 10: Map of Ledge 4 and 5

the ledge except the northern-most part, which is a small chamber accessed through a tight crawl in the flowstone and down a 2 m drop.

Eleven lots were documented in this area and include an ash lens, several ceramic scatters, a sherd dump, a vessel cache, a cached obsidian blade, and randomly dispersed stones. Approximately 223 sherds were inventoried on the ledge, most of which were found in pools and depressions in the floor. The sherd dump consists of a large quantity of ceramics within a cavity within a flowstone mass on the cave floor. The vessel cache is cluster of fragments of three ceramic vessels broken into 12 sherds situated on a terrace of flowstone at the north end of the ledge.

3.7.5 Ledge 5

Ledge 5 is located on the eastern wall of the cave and consists of two narrow terraces, one above the other (Figure 11). The ledge is accessed by ascending a very difficult climb, followed by a second exposed climb to approximately 16 m above the river. Very few formations and cultural remains are present in this area. Two lots, consisting of an ash lens and cached vessel, were recorded.

The cached vessel is found at the base of an isolated column and speleothem cluster on the upper portion of the ledge. Beneath an undercut section of the formation, the remains of a single jar in three pieces are fused together. The jar, currently not typed, has three strap handles and rope-like appliqués encircling the upper body-shoulder

interface in a repeating half circle pattern. A kill hole, punched from the exterior, is present on the lower portion of the body.

3.7.6 Ledge 6

Ledge 6 is formed on a narrow bedrock terrace on the western side of the creek. Area A, the lower section, is relatively flat except for a narrow fissure that transects the ledge 1 m away from the cave wall (Figure 11). Two small chambers are located at the either end of this fissure beneath flowstone. The fissure is one of the few areas discovered in the cave where cultural materials are affected by floodwaters. Above the large flowstone at the northern end is Area B, an alcove confined within several columns. Area A is 26 m long, ranges from four to 6 m in width, and is 4 m above the creek. Area B is 6 m by 3 m and is 10 m above the creek.

3.7.6.1 Area A

A light scatter of ceramic artifacts and a few lithic artifacts are present on the surface of the ledge documented in 26 lots. Most of these remains are concentrated in small circular pits on limestone floor of Area A. Observed within a small alcove at the northern terminus of the fissure is a single human bone cluster. Buried in alluvial sediments, the bones have been disturbed by periodic floods.

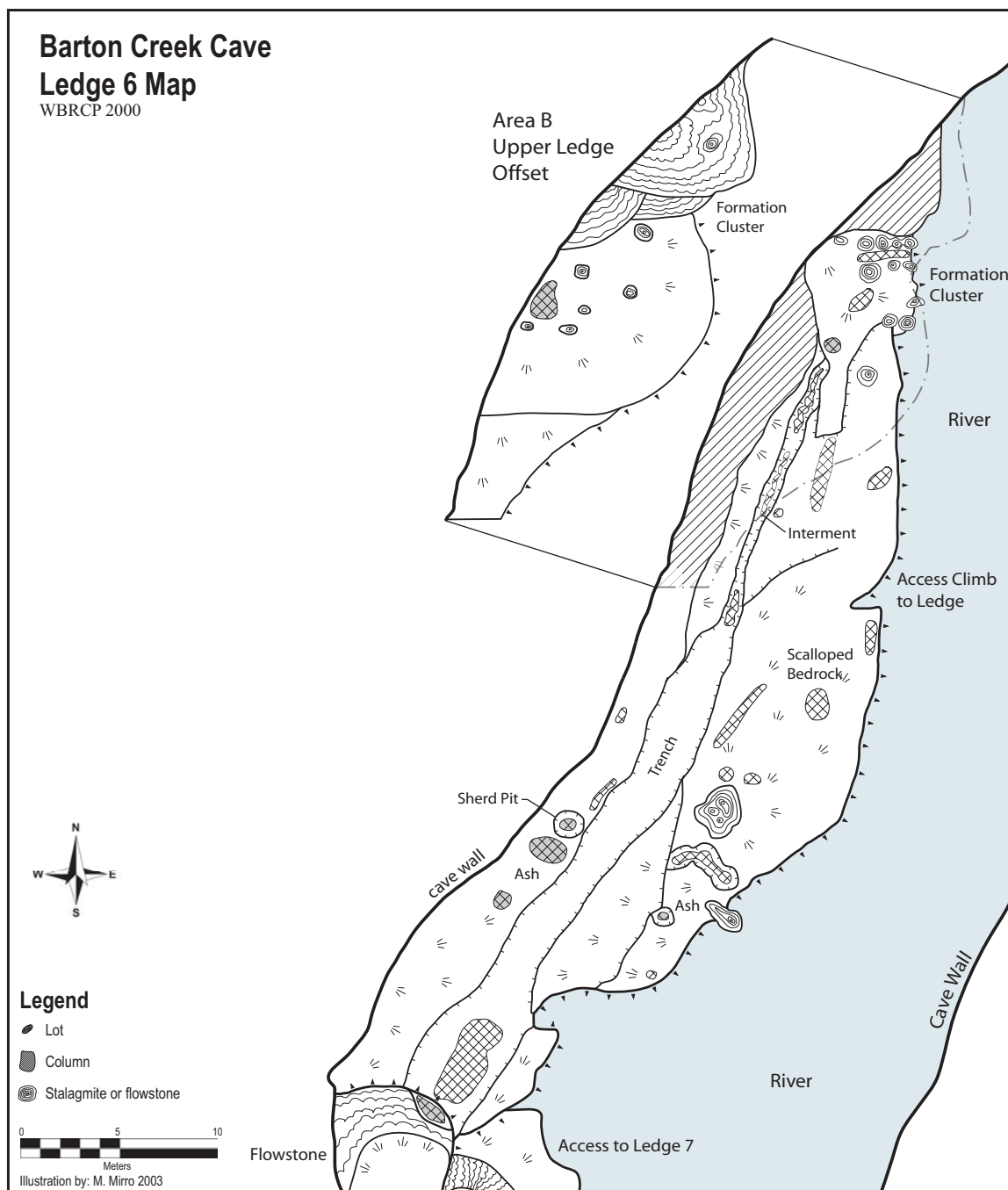


Figure 11: Map of Ledge 6

Looting and tourism has had a moderate effect on the integrity of the ledge. Minimal digging has taken place in the fissure exposing human remains and ceramics. Looting is active, having been observed between the 2000 and 2003 field seasons. Trampling has had largest effect on deposits on the ledge; many sherds show evidence of recent breaks. Because this area of the cave is biologically active, a layer of guano blankets cultural materials, making assessments of integrity difficult.

Additionally, nine ash lenses, a scatter of jute, an isolated biface, and isolated mano, and scattered stones were identified in Area A. An approximately 60 cm deep pit was filled with sherds, ash, and several beads.

3.7.6.2 Area B

Set between five narrow columns, are three limestone cobbles, five jar sherds from a single vessel, and evidence of burning consisting of charcoal and staining on the cave wall. The area is a highly decorated alcove on top of a large drapery. The floor consists of literally thousands of white rimstone dams no larger than 2 cm. The burning is a faint layer of ash on the floor near the sherds and stone as well as a light stain on the wall above the ash.

3.7.7 Ledge 7

Ledge 7 is a large expanse above the west side of the river mapped as Area A and B (Figure 12). The lower portion of ledge, Area A, has several terraces reminiscent of steps rising from the river each linked by an easy climb. The northern end of ledge is at river level and getting onto the ledge from the canoe is quite easy. Accessible through a very exposed and dangerous climb, Area B is a 2-m wide shelf 4 to 5 m higher than the upper part of Area A. At the uppermost portion of Area A, 12 to 13 m above the cave river, Ledge 8 can be seen on the opposite wall of the passage.

3.7.7.1 Area A

There are two large formation clusters and several smaller areas of cave formations separated by space lacking speleothems. Along the eastern drop in the central part of the Area A, six large columns reach 10 to 15 m to the cave ceiling. Artifacts and human remains were discovered in niches and cavities between these speleothems. West of the columns is a flowstone growth, which measures approximately 4 m in diameter, with five active stalagmites. In the natural depressions between the stalagmites are concentrations of ash and artifacts. At the north end of the ledge is a large flowstone growth forming a steep slope up from the lowest portions of Area A. The northernmost part of the speleothem drops several meters and divides Ledge 6 from Ledge 7.

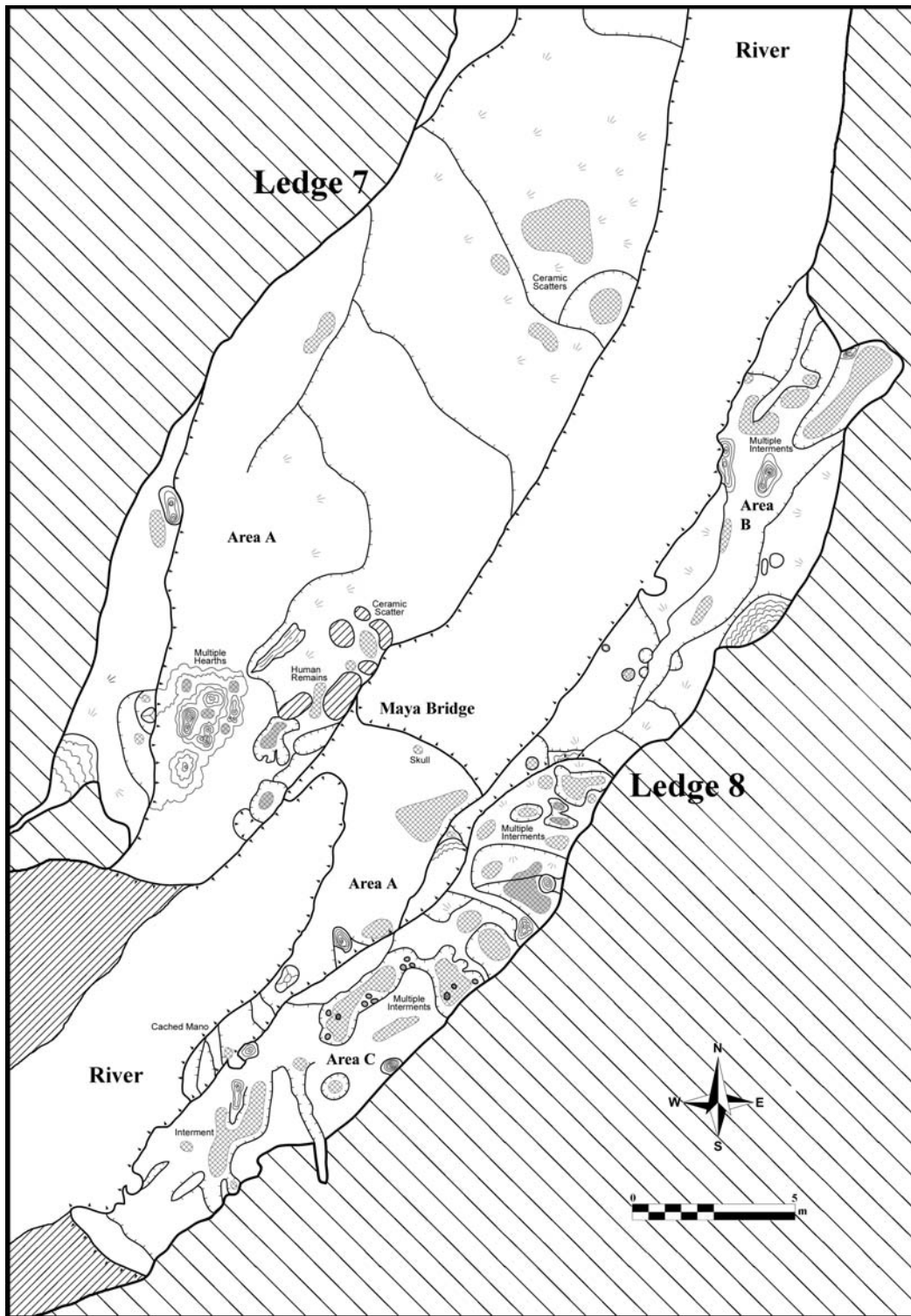


Figure 12: Map of Ledge 7 and 8

Artifacts, while sparse, are primarily ceramics and are found in most areas of Ledge 7. The major concentration, north of the large columns dominating the center of the ledge, is in several depressions and crevasses along the drop, which forms the eastern ledge edge. Additional ceramics are located at the north end of the ledge near the large flowstone in crevasses and depressions, as well as in a large pile, possibly arranged for tourists to see. Ash lenses are present not only near the cluster of stalagmites, but in almost every area of the ledge. Eleven lots were documented in Area A.

Ledge 7 has been heavily vandalized due to enormous amounts of tourist traffic and looting; as a result, few artifacts remain. Remaining artifacts are concentrated near the column and flowstone formations. They include small sherds found in small niches and crevices. Larger and more intact ceramic artifacts are present in Area B. Additionally, several human bones are located in close proximity to the cluster of columns in the upper section of Area A.

3.7.7.2 Area B

Area B, which is above the uppermost part of Area A, is a narrow ledge on which four lots were documented. The lots include 10 sherds consisting mostly of large portions of bowls and a jar. At the southernmost portion of Area B, is a narrow inaccessible fissure, which parallels the main passage of the cave. The fissure is no more than 10 cm wide and 20 cm high and the flowstone formation, which forms the floor for

this area, emerges from the base. The extent of the fissure is indeterminate; however, it definitely exceeds 2 m. In the fissure, several stones have been placed in such a way that they essentially seal and obscure the area beyond.

While the integrity of Ledge 7 has been compromised by extensive tourist traffic and looting, important data is still available. The openness of the ledge has allowed for the easy discovery and documentation of a number of ash lenses evidencing either multiple events or one large event possibly related to activity across the river on Ledge 8, where a number human interments are located.

3.7.8 Ledge 8

Ledge 8 is two narrow terraces and a flowstone span on the opposite side of the river and below Ledge 7 (see Figure 12). Access to the ledge was made by rappelling down from Ledge 7 onto the bridge; however, it may be accessed from the river by ladder. The ledge is 348 to 385 m from the cave entrance and is 3.5 to 5.5 m above water level.

3.7.8.1 Area A

Area A is an eroded flowstone bridge spanning the river 3.5 m above the water surface. It measures 13.5 by 5 m with a surface area of 31 m². It is pitted with numerous

depressions, many of which contain a mixture of ceramics and guano that appear to have fallen from above and washed into the depressions during floods. One interesting find in this area was a mano cached in a small niche. In the center of the bridge, a human skull has been placed near the edge for the purpose of display to the tourists in the canoes below. Four lots were documented on this portion of the ledge and include one cached artifact (the mano mentioned above), two sherd scatters, and a charcoal scatter.

3.7.8.2 Area B

The lower terrace, Area B, is a bedrock ledge partially covered with flowstone. The area is 24 m long, between 2.5 and 4 m wide, and has a surface area 64 m². The main concentration of cultural materials is located in and around a narrow depression on the northern end, which is filled with human bones and ceramics. This area has been highly disturbed in recent times and many of the artifacts and skeletal materials have been placed in areas suitable for display. Additional artifacts are located in a series of circular depressions on the south side of the area.

Eleven lots were documented on Area A and include nine sherd scatters; commingled human remains; isolated and multiple lithic artifacts; a scattered stone cluster; two displaced artifacts; and a charcoal scatter. Approximately 1,660 ceramic sherds were identified in this area, many of which were concentrated in a single

depression in the floor along with several sets of human remains. Also documented are a shell lip plug, a chert core and a slate core, and a slate fragment.

3.7.8.3 Area C

The upper terrace, Area C, is a series of giant rimstone dams and is accessed via a challenging climb up a flowstone surface. Cultural materials, including human remains, are in a number of these rimstone pools. Unfortunately, it has been highly disturbed by tour guides and looters and many of the objects have been placed on the dams for display. Additionally, numerous footprints were evident in the pools showing a fair amount of damage to the artifacts and bones by foot traffic.

Twenty-two lots were identified in Area C of Ledge 7. Features consist of three ash lenses; five charcoal scatters; four human bone concentrations; four isolated bones; and eight stone features. Artifacts include 15 sherd scatters, one isolated sherd, a perforated animal tooth, a metate, and a secondary chert flake and two lithic artifacts. In addition, the metate was placed on the edge of the ledge for display and may not have originated from this area. Approximately 549 sherds were documented in this area, including the remains of a shoe-shaped pot and a sherd with a monkey appliqué. Sherds were generally distributed evenly over the entire area.

3.7.9 Ledge 9

Ledge 9 is located more than 400 m from the cave entrance and consists of a span of flowstone over the creek and an upper ledge on the east side of the cave passage (Figure 13). Area A, the span, is primarily a large clay-bottomed pool bordered by the cave walls on the east and west, and 1-m high rimstone dams on the north and south. Several small but deep pools abut the northern dam. A mass of flowstone forms a small higher terrace 3 m high on the western side.

The upper level, Area B, is a long limestone terrace that measures between 0.5 m to 5.0 m in width. Artifact density is low, and includes ceramics from two jars, wood fragments, and charcoal. Additionally, a stone feature is located in a small alcove. This area also shows signs of disturbance, evidenced by footprints and excavations into some of the circular depressions in the floor. Looting has had a devastating effect on the cultural remains, especially the human material in Area A.

3.7.9.1 Area A

Eight human bone concentrations were identified for Ledge 9, all of which were highly disturbed. Preservation of the bone is excellent despite the recent damage to the materials. Much of the bone that was inventoried includes surface finds; however, skeletal material was discovered approximately 5cm below the surface level within the

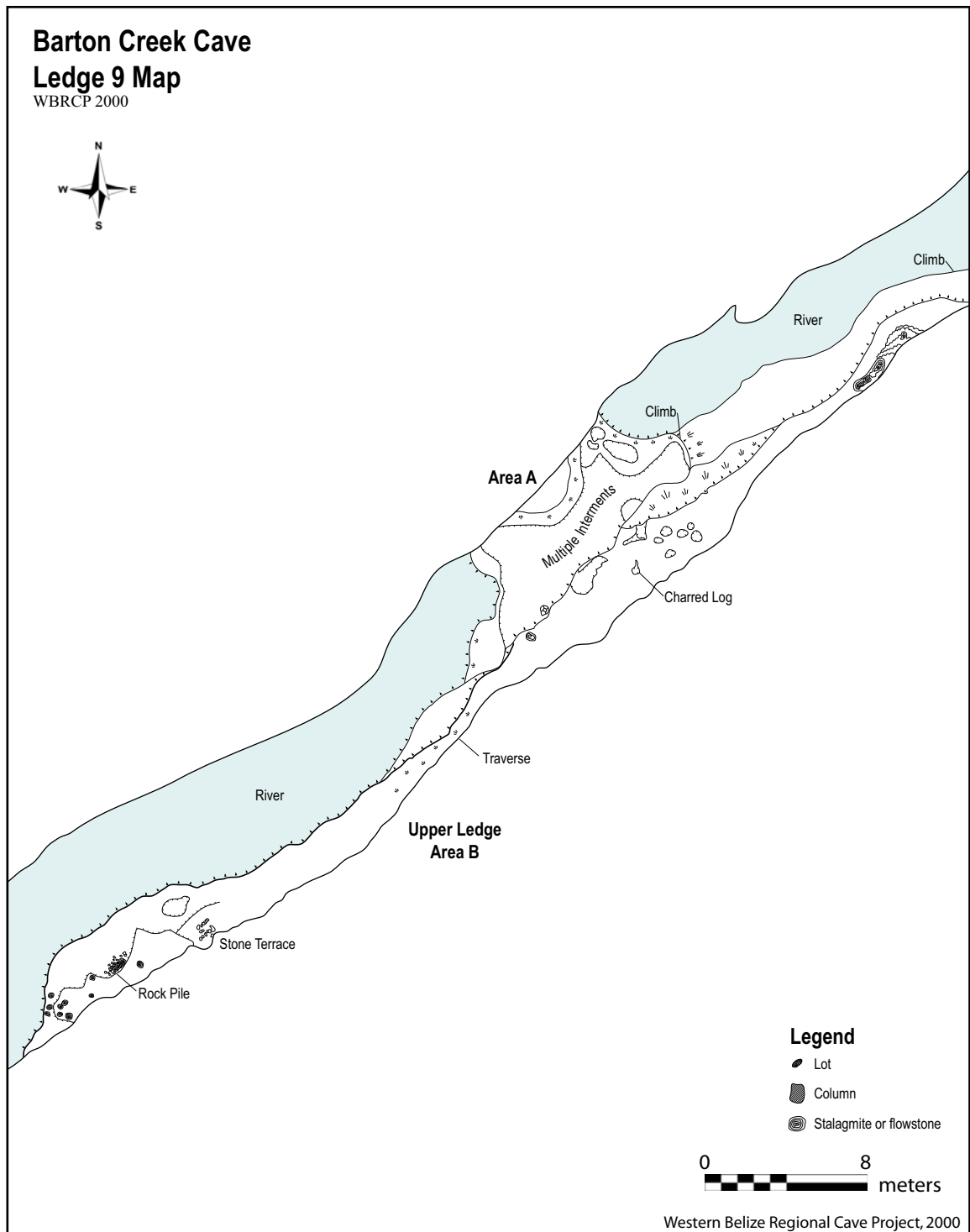


Figure 13: Map of Ledge 9

clay matrix. Due to time constraints and potential damage due to the general plasticity of the clay, the subsurface skeletal material was left untouched.

Little mortuary data could be collected because of the degree of disturbance, looting, and pedestrian activity in the area. At least three of the individuals had been interred within smaller rimstone pools. It appears that a minimum of seven individuals were originally situated on the floor of the large rimstone pool. One of the local residents of the Barton Creek Valley recalls the individuals lying parallel to one another on the floor of the ledge, although exact burial position could not be determined. MacLeod and Rushin-Bell also make a similar observation from their investigations of the cave in the 1970s (Owen 2002).

There is a very low density of artifacts on Ledge 9; however, looting may account for this. The 25 small ceramic sherds that were observed are undiagnostic, and therefore relative dates for the ledge could not be established. Other cultural materials include a number of granite cobbles (some of which had been heat altered), speleothems, and a few other river cobbles of an unidentified material. These manuports were found both on the floor of the ledge with the skeletal material and within the rimstone pools. An ash lens with charcoal inclusions was also observed 10 cm below the surface of the clay over the floor of the ledge, and within the rimstone pools. This suggests a burning episode occurred prior to the placement of the deceased individuals.

Due to the relatively low position in the profile of the cave, this area appears subject to periodic flooding. However, based on an examination of the sediments there is

little evidence for high-velocity flow. It is likely that water enters from beneath or barely crests the high rimstone dams and slowly fills the pools. Over time, water drains while suspended particles precipitate into bands fine clay and silt.

3.7.9.2 Area B

Access to Area B can only be attained by climbing a ladder as the upper portion of the cliff overhangs. Approximately 6 to 7 m higher than Area A, this area has had little effects of water and flooding. Minimal looting has occurred in this area likely due to the difficulty with access. Area B is two wider sections connected by a narrow sloping segment of the ledge.

Five lots were documented in Area B. These include a partially burned log placed on the edge of a circular depression; two sherd scatters, which include remains of single jars; and a constructed line of small cobbles in front of a small niche. A constructed pile of stones was also noted.

3.7.10 Ledge 10

Ledge 10 is broader than most of the other ledges, measuring approximately 12 m wide, 50 m long, and has a surface area of 309 m² (Figure 14) It is on the northwestern side of the creek, 180 to 230 m from the entrance. The surface of the area generally

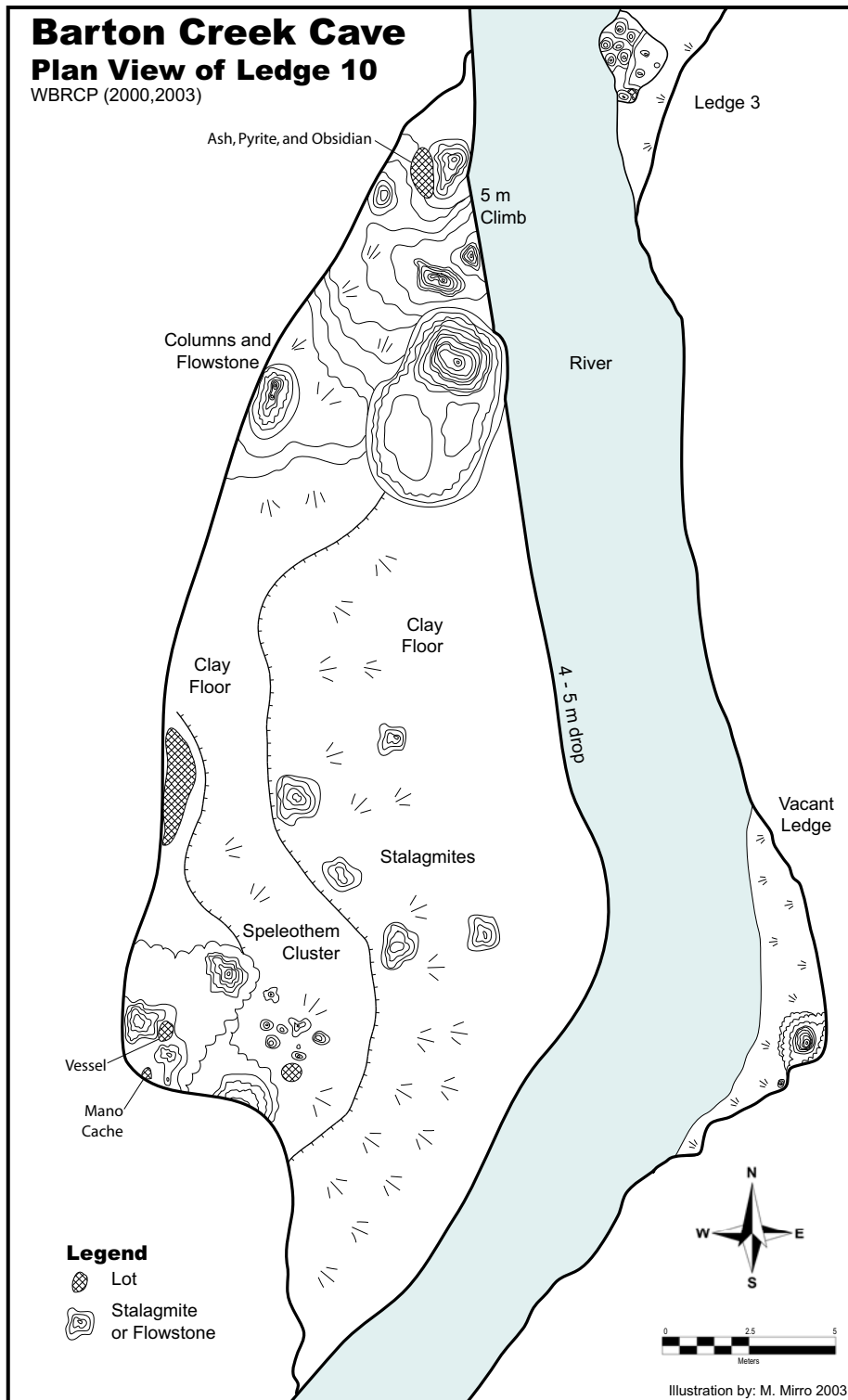


Figure 14: Map of Ledge 10

slopes from the wall down to a cliff, or drop above the creek, with the exception of a flat, natural terrace. Large columns and other speleothems dominate the downstream portion of the ledge, while small columns and numerous stalagmites are found on the upper terrace.

Most of the artifacts are clustered in the upper terrace against the wall, while the remaining artifacts are found in the north among the columns. No evidence of recent intrusion was observed. The ledge is accessed by ascending a rather difficult climb up a 6 to 7 m vertical face and squeezing between formations.

Five lots were documented on Ledge 10 that were mainly concentrated in two areas. At the highest point of the ledge in an alcove near the cave wall a complete dish, a mano cached in a small niche, and two sherds associated with charcoal are associated with massive formations. An ash lens, two obsidian blades, a perforated animal canine, and pyrite tiles are near the access climb. The dish is in the central portion of a crystal-bottomed pool at the base of several columns. Calcite covers portions of the interior and lower exterior cementing the vessel to the pool. A wedge shaped sherd has been knocked off the side of the dish “killing” the vessel.

3.7.11 Ledge 11

Ledge 11, the furthest known place in the cave with ancient Maya artifacts and modifications, is a span of flowstone over the cave stream more than 500 m from the

cave entrance (Figure 15). It is characterized by several large, mud-filled rimstone pools with depths of several centimeters to nearly 2 m. Most of the flowstone on the south, or upstream side of the ledge is highly weathered and decomposing, yet most of the archaeological material was found here. On the downstream end of the ledge, a number of small rimstone pools and columns are located, which show signs of continued growth.

The majority of the cultural materials on the ledge are human remains; however, a few ceramic sherd scatters and rock clusters were present. The human remains were concentrated in the upstream side of the central pool in a depression that forms the lowest portion of the ledge, and were in a highly disarticulated commingled state. Due to the moisture, the bones were very fragile and soft making recovery difficult. Salvage operations were conducted on this ledge because the downward movement of material into the river is permanently deteriorating the assemblage. Fourteen lots were documented on Ledge 11.

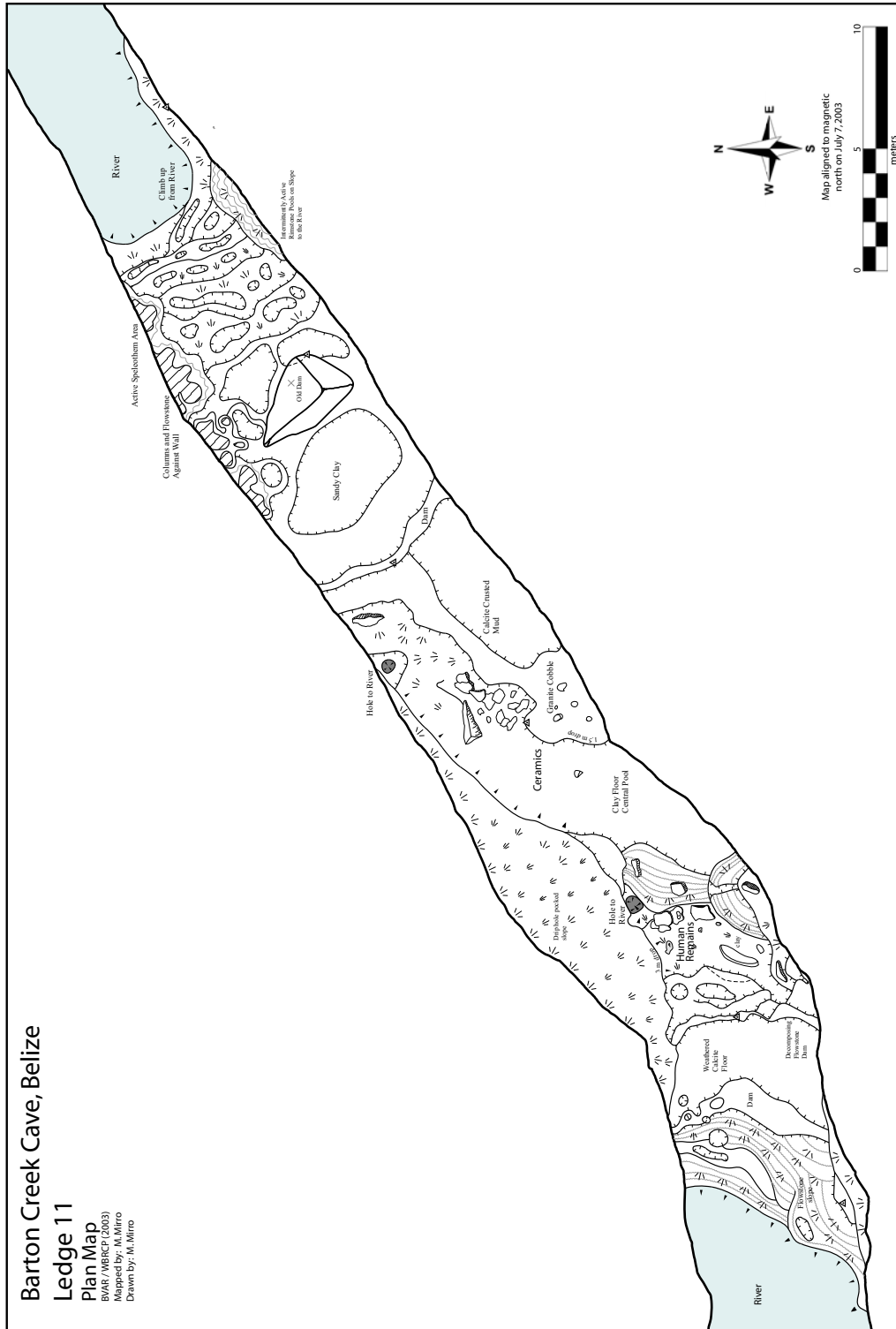


Figure 15: Map of :edge 11

4.0 THEORETICAL ORIENTATION

As stated earlier, cave archaeologists are discovering connections between caves and ancient Maya centers. Specifically, an abundance of examples illustrates a direct physical relationship between caves and site cores, linking the elite to specific caves (Brady 1997; Brady and Veni 1992; Halperin 2000a, 2005). The evidence demonstrates that the Maya elite utilized caves and that the location of caves influenced the design and nature of architecture of large site cores. This pattern of cave use, observed at sites throughout the Maya region, shows the extent Maya elite invested in these caves.

4.1 Theoretical Basis

While many large sites and ceremonial centers have caves located within their elite precincts, other sites are located in places where caves cannot form, such as flood plains, the coastal plain, and areas underlain by granite, such as the Mountain Pine Ridge. In these areas, the specific geological conditions necessary for cave formation are not present locally. However, archaeologists have discovered elaborate architecture and other large-scale cave modifications, painted hieroglyphic inscriptions, elite artifact assemblages, and major ceremonial and mortuary features at distant cave sites (Brady 1989, 1997). Cave use of this nature does not appear to be a result of utilization by small communities near these caves. Rather, it appears much more organized and coordinated

involving individuals capable of motivating labor, such as elite at distant ceremonial centers. However, the problem remains as to which polity is actually utilizing the cave.

Although cave archaeologists have established direct means of linking caves to sites, such as the construction of monumental architecture, such as pyramids, directly over caves, *sacbeob* connecting major pyramids to a cave entrance, or the presence of artificial caves beneath elite precincts, few published accounts of indirectly connecting caves and sites exist, such as through hieroglyphs and by artifact types. Therefore, archaeologists must look to other archaeological methods to link caves and sites.

In the Belize Valley, political boundaries have become evident through the study of ceramics. Specific ceramic groups are associated with specific sites and smaller centers under their control. Archaeologists studying the Belize Valley note that the bowls from the Mount Maloney Black ceramic group were likely produced at or near the center of Xunantunich and that small sites having high concentrations of this ceramic group in the Late Classic are associated with Xunantunich (Connell 2000; LeCount 1996). Several sites to the east, including Pacbitun, Baking Pot, and a number of other small centers, typically have a high frequency of bowls from the Garbutt Creek Red ceramic group; while Mount Maloney group sherds either are absent from the assemblage or are found in low concentrations. Thus, it follows that caves with high concentrations of Garbutt Creek Red ceramics were likely associated with the eastern polities, whereas caves yielding predominantly Mount Maloney Black ceramics were affiliated the Xunantunich polity.

Sam Connell demonstrates this method in his dissertation on the satellite community of Chaa Creek in which he finds a high concentration of Mount Maloney ceramics and thus affiliation with Xunantunich. Further, when he looked at the distribution over time he found nearly equal concentrations of red and black sherds in the early part of the Late Classic and mostly black Mount Maloney sherds during the later part of the Late Classic. He interprets this shift as changing allegiance where the people of Chaa Creek change from a more neutral political stance to being subsumed by Xunantunich. This corresponds to the political history of Xunantunich as it rose to prominence in the Belize Valley during the later part of the Late Classic, 10 years after the fall of Naranjo (A.D. 820) (Ashmore and Leventhal 1993; Connell 2000; LeCount 1996).

Unfortunately, in the region east of the Xunantunich polity, such a political history is not as developed and the actual central site of the polity is not yet defined. However, examination of ceramics within the polity to the east consistently yields high concentrations of Garbutt Creek reds and low densities of Mount Maloney Black sherds. Thus, classification of new sites into one political entity or the other is a matter of looking at the ratio of these ceramic groups relative to each other; however, this method has not yet been applied to cave assemblages.

At this point, researchers' understanding of the Mount Maloney ceramic group affiliation is better understood near Xunantunich than the relationship between the Garbutt Creek ceramic group and sites where it is affiliated. Major problems include not

knowing where the center of production was for Garbutt Creek ceramics, and how politically fragmented or consolidated the centers within the eastern Belize Valley were (Connell 2000).

This thesis seeks to explain the relationship between large Maya centers with distant caves by comparing ceramic assemblages from caves in the Belize Valley. Specifically, this investigation seeks to identify the source of political control or influence over Barton Creek Cave by comparing the frequencies of Garbutt Creek Red and Mount Maloney Black ceramics. Considering the close proximity of Barton Creek Cave to sites within the eastern polity it follows that Barton Creek Cave would yield a high concentration of Garbutt Creek Red ceramics, and is therefore beyond the sphere of influence of Xunantunich. Alternatively, if the cave's ceramic assemblage yields black and red wares in high numbers, it would suggest that Barton Creek Cave, as a regional sacred landmark, might have been a neutral site that was utilized by people from both polities. It should also be noted that changing ratios between the two ceramic groups would be indicative of changes in influence over time. Should the cave have a predominance of Mount Maloney Black ceramics, the cave would be affiliated with Xunantunich, which would be an interesting political situation since the cave is well within the eastern polity. This model therefore implies that caves and site cores are nodes, representing sources of political power, distributed across the landscape within a sphere of influence rather than centralized within the site core.

Thus, the goal of this thesis is to use the ceramic assemblage from Barton Creek Cave to yield data on the socio-political organization of the Belize Valley during the Late Classic. While this method will not definitively associate the cave with a specific site, the range of possibilities is much narrower. Applying the method to caves across a small region will present a clearer picture of affiliation of sacred sites.

4.2 Overview of the Garbutt Creek and Mount Maloney Ceramic Groups

Garbutt Creek and Mount Maloney are incurving bowls common to domestic contexts in both archaeological settings. Ethnographic data show the bowls to relate to maize processing. Since maize production is such a large part of Maya life and maize a sacred plant symbolizing Maya mother/father, these common pottery bowls come symbolize more than their functional purpose, but daily life, family prosperity, and group solidarity (LeCount 1996:287-288). Other uses for incurving bowls includes water storage, and possibly cooking as several Mount Maloney bowls showed signs of fire-blackening around the base (LeCount 1996: 253-254). At Xunantunich, Mount Maloney bowls were the most abundant vessel in termination and dedication deposits, found generally as complete vessels likely used as containers holding dedicatory offerings (LeCount 1996:254). In the cave context, incurving bowls are commonly found fragmented in surface deposits commingled with other vessel types as well as cached in

niches (Mirro 2003; Mirro and Owen 2000), whole or killed, and as lids capping ollas (Helmke 2000; Helmke et al. 1999; Ishihara et al. 2000; Moyes 2006).

4.2.1 Garbutt Creek Ceramic Group

The Garbutt Creek Ceramic Group consists of two types and four varieties. In addition to Garbutt Creek Red with three varieties, there is also Rubber Camp Brown, with one variety. Garbutt Creek Red ceramics are part of the Spanish Lookout Complex, which comprises the later half of the Late Classic and Terminal Classic Periods (see table 4-1; A.D 690 to 890). A complex is defined as the entire ceramic product of specific cultural configuration grouped by type and defined aerially and temporally; a complex is a large-scale analytic unit of both cultural and historical relevance (Gifford 1976: 34). Gifford divides the Spanish Lookout into an early and late facet; however, within the Garbutt Creek Red type there is no differentiation between facets (see Figure 16 for examples from Barton Creek Cave).

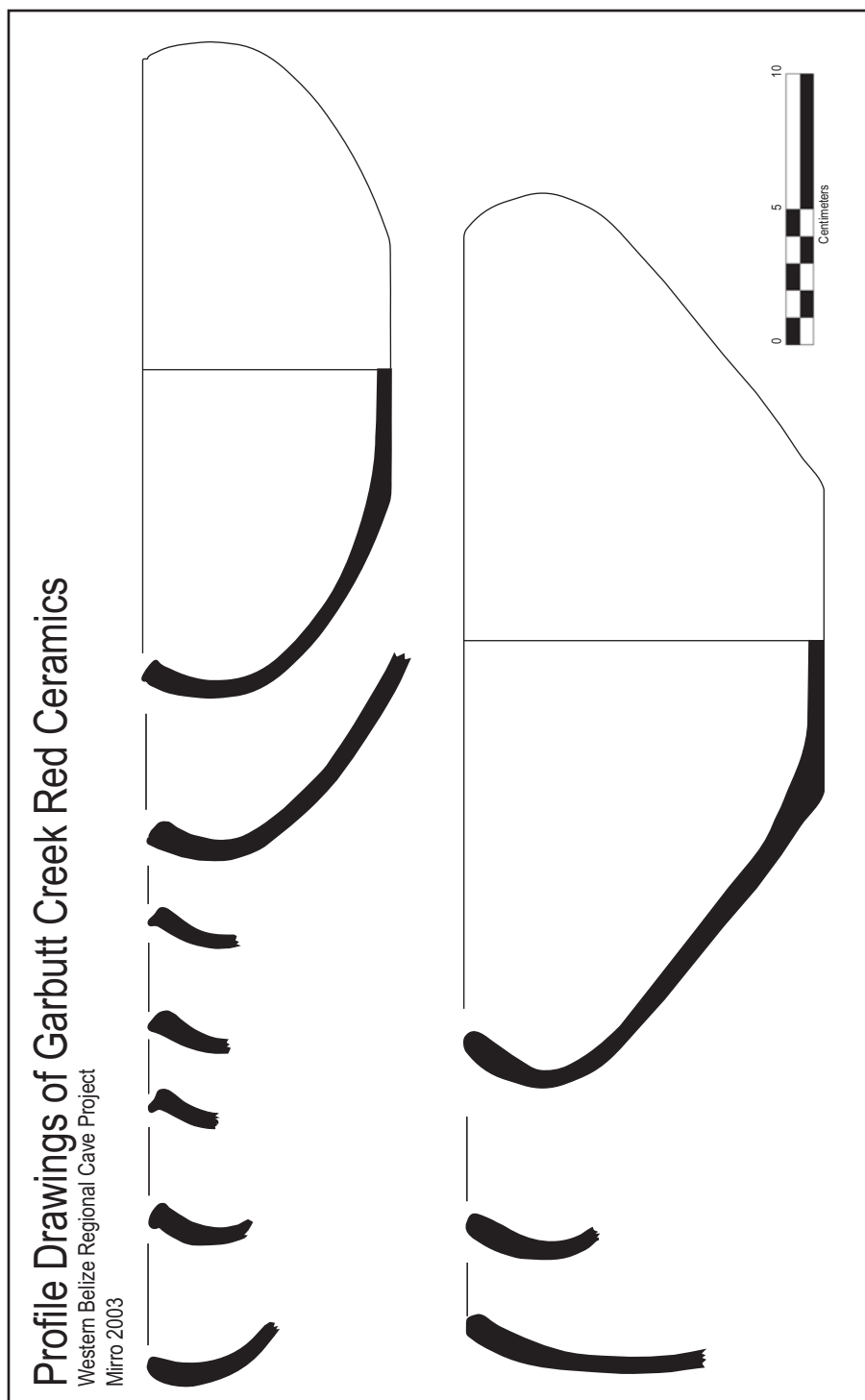


Figure 16: Sample of Garbutt Creek Red Ceramic Group Sherds

Table 2: Late Classic Time Periods from Xunantunich and Barton Ramie^a

Late Classic Periods of the Ancient Maya in the Belize Valley		
Tiger Run (Barton Ramie)¹	Spanish Lookout (Barton Ramie)¹	
	<i>Early facet</i>	<i>Late Facet</i>
AD 590-680	AD 680-	-890
LC I Xunantunich² Benque Viejo IIIa	LC II Xunantunich² Benque Viejo IIIb	TC Xunantunich² Benque Viejo IV
AD 560-670 ³	AD 670-790 ³	AD 780-890 ³
AD 600-700 ⁴	AD 700-830 ⁴	AD 830-1000 ⁴
¹ Gifford (1976); ² Thompson (1940); ³ Connell (2000); ⁴ LeCount (1996)		

The three varieties comprising the Garbutt Creek Red type include the Garbutt Creek Variety, Variety Unspecified, and the Paslow Variety. Sherds of the Paslow Variety were not identified at Barton Creek Cave; therefore, this variety will not be discussed. The predominant vessel form of the Garbutt Creek Variety is a large bowl with a dark red-brown soft interior slip and an unslipped exterior. Paste is orange or brown with numerous calcite inclusions and small quartz grains. The interiors are well smoothed, polished, and exhibit crazing while the exterior occasionally shows light drag marks from hand smoothing. The bowl form is generally round with incurving slightly restricted orifices; ring bases are occasionally present. Rim forms vary from squared to flattened on top and bevel on the interior; rounded lips occasionally occur; rim diameters range from 20 to 50 cm (Gifford 1976:230-231).

The Gifford's Variety Unspecified is similar to the Garbutt Creek Variety except bowl interiors are brown. In some cases, the interior slip is replaced by a thin brown highly polished wash (Gifford 1976:231). A second unspecified variety was identified in

the Barton Creek Cave collection described as Variety Unspecified (Bark). These specimens are similar to the Garbutt Creek Variety except dark-crisscrossing streaks occur in the slip on the bowl interior (Chrisophe Helmke and Reiko Ishihara, personal communication 2000).

Rubber Camp Brown: Rubber Camp Variety is similar to the Garbutt Creek Variety except bowl interiors are slipped dark orange-brown and dark brown discoloration occurs along cracks of an extensively crazed slip. A high degree of variation occurs with the vessel interior slip with the surface appearing mostly orange and slightly mottled to predominantly brown (Gifford 1976:234-235).

The Garbutt Creek Ceramic group is well represented in the Belize Valley, especially in the vicinity of Baking Pot (Conlon and Moore 2003; Weller 2002), Barton Ramie (Gifford 1976), Pacbitun (Sunahara 1995), Cahal Uitz Na (Halperin 2000a), and X-ual-Canil (Connell 2000). LeCount (1996), contrarily, reports a near absence at the center of Xunantunich. Further, nearby sites such as San Lorenzo (LeCount 1996; Yeager 2003), Melhado (Willey and Coe 1956) and Nohoch Ek (Taschek and Ball 2003) similarly report low densities of Garbutt Creek ceramics.

4.2.2 Mt Maloney Ceramic Group

Gifford (1976:243-244) classes Mount Maloney Black: Mount Maloney Variety as one of two varieties of the Mount Maloney Black; Variety Unspecified is the second.

Mount Maloney Black is classed as part of the late facet of the Spanish Lookout Complex although LeCount places the type as clearly established during LCI (or Tiger Run complex; see table 4-1 for date ranges) and produced through the TC (table 4-1; LeCount 1996). Typical attributes include a black matte slip on bowl interiors and occasionally upper bowl exteriors. Bowls have an incurved side, round form similar to Garbutt Creek Reds, and a slightly restricted orifice; rim diameters range between 20 and 47 cm.. Paste varies from brown, orange-brown, gray to dark gray and temper is calcite and rarely quartz. Bowl interiors are generally smooth while bowl exteriors are tan, orange-brown or gray and unsmoothed or occasionally faceted as if smooth with a flat tool. Bases are generally flat although ring forms do occur.

Gifford (1976) finds low frequencies of Mount Maloney at Barton Ramie only during the late facet of the Spanish Lookout complex. This is likely due to the observation that during the Terminal Classic, populations in the upper Belize Valley dropped at isolated small sites and nucleated at larger centers (Ashmore 1994). Thus, at Xunantunich, LeCount finds the presence of Mount Maloney throughout the Spanish Lookout and Tiger Run Complex. Mount Maloney Black lips are diagnostic through time; LCI period bowls exhibit flat vertical lips rounded at the top and bottom. LCII (defined in table 4-1) bowl lips are more elaborate with grooves and beveled upward. Terminal period lips are square and horizontal (LeCount 1996).

While prevalent within the Belize Valley, the range of Mount Maloney Black does not extend far beyond the confines of the valley. It is reported as far west as

Naranjo, but not Tikal, San Jose (a center north of the Belize Valley), or Pacbitun (Taschek and Ball 2003). As well it is not reported at Minanha and Caracol (south of the Upper Belize and Mopan Valley; Connell 2003). To the east in the Belize Valley, the type is quickly replaced by the Garbutt Creek group with increasing distance from Xunantunich (Taschek and Ball 2003).

4.2.3 Pine Ridge Carbonate Ware Red and Black Dichotomy

In addition to the spatial dichotomy discussed above, a parallel spatial pattern similar to the distribution of the Garbutt Creek and Mount Maloney ceramic groups is also observable in the Belize Valley on the ware level. A ware is a set of ceramics with gross technological similarities that extend beyond both temporal and spatial patterns. A ware will have technologically similar attributes as well as similar methods of manufacture; however, stylistically it can vary greatly. It includes multiple ceramic groups and types across multiple complexes (Gifford 1976:14) In the Belize Valley, black slipped calcite tempered sherds occur in high frequencies in close proximity to Xunantunich while red slipped calcite tempered sherds are more prevalent in the eastern part of the valley paralleling the Garbutt Creek and Mount Maloney model (Connell 2000). This pattern involves dish, bowl, jar, and special forms of Tiger Run and Spanish Lookout complexes (LCI, LCII, and TC) from the Pine Ridge Carbonate Ware.

The black ware generally consists of sherds from the Mount Maloney group including bowls, open jars, plates, drums, and vases. This group is much more diverse near Xunantunich (LeCount 1996). To the east, forms are more limited, predominantly comprised of incurving bowls; however, Gifford (1976:243-244) reports an open decorated bowl and several ollas at Barton Ramie. Red wares include several ceramic groups including Dolphin Head Red, Vaca Falls Red, Garbutt Creek Red, and Mountain Pine, all of which are members of the Pine Ridge Carbonate Ware (Gifford 1976; Connell 2000) and are part of the Tiger Run and Spanish Lookout complexes. Forms observed range from dishes and bowls to jars and brandy snifter (Gifford 1976).

4.3 Political boundaries as evidenced by ceramic groups in the Belize Valley

In the Belize Valley, researchers have identified political boundaries through the study of ceramics (Ball and Taschek 1991; Connell 2000, 2003; Yeager 2003). Specific ceramic groups are associated with centers and smaller communities under their control. Archaeologists studying the Belize Valley hypothesize that the bowls from the Mount Maloney Black ceramic group were likely produced at or near the center of Xunantunich. Therefore, sites (which include house mounds, plazuela groups to ceremonial centers) that have high concentrations of this ceramic group in the Late Classic are likely associated with Xunantunich (Connell 2000; LeCount 1996). Sites in the eastern Belize Valley, including Pacbitun (Healy 1990; Sunahara 1995), Baking Pot (Audet 2002,

Conlon and Moore 2002, Weller 2002), Barton Ramie (Gifford 1976; Yeager 2003), Cahal Uitz Na (Halperin 2000a) and a number of other small centers, typically have a high frequency of serving bowls from the Garbutt Creek Red ceramic group.

Classification of new sites into one political entity or the other is a matter of looking at the ratio of these ceramic groups relative to each other. Thus, it follows, that if a cave has a high concentration of Garbutt Creek Red ceramics, it is likely associated with the eastern polity, whereas if a cave yields predominantly Mount Maloney Black ceramics, it is affiliated the Xunantunich polity.

In addition to a comparison between ceramic groups (Garbutt Creek and Mount Maloney), there is a strong correlation of black slipped calcite tempered sherds with Xunantunich and red slipped calcite tempered sherds with polities to the east (Connell 2000, 2003). These ceramics are restricted to the Pine Ridge Carbonate ware established by Gifford (1976) and include Mountain Pine Red, Dolphin Head Red, Vaca Falls Red, Garbutt Creek Red, and Mount Maloney Black ceramic groups which occur during the LCI, LCII, and TC time periods (Late to Terminal Classic) according to Xunantunich based ceramic typologies (LeCount 1996; Thompson 1940) and the Tiger Run and Spanish Lookout complexes according to Gifford (1976).

4.4 Previous Research on the Red-Black Ceramic Dichotomy in the Belize Valley

The study of the dichotomy between red and black wares, as well as Garbutt Creek and Mount Maloney, has a short history in the Belize Valley. Two dissertations (Connell 2000; LeCount 1996) and several papers (Connell 2003; Yeager 2003) from the Xunantunich project as well as other archaeologists who have long histories working in the Belize (Jaime Awe, Christophe Helmke, and Reiko Ishihara, communication 2003; Taschek and Ball 2003) have published or presented on this topic. Connell (2000, 2003) is the first to use the ceramic differences as a method to elucidate political affiliation. Further, Belize Valley ceramicists focus on this concept at their annual meetings, and suggest that it should continue to be considered in future research in the valley (Reiko Ishihara, personal communication 2003; Ishihara and Awe 2001).

In her dissertation, LeCount (1996) indirectly presents the ceramic distribution pattern in the greater Belize Valley and provides the groundwork through her ceramic analysis at Xunantunich. Her results show a near absence of the Garbutt Creek Red ceramic group at Xunantunich and adjacent communities, and high frequencies of Mount Maloney sherds from LCI through TC. Percentages of Mount Maloney are as high as 30 to 40 percent of the total ceramic assemblage during LCII and TC. Further, she points out the rarity of other ceramic groups in the sample, including Yalbac Smudge Brown, Dolphin Head Red, and Vaca Falls Red; the latter two types are part of the red slipped calcite tempered analytic unit.

Taschek and Ball (2003) also noticed a predominance of Mount Maloney ceramics near Xunantunich. They recognized this during fieldwork on the Mopan-Macal Triangle Project (1991-1998), which looked at the area between the Mopan and Macal Rivers south to the Vaca Plateau.

Yeager's (2003: 55) study compares ceramics from Barton Ramie, located 22 km east of Xunantunich along the banks of the Belize River, with those from San Lorenzo, located near Xunantunich, and notes that the two communities participated in different ceramic distribution networks. Yeager cites Gifford's (1976) result of less than 2 percent of the total ceramic assemblage as Mount Maloney relative to 16 percent as Garbutt Creek and Vaca Falls at Barton Ramie. Garbutt Creek Red ceramics are nearly absent at San Lorenzo and the percentage of Mount Maloney is between 30 to 40 percent.

Members of the Belize Valley Archaeological Reconnaissance project have also made mention of this pattern (Awe, Aimers, Conlon, Helmke, Ishihara, and Moore, personal communication 1999 through 2003). Through the long history of excavation at Baking, it has become apparent that low frequencies of Mount Maloney are present and Garbutt Creek is much more common.

Connell (2000) in his dissertation assesses changes in regional integration during the Late Classic power shift from Buena Vista del Cayo to Xunantunich. The analysis focuses on four approaches of integration: political, ideological, economic and military. Connell uses the small satellite community of Chaa Creek, which he sees as located at the nexus of three potential polities, determined using central-place analysis to the Upper

Belize River Valley (from Ball and Taschek 1991). Using this analysis, he provides support for the accuracy of the central place model near Chaa Creek.

Connell (2000) divides his analysis into the LCI and LCII time periods using both microseriation on sherds from the Mount Maloney Black ceramic group and laws of stratigraphy (as his data are from stratified mound deposits), as well as other standard dating methods. At Chaa Creek, there are clear differences between the LCI and LCII periods. During the LC I period there are nearly equal concentrations of red and black sherds. Later, there is a high concentration of Mount Maloney ceramics during the LC II period and thus strong affiliation with Xunantunich during that time. He interprets this shift as changing allegiance where the people of Chaa Creek change from a more neutral or mixed political stance prior to the rise of Xunantunich to strong allegiance after the rise.

Xunantunich rose to prominence in the Belize Valley during the later part of the Late Classic, 10 years after the fall of Naranjo around A.D. 820 (Ashmore and Leventhal 1993; Connell 2000; LeCount 1996). Interestingly, at elite structures within the site of Chaa Creek during LCI, more red wares are found than elsewhere at the site. During LCII these same structures contain almost no red wares. This switch during LCII to mostly black pottery suggests a punctuated replacement as Chaa Creek sub-elites shift their allegiance from political powers to the east to Xunantunich, thus insuring the survival of lesser elites in the new political scene (Connell 2000). Contrarily, smaller structures during LCII tend to have both a higher concentration of red wares and more

Garbutt Creek Red group ceramics than elite structures. Connell suggests that the LCI ceramic distribution is explainable through distance-decay models, where ceramic concentrations decrease with increased distance from the source. During LCII, the data is better represented by a plateau, where Mount Maloney concentrations remain high throughout the polity and drop off steeply at the edge (Connell 2000).

While Connell neatly lays out means of interpreting results from communities associated with Xunantunich, eastern polities remain a nebulous unknown. Without understanding the politics in the eastern Belize Valley, use of this method only provides results on a broad level and site-specific affiliations will require other means. In addition, Connell analyzes a community on the edge of the Xunantunich polity that is thus subject to influences from both Xunantunich and political entities to east. The data clearly show a stronger affiliation during the LCII when Xunantunich rose to political power. Unfortunately, in the region east of the Xunantunich polity, such a political history is not as developed and the actual central site of the polity is not yet defined. However, examination of ceramics within the polity to the east consistently yields high concentrations of Garbutt Creek reds and low densities of Mount Maloney Black sherds.

Further, specific lip forms of the Mount Maloney group allow for seriation into LCI, LCII, and TC time periods allowing Connell to utilize these time periods as temporal analytic units. This method of seriation has not yet been established for the Garbutt Creek group and therefore the group must be analyzed on a broader temporal scale.

4.5 Archaeological Evidence for Spatial Patterning in the Belize Valley

Establishing clear boundaries during specific temporal periods in the Belize Valley for the distribution of red and black wares and Garbutt Creek and Mount Maloney groups is difficult as the current data are not easily comparable. While much of the data from the Xunantunich project is temporally divided into LCI, LCII, and TC periods, data from other sites is divided into the Tiger Run (LCI) and Spanish Lookout (LCII and TC) complexes. Thus, temporally sensitive changes in sherd density are not evident. For example, at Chaa Creek Connell's (2000) data show a near equal density of red and black calcite slipped wares during LCI and a shift to predominantly black wares during LCII. Thus, until comparable data is available, the boundary zones between Xunantunich and the eastern polity cannot clearly be established. However, with the current data, the basic areas of influence can be established (see Figure 5 for location of relevant sites discussed below).

4.5.1 Archaeological Sites with Red Wares and Garbutt Creek Red

At the site of X-ual-Canil east of the Macal River and south of Cahal Pech (Iannone 1996) analysis of midden revealed 78.2 percent red calcite sherds relative to 21.8 percent black when compared directly; this data dates generally to the Late Classic (Connell 2000). Sunahara (1995) similarly reports high percentages of Late Classic red

wares, 91.2 percent, compared to 8.8 percent at the site of Pacbitun, located in the Karst hills well south of the Belize River floodplain.

Archaeologists working in the Belize Valley on the site of Baking Pot report a predominance of red wares and Garbutt Creek bowls over black wares and Mount Maloney bowls (Jim Aimers, Jaime Awe, Jim Conlon, and Allan Moore, personal communication in Connell 2000). Excavations in the patio group Atalaya, 275 m south of the Baking Pot site core, support this conclusion (Conlon and Moore 2003). Compared directly, red wares comprise 87.2 percent of the Spanish Lookout complex monochrome calcite tempered sherds relative to 12.8 percent for black wares. Comparing the Garbutt Creek group to the Mount Maloney results in a ratio of 68.8 percent Garbutt Creek and 31.2 percent Mount Maloney. Unfortunately, the groups are not broken into forms and the comparison cannot be made on the form level, thus either percent could be artificially skewed upward.

Excavations at Structure 203 of Baking Pot, a low mound 80 m northeast of the site core, reveal a paucity of black wares (Weller 2002). Unfortunately, in the analysis, a combined percentage included red slipped calcite tempered sherds with ash tempered Belize Red sherds and totaled 80 percent of the sample. Mount Maloney and several other black slipped wares make up approximately 2 percent of the sample. Nevertheless, at Xunantunich, concentrations of Mount Maloney Black exceed 40 percent of the entire ceramic sample (LeCount 1996), while forming a very small percentage at Structure 203.

The site of Barton Ramie is 4 km east of Baking Pot and is a surveyed area consisting of 262 mounds with no central group or major architecture. The majority of structures are single house mounds with a few interspersed larger mounds (Willey et al. 1965). Red wares from Spanish Lookout complex contexts comprise approximately 21 percent of the Late Classic Barton Ramie ceramic sample while black wares are less than 2 percent. When the Garbutt Creek Red and Mount Maloney Black groups are compared directly, Garbutt Creek comprises 85.9 percent of the collection relative to 14.1 percent.

During the 1998 WBRCP season, several excavations were undertaken in the site core of Cahal Uitz Na (Ehret and Conlon 1999; Ferguson 1999). Cahal Uitz Na is a major center in the upper Roaring Creek Valley, consisting of six connected plazas, a sacbe leading to the entrance of a cave, and 30 site core mounds, the largest of which is more than 13 m above the plaza (Conlon and Ehret 1999). While no quantification or formal analysis of the ceramics recovered from the excavations and surface collections has been conducted, an inventory of types show the presence of Late Classic red slipped calcite tempered wares and an absence of Mount Maloney. Excavations in 2000 in the sacbe resulted in nine sherds from the Garbutt Creek group and 12 red ware sherds (Halperin 2000a). While these results may be preliminary, the absence of Mount Maloney is suggestive of affiliation of within the eastern polity.

Structure ATM-M1 located north of the entrance to Actun Tunich Muknal and roughly 0.5 km west-northwest of the Cahal Uitz Na site core was excavated during the WBRCP 1999 season. This structure was interpreted as have a special function, rather

than residential or craft based (Song et al. 2000). The primary determinant, in addition to architectural and artifact interpretations, is that one of the plaster floors was covered with specular hematite red paint. From this mound, 2,882 sherds were collected, 206 of which were diagnostic. From this sample, 22 sherds were typed as part of Garbutt Creek ceramic group (10.7% of the diagnostic sample) and two as part of the Mount Maloney ceramic group (1.0% of the diagnostic sample; Helmke 2000; Song et al. 2000). When comparing all red slipped calcite tempered wares to black, the result is a ratio of 117 red to two black (98.3% red to 1.7% black; Helmke 2000).

4.5.2 Archaeological Sites with Black Wares and Mount Maloney Black

It has been well established that the Mount Maloney group dominated at Xunantunich (LeCount 1996). This pattern continues into the small communities of San Lorenzo (LeCount 1996; Yeager 2003) and other mounds near the Xunantunich core. Excavation in this area also reveals near absences of Garbutt Creek ceramics and Vaca Falls and a low amount of Dolphin Head Red.

4.5.2.1 Nohoch Ek

Other excavations in the local region near Xunantunich exclusively resulted in Mount Maloney ceramics in analyzed collections and reporting. Nohoch Ek (Coe and

Coe 1956; Taschek and Ball 2003) is a hilltop Late Classic minor center consisting of three architectural groups, the largest a masonry-reinforced plaza with six structures. It is roughly 5 km northeast of Xunantunich. Taschek and Ball (2003) report a variety of forms of the Mount Maloney type similar to results findings from Xunantunich. While no quantification or breakdown of ceramic types or groups is provided, much discussion is made of the diversity within the Mount Maloney group at Nohoch Ek and no mention is made of ceramics relating to the Garbutt Creek group. From a qualitative perspective, these data clearly fit Late Classic Nohoch Ek into the Xunantunich sphere of influence.

4.5.2.2 Melhado

The Melhado site, located near the confluence of the Mopan and Macal rivers above the west bank, was excavated in 1956 (Willey and Coe 1956) prior to the publication of Gifford's (1976) typology of ceramics from Barton Ramie. However, excavations were after Thompson's (1940) investigations at Xunantunich, who first published type descriptions of the site's ceramic. Results of the Willey and Coe investigation indicate the presence of Thompson's Fugitive black ware, the former name of Mount Maloney Black group, at the site. Approximately 50 of the sherds identified at the site are part of the Fugitive Black ware group and consist of incurving bowls, jars, dishes, and other decorated forms. Red wares identified at the site are mostly tuff (or

ash) tempered and therefore are likely part of what Gifford later typed as the Belize Red group. Thus, the Melhado site appears to fall into the Xunantunich sphere of production.

4.5.2.3 Chaa Creek

Connell's (2000) excavations at the site of Chaa Creek reveal a change in red to black wares over time. During LCI there are similar amounts of red and black wares at the site (52.1% red and 47.9% black). Later in the Late Classic (LCII) the quantity of black wares increases to 73.7 percent. During the Terminal Classic (TC) the black wares increase to 78.6 percent. When comparing Garbutt Creek Red to Mount Maloney Black, 85 percent is Mount Maloney Black during LCI and 92.7 percent during LCII. Connell provides no data for the TC period.

Connell (2000) interprets these data as showing that Chaa Creek during the LCI period participated in interactions in both eastern portions of the Belize Valley and with Xunantunich. During the LCII, focus switches and there is more interaction with Xunantunich and this pattern continues into the TC period.

4.6 Discussion

Based on the data above, a rough boundary line for the divide between red wares and black wares is the Macal River. Sites west of the river are within the Late Classic

Xunantunich sphere of influence while sites east of the river are part of another polity, or possibly polities. Connell (2000) shows that at one point, during the LCI period, the influence of Xunantunich was much less and Chaa Creek hypothesizes that the site had a closer affiliation with the eastern polities. When Xunantunich rose to its greatest level of influence during LCII, densities of red wares at Chaa Creek dropped and he suggests the site was much more clearly related to Xunantunich.

One of the major problems with the above archaeological comparative data from other sites in the Belize Valley is the lack of tight temporal control. Most of the ceramic data from the eastern Belize Valley generally dates to the Late Classic (LCII and TC at Xunantunich). Since the presence of Mount Maloney is commonly found in low concentrations, at most settlement in this part of the Belize Valley, there is obviously some interaction between these sites and Xunantunich. However, the lack of diversity of the Mount Maloney group in the eastern part of the valley and the lower concentrations is clearly an indication of separate ceramic production areas (Yeager 2003).

While the distribution of red and black wares in the Belize Valley has been clearly established, the theory is still in its infancy. Further excavation with stratified and synchronic sealed contexts must be completed. LeCount (1996) has shown that the lip forms of the Mount Maloney bowls are tied to specific temporal periods. Similar lip forms are found on Garbutt Creek Red bowls. If this mode of production in the Garbutt Creek Reds is indeed temporally sensitive, more tightly dated comparisons can be made between sites.

5.0 RESULTS

Ceramic data collected from Barton Creek Cave during the 2000 and 2003 WBRCF field seasons indicate that the cave was utilized by the ancient Maya from the late facet of the Middle Preclassic through the Terminal Classic (600 B.C. to A.D. 900). Ceramics were the most plentiful and diverse artifact class recovered from the cave. A minimum count of 7170 sherds were documented within the utilized areas of Barton Creek Cave represented by 41 types (as defined by Gifford 1976). This total was derived from the sum of all collected specimens and counted sherds left in the cave (non-collected specimens). It is probable that additional sherds were not counted because they were buried in guano, which was not probed, or covered with flowstone.

5.1 Condition of the Ceramic Sample

The majority of the ceramic collection was highly fragmented. Average sherd size ranged between 8 to 15 cm. Most of the fragmentation seemed to occur in antiquity; however, freshly broken specimens were observed in most areas of the cave. Nevertheless, the assemblage consisted a fair number of large sherds or complete vessels.

Most of the collection seemed to be located in situ; however, in certain areas recent movement was highly apparent. Ledge 7 has a history of visitation by tourists and, likely, as an enhancement sherds were consolidated into piles at several areas on the

ledge. In addition, it appears that ceramic specimens may have been imported to Ledge 8 for display purposes. Numerous piles of similar sherds were found in Area A of Ledge 2 evidencing a collectors attempt to reassemble vessels.

Evidence of recent intrusion was observed in most areas of the cave and the cave has a history of being looted. Thus it is likely that unique, complete, and highly valuable (by monetary standards) ceramic vessels have been taken from the cave. Fortunately, this will not have heavily impact the present study, as enough material is present in the cave in its original context to provide data for theoretical questions in cave archaeology.

5.2 Ceramic Distribution in Barton Creek Cave

Ceramic artifacts were well represented in all areas of the cave that were utilized by the ancient Maya (Table 5.1). Nearly all other artifact classes and features types were associated with or located near ceramic material. Generally, large open and flat areas tended to have higher concentrations of sherds while small and difficult to access areas tended to have low frequencies. The highest concentrations of sherds were found on Ledge 2, located within the penumbral zone, and Ledges 6, 7, and 8, which are within close proximity of each other. Densities of sherds on these ledges exceed the average for the entire cave. These four ledges also exhibited the greatest time depth within the cave.

Table 3: Ceramic Distribution within Barton Creek Cave

Ledge	1								2				3		4	5	6		7		8			9		10	11
Area	A	A	B	C	D	E	F	H	A	B	A	A	A	B	A	B	A	B	C	A	B	A	A				
Total	100	672	469	739	188	25	unk	14	32	63	223	4	1371	5	870	10	82	1661	554	20	5	3	60				
Ledge Total	100	2107								95		223	4	1376		880		2297			25		3	60			
Cave Total	7170																										
Area per Area	240	76	129	153	98	10	6	12	50	56	124	130	29	10	316	27	31	64	68	203	215	309	361				
Density per Area	0.417	8.842	3.636	4.830	1.918	2.500	unk	1.167	0.640	1.125	1.798	0.031	47.276	0.500	2.753	0.370	2.645	25.953	8.147	0.099	0.023	0.010	0.166				
Area per Ledge	240	484								106		124	130	156		343		163			418		309	361			
Density per Ledge	0.417	4.353								0.896		1.798	0.031	8.821		2.566		14.092			0.060		0.010	0.166			
Cave Density	2.530																										

Table 3 shows that Ledges 2, 6 and 8 have significantly higher densities of sherds than the cave as a whole. Ledge 7 has a near equal density to the cave average. These four areas also tend to have the highest diversity of other artifact and feature types and have the highest quantity of ash lenses. Thus, there is a clear correlation of quantity of ceramics to amount of activity on a ledge.

Sherds and vessels were found in a variety of contexts. On the open areas of ledges, sherds tended to cluster in depressions and near the walls. The highest concentrations of sherds were found in depressions in the bedrock, which in one case nearly amount to 1,500 specimens. Many were associated with rock clusters and ash lenses. Whole, or nearly complete, vessels tended to be found, in most cases, on small ledges, in alcoves, and within niches. In one instance, a large olla was found within an alcove beneath a dripping stalactite, which had covered the entire vessel with flowstone.

5.3 Vessel Forms Identified in Barton Creek Cave

A sample of 246 sherds (or 3.4% of the collection) from most areas of the cave was analyzed for vessel form (Table 4). This sample includes all collected sherds that possess enough characteristics to allow for type: variety identification. Generally, this includes rim sherds larger than 10 cm in size. Nearly half of the collection analyzed consists of jar sherds. Bowls and dishes comprise the other half. Special forms identified include shoe pots, brandy snifters, censurs, ceramic discs, expedient bowls, and one spouted olla. It has been fairly well established that ollas are the most common vessel form in caves in the Belize Valley (Helmke and Ishihara 2001).

**Table 4: Ceramic Vessel Forms
within Barton Creek Cave**

Vessel Type	Count	Percent
Jar	113	45.9%
Bowl	84	34.1%
Dish	31	12.6%
Censor	5	2.0%
Brandy Snifter	4	1.6%
Shoe pot	4	1.6%
Pecked Disc	3	1.2%
Expedient Bowl	2	0.8%
Total Analyzed	246	100.0%

5.4 Killed Ceramic Vessels

It is well recognized that in the Maya area ceramics in certain contexts will show signs of having been deliberately damaged. This is referred to as “killing” the vessel and is thought to relate to its use in ritual. In Barton Creek Cave, several methods for killing vessels were evident. The most common method observed, seen on complete vessels, was the removal of a small chip (generally less than 5 cm) from the lip. This type of killing was observed most commonly in ollas and rarely in bowls. Kill holes, small holes (1 to 2 cm in diameter) punched through the side of a vessel, are also common in Barton Creek. Concooidal fractures in the vessel matrix indicate that the holes were both punched from the inside out and vice versa. Finally, the bases of four ollas were punched out. Large rectangular sherds 5 to 10 cm were broken from the base yet the remainder of the vessel was intact. The resultant sherds in all cases were not observed in vicinity. Two of these ollas were placed on ledges, one was beneath dripping formations, and the fourth was inverted (with lip to the floor) in the center of a chamber near a metate. Interestingly, this form of killing renders the vessel useless in terms of holding or storing offerings (especially liquid) in the cave.

5.5 Frequency of Ceramic Complexes at Barton Creek Cave

A sample of 193 sherds (2.7% of the ceramic population) was identified to type and variety level; this sample is analyzed below. Results of the study indicate that the frequency of ceramic artifacts increases with time (Table 5). For instance, the largest quantities are from the Spanish Lookout complex, which dates to the Late Classic period, while the lowest quantities of ceramics are from Preclassic complexes (Floral Park, Barton Creek, and Jenney Creek); no Post-Classic specimens were observed. This pattern has frequently been observed in the caves found in the Belize Valley (Helmke and Ishihara 2001)

Of the complexes represented in the sample, approximately 76 percent of the collection dates to the Spanish Lookout complex, the Tiger Run complex comprises nearly 12 percent, while 9 percent are Hermitage. Unfortunately, this pattern is not indicative of increased use with time, as the Maya revisited many ledges in the cave during its period of use. It is well known by cave archaeologists that, prior to utilization of an area within a cave, the Maya would sweep artifacts that accumulated from past activities over ledges and into cracks and crevasses (Holley Moyes, personal communication 1998). Therefore, at Barton Creek Cave, earlier materials may have been swept over the ledge into the water below, which may account for their lower frequencies.

Table 5: Ceramic Distribution Relative to Ceramic Complexes^a

Complex^a	Frequency	Percent	Major Period	Time
Spanish Lookout	148	75.9	Late Classic	A.D 690 to 890
Tiger Run	23	11.8		A.D. 590 to 690
Hermitage	18	9.2	Early Classic	A.D. 290 to 590
Floral Park	1	0.5	Proto/Late Preclassic	0 to A.D. 290
Barton Creek	1	0.5	Late Preclassic	300 B.C to 100 B.C
Jenney Creek	2	1	Late facet of Middle Preclassic	600 B.C to 300 B.C.
^a Complexes are based on Gifford (1976)				

Because the Preclassic represents such a small portion of the ceramic population and because it predates the presence of Garbutt Creek and Mount Maloney ceramic groups as well as the red and black ware dichotomy, no discussion of these complexes will follow. As well, the red-black dichotomy within the Belize Valley between ceramic types has not been observed in ceramics of the Hermitage Complex. Thus, the discussions that follow are limited to the Tiger Run and Spanish Lookout Complexes (LCI, LCII, and TC).

5.5.1 Tiger Run Complex

The identified Tiger Run sherds are primarily jars and ollas (65.2%) primarily from the Zibal Ceramic group (n=8) and Jones Camp group (n=3); Chambers incised, Orange-walk incised, and White Cliff striated were also identified. The remaining 34.8 percent consisted of bowls (n=6) and dishes (n=2). Groups identified include Mountain Pine Red (n=6) and Teakettle Black (n=2). The majority of the Tiger Run material was

found on Ledges 2, 4, and 8.

5.5.2 Spanish Lookout Complex

The Spanish Lookout material consists of primarily bowl and dish forms (more than 50%), most of which are part of the Garbutt Creek ceramic group, followed by Vaca Falls and Dolphin Head Red groups. Jars and ollas comprise roughly 44 percent of the Spanish Lookout analyzed sherd mostly from the Cayo group. Sherds are found well distributed throughout all utilized ledges with high frequencies on Ledge 2, 7, and 8.

5.6 Garbutt Creek and Mount Maloney Ceramic Groups

The inventory of the Barton Creek Cave ceramic collection results in a ratio of 44 Garbutt Creek Ceramic Group specimens (97.1%) to one Mount Maloney Ceramic Group specimen (2.9%). Specific varieties of Garbutt Creek Red include the Garbutt Creek Variety (n=21), Variety Unspecified (Brown; n=6), Variety Unspecified (Bark; n=2), Unidentifiable Varieties (n=6), and Rubber Camp Brown: Rubber Camp Variety (n=9); all vessel forms are bowls (Table 6). The single Mount Maloney Black sherd is classified as Mount Maloney Variety.

The analysis of Spanish Lookout complex (LC II and TC) slipped calcite tempered sherds (Pine Ridge Carbonate) at Barton Creek Cave reveals results similar to

those obtained from the comparison of the Garbutt Creek Ceramic Group with Mount Maloney Ceramic Group. The analysis found 75 (98.7%) red sherds to one (1.3%) black. Red wares comprise 50.7 percent of the Spanish Lookout materials compared to 0.7 percent for black wares. Red wares identified in the Barton Creek Cave collection from the Pine Ridge Carbonate ware include the Dolphin Head (n=14), Garbutt Creek (n=44), and Vaca Falls groups (n=17; see Table 6 for type: varieties). Documented black wares from the Pine Ridge Carbonate ware include a single Mount Maloney bowl (n=1).

Table 6: Red slipped calcite tempered sherds identified in Barton Creek Cave

Type	Variety	Bowl	Dish	Total
Dolphin Head Red Group				14
Dolphin Head Red	Dolphin Head Variety	8	4	12
Silver Creek Impressed	Silver Creek Variety	0	2	2
Garbutt Creek Red Group				44
Garbutt Creek Red	Garbutt Creek Variety	21		21
Garbutt Creek Red	Variety Unspecified (Brown)	6		6
Garbutt Creek Red	Variety Unspecified (Bark)	2		2
Garbutt Creek Red	Variety indeterminate	6		6
Rubber Camp Brown	Rubber Camp Variety	9		9
Vaca Falls Red Group				17
Vaca Falls Red	Vaca Falls Variety	4		4
Duck Run Incised	Duck Run Variety (<i>brandy snifter</i>)			3
Roaring Creek Red	Roaring Creek Variety		10	10
Total Red Slipped Calcite Tempered Sherds: 75				

Analysis of the Tiger Run complex (comparable to LCI at Xunantunich) material reveals that 26.1 percent (6 of 23 specimens) of the analyzed sherds from this complex are red slipped calcite tempered. The entire Tiger Run monochrome slipped calcite tempered sample would be considered red ware and thus not affiliated with Xunantunich.

6.0 DISCUSSION AND INTERPRETATIONS

During LC I, Xunantunich had limited influence over politics in the valley (LeCount 1996). While the Mount Maloney ceramic group was produced at the time, the distribution was limited to the Xunantunich area and few forms were available (LeCount 1996). Gifford's analysis of the Barton Ramie collection documents an absence of the group during the period during the Tiger Run (roughly corresponding to LC I). Thus, the absence of Mount Maloney during the early part of the Late Classic fits with the expected regional distribution of the type and clearly places Barton Creek Cave as part of the political scene in the eastern part of the valley during LCI.

Unlike Chaa Creek, in which Connell (2000) sees a change in affiliation between LC I and LC II (Tiger Run and the early facet of Spanish Lookout complex), Barton Creek Cave remains clearly associated with the politics in the eastern Belize Valley. Unfortunately, sherds at Barton Creek Cave cannot be divided between LC II and TC; however, the near absence of Mount Maloney at Barton Creek Cave makes this moot as the entire period is clearly dominated by red wares. Thus, while sites such as Chaa Creek become more strongly associated with Xunantunich, Barton Creek Cave remains solidly associated with the eastern Belize Valley during LC II.

6.1 Comparison with other caves

Examination of the ceramic collections from caves in the Belize Valley show that a similar pattern exists at cave sites as found at surface sites with regard to red and black wares. As with surface sites, ceramic data from caves is not consistent and completely comparable; however, enough published data exist that a preliminary model can be constructed to show spatial patterns.

The sinkhole tunnels of Aktun Tunichil Muknal are a series of small overlapping solution and breakdown passages. A significant quantity of ceramics from this area were collected and analyzed by Chris Helmke (1999:156-161). This sample contains specimens from the Hermitage through the Spanish Lookout Complex, with more than 60 percent of that assemblage within Spanish Lookout. A cylindrical vase with tripod oven foot supports and bands of pseudoglyphs suggests use by higher status individuals. Approximately four Garbutt Creek Red and one Mount Maloney Black sherds were documented in the area.

The Burial Chamber of Aktun Tunichil Muknal, 500 m from the entrance and well within the dark zone of the cave is a dense archaeological deposit consisting of mostly ceramics and human remains. Identified ceramics in the chamber date exclusively to the Spanish Lookout Complex (Moyes 2001; Moyes and Awe 1998) as inferred from the analysis of 1,407 diagnostic ceramic artifacts (Moyes 2001). From this sample, 33 Garbutt Creek Red (includes two Rubber Camp Brown sherds) and no Mount Maloney

Black sherds were identified. The collection contains 54 red slipped calcite tempered sherds and no black wares.

Not only are there similarities between Actun Tunichil Muknal and Barton Creek Cave in physical characteristics, but the ceramic collections in terms of red wares are nearly identical. Both caves are large river caves, putting forth significant volumes of water and most of the archaeological remains are found on ledges and chambers above the water. Cave-wide, there are 37 Garbutt Creek Red group sherds to one Mount Maloney. In terms of red and black wares, 98.3 percent compares to 1.7 percent, respectively. This cave, like Barton Creek Cave is solidly associated with the eastern Belize Valley.

Actun Nak Be is a small U-shaped cave in core of Cahal Uitz Na connected to a major plaza by a 240-m causeway (*sacbe*). A sample of 264 diagnostic sherds was recovered from the ballast of the *sacbe* leading into the entrance of Actun Nak Be and from the cave itself. Nine Garbutt Creek Red group sherds and 16 red wares were identified from the cave interior, while nine Garbutt Creek Reds group sherds and 12 red wares were found in the causeway fill. No Mount Maloney or black wares were identified associated with Nak Be.

Located roughly, 3 km down the valley from Cahal Uitz Na, Tarantula Cave consists of a series passages through collapse; solution characteristics of the cave are rarely observable. Investigations in the cave documented the presence of four, possibly five, bowls from the Garbutt Creek ceramic group (Helmke 2000; Helmke et al. 1999).

While both Nak Be and Tarantula contain relatively small samples, the absence of black wares and Mount Maloney sherds from these caves still implies a strong affiliation with the eastern Belize Valley.

Cueva Migdalia is a 230-m long cave roughly 2.5 km south-southwest of Barton Creek Cave located on the karst above. Analysis of ceramics show the presence of 17 Garbutt Creek Red group wares compared to three Mount Maloney. When red wares are compared to black, there are 21 red slipped calcite tempered sherds to three black wares (Helmke and Ishihara 2001).

These caves are all located east of the Macal River and it would be expected that they are part of the eastern polities. Actun Tunich Muknal and Actun Nakbe are both within close proximity to the site core of Cahal Uitz Na and Tarantula is located only a few kilometers down the valley. Migdalia, associated with the Barton Creek Valley and is closer to Pacbitun. Thus, between Barton Creek Cave and these other examples, there is evidence that caves seem to follow the same pattern as surface sites in the eastern polities.

West of the Macal River, there are a number of examples where ceramic samples have a high concentration of black wares and Mount Maloney bowls. Che Chem Ha Cave is located in the hills forming the northern Vaca Plateau, 1 km west of the Macal River, and 10 km southeast of Xunantunich. Approximately 300 m of passage and chambers were mapped as part of the cave. Ceramic analysis resulted in 51 Mount Maloney Bowls as compared to three Garbutt Creek Red bowls. Thus, compared

directly, 94.4 percent of the sample is Mount Maloney and 5.6 percent is Garbutt Creek Red. The examination of red wares to black wares resulted in 74 black ware sherds of various forms as compared to 16 red ware sherds (82.2% black to 17.8% red). Mount Maloney Black group sherds make up 14.1 percent of the entire ceramic collection and 28.4 percent of the Late Classic sample (Moyes 2006).

While Barton Creek Cave and Aktun Tunichil Muknal solidly fall into affiliation of the eastern polities, Che Chem Ha fits clearly into a pattern of affiliation with Xunantunich. Like surface settlement in the Xunantunich area, a large percentage of ceramic material is classified as part of the Mount Maloney ceramic group. Further, the sample includes other Mount Maloney forms such as jars, which are common within the LCII in the Xunantunich area of influence (LeCount 1996).

Actun Halal is small shelter cave located west of the Macal River roughly 26 m long and with no dark zone. Surface collection during the 1999 field season resulted in four Garbutt Creek sherds, four Mount Maloney, five red ware sherds, and 14 black ware sherds (Griffith and Helmke 2000). The 2000 field resulted in the documentation of 18 black ware sherds to 20 red ware sherds (Ishihara 2001). Analysis of the excavation data from the 2001 field season sample revealed the presence of 31 black wares relative to 11 red wares (Ishihara 2002). Combining the data, 63 black ware to 45 red wares sherds (or 58% black to 42% red) were recovered.

Actun Chapat is a large cave on the west side of the Macal River with two entrances connected by a large passage. Ceramics collected during the 2000 field season

unexpectedly resulted in 26 black wares and 50 red wares. A closer look at incurving bowls shows 19 Mount Maloney Black specimens relative to five Garbutt Creek Red sherds during LC I and no Mount Maloney Blacks relative to 10 Garbutt Creek Reds during LC II (Ishihara 2001).

Subsequent investigations in other sections of Actun Chapat show a reversal of the pattern (Ishihara 2002), where 45 black ware sherds were identified relative to eight red ware; unfortunately, it was not possible to divide portions of this sample into LC I and LC II. Combining both samples puts a Late Classic total of 71 black wares sherds to 58 red ware (or 55% black to 45% red).

Actun Tunichil Muknal bears strong resemblance to Barton Creek Cave in many respects. The cave is both structurally (geologically) similar and has a very similar cultural component. In addition to having almost no black ware sherds and a high frequency of red ware sherds, both caves are a high quantity of human interments and other ceramic material. As well, Cahal Uitz Na and Tarantula Cave, while lacking the quantity of interments and sheer numbers of artifacts, both have almost an exclusive assemblage of red wares. This group of caves cluster in an area where centers are also particularly high in densities of red ware.

Che Chem Ha is similar to this group of caves except it has a high density of black wares and Mount Maloney Black ceramics. Actun Halal, Chapat, and to a lesser extent Actun Migdalia fall into more of a middle ground. While Halal and Chapat trend towards a higher density of black wares, significant quantities of red wares are present in

their samples. While Migdalia has nearly all red wares, the quantities of Mount Maloney sherds present could be significant in regional politics.

6.2 Interpretations

This model is significant because it provides a method for determining which polity is utilizing certain caves. This is a step forward in interpreting the political geography of sacred places because it allows for classification of caves into specific political entities. However, classification is not bimodal but a continuum where caves can fall within a middle ground requiring the analysis of additional variables to sort out political affiliation.

Based on the Barton Creek Cave results and data from several other caves in the Belize Valley, three general classes of affiliation are observable. The most basic class is that caves follow the rules of regional politics and neatly fall into one political sphere. Barton Creek Cave, Actun Tunichil Muknal, Actun Nakbe, and Tarantula cave clearly fit this class and are associated with the eastern polity. As well, Actun Che Chem Ha is strongly affiliated with the people of the Xunantunich polity.

This level of analysis does not directly tie any one cave to any single center. It infers that people from Baking Pot, the Barton Ramie area, Pacbitun, Cahal Uitz Na, X-uul-Canil and possibly areas in between are using the caves in the eastern polity. It further does not predict what class is utilizing the caves, as the analyzed red wares are

typical in both elite and commoner contexts as well as in utilitarian and ceremonial.

Based on this analysis, it can be argued that the people using Che Chem Ha and to a lesser extent Chapat and Halal participate in Xunantunich's exchange network and the people using Barton Creek Cave, Actun Tunichil Muknal, Nakbe, and Tarantula and, to some amount, Chapat and Halal, participate in the eastern polity's exchange network.

Caves with mixed ceramic samples are more difficult to interpret. Two scenarios are possible based on the Belize Valley data. Caves could be located in contested areas and change affiliation over time. With more temporally sensitive analysis of the Actun Chapat and Actun Halal samples, shifts in affiliation over time may be visible. Thus, it is possible that these caves were part of the eastern polity during LCI. When Xunantunich rose to prominence during LCII, peoples from that polity began using the cave. This suggests that people from centers in the eastern polity during LC I and people from Xunantunich and affiliated sub-centers are traveling to these contested caves.

Alternatively, as Xunantunich rose to power the people utilizing the caves changed affiliation and began participating in the Xunantunich exchange network. Thus, between LC I and LC II, people near Chapat and Halal received fewer goods from the east and began acquiring materials from Xunantunich and these goods were placed in the caves as offerings implying a local use of the cave. These interpretations illustrate the overlap of religion, economics, and politics among the ancient Maya and show the need to analyze a caves assemblage on both site-by-site and regional level.

A second interpretation of caves with mixed ceramic samples is that they are politically neutral. This explanation clearly fits the Belize Valley data as well. Analysis of surface site data shows that east of the Macal River, there is a predominance of red wares. Caves such as Barton Creek, Tunichil Muknal, Cahal Uitz Na, and Tarantula are well within the borders of this polity. However, Halal and Chapat are located near the Macal River in an area that could be inferred as middle ground. Connell (2000) demonstrates that this area is a boundary zone through analysis of small surface sites. Thus, these caves could be utilized by people from both polities and act as places of meeting and exchange where religious functions transcend political boundaries and multi-polity functions occur. Alternatively, people are using the cave at different times.

6.3 Conclusion

The problem of associating caves with specific centers or polities has been a problem in the field of cave archaeology for some time. Currently, when caves are found within a site core and associated with architecture, it is now clear how the cave is under political control of that site. However, political control of caves in the hinterlands is not clear. This method begins to solve the problem of associating caves with specific political entities on both a general and more specific level. In the Belize Valley, data shows that certain sites are associated with a polity, which has not yet a defined center, in

the eastern part of the valley, and that other caves are associated with the Late Classic center of Xunantunich.

7.0 SUMMARY

Systematic cave investigations are still new to Maya archaeology. As a result, theories are just beginning to emerge on the extent that the ancient Maya have utilized these resources and on the importance of these geographic landmarks. New studies are showing that caves, wherever present, nearly always contain artifacts from the Maya Preclassic and Classic periods. This alone suggests that caves are important landmarks in ancient landscape. Evidence that the Maya incorporated caves into architecture at major sites or were the destinations of pilgrimages further espouses their important role in ancient Maya culture.

The presence of caves within site cores offers an opportunity to study the political relationship between centers and caves; however, many caves in the Maya region do not possess such an obvious association. In the upper Belize Valley of western Belize, most large settlements are concentrated along the Belize River and its tributaries near alluvial floodplains, while most caves formed at the base of the Mountain Pine Ridge in rugged karst lands. This separation forces the use of different methods for discovering political affiliation.

This thesis demonstrates that political influence on the polity level can be extracted from archaeological data using ceramic analysis. An analysis of the ceramics at Barton Creek Cave show that it is affiliated with a polity or closely related polities in the

eastern part of the Belize River Valley and peoples who participate in Xunantunich's exchange network did not utilize the cave. Analysis of data from other caves shows that this pattern extends beyond Barton Creek Cave and that several different patterns are evident. The Belize Valley data show that caves can be affiliated with one single polity through time, that caves may be in contested areas and that their affiliation changes over time as political powers expand and diminish, or that caves are in politically neutral areas and accessible by multiple political entities. Thus, by understanding economic factors, in this case the distribution of specific ceramic types, political and religious patterns are evident.

These findings add another major pattern of sacred landmark appropriation. Past research has shown that caves on Cozumel Island (Patel 2005) and the site of Naj Tunich (Brady 1994) are pilgrimage destinations. Cave studies at the site of Dos Pilas, in central Guatemala, demonstrated that Dos Pilas elite used caves as symbols of power by incorporating them into several buildings or aligning architecture with them (Brady 1997). As well, in areas lacking caves, artificial caves were excavated beneath prominent architecture and plazas such as at Teotihuacán in central Mexico (Heyden 1973, 1975; Millon 1981) and Utatlan in highlands Guatemala (Brady and Veni 1992). This study describes a third pattern where caves are seen as destinations, or nodes, within a particular polity, sphere of influence.

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