Hidden Village (42SA2112): A Basket Maker III Community in Montezuma Canyon, Utah

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HIDDEN VILLAGE (42Sa2112):
A BASKETMAKER III COMMUNITY IN
MONTEZUMA CANYON, UTAH

by

Donald G. Montoya

A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Master of Arts

Department of Anthropology
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BRIGHAM YOUNG UNIVERSITY
GRADUATE COMMITTEE APPROVAL

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ABSTRACT

HIDDEN VILLAGE (42Sa2112): A BASKETMAKER III COMMUNITY IN MONTEZUMA CANYON, UTAH

Donald G. Montoya

Department of Anthropology

Master of Arts

This thesis focuses on the Basketmaker III period of the Ancestral Puebloan culture commonly known as the Anasazi, which means ‘ancient stranger’ or ‘ancient enemy’ in the Navajo language, or as preferred by the Hopi, “Hisatsinom” for “The Ones Who Came Before.” I use the terms Anasazi and Ancestral Puebloan interchangeably in this study. My particular focus concentrates on a Basketmaker III settlement (42Sa2112 – Hidden Village) in Montezuma Canyon in southeastern Utah. My thesis presents data and an interpretive hypothesis that village formation and complex social organization emerged earlier than most standard texts (Plog 1997) assume.

Analysis of the data I use shows that the Basketmaker III peoples lived in larger, more complex, and more permanent social groups in southeastern Utah than generally thought. Data from other researchers are presented for the existence of substantial Basketmaker III villages in the Four Corners region that consisted of multi-component habitation structures, storage facilities, farming terraces, and great pit houses. By focusing on Basketmaker III village descriptions and Geographical Information Systems (GIS) locational data I show how these settlement patterns support a cultural-ecological framework for settled village life. Furthermore I use the (GIS) site data developed for Hidden Village (42Sa2112), Montezuma Canyon, Utah to illustrate a site plan that may reflect
village planning particular to Basketmaker III social organization, which may be the antecedent to later Puebloan social structure. Spatial analysis provides insight to problems dealing with site distributions (Hodder and Orton 1976). GIS and spatial analysis present opportunities for large-scale regional analyses and predictive modeling of settlement patterns and land use. Previous research and a GIS applications program (ESRI ArcView) are used to show the development of settlement patterns for the Ancestral Puebloan peoples across the Four Corners region of the Southwest. The potential of GIS as a tool for the organization and analysis of spatial data presents research opportunities for the development of new models and methods. GIS applications allow archaeologists to deal with large amounts of spatial data and develop models and methods for analysis.

Using the software applications, I created a GIS map of Hidden Village to demonstrate a method for site mapping that examines the clustering of structures and features within a site. This method can also be used to map sites within a geographic region (Montezuma Canyon) and provides applied methods to test for the organization of villages and communities within a given geography.
ACKNOWLEDGEMENTS

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Finally, I would like to express gratitude to my wife Tia and our six children: Melissa, David, Jared, Ammon, Fawn, and Joseph for providing me with nagging encouragement and boundless support on this incredible journey.
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INTRODUCTION

Villages in the American Southwest were already established by the end of the Basketmaker III period (A.D.750) and by the start of the Pueblo I Period (A.D. 750 - 900) in Anasazi territory (Plog 1997). The Mesa Verde Anasazi established villages along tributaries of the San Juan River that include southeastern Utah. A prevailing hypothesis is that the establishment of villages is the result of adopting agriculture and not by subjection to political and social control compulsion (Plog 1977: 56). My research offers a method of using Geographic Information Systems (GIS) data that addresses the question: Does site layout of large Basketmaker III villages reflect more complex social organization during this occupational Period? Using GIS methods of analysis I propose that village complexity may be reflected by clusters of habitation units in selected locations, and by the presence of community structures. I suggest that Basketmaker III village locations and site plans are consistent throughout the region and site plans reflect similar architecture and site preference. Social organization at the small village level provides a set of rules, political or religious ideologies, and like social incentives that regulates the lives of people which eventually leads to changes in village organization presumably from the Basketmaker to Pueblo transitions (Damp and Kotyk 2000). Site GIS distributional data may reflect more complex social relationships than previously thought.

Archaeological fieldwork in Montezuma Canyon, southeastern Utah (Fig. 1.1), was conducted by Brigham Young university (BYU) field schools and Masters students (Baer
2003, Christensen 1980, Nielsen 1978, DeHaan 1972, Patterson 1975). This research included exploration of a number of Basketmaker III sites. The information derived from this work, along with my own investigations in Montezuma Canyon, particularly at Hidden Village (42Sa 2112 in the Utah State numbering system) constitute my basic data set.

My research focuses on using GIS methods to illustrate how site plans and locations may reflect some evidence for social organization existing in the general pattern of Basketmaker III cultural development. The GIS method is developed by using an applications program, ESRI ArcView that allows intrasite spatial analysis or distributional analysis of the site data. In addition to providing documentation of the site, this method of analyzing GIS information helps in understanding the formation and processes of change. This leads to further research, analysis and conclusions. The old methods utilized for site analysis provide limited exposure to the site and provide only a small picture of patterns over broad spaces. In this study, data are analyzed to determine if Hidden Village and nearby Basketmaker III pit houses and cist sites in Montezuma Canyon meets the criteria to be considered a community as established for other Basketmaker III villages (Roberts 1929, Altshcul and Huber 2000). Additionally, I investigate the question of whether the data meet clustering criteria that would indicate the development of village and community centers? Nested hierarchy systems models (Lightfoot 1994) and social landscape theories have been previously used to view the development of villages and community centers (Baer 2003). The GIS methods in this study were developed and tested by examining site distribution data accumulated from other research (Roberts 1929, Wills and Windes 1989, Gilpin and Benallie 2000, Altshcul and Huber 2000, Damp and Kotyk 2000). On the basis of this research I explore important questions relating to social change in village life of Basketmaker peoples.
My research develops a method for correlating intrasite data sets that may lead to a settlement and subsistence model based on Basketmaker site distribution data from larger site location data sets available through state archeological archives such as IMACS in Utah and NMCRIS in New Mexico.

The results of earlier research on studying site distribution and layout patterns suggest that a social network of relationships existed among early Anasazi (P-I) peoples (Lightfoot 1994). I suggest that this is also true for Basketmaker III peoples as well. Recent research suggests that a socioeconomic network existed as well (Damp and Kotyk 2000). Relying primarily on site surveys, GIS, and IMACS locational data, my study provides an overview of settlement data and analysis for the Basketmaker III period and specifically for Montezuma Canyon, Utah. My expectations at the beginning of the study were that Hidden Village would show some similarities and differences with other Basketmaker III sites considered in this study. I also expected the distribution and layout of sites might show that the patterns of village organization reflect a higher level of social organization than previously discussed (Plog 1997; Wilshusen 1985, 1989; Glassow 1972). My intent in the beginning this study was to see whether it was possible to identify a network of organized Basketmaker III social contacts inferred from the evidence of site distribution and layout.

The question considered in my research is: Were Basketmaker III peoples organized beyond the band level in a more complex social organization in Montezuma Canyon, southeastern Utah? By addressing this question and those listed below, I explore what level of social organization may be reflected in Basketmaker III village organization in Montezuma Canyon. This organization may reflect some level of social grouping that is perhaps the antecedent to later Pueblo II-III clans and moieties among the San Juan Anasazi. By considering four specific questions, I hope to show that there were
interactions among members of widely separated groups during Basketmaker III times.

Following are the four questions:

1. What are the cultural characteristics that define Basketmaker III villages?
2. How does size and layout of Basketmaker III villages reflect social organization?
3. Where are the locations of Basketmaker III villages in southeastern Utah?
4. Given regional patterns of Basketmaker III villages, does Hidden Village identified in this thesis fit the patterns?

I now briefly summarize the remaining context of this study. Chapter 2 discusses the environment and geography of Montezuma Canyon relative to the rest of the Colorado Plateau region. Geographic variables exert a strong influence on human behavior today and in the past. Archaeologists are aware of the significance of the geography and ecology of the past. The environmental setting also impacts the influence of anthropogenic and natural forces.

Chapter 3 provides a historic overview of previous research on Basketmaker III (hereafter also called BM III) occupations and provides a foundation for the methods with which Hidden Village data is developed and tested. Published literature about the Anasazi Basketmaker sites began in the early 1900s and continued with Earl Morris who contributed three decades of works from the 1920s through the early 1950s. From the 1940s to the 1960s very little was published and from the 1960s to the 1990s most of the contributions came from the completion of major public works in Cultural Resource Management (CRM) projects. Approaching the turn of the new millennium renewed studies of the transition from hunter-gatherer to agricultural societies emerged, especially in the Southwest as reflected in the publications, Papers from the 1990 Wetherill-Grand Gulch Symposium (Atkins 1993), and Foundations of Anasazi Culture: The Basketmaker-Pueblo Transition (Reed 2000).

Chapter 4 describes different Basketmaker III villages with public architecture (great pit houses) and positions data from site 42Sa2112 (Hidden Village) in Montezuma Canyon. The chapter exhibits different models and poses problems surrounding the establishment of Basketmaker III villages. Based on work in the Mesa Verde area, Birkedal (1976) and Lightfoot and Feinman (1982) suggest that larger Basketmaker sites reflect inhabitants at the band level of social organization. According to the investigators, however, there is evidence for different levels of social, political, and ritual organization
for later Puebloan periods (Lipe and Hegmon 1989, Lipe and Ortman 2000, Varien and Wilshusen 2002). On the other hand, I suggest that the clustering of residences and the presence of public structures suggest that more complex village life was present or developed at some Basketmaker III sites. Other Basketmaker sites in Montezuma Canyon are discussed in this chapter.

Chapter 5 presents the data from site 42Sa2112 (Hidden Village) in Montezuma Canyon, Utah to fit the proposed models for large Basketmaker villages as presented in the previous chapter. I describe the site and use drawings and photographs to illustrate the architectural features of Hidden Village. Additionally, I present GIS data to show how some elements of spatial analysis could be employed to further analyze the architectural features to evaluate whether the site meets criteria for establishing it as a village.

Chapter 6 is a final discussion with conclusions that identifies Basketmaker III village organization with respect to an integrated environment, including physical space, households, and community centers. I answer the questions first posed in my introduction and support those researchers who argue for higher degrees of social integration among Basketmaker III peoples than is usually believed to have occurred during that time period. The discussion includes a proposal for further research at Hidden Village and similar sites in Montezuma Canyon to include spatial analysis of the distribution of artifacts that might reveal further clues about organized site planning, communal behaviors, and complex social relationships. In my conclusion I call for further research in Montezuma Canyon and southeastern Utah to establish the area for significant use by Basketmaker III peoples. These peoples were socially connected and shared material culture, architecture styles, social organization, and ideological beliefs.
ENVIRONMENTAL SETTING

Indigenous peoples have a symbiotic relationship with the physical environments in which they live. Modern Southwestern peoples generally live in small communal social units, consider themselves in harmony with nature, and are cognizant of their resources and the natural cycles of life. Native peoples, in part, define who they are by the landscape and by the revered places that shape and bind their world. Thus they create a social landscape encompassing the land, natural resources, biotic diversity, and climate. They acknowledge their place in the environment and seek to position themselves in union with the natural and supernatural. Their oral traditions of origin and place or location in their life cycles and cosmologies connect them with all aspects of the environment.

Such it is with the ancient inhabitants of the San Juan River region, particularly the Anasazi peoples of Montezuma Canyon who maintained a land base and a cultural identity that was similar to other ancient Puebloan groups along the river and its tributaries. Although viewed today as marginally productive, Montezuma Canyon and the San Juan River tributaries and landscapes are viewed by native people as the primary resource for subsistence and life ways. They also interpret the region as places of social and religious value. As evidenced by the extensive amount of archaeological data in Montezuma Canyon we can surmise that the ancient inhabitants of the Canyon and surrounding areas also held these beliefs and values about their environment. This fact should inform all those concerned with environmental issues.
THE SAN JUAN RIVER AND MONTEZUMA CANYON

The San Juan River and its tributaries cut deeply across the northern region of the Colorado Plateau. The River and its tributaries cut canyons and gorges through the upper region of the Navajo Reservation, Southeastern Utah, Southwestern Colorado and northwestern New Mexico.

From its headwaters in the high mountain regions of the Abajo Mountains the perennial stream, Montezuma Creek, provided the ancestors of today’s Pueblo tribes with the resources for subsistence and an abundant life. Ancient cliff dwellings and numerous rock-art sites are accessible along the entire length of upper Montezuma Creek; some by short hikes from the stream, others along the county road paralleling Monument Creek. Montezuma Canyon provided permanent homes to settled cultures similar to Chaco Canyon, the Mesa Verde Region, and other Colorado Plateau sites.

Perennial streams like Montezuma Creek, the San Juan River, and its other tributaries provide avenues for interaction of people. Much like the Rio Grande River in latter Puebloan periods (P-IV), the San Juan River and its tributaries may have been a lifeline of support and cultural exchange among earlier peoples including the Basketmaker, Archaic, and Paleoindian occupants.

Significance of Mountain Regions

Until recently, little attention is given in archaeological literature to the significance the high mountain peaks played in the lives of people anciently. Rising more than a mile above the surrounding deserts, grasslands, and pine forests; the highest mountain peaks are a prominent feature of the Colorado Plateau. The peaks rise in dramatic isolation to over 3657 m in some areas and their snow capped summits are often visible from 120 to 160 km away. The San Francisco Peaks are well known due to the publication of Biotic
Communities of the Colorado Plateau with a system developed by C. Hart Merriam (Merriam and Steineger 1890). It is clear that the eco-zones of the Colorado Plateau have provided the resources for human existence since Paleoindian times.

The idea of mapping how plants and animals are distributed across landscapes was a milestone in the science of ecology. Merriam’s careful fieldwork led to wide acceptance of his "life zones" concept. In 1889 Merriam carried out an extensive biological survey of a high mountain region "where different climates and zones of animal and plant life succeed each other from base to summit." The San Francisco Mountains in Arizona were chosen as an appropriate study area "because of its southern position, isolation, great altitude, and proximity to an arid desert." The exceptional biodiversity in a relatively small geographic area delineates "life zones" on a regional scale (Merriam and Steineger 1890).
The climatic gradients, especially temperature, largely determine what type of vegetative community one may find in a given location, and these gradients are largely a function of latitude and elevation. As one moves upward in elevation temperatures decrease and precipitation increases. Regional life zones generally follow elevational belts. At 1524 m a grassland community might be found, but just a few thousand feet higher at 2134 m stands a ponderosa pine forest. Each of Merriam's life zones had one or more dominant species helping delineate that particular zone, e.g., ponderosa pine being the primary indicator of his "Transition" zone. Five of the six zones defined by Merriam occur in relatively close proximity on the slopes of the Colorado Plateau mountain peaks, from the hot depths of Monument Valley in Arizona to the wind swept tundra atop the Abajo and La Sal Mountains in Southern Utah or the San Juan mountains in Colorado. Although there are numerous other factors affecting the distribution of biota, including soil types and slope directions, several distinct biotic communities can be observed from the base of the peaks to their summit, including semi-arid scrub and grasslands, Pinyon-juniper woodlands, ponderosa pine, mixed conifer, aspen, and spruce-

<table>
<thead>
<tr>
<th>Life Zones</th>
<th>Modern Vegetation Zones</th>
<th>Elevation</th>
<th>Annual Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arctic-Alpine</td>
<td>Alpine Tundra</td>
<td>3505-3871</td>
<td>35”-40”</td>
</tr>
<tr>
<td>Hudsonian</td>
<td>Spruce-Fir or Sub-alpine Conifer Forest</td>
<td>2896-3505</td>
<td>30”-40”</td>
</tr>
<tr>
<td>Canadian</td>
<td>Mixed Conifer Forest</td>
<td>2438-2896</td>
<td>25”-30”</td>
</tr>
<tr>
<td>Transition</td>
<td>Ponderosa Pine Forest</td>
<td>1828-2591</td>
<td>18”-26”</td>
</tr>
<tr>
<td>Lower Sonoran</td>
<td>Mojave, Sonoran, or Chihuahuan Desert</td>
<td>30-1067</td>
<td>3”-12”</td>
</tr>
</tbody>
</table>

Table 2.1  Mirriam’s Six Life Zones Developed from San Francisco Mountains
fir forests. The ancient inhabitants of Montezuma Canyon and the Four Corners region had frequent access to the resources of these varied biotic communities. However, the majority of their occupations are found in the Upper Sonoran and Transition zones 1067-1981 m.

The geology of the region (Colorado Plateau) has numerous mountain formations that provide evidence for the climatic gradients described by Merriam. The volcanic activity and eruptions within the Colorado Plateau were the forces that created these mountain regions. Blocked by massive layers of sedimentary rock, rising magma caused portions of the plateau to bulge into domes or erupt into volcanos. The volcanic eruptions of the San Francisco Peaks and Mt. Taylor, as well as the laccolithic igneous intrusions of the Chuska, Henry, La Sal, and Abajo mountain ranges stand out as stark landmarks against the sedimentary sandstones of the Colorado Plateau. Indigenous peoples in the areas of the Abajo Mountains, Montezuma Canyon, and other regions of the Colorado Plateau held the high mountains and their variety of ecological zones as locations of abundant resources. Archeological records show the ebb and flow of humankind in these regions since Paleoindian and Archaic manifestations.

The San Francisco Peaks 3658 m in northern Arizona are sacred to Pueblo (Hopi) and Navajo tribes. The Peaks have special spiritual and resource significance to both of these tribes, who claim ancestral rights to the mountains. In the Hopi world, Katsinas (spiritual being) live in the mountains. To the Navajo, the San Francisco Peaks are a physical manifestation of sacred forces. Both tribes make pilgrimages to the mountains for ceremonies or to collect medicinal plants. The interactions with the mountains by these people speak of their deep religious and social ties to the landscape. It is assumed that the Basketmaker people had similar religious and social ties to the landscape. One of the only remaining archaeological evidence of ideology or belief systems is rock art,
which has varied interpretations by modern scholars and others.

Mt. Taylor at 3444 m, in the San Mateo mountains north of Interstate 40 near Grants, New Mexico, stands starkly alone in the landscape and is sacred to both the Zuni Pueblo and Navajo peoples. Its snow capped peak can clearly be seen from Albuquerque 60 miles away as well about the same distance from Chaco Canyon. On the eastern slopes of Mt. Taylor are numerous Basketmaker III sites that are distributed differentially from the previous cultural expression of Basketmaker II.

The conifer forests of the Chuska Mountains were important to indigenous peoples of the Colorado Plateau for thousands of years. The Chuska Mountains in the middle of the San Juan Basin account for much of the average annual surface water, which originates in this region's ponderosa pine forests. Black Creek Valley separates the Chuska Mountains from the Defiance Plateau, which are two halves of a monocline in the Earth's crust call the "Defiance Uplift." The Defiance Uplift has been raised up and "piggybacked" upon the larger Colorado Plateau. Most of the uplifted Defiance Plateau is between 2297-2625 m. and is in the Ponderosa transition zone. The more rugged Chuska Mountains reach up to the Canadian and Hudsonian forest zones to nearly 3937 m. Much of the rain and snow that falls in the Chuska's montane forests drains westward into the spectacular depths of Canyon del Muerto and Canyon de Chelly, eventually emptying into the San Juan River via Chinle Wash. To the east, the Chuskas slope down into the arid, treeless San Juan Basin. These waters also drain northward into the San Juan River, via Chaco Wash. Similar to the eastern slopes of Mt. Taylor, the eastern slopes of the Chuska Mountains were heavily occupied during the Basketmaker III occupation (See Figure 6.2) suggesting extensive significant use of the varying climatic zone resources.

The La Sal Mountains and the Abajo Mountains in Utah are both laccolithic intrusions of liquid magma that would have been volcanos had they broken the surface
and spewn forth magma. The La Sal Mountains are located near the western border of Colorado rising above the present day town of Moab, Utah. The maximum elevation is at Mount Peale, reaching 4173 m. The range contains three clusters of peaks separated by passes. The peaks span a distance of about 25km. This mountain range, like the Abajo Mountains, is formed about igneous intrusions that are relatively resistant to erosion. Some of these intrusions form laccoliths emplaced at depths of a few kilometers. 

The Abajo Mountains are a small mountain range west of Monticello, Utah, south of Canyonlands National Park and north of Blanding, Utah. The highest peak within the range is Abajo Peak at 3727 m. Montezuma Canyon, with its perennial stream fed by artesian spring waters from the Abajo Mountains, cuts through several sedimentary geological layers dominated by Navajo Sandstone and the Morrison Formation (Baer 2000). Montezuma Creek, with perennial springs through out the Canyon, was the life artery for the ancient and current occupants of its main stream and side canyons. Some archaeologists (Plog 1997:29) argue for minimum movement as a result of native people's ability to exploit resources across the various life zones. The rapid changes in elevation and ecosystems make it possible to access a variety of resources within as little as 5 to 50 km, which is easily accessible within a day’s journey. To the Native Americans of the Colorado Plateau, past and present, the mountain peaks are sources of life nourishment.

**Climate**

Montezuma Canyon like other tributaries of the San Juan River has a semi arid climate with considerable variability due to its change in elevation and topography. Average annual precipitation varies widely by elevation and geography going from 10-15 cm at lower elevations to 15-23 cm at the Pinyon Juniper Woodland to over 127 cm in
the conifer and alpine zones (Shepard 1999). Over a 20 year period recorded rainfalls at the Dalton Ranch in upper Montezuma Canyon measured an average of 30.5 cm (Matheny 1962:12), which was above the 25 cm recorded elsewhere. The precipitation record at different locations in the region shows considerable variability. However, the precipitation record also shows dominant patterns, with late summer rains (monsoons) and late winter snowfalls (rain at lower elevations). Detailed dendrochronological and modern climatic records show that precipitation is highly variable from year to year in an irregular pattern with persistent periods of dryer (drought) and wetter years. A cyclical pattern of wet and dry hot years may sum up the climate of the Abajo Mountains and Montezuma Canyon. However, the climate of the canyons is much more complex than that, with its variety of microclimates in the different rimed side canyons, cliff formations, and alcoves. Although the ecological zones of lower Montezuma Canyon may experience roasting heat and drying winds the forested mountains and mesas have cooler temperatures and more rainfall during the peak of summer temperatures. Additionally, like other regions of the San Juan, Montezuma Canyon is frequently drenched and flooded by torrential monsoon thunderstorms in July and August, and it frequently can be warm under fair skies from fall to spring. The sharp contrast between desert, mesa, and mountain in a short geographic space often creates microclimates that have radically different climatic conditions within the space of a few miles. Climate variability is the norm within the region as temperature and precipitation fluctuate on scales ranging from seasons to years.

Of interest is the suitability of Montezuma Canyon to support agriculture, since precipitation and length of growing season are both critical variables for maize growth. Almost all portions of the upper canyon receive more than 25 cm of precipitation per year, which means that there is adequate precipitation for dry and floodwater
farming is present. Since higher elevations are correlated positively with precipitation and negatively with temperature. The minimum length of growing season has to be established to produce varieties of maize adapted to the varied climate conditions (Baer 2003:18). Growing seasons of 110-130 days are usually considered necessary for efficient agriculture in the Southwest. Notably, the growing seasons average 165 days at lower elevations and 100 days at the higher elevations. Currently the average growing season up to 7000 ft is marginal for maize production; however, mesas and canyons above 7000 ft. are risky locations for agriculture. Nonetheless, agriculture was and is attempted at these elevations on a regular basis.

Temperature, precipitation, and Palmer Drought Severity Indices (PDSI) can provide information for reconstruction of prehistoric climate conditions. The PDSI was developed by Wayne Palmer in the 1960s (Palmer 1965, 1968) and uses temperature and rainfall information in a formula to determine dryness.

As used today, the PDSI is most effective in determining longer-term drought—a matter of at least several months—and is not as good with short-term drought forecasts (a matter of weeks). The PDSI is primarily a method of comparing recent monthly precipitation with average or "normal" conditions. Palmer Index values are scaled from
+6 (extremely moist) to -6 (extreme drought) with a value of zero (0) indicating historic average conditions. The advantage of the PDSI is that it is standardized to local climate, so it can be applied to any part of the country to demonstrate relative drought or rainfall conditions. On the negative side, it is not as good for short-term forecasts.

In paleoenvironmental studies the periods are determined by tree-ring data. The drought data presented here are in the form of summer (June-August) average PDSI values. The negative values indicate dry conditions, while positive values indicate wet conditions. PDSI values generally fall between -6 and +6. PDSI reconstructions were generated from a set of tree ring chronologies for the Mesa Verde Region in Colorado and the Natural Bridges National Monument in southeastern Utah. High-resolution precipitation and temperature data are available from different areas of the San Juan Region. The El Malpais Precipitation Reconstruction Data (Grissino-Mayer 1996) have been the benchmark standard for reconstructing annual precipitation for northwestern New Mexico (See Fig. 2.1).

Recent data show that the PDSI indices vary considerably for specific areas within the San Juan Region. The PDSI data from the Four Corners area (Dean 2004) show considerable above average values when compared to the El Malpais benchmark data and suggest the drought may not have been as important as some people have suggested in explaining abandonment of the area. Recent paleoenvironmental research at Natural Bridges National Monument (McVickar and Eininger 2001) show that there were favorable climatic conditions in southeastern Utah from AD 400 to AD 700. Natural Bridges on the Grand Gulch Plateau north of Cedar Mesa has similar elevation zones as Montezuma Canyon which also lies south of The Abajo Mountains. The PDSI ten-year moving average never fell below the minus 1 (-1) value during this time period.

The climatic conditions were such that the area south of the Abajo Mountains and
north of the San Juan River did not suffer as much drought severity like the lower regions of the Colorado Plateau. The El Malpais Benchmark Data (fig. 2.1) and the Natural Bridges data (fig. 2.2) indicate favorable climatic farming conditions for the time period of A.D. 500 – A.D. 700 which corresponds to the Basketmaker III period of occupation. We can extrapolate climatic data for the Basketmaker III time period recorded at Natural Bridges to Montezuma Canyon as having been favorable for farming and probably to other Basketmaker III locations at similar elevations in the San Juan region of the Colorado Plateau.

The complete PDSI data set from A.D. 100 to A.D. 1300 at Natural Bridges National Monument show only three climatic episodes during the Basketmaker periods in which the 10 year moving averages fell below minus 1 (-1). That time period was A.D. 300 and A.D. 370 which also corresponds with the El Malpais Benchmark Data.
Although Richard Wetherill, a rancher from Mancos, Colorado, is credited with differentiating the Basketmaker occupation from the Puebloan occupations, it was through the efforts of earlier explorers in southeastern Utah that Basketmaker remains were initially identified. In the Winter and Spring of 1891 (January – April) Charles McLoyd and Charles C. Graham, miners from Durango, Colorado, collected artifacts from Grand Gulch in southeastern Utah and sold them to the Reverend C. H. Green (Blackburn and Williamson 1997). Infatuated with the find, Green returned to the area with McLoyd and others the following summer (1891). Having found a market for antiquities McLoyd introduced others to Grand Gulch in order to exploit commercially cultural heritage of the area (Blackburn and Williamson 1997). Here is summarized chronology for the visits to the Grand Gulch area by these groups and other groups:

1891–2 (winter) - McLoyd and J.H. Graham
1892 - Warren K. Moorehead and the Illustrated American Exploring Expedition
1892–3 (winter) - McLoyd, Graham, L. Patrick, W. Patrick, and John Wetherill
1893–4 (winter / spring) - The Hyde Exploring Expedition.

McLoyd and Morehead noted differences between cave dwellers and cliff dwellers, especially in the cranial deformation and presence or absence of pottery. However, they made no chronological distinctions, thinking the two groups were contemporaneous.
Richard Wetherill, who led the Hyde Expedition, believed that there two separate cultures which pre-historically lived in the canyons. He found and noted human remains in layers beneath cliff houses. He guessed correctly that they must belong to an older culture. He noted the previous observations of others, that the earlier inhabitants did not have pottery among their belongings; they had baskets, which eventually led to the term Basketmaker. Their skulls were not flattened at the back, like the cliff dweller people he previously discovered at Mesa Verde in Colorado. The flattened skulls were caused by mothers strapping their infants to hard cradleboards and carrying them backpack style (Kidder and Guernsey 1921). It was primarily from Wetherill’s expeditions that archaeologists became aware of the time difference between the Basketmaker and Pueblo periods (Atkins 1993).

Published research on the Anasazi Basketmaker occupation of the San Juan region began in the early 1900s (Pepper 1902, Kidder and Guernsey 1919, 1921, Colton 1922, Nusbaum 1922, and Roberts 1929). These researchers presented artifacts similar to those found by Wetherill, and identified them as also coming from Basketmaker sites in Northeastern Arizona and Southern Utah. It was Kidder’s publication, *An Introduction to the Study of Southwestern Archaeology* (Kidder, 1924) that provided the basis for the “Pecos Classification” presented during the first Pecos Conference held in 1927. The classification, although since modified, continues to serve as a chronology for the prehistoric cultures in the Southwest, particularly with the Ancestral Puebloans. This classification starts with the early Basketmakers and extends through prehistoric Pueblo cultures and into later historic times.

However, no theoretical models emerged for Basketmaker occupation that presented information on site distributions or village plans, with one exception – Shabik’eshchee Village. Frank H.H. Roberts while excavating for the National Geographic Society’s
Pueblo Bonito Expedition in 1926 discovered a late Basketmaker III village at Chaco Canyon (Roberts 1929). Located on a mesa top nine miles east of Pueblo Bonito and Chetro Ketl, Shabik’eshechee Village remains obscured by later Puebloan monumental architecture. Roberts found upright sandstone slabs arranged in circular or oval patterns. Excavation revealed a village that consisted of 18 small, standardized pit houses with small antechambers suitable for two persons, 47 cists outside the pit houses, few storage pits in houses, a large great kiva, and finally burials outside the pit houses. Roberts thought that the storage cists were available to the entire community, as was the kiva (great pit house). Roberts included a map that illustrated spatial clustering of the pit structures, suggesting village organization or planning. He hypothesized that Shabik’eshechee Village represented a communal economy.

Later discoveries by Guernsey (1931), Stallings (1941), Haury (1945), and Lockett and Hargrave (1953), set the stage for further Basketmaker research in the Four Corners area and in particular the San Juan Region. The focus of Basketmaker research was artifact collection from Basketmaker cave sites which persisted as a research focus through the middle of the 20th Century as evidenced by the Woodchuck Cave excavation (Lockett and Hargrave 1953). Previous research in both the Basketmaker II (also called BM II herein) and BM III occupations provided information on the material culture of Basketmaker peoples. Caves, or more commonly rock shelters, provided the most consistent evidence for the Basketmaker culture. For example: Woodchuck Cave (rock shelter) Tsegi Canyon, Arizona, discovered in 1933, revealed artifacts similar to those from BM II sites in the lower San Juan drainage and Southern Utah (Lockett and Hargrave 1953). The presence of maize and squash remains in the sites indicated a commitment to horticulture. Of the 16 cists excavated at Woodchuck Cave nine contained the remains of 16 individuals. The artifact assemblages identified
matched Basketmaker characteristics discovered in other areas of Ancestral Puebloan occupation. The Woodchuck Cave Basketmaker materials were consistent with the Pecos Basketmaker classification, and identified as Kayenta Branch, Whitedog Focus.

Earl Morris contributed to the knowledge of Basketmaker culture generally from the 1920s through the early 1950s with his work in southwest Colorado along the Animas and upper San Juan rivers. From the 1940s to the 1960s few contributions were made to the Basketmaker archaeological literature, with the exception of J. O. Brew’s Archaeology of Alkali Ridge in 1946, which included information about Basketmaker and Puebloan sites. From the 1960s to the 1990s most of the newly published information came from the completion of major public works (CRM) projects such as the Dolores Project, the Zuni Cultural Resources Enterprise, and extensive pipeline surveys (Fruitland Data Recovery). Masters students at BYU have conducted significant Ancestral Puebloan research since the time Ray Matheny (1962) first surveyed Upper Montezuma Canyon to the current research by Sara Baer (2003) and this thesis.

The BYU Basketmaker III research began in Montezuma Canyon, Utah in the 1970’s. In 1972 Petrus de Haan reported an archaeological survey of the lower canyon and noted numerous Basketmaker sites along the creek and its tributaries (de Haan 1972). Among them was a large Basketmaker III settlement (Site 42Sa2112), identified as Hidden Village in my thesis. Glenna Nielsen (1978) excavated a number of large structures, including both pit and extramural storage structures at the Basketmaker III component (42Sa2096) of Cave Canyon Village as part of the field work of the 1976 BYU Field School. In her Master’s thesis Dianna Christensen (1980) reported the 1977 BYU Field School excavations of two Basketmaker pit houses and other structures at Cave Canyon Village (Site 42Sa2756). Marian Jacklin (1984) recorded a large Basketmaker III settlement (42Sa8895 - Villa Gavilan) in southeastern Utah near Blanding as part of
a mitigation effort in association with the construction of the Recapture Dam. A large (12.0 X 18.7 m) pit structure with an antechamber was noted among several smaller pit structures and cists. Christensen noted another site (42Sa889 – Weaving House) within close proximity (120 m) to Villa Gavilan. The sites have similar architectural features and Christensen suggests they may have been part of a greater community. Later research (James Allison, personal communication 2008) confirms Jacklin’s initial hypothesis.

Approaching the turn of the new millennium renewed studies in the transition from hunter-gatherer societies emerged, especially studies of the formative occupations of the Southwest as reflected in the papers from the 1990 Wetherill-Grand Gulch Symposium (Atkins et al 1993), and Foundations of Anasazi Culture: The Basketmaker-Pueblo Transition (Reed 2000). The Wetherill Grand Gulch Symposium brought forth a collaborative effort to seek for greater resolution on refining questions about Basketmaker culture. The symposium, organized by avocational and professional archaeologists, culminated in a project begun in 1986 to apply “reverse archaeology” and create a context for artifacts collected from the late 1890s expeditions to Grand Gulch and southeastern Utah. Reed and his co-authors from the Wetherill-Grand Gulch Symposium put forth a wide range of opinions about settlement, technology, polity, and economy thus shedding new light on the Basketmaker to Pueblo transition.

Adding to the Grand Gulch Symposium, Fred M. Blackburn (a member of the symposium) and Ray A. Williamson published a synthetic account, Cowboys & Cave Dwellers (1997), of the Wetherill Grand Gulch Research Project. Cast in a more popular format the work tells their story as well as those of the early explorers and the prehistoric Basketmaker people who made Grand Gulch their home.

Another effort, the Anasazi Symposia starting in 1981 at Mesa Verde National Park, and
held occasionally up to 2000 at San Juan College, in Farmington, New Mexico started a formalized gathering of archaeologists specializing in Ancestral Puebloan research. This effort not to be confused with the Pecos Conference and the Southwest Symposium addressed more specific issues relating to Ancestral Puebloans of the greater Four Corners Region of the Colorado Plateau. These proceedings held intermittently in 1981, 1983, 1987, 1991, 1993, and 2000 only produced edited volumes of the presentations and discussions from the first, fourth, and sixth gatherings. As to be expected, Basketmaker research was an integral part of the proceedings. However the presentations focused on site specific manifestations of Basketmaker material culture and did not address broader issues of settlement studies and social interaction.

Paul Reed, in cooperation with the Center for Desert Archaeology, produced the edited proceedings of the Sixth Occasional Anasazi Symposium, Anasazi Archaeology at the Millennium, held October 25-28, 2000, at San Juan College in Farmington, New Mexico. This edited volume included a series of six papers dedicated to Basketmaker research. The reports focused on subsistence strategies and architecture manifestations of the ancient people’s life ways. Reed recognized that the Basketmaker-Pueblo transition remained poorly understood and thus assembled the works of other authors to bring forth new ideas. This work introduced insights on settlement, technology, polity, and economy and shed new light on the Basketmaker to Pueblo Transition.

Within the last two decades, advancements in scientific analysis, especially isotope analysis methods, have directed some focus on Basketmaker research (Matson and Chisholm 1991; Coltrain, Janetski and Carlyle 2006). The authors argue that this new research identifies subsistence strategies with the use of maize occurring much earlier than previously reported and casts doubts on earlier models of settlement patterns and subsistence strategies of Basketmaker peoples living on the Colorado Plateau especially
in the regions of Southwestern Colorado.

Scientific methods to determine the dependency of maize among Basketmaker peoples have been recently applied by Matson and Chisholm who present stable-carbon isotope analysis that shows a high percentage of C4 plants in the diet of Basketmaker II occupants of Cedar Mesa in southeastern Utah. Coltrain et al. (2006) look at carbon and nitrogen isotopes in human bone collagen from Basketmaker II sites in the Durango, Colorado area. Their analyses are in harmony with Matson and Chisholm and confirm Basketmaker II peoples were more maize dependant than previously thought. Further isotope analysis from southwestern Colorado establishes that Basketmaker II maize subsistence began at an earlier time period than previously considered and further east than what was previously investigated.

For nearly a century Basketmaker research was focused on the identification of Basketmaker peoples. Asking the question, who were these pre-Puebloans and what relationship did they have to the Anasazi. The early research consisted of artifact identification and establishing typologies of material remains. Architectural features were noted and site configuration were recognized as having established patterns, however little attention was given as to how the architectural structures and site configurations reflected organizational behaviors and social interaction beyond the band level or social organization.
EARLY MODELS

The transition from the Basketmaker II to the Basketmaker III period is marked by increasing population size which may have been in response to favorable environmental conditions as previously discussed. The introduction of significantly new cultural manifestations such as changes in architectural styles and the introduction of pottery also occurred during this time. The introduction of the bow-and-arrow, replacing the atlatl, and other technological advances may have also led to population increases. Basketmaker III villages were built on alluvial terraces close to riparian resources of rivers, streams, and springs. This coupled with arable land, which suggests to researchers that they may have had an even greater dependence on agriculture than their Basketmaker II predecessors. Although farming maize and other cultigens became a crucial part of the diet, hunting and gathering still played a significant role in their subsistence strategies. The early researchers suggested that over time Basketmaker III dwelling structures (pit houses) gave way to more permanent living structures, growing larger, and deeper eventually evolving to large pit structures (proto-kivas) during late Basketmaker III times and appear as an important part of village architecture in the larger villages. The atlatl was replaced by the bow and arrow as the principal hunting weapon. The technology
of pottery making was introduced. Basketmaker III rock art had a distinct style. The introduction of a suite of changes in material culture during Basketmaker III occupations replaced hundreds of years of cultural manifestations of earlier Basketmaker II and archaic peoples.

Archaeologists during the early part of the 20th century speculated that the Basketmaker people were genetically and culturally distinct from the later Puebloan people. This theory was founded primarily on osteological evidence--researchers studying skeletal remains of Basketmaker and the Pueblo Anasazi found a lack of cranial deformation in the remains Basketmaker people and its definite presence in the Pueblo Anasazi (Blackburn and Williamson 1997). Based on cranial evidence, proponents of this theory suggested a population replacement of the Basketmaker with a new people, possibly from the south.

Today, the most widely accepted theory holds that the early Basketmaker peoples transitioned into the later Pueblo cultures. Many scholars now believe that the Basketmaker and the subsequent Pueblo manifestations are, essentially, the same culture, and together constitute Ancestral Puebloan people whose descendants live in the modern day Pueblos of the Southwest. Osteology research now suggests that the cranial differences first held to be biological evidence of genetic differences between the groups were entirely the result of the cultural practice of restraining infants in cradleboards. The most compelling evidence for the theory of cultural continuity is the material culture itself, which suggests a continuation of peoples. During the Basketmaker II period there is consistency in the types of artifacts recovered throughout the San Juan region (Lockett and Hargrave, 1953: 30). Artifacts recovered include evidence of trade (olivella shell) and subsistence farming of squash and maize (Matson and Chisolm, 1991). Additionally, the architectural preponderance of slab-lined cists is consistent throughout the period.
Research data suggests that pottery making and subsistence strategies that began in the Basketmaker III period persisted and became more developed in the later Pueblo periods. Plain grayware gave way to surface treated (corrugated) pottery and more elaborate painted and decorated pottery. However, all three styles eventually became contemporary. Basketry and sandal-making continued as well. Although sophisticated weaving techniques developed there seems to have been a lessened emphasis on the textile crafts in later Puebloan times. This may be a sampling bias in that basketry and fiber arts are perishable and thus overshadowed by more durable artifactual remains of pottery and architecture.

**Migration vs Diffusion**

Our understanding of Anasazi origins has changed considerably during the last two decades, partly as a result of the coming together of research on the Colorado Plateau (Atkins 1993, Reed 2000) and elsewhere in the Greater Southwest (Huckel 1988, 1995). Migration theories continue to be an essential part of the understanding of Anasazi origins. Some scholars argue (Schroeder 1965, Huckel and Huckell 1985, Huckell 1988, 1995, Matson 1999) that Basketmaker populations appear to have derived in part from one or more migrations from farther south. This new understanding is based on three findings: the discovery of early agricultural period settlements dating to at least 1100 B.C. In southeastern Arizona and northern Chihuahua; the discovery that most BM II populations were maize cultivators; and an emerging consensus about ethnic differences among BM II groups.

Other scholars (Irwin-Williams 1973; Geib 2000) have discovered occupations of areas in the Southwest since Archaic times and conclude there may have been a transition to agriculture all across the Colorado Plateau leading to a dependency on maize rather
than a migration of peoples bearing agriculture into the area. A key point in their argument is that subsistence should not be the only indicator of occupation. Although some BM II groups in northwestern New Mexico and southwestern Colorado were less maize-dependent agriculturists, research at Cedar Mesa, Utah, for example, shows that maize cultivation played a major role in subsistence (Matson, Lipe, and Haase 1988, Minnis 1989, Matson and Chisholm 1991).

Archaeologists have proposed cultural diffusion from Mexico (Schroeder 1965) and differences in material culture from the eastern and western regions give evidence for “ethnic” distinctions (Matson 1999). However there are also a number of similarities between Basketmaker and earlier Archaic manifestations (Irwin-Williams 1973; Geib 2000). The notions of ethnicity migration, and diffusion do not account for clan interactions and social interface among different groups. Matson argues that Western Basketmaker II material culture doesn’t reflect the same origins of Archaic peoples on the Colorado Plateau that are evidenced by the Eastern Basketmaker II peoples. He infers that the western peoples of the Colorado Plateau may have come from earlier peoples from southern Arizona. Additionally, Schroeder (1965) previously argued for a Mexican origin. Although these theories present both Eastern Basketmaker II peoples as being descended from local Archaic populations, and Western Basketmaker II peoples as being migrants from the south, none-the-less maize cultivation was introduced to the Colorado Plateau during Basketmaker II occupations most likely from Mexico through Arizona. Some Basketmaker II groups have been identified as being maize-dependent horticulturists (Matson and Chisolm 1991; Coltrain, Janetski, and Carlyle 2006). The origin of maize utilization appears to have direct links to Mexico, although whether diffusion or migration was the primary mechanism it is not yet clear. The discovery of maize horticulturists on the Colorado Plateau and the eastern Great Basin (Wilde and
Newman 1989) shows that use of maize in both areas began earlier than the earliest Basketmaker II settlements which date to about A.D. 100. The origin of the Pueblo and Fremont cultures is probably the result of this Mexican maize influence. Understanding of the evolution of the Anasazi is dependent in part on discovering the timing and character of probable migrations. The traditional view of Anasazi developments prior to about A.D. 1100 as essentially independent of Mexico is clearly no longer viable.

Studies of human skeletal material and genetic research techniques suggest genetic differences between Southwestern groups of native peoples (Merriwether, Rothhammer, and Ferrell, 1995). This, together with the following linguistic data, suggests that the history of Native Americans on the Colorado Plateau may be more complex than previously thought. Today there are four remaining distinct language groups among the different Puebloan peoples:

1. Uto-Aztecan spoken by the Hopi, but which includes other members in other areas.
2. Zuni, a language isolate, spoken only by the Zuni.
4. The Kiowa-Tanoan language family has five languages Kiowa, Tewa, Tiwa, Towa, and Tigua. Although the Kiowa are not a Puebloan people the linguistic relationship may suggest migrations or cultural exchange from the Great Plains.

Each language within a linguistic group may be as different as French, Spanish, Italian, and Portuguese among the Latin based languages.
Basketmaker Pit Structures

The bulk of data and analysis of pit structures used by Ancestral Puebloans is focused on the Basketmaker to Pueblo transition and how the change in architecture reflects this cultural manifestation. It is generally believed that Basketmaker pit houses were used as habitation structures especially in the winter (Gilman 1987:541).

Pit structures (Figure 4.1) were used by the Basketmakers as dwellings (pit houses) and for subsurface storage (cists). There is no conclusive evidence that Basketmakers used above ground structures except for perhaps an open covered structure (ramada). Storage cists were semi-subterranean structures built near the pit houses that were partially, often entirely, below the ground and covered with a wood, brush, and mud superstructure. In the larger pit houses entry was through an anti-chamber. Entry may have been through a hatchway in the roof where anti-chambers were absent. Some had external ventilation shafts that allowed fresh air to enter and circulate throughout the room. A hearth, placed in the center of the structure, was used for cooking and heating.
The combination of these design elements allowed the pithouse to be cool in the summer and warm in the winter. However, the small size of many of the structures that have been excavated leads archaeologists to believe that many of the everyday activities were performed not inside, but rather outside in open areas surrounding the structures. Basketmaker III pithouses tended to be larger, more permanent, and more complex than their Basketmaker II counterparts. The roofs were generally supported by four posts and cross beams and in some cases there may have been as many as six support posts (Jacklin 1984:15). Storage bins, benches, and antechambers were other common characteristics of these pit houses. Basketmaker III pithouses often had sipapus, a Hopi term (Roberts 1929, Kearns et al. 2000), which are also found in modern Pueblo kivas. In Pueblo religious thought, the sipapu is the entrance to the underworld through which their ancestors came into this world.

Prior to 1980 only eight large Basketmaker villages were previously identified and the most recent data (Altschul and Huber 2000) show only 22 large Basketmaker III villages have been currently identified on the Colorado Plateau. Sizes ranged between seven and 68 pit structures per site and eight of the sites had a communal structure. The largest Basketmaker III village, prior to this study (Montoya 2008), is Shabik’eshchee Village (Roberts 1929) which remains as a kind of type model for Basketmaker III village cultural development. The function of large pit structures which are found at some of the villages is still highly contested.

However, the prevailing hypothesis is that they were habitation structures and used primarily in the winter (Gilman 1987). Gilman proposed her hypothesis based on ethnographic studies of the Western Apache and argued that it is applicable to Basketmaker III villages. Her ideas were applied by Wills and Windes (1989) who contend that large Basketmaker III villages were not permanent settlements, and the large
pit structures were used for communal habitation in winter. Evidence of post holes from the Shabik’eshchee Kiva suggest the large pit structure was roofed and may have led to the winter occupation hypothesis.

New data (Reed 2000) show that Basketmaker III aggregated villages are not exceptional and new ideas concerning village structure, economy, and social organization are rapidly emerging.

**Shabik’eshchee Village — Roberts, Wills and Windes**

Of the large village sites occupied during Basketmaker III times Shabik’eshchee village, on the rim of the south side of Chaco Canyon continues to be the type model. Roberts reported this site as having 18 pit houses. Wills and Windes (1989) further reported 40 additional features. Roberts recorded one exceptionally large circular pit structure that he called a “great kiva.” There were reported 48 storage pits. Tree-ring dates place most of the construction and occupation of Shabik’eshchee village at about A.D. 550, with use or occupation continuing to about A.D. 700. It is not entirely clear how many of the 18 pit houses were occupied at any given time, and the large pit structure may date toward the end of the occupation. Roberts argues for two phases of Basketmaker III occupation.

However, the number and distribution of storage pits suggests that large numbers of people did periodically congregate at Shabik’eshchee. The peak population of Shabik’eshchee has been estimated at about 77 people, a figure far larger than the “average” Basketmaker III settlement of 5 to 15 people, or 1 to 3 families (Wills and Windes 1989). Why some groups of people chose to aggregate into villages like Shabik’eshchee is not known, but it has been suggested that such villages might have formed to allow increased food storage and year-round residence during years when
Figure 4.2. Map of Shabik'eshchee Village (Roberts 1929).
agricultural surpluses and/or Pinyõn nut harvests were especially good (Wills and Windes 1989:360).

These larger villages in turn may have created the need for larger and more integrative ceremonial associations and activities, which could account for the presence of the large pit structures or early “great kivas.” Researchers argue that there is no evidence that would suggest there were important or powerful individual leaders during this time (Gilman 1987) and most decisions were probably made by consensus of household heads and that more complex political organizations which might have arisen during times of stress were probably short-lived and confined to the solution of particular problems (Wills and Windes 1989). However, upon examining the spatial relationship of the large pit structure to the location and orientation of the smaller pit structures to the north and south it could be concluded that there was some evidence of a configured site plan. The habitation structures recorded by Roberts were placed in a crescent shape with the openings generally to the southeast and the large pit structure was to the west. Beyond the large pit structure to the north were the structures recorded by Wills and Windes (Fig. 3). Roberts described the large pit structure as being 40 feet in diameter and having an encircling low bench and he referred to it as a “kiva.” Roberts’ argument that the pit structure was ancestral to the kiva was dismissed probably due to the lack of the sipapu ceremonial feature. However the benched feature in the pit structure would facilitate the sitting of a large group of individuals which would indicate social gathering and position it as a public architectural structure beyond the household level.

**Broken Flute Cave — Morris**

In the summer and fall of 1931 Earl H. Morris led an expedition for The Carnegie Institution of Washington to the Prayer Rock district of Northeastern Arizona. Morris’
team excavated 15 caves. They unearthed thousands of artifacts dated between A.D. 620 and 670. In addition to the dendrochronological dates from samples obtained by Morris and Haury in 1936, Elizabeth Morris and Jeffery L. Eighmy returned to the area in the 1980s and took archaeomagnetic samples from hearths and burned floors (Morris 2000:xi) to confirm the dates of the site. The largest cave contains 16 dwellings and was later named Broken Flute Cave by the Morris team. Morris excavated over two hundred twined yucca fiber sandals there, together with belts, string skirts, baskets, pottery, and tools.

The artifacts recovered were consistent with Basketmaker III assemblages from similar sites. Morris died before completing the reports. Morris’ daughter, Elizabeth Ann Morris, published the results from this excavation (1959, 1980) and most recently focused her research on a sandals project (1998) regarding materials from the site. What is overlooked from the very beginning of the project in the late 1920s, to its belated publications in 1980 and 1998 is that Broken Flute Cave was home to at least a dozen families in the A.D. 620s. This was a Basketmaker III village of significant size and one of the pit structures was large in comparison to the others.

**Montezuma Canyon**

One of the major problems of early Basketmaker research was that when a large pit structure was encountered little attention was paid to the significance of spatial relationships to the other components of the site. This approach was noted in the work done in Montezuma Canyon by de Haan (1972), Nielsen (1978), Christensen (1980), and in Recapture Wash by Jacklin (1984).

Of the 56 sites recorded by de Haan five were noted as having Basketmaker characteristics (slab-lined pits). De Haan (1972:58) notes that two of the sites (42Sa2081,
were excavated and lie within 1600 m of each other. It’s worthwhile to point out that Hidden Village also lies within the proximity of these two sites. There are two additional Basketmaker III sites in close proximity to Hidden Village bringing the total to five sites within an 800 m radius. The GIS tools used in this thesis helped to isolate the Basketmaker sites identified by de Haan from other sites in the area by fixing exact locations on other media such as topographic maps and geo-referenced aerial photographs. In this way Hidden Village and the four other sites on the aerial photograph could be viewed in their natural geomorphic settings (See Figure 4.3). Similar GIS
renditions of larger regional studies of Basketmaker III sites in northwestern New Mexico have shown that Basketmaker sites and villages were located in area clusters (Appendix B) and may have been part of a greater regional settlement strategy suggesting interaction and social contact.

De Haan describes site 42Sa2077 as five structures of vertical slabs within a 100 sq ft area. He does not indicate how many vertical slabbed features there were at the site. Further investigation may reveal more of a community model similar to Hidden Village.

Nielsen (1978) excavated three Basketmaker III sections (G,H,I) of Cave Canyon Village (42Sa2096) which consisted of seven pit structures and associated cists. Nielsen’s research design was to establish the Basketmaker III component in the chronological sequence of Cave Canyon Village. She compared the Basketmaker component of the site to the later Ancestral Puebloan (PII, PIII) coursed masonry structures of Cave Canyon Village and argued for a continuous occupation throughout the ancient Puebloan occupational periods.

Nielsen’s thesis consisted primarily of detailed descriptions of excavation notes and the artifact assemblages found. However, she did establish a new architectural form not previously found in the canyon (pit structures with antechambers). Nielsen compared these pit structures to others outside the canyon in the Four Corners Region (Roberts 1929, Brew 1946), and concluded the Basketmaker III pit structures found at Cave Canyon Village were similar in architecture to Basketmaker III structures in the San Juan region. Although Nielsen produced detailed maps and photographs of the different structures she did not prepare a general site map nor did she address the spatial distribution of the structures for the Basketmaker III component of Cave Canyon Village. From the descriptions of the relative location of the features excavated it can be surmised that there was a Basketmaker III Cave Canyon Village.
Christensen (1980) continued the Cave Canyon Basketmaker excavations in 1977 and was the last Basketmaker excavation at Cave Canyon Village. Christensen’s goals were to continue the Basketmaker III research from the previous year conducted by Glenna Nielsen to further investigate Ancestral Puebloan occupations, and to determine temporal limits of occupation. She identified the Basketmaker component of Cave Canyon Village (Fig. 4.5) as a separate site (42Sa2756) than what was previously identified by Nielsen (42Sa2096). She proposed that the site was occupied during late Basketmaker III times and late Pueblo I through early Pueblo II times. A discussion with one of my thesis committee members, Dr. James Allison, postulates that the latter manifestations were early Pueblo II that may have started in late Pueblo I, but not separable occupational periods (James Allison, personal communication 2008).
Christensen’s thesis continued with the architectural and artifact comparisons from the previous Cave Canyon Basketmaker III research and other Basketmaker III sites in Montezuma Canyon and the Southwest. Like Nielsen, Christensen detailed the excavation with sketch maps of the pit structures and detailed descriptions of the artifacts found.

A GIS spatial analysis of the Basketmaker components separate from the Pueblo components may be helpful in answering the questions regarding Basketmaker III communities as well as the temporal continuity asked by Nielsen and Christensen. The pit houses conformed to the type model developed by Roberts and other researchers, with antechambers and postholes (roofed structure). Cave Canyon Village was indeed a Basketmaker III community and lies 5.77 km south of the nearest Basketmaker III community sites identified by de Haan (Fig 4.3).

Jacklin (1984) identified a large Basketmaker III settlement (Villa Gavilan – 42Sa8895) as part of the Recapture Dam Project. She maintained the hypothesis that Basketmaker III sites were comprised of household groups that maintained some autonomy and were nuclear economic units (1984:246). She did however acknowledge that others argued for social, ceremonial, or economic integration as suggested by Roberts (1929). She produced a map of the excavated portion of Villa Gavilan and discussed in detail the excavation procedures and artifacts identified. Jacklin did not produce a larger plan map to establish the site perimeter that would have included the unexcavated portions of the village as well as the excavated portion. However, she did discuss the “typical” pattern of a Basketmaker III settlement consisting of “individual pit structures with associated storage structures.” 1984: 246). She also discussed the architecture of the pit structures and compared them to previous Basketmaker III structures found in the San Juan Region (Jacklin 1984: Table 28, p.248). She established that the pit structures were
Figure 4.5. Recapture Basketmaker III Village (Hurst 2007).
indeed similar to those at other sites and they fit the model of Basketmaker III pit houses established by earlier researchers.

Interestingly, Jacklin did discuss the potential for a community within the pit structures of Village Gavilan and contrasted that with the village pattern at Shabik’eshchee, Brew’s site 13 at Alkali Ridge, and the previous work done at Cave Canyon Village by Nielsen and Christensen. She acknowledged that only part of the total area was investigated and similar to de Haan, Nielsen, Christensen, and the other early researchers little attention was paid to the spatial relationship of the inter site features. Jacklin (1984:250) did discuss the possibility that the Basketmaker III site (42Sa8889 – Weaving House) 120 m to the north may be part of the same community as Villa Gavilan. Further investigation by Allison and Hurst (James Allison and Winston Hurst, personal communication 2008) reveals that they are indeed contemporary and they call the combined structures Recapture Basketmaker Village (Fig 4.6). Additionally, there are a number of Basketmaker III sites in the vicinity of Blanding, Utah. The Recapture Wash surveys and the Blanding, Utah sites (Nielson et al. 1985) are in close enough in proximity to consider that the occupants of the area had some level of communication and social interaction.

**LATER MODELS**

Analyses and interpretations of new data pose questions about the long-held beliefs that most Basketmaker III settlements were small family centered units. Arguments are emerging that suggest greater social complexity for clustered units and larger communal structures (Damp and Kotyk 2000, Altschul and Huber 2000, Gilpin and Benallie 2000).


Dennis Gilpin and Larry Benallie (2000) examined the data from selected
Basketmaker III sites west of the Chuska Mountains in northeastern Arizona. They focused on three large Basketmaker III sites with what they call great kivas and attempt to evaluate the role of the great kiva. Data from the Juniper Cove, Bad Dog Ridge, and the Ganado Site show that the Basketmaker III sites with great kivas are part of a larger community. Gilpin and Benallie use the data from these previously recorded sites with “great kivas” to establish criteria for a community. A sketch map (Gilpin and Benallie 2000: Figure 8.2) of Juniper Cove reveals clusters of pit structures, associated storage cists, and middens in spatial relationship to the “great kiva.” Although the site at Bad Dog Ridge has Basketmaker III to Pueblo III components the discussion and plan map (Gilpin and Benallie 2000: Figure 8.3) of the site reveals 29 out of 40 pit structures
were identified as Basketmaker III. Several associated middens and storage cists were also noted as was a discussion of a Basketmaker III great kiva. The Ganado Site was identified as a very large site (67 acres – 27 ha) consisting of Basketmaker III through Pueblo II components. The plan map (Gilpin and Benallie 2000: Figure 8.3) revealed extensive Basketmaker III occupation of a benched a benched terrace below two mesa tops. Gilpin and Benallie discuss other Basketmaker III sites with “great kivas” in northeastern Arizona and make regional comparisons of the sites, comparing primarily the “great kivas” and to a lesser degree the slab lined structures and middens.

**Lukachukai Valley — Altschul and Huber (2000)**

Jeffrey Altschul and Edgar Huber (2000) present Basketmaker III site data from the Lukachukai Valley, northeast Arizona that illustrate large sites are not uncommon on the Colorado Plateau. They list 23 large Basketmaker III sites on the Colorado Plateau and present, with the support of tables and illustrations, arguments that suggest village organization beyond the household structure. They challenge the conception that Basketmaker III peoples were not fully committed to agriculture (Birkedal 1976) and that house clusters constituted component parts of a larger village.

**Tohatchi Flats — Kearns, McVickar and Reed (2000)**

CRM work for a pipeline development at Tohatchi Flats, New Mexico provided a database for extensive Basketmaker III research. The research revealed temporal variation in three distinct phases of occupation on Tohatchi Flats. They present data using graphs, tables, and drawings of pit structures to show regional interaction, community strife, pit house development, great kiva communal use, and other social integration factors revealing higher levels of complexity.

The authors conclude that influencing variables other than the environment were
factors affecting cultural change through time. They show a proportional distribution of Basketmaker III pit structure styles for the three phases of proposed development of Basketmaker villages. Additionally they argue for a broader contact, social interaction, and exchange among other Basketmaker III villages in the area. Identification of non-local materials, obsidian, turquoise, olivella shells, and non-local ceramics support this broader contact hypothesis.

**Socioeconomic Organization - Damp and Kotyk (2000)**

Jonathan E. Damp and Edward M. Kotyk present the “Late Basketmaker III settlement of Mexican Spring Wash as a community that integrated physical space, the environment, the household, groups of households, and ideological concerns of the larger group.” (2000:112). They argue that dispersed households and a community center constituted a village and that social differentiation may be inferred by pit structure size and distance from the communal structure.

**Southeastern Utah**

Recent research in southeastern Utah (James Allison and Winston Hurst, personal communication 2008) applies GIS techniques to examine previously recorded Basketmaker III sites. Hurst plotted Weaving House and Villa Gavalin and confirms they are part of the same community (Fig. 4.7). Upon examining the survey data from the Recapture CRM project (Nielson, Janetski, and Wilde 1985) nine additional Basketmaker III sites were found within a 5 km radius of what is now called Recapture Basketmaker Village (Fig 4.7).

Additionally, Hurst examined previously recorded Basketmaker III sites near the confluence of Cottonwood Wash and the San Juan River near Bluff, Utah (Neily 1982) and noted the 11 sites were within 1 km of each other (Fig 4.8). Although these sites
Figure 4.7. Basketmaker III sites near Blanding, Utah.
were previously recorded as individual sites Hurst is calling them Bluff Basketmaker III Village.

Excavations by BYU Field Schools found a Basketmaker III component of Nancy Patterson Village (42Sa2120) in Montezuma Canyon. A Basketmaker III component was noted at another site, Bradford Village.

The data from Hidden Village in Montezuma Canyon, southeastern, Utah, as presented in this thesis strongly support the hypothesis that large aggregated communities existed as far north as southeastern Utah during the Basketmaker III Period. The presence of a large number of clustered pit structures, large middens, lithic concentrations, pot sherds, and a large communal structure are evidence to support this proposition.
In this chapter I compare the data from site 42Sa2112 (Hidden Village) in Montezuma Canyon, Utah to see if it fits the model for large Basketmaker villages presented in Chapter Four. Hidden Village, initially recorded in 1972 by Petrus de Haan, has remained relatively undisturbed, hidden on a terraced bench above a rimed side canyon of Montezuma Creek. His description is very brief and he missed describing major components of the site such as the middens, a large stone lined public feature, and the southern portion of the site (Component B). However, he did note that the site, “…is extremely interesting since it appears to be one of the largest sites of this nature in the southwest” (de Haan, 1972:47-48). De Haan’s comment was indeed fortuitous in that the site actually may be the largest recorded Basketmaker III village north of the San Juan River.

Hidden Village consists of stone lined features, with some arranged as clustered concentrations of slab and stone lined circles, associated middens, lithic scatters and a large (12 m diameter) depression rimmed by a stone concentric circle that I am interpreting as a probable community center, possibly a great pit structure/house. It lies at the west end of the site between two major areas (Components A, B) of stone and slab lined features separated by a small gully. Numerous middens lie in association with the pit features. The various size and depth of the middens may indicate, with future excavation and research, their periods of occupation and frequent use. In addition to the
darkened soils, the surface observations of the middens showed numerous lithic flakes, fire-cracked rocks, groundstone, and ceramic artifacts. Additionally, stemmed projectile points and Chapin Grayware confirm the occupation as Basketmaker III. Additionally, a few black-on-white sherds were found and analyzed in the field that reflected Basketmaker III and Pueblo II typologies (Winston Hurst, personal communication 2003). The lithic debitage is extensive and scattered throughout the site with major concentrations on the east end of the site. There are no chronological data established to confirm that the pit structures are contemporary. The spatial location of the structures and associated features do suggest the possibility of an aggregated site or village.

Four field visits were taken to collect field data. In April 2002, Dr. Ray Matheny took five graduate students, Sarah Baer, Aaron Jordan, Megan Schaub, Michelle Knoll, and Don Montoya to Montezuma Canyon, southern Utah to research possible thesis topics. The next year three trips were taken in the spring and summer of 2003 to record the site, May 9, 2003, May 24, 2003, and June 28, 2003. During these field visits a systematic surface survey of the site was conducted. Features and artifacts were mapped using three different field survey methods.

The first survey was conducted by Dr. Ray Matheny, Winston Hurst, Matt Yacubic, Scott Ure, and the author. We used a Brunton engineering compass and a Garmin Etrex Summit Global Positioning System (GPS) to establish a site datum and site boundaries. Pin flags strategically placed defined the site boundary, identified some features, and located artifacts. We photographed features and made some initial sketch maps. The pin flags were left in place for a scheduled return visit in two weeks. The Bureau of Land Management permit for this project allowed for surface observations but did allow pick up of any artifacts.

The return visit was conducted on May 24-25, 2003. Dr. Don Forsyth and two
archaeology students assisted in the survey (Figure 5.1). The field instruments used to map the features and record locations of artifacts included an engineering compass, transit level with a grade rod, and a hand held Leica laser rangefinder. The structural features were recorded, as were in-situ artifacts, additional photographs were taken and sketch maps of the features were drawn in the field. About 80% of the work was completed and a third trip was scheduled to complete the survey work. Photographs of artifacts lying on the ground were made by slipping a piece of white paper under them so as not to disturb their provenience.

Dr. Glenna Nielsen, Scott Ure, and Matt Yacubic accompanied me on the June 23 return trip to record the public structure and complete the surface survey work not completed on previous trips. The additional equipment used on this return trip was
an electronic Topcon Total Station. The Topcon was used to digitally record the large
community structure, Feature F49, and to confirm the previous measurements for site
datum and make appropriate corrections reflect more accurate measurements. At this
time the primary datum was set with a rebar stake and the pin flags were removed from
the site as the field work was completed.

SITE LAYOUT

If habitation structures serve the needs and reflect the ideas and beliefs of the people
who construct them (Gilman 1987) it follows, then, that social organization should be
reflected in that built environment, specifically in the architectural layout of a site (Lipe
and Hegmon 1989). One of my research objectives at Hidden Village was to try and
differentiate the internal organization of the site by examining its architectural layout.
The discussion in this chapter focuses on five main data sets within the geographic area
of the site; site layout, Component A, a community feature, Component B, and spatial
patterning between structures, middens, and other nonstructural features.

The site setting is in a small upper terrace bench of Montezuma Creek that covers
about 30 hectares of open land. The site is located on the west side of the canyon and is
not visible from the canyon bottom. The site is accessed by a steep climb to the upper
terrace. I refer to the general geographic location of the site as simply the “Bench.”
Hidden Village appears to represent aggregated, canyon-oriented village bisected by
a shallow narrow gully. The site has many of the characteristics that define large Late
Basketmaker III canyon oriented villages. For example, there are clusters of stone slab
and stone-lined features. Middens are located south and east of the stone features, and
there is a large stone lined feature, that I am calling a community structure.
The concentrations of stone lined features are located along the southeast facing slope of the north end of the upper bench of the rimmed canyon and along the north slope of the southern rim of the bench. The configuration of Hidden Village was probably dictated largely by the steep cliffs and hillsides surrounding the gentle slope of the bench (Figure. 5.2). On the basis of surface remains and the results of the survey, we identified 96 stone features, 14 of which were clusters, one large communal feature, nine middens, and several slab lined cysts. There are seven clusters along the east boundary of the site that are on bedrock. They may have been intentionally built on bedrock or because of the effects of deflation of the top soils the bedrock is exposed. Other architectural remains at the site include two linear east-to-west rock alignments that have been identified as
Figure 5.3. Hidden Village Site Plan.
possible check dams or walls for garden terraces. They cut across a slight drainage between major concentrations of features. There are three open areas between cluster concentrations that might have been plazas.

The north portion of the site, located on the north bench is referred to as Component A and it contains the highest concentration of features, middens, and artifacts on the site. The south bench area is at the foot of the north slope and has fewer concentrations of features and middens. This area is referred to as Component B. The concentrations of features are generally grouped into clusters of slab and rock lined circular features. I use a basic cluster model for analysis as, “…the average distance between structures in each cluster is less than the average distance between the closest structures in adjacent clusters.” (Wills and Windes 1989: 354).

The middens are generally associated with each of the individual feature clusters which is an indication that the clustered features may have been habitation units. The individual units in the clusters average 2 m in diameter and can easily house 1-2 persons in each unit. A few of the stone and slab lined features are as large as 3-4 m in diameter. At the east end of the site where there is the highest concentration of clusters the average distance between clusters is 10 to 15 meters and the average distance between the large middens is 20 m. Additionally the smaller diameter features within clusters and individual slab lined features averaged 1.0 m in diameter and I am calling them cists. Because no excavation was performed I could not determine if any of the larger features had characteristic Basketmaker III pithouse configurations with antechambers. Additionally, without excavation I could not determine if the larger features had postholes which would indicate whether they were roofed or not.
Figure 5.4. Component A Plan Map.
**Component A**

Component A is approximately 400 m long by 100 m wide and ends at the west end by the drainage that divides the north and south portions of the site. The east end of Component A contains the highest number of features, middens, and lithic scatters. This eastern area was the initial record of the site made by de Haan (1972). The density of archaeological features and artifacts in this portion of the site shows that this area was more occupied than the rest of the site (See Fig. 5.4).

The clustered features of Component A are loosely scattered along the foot of the cliff slope and oriented in a north to south alignment. Many of the features are along the talus slopes where cliff faces are not present. Some of the features are constructed next to large boulders and utilize the boulders as part of the architecture (Fig 5.7). The slab and stone lined units in the features are on average two to three meters in diameter and are contiguous sharing a common wall. Many of them have associated storage cists next to the feature (Fig. 5.7) or in close proximity. The cists are smaller slab line features and generally measure less than one-meter in diameter. There are several individual and clustered cists throughout the site.

On the east end of component A (Fig. 5.5) several of the features were found laying directly on the exposed bedrock (Fig. 5.6). The sandstone slabs appeared to have fallen toward the center of the features as there were larger natural stones around the perimeter of the features. There are several clustered features (Fig. 5.9 and 5.10) up slope from the exposed bedrock toward the talus field below the cliff face. These features also utilize natural boulders as part of their configurations. There is a small drainage that runs between the east end of Component A and the rest of the component.

The east end of Component A is about 100 x 100 m and a large portion of it lies on exposed bedrock. The east end directly overlooks Montezuma Canyon and is exposed
to prevailing winds. The soils may have been deflated since earlier times exposing the bedrock. One of the middens is divided by exposed bedrock and the lower portion of the middens are also lying directly on the bedrock. There are two rock alignments running north to south and one of them was constructed on bedrock along the drainage. There is a dense lithic concentration at the bottom of the drainage as it spills over the cliff edge to the floor of Montezuma Canyon. The lithic concentration may be the result of runoff collection or an activity area at this portion of the site.

The architectural remains of the site are defined roughly by topographic boundaries of the upper bench of the rimmed canyon. The two component sections of the site lie on either side of the north-south drainage running through the middle of the bench and emptying into Montezuma Creek. The west side of the bench is a sloped area at the base...
of a talus slope; there are no archaeological features at this southwest end of the bench and west of the drainage that bisects the site. The large stone lined depression at the west end of the site between the north and south concentrations of features suggests that this was a common area. There is also an absence of ceramic and lithic artifacts suggesting that this area was not used for domestic activities.

Some of the slab lined features were arranged next to large boulders with the boulders serving as part of the feature (Figure 5.8). It is unclear how the boulders were used as part of the architecture and whether the features were storage cysts or brush and jacal enclosed units. Excavation of the feature may reveal post holes, which might determine if the features were roofed. Additionally analysis of the soils may reveal remains of pollen and phytoliths, which would indicate if food stuffs were stored or used.

Figure 5.6. Photo of Fallen Slabs resting on bedrock at east end of Component A.
Some of the smaller units in a cluster were less than one meter in diameter and may have been storage cists that were located next to the larger habitation units of the cluster. The drawing of feature F18 show a cist outside unit F18-2 (See Fig 5.8).

**Component A Structures**

Some of the clustered structures were as much as 6-8 m in diameter and had associated middens, but not all of the structures at the site are associated with middens. Not spatially shared by other clusters. Structural feature F18, located in the eastern portion of component A surrounds a large boulder on three sides. This is typical of other clustered structures in Component A. Directly below F18 is a small midden approximately 6 x 4 m in an oval shape. The larger clustered features typically have one midden associated with them. Where there are a number of clustered structures in closer

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Figure 5.7. Photo of Slab-lined Clustered Structure
proximity there is generally a larger midden associated with them.

Structure F35 is located in the central portion of Component A and consists of a five unit cluster of stones and large boulders (Figure 5.9, 5.10). The diameter of these individual units are 3-5 m and consist of arranged slabs and stones with large natural boulders forming part of the perimeter of two of the units. The overall diameter of the structure is about 10 m including the centrally located boulder.

There is a large 33 x 16 m oval shaped midden about 10 m southeast of F35. No other clustered features are in close proximity, the closest being 80 m to the east and the next nearest is 115 m to the west.

Structure F35 and its attendant features are located 60 m from the nearest habitation units. If each cluster of features represents a family unit, and a larger grouping
of them represents an extended family, then why IS structure F35 larger and isolated from the rest? There is a hint in the spatial distribution of habitation units that structure F35 may be more complex than the other clustered structures (see Damp and Kotyk 2000).

**Component A Middens**

There are eleven ashy midden deposits located on the south down slope of Component A. The middens contain ash and lithic and ceramic artifacts.

The east end of Component A (Fig. 5.5) has six middens associated with clustered features of stone and slab lined circles. The largest midden at the east end is 10 x 40 m
and is located between two clustered structures. The middens at the east end are shallow and are partially deflated down to bedrock.

A few of the middens in the south central part of Component A are of considerable depth (greater than 50 cm) as evidenced by vandal activity (Figure 5.11). The middens in this central part of Component A have fewer associated habitations, but they are larger in comparison to the rest of the site.

The west end of the site has fewer and smaller middens associated with the habitation structures. Middens at the west end of the site and small stone features suggest less domestic activity occurred there. It is interesting that a public structure (F49) in this part of the site is not associated with small stone features and appears to have been deliberately separated from habitations.
Component A Stone Alignments F50, F51 (Garden Terrace)

Two rock alignments 30 m long and 10 to 12 m apart (Figure 5.13, 5.14) run east to west and are oriented perpendicular to a slight drainage towards the west end of component A. The rock alignments are parallel to each other and have the appearance of being catchment dams or possibly garden terraces. The nearest habitation clusters (F37, F38) are 30 meters to the northwest and 90 meters (F35) to the east of the possible garden terraces. There are other stone alignments within Component A, however they are on the east side of the site and run north to south and appear to be retaining walls next to large boulders and bedrock. The evidence for a garden feature is minimal but does suggest a village setting.
Public Feature (F49)

At the west end of Component A is a large shallow depression 12 meters in diameter that is outlined on the surface with a large number of basaltic stones and sandstone slabs (Fig 5.15, Fig. 5.16). The feature was assigned F49 as its identifier. The stones and slabs were loosely scattered around the perimeter that outlined the feature with a greater concentration at the southern end. There is an alignment of stones on the southeast end of the feature that suggests an additional structure.

One-hundred-and-three measurement points were taken with the Topcon Total Station instrument to identify and map the feature. There were no artifacts found within the immediate vicinity, however a bone pendant was found 30 meters to the north. The nearest stone features (F55, F65, F66) are 100 meters northeast within Component A and
Figure 5.13. Garden Terrace A (F50) looking West.

Figure 5.14. Garden Terrace B (F51) looking West.
110 meters southeast of the nearest stone feature (F76) in Component B. There were very few artifacts noticed between F49 and the nearest features in Components A and B. This relative absence of artifacts and distance to the nearest features suggest that F49 was more of a community construction and not used for domestic purposes.

The public feature is characteristic of public features at other large Basketmaker III sites in Montezuma Canyon and throughout the region. Many of them were roofed and
had a bench around the inside perimeter, presumably used for sitting of groups of people. In later Basketmaker III communities there was a sipapu in the center of the public feature, However a few of them like the one at Shabik’eshchee Village did not have a sipapu. However, the individual pithouses did have a sipapu present. The public feature presented in my thesis needs to be further investigated by excavation to determine its significance to the site and future Basketmaker III research.

Component B

Component B is located 150 m across the gully from Component A and consists of three habitation areas with associated middens. The area of Component B is approximately 80 x 40 m. The stone lined structures and middens are similar in configuration to those described by the features in Component A.
There are three clusters of stone lined circular structures that probably represent habitations (F73, F76, F80) in Component B. Additionally, there is a single large midden (F79) south of F80. The three habitation clusters run northwest from the foot of the ridge to the embankment of the gully dividing the site. There is approximately 50 m spacing between the three clustered features. Structures F73 and F76 are on the south perimeter of a large midden, that may have been shared between the occupants of each of the clusters. The structures (F73, F76, F80) and partially buried slabs are similar to the features described in Component A.

The large (50 x 25 m) midden between F73 and F76 is 10 m south of F73 and 35 m southwest of F76. There is another midden (13 x 13 m) that is just north of F79 and 10 m north of F80. Component B does not fit the general layout of most Basketmaker III sites, that it, it has no southern exposure on the north slope of a hillside or cliff face. A question for future research is, Why is Component B isolated from the rest of the site?

Artifacts Identified

No artifacts were collected but only noted in their in-situ distribution by mapping methods, photography and field sketches. The artifacts identified here are representative of Basketmaker III material culture throughout the San Juan Region. Correlated with the architecture and site layout the artifacts were used to identify the site as a Basketmaker III occupation.

There were fewer than expected remains of pottery found throughout the site. The type found most often were identified as Chapin Grayware, which is characteristic of Basketmaker III pottery. However, the typology persists through later Puebloan periods as well. There are Black-on-White sherds found throughout the site, with the earliest being identified as Basketmaker III (Fig. 5.22). Plain Redware sherds were also found on
Figure 5.17. Hidden Village Component B.
the site and identified by Winston Hurst as being late Basketmaker III. A broken bone pendant with a drilled hole was found north of the public feature (F49).
Spatial Patterning

Once all of the features of the site were entered into a GIS data base some maps were generated to illustrate their distribution and show the relationship of like features to each other. By contrasting and comparing the different data sets one can make a detailed site and area analysis. One example was to identify other sites in the immediate vicinity of Hidden Village including Monument Village (42Sa971) a PI-PII village due east (Figure 5.22). Hidden Village lies in close proximity to four other Basketmaker III sites that were identified and mapped using GIS techniques (See Figure 4.3). Upon further investigation these sites may be part of a greater community or may be extensions of Hidden Village. By using the ArcView software program after entering data into various THEMES spatial patterning of GIS data was performed to measure distances between features,
Table 5.1. List and Location of Stone Features

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<th>North Grid Coordinates</th>
<th>Description</th>
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<td>4926</td>
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associate features, establish site boundaries and make spatial comparisons to other large Basketmaker III sites in the San Juan Region.

By looking at the distribution of the features, Component A is much larger and shows that there was more activity there (north) than in Component B (south). Component
A has most of its clustered features on the east portion of the site. An interesting observation is that the largest middens are in the center of Component A, however there is only one cluster habitation within proximity to that midden. This poses questions; why is there more activity in the center of Component A and why is only one habitation cluster associated with that midden? The other middens are 50 and 80 meters to the east and 140 meters to the west. Does this indicate separate households? Does the largest midden with only one household unit (cluster) indicate some form of socioeconomic organization? Further research and comparison with other sites may support the hypothesis as proposed by Damp and Kotyk (2000) that there was socio-economic organization at Basketmaker III villages.

The drawings, photographs, and maps are representative samples of the Hidden Village data set that can be employed to analyze the site. The major problem in analyzing Hidden Village data is that there is little temporal basis for the observations and analysis. No carbon samples for testing were taken.

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Figure 5.22. Monument Village (42Sa971) looking east from Hidden Village.
Different Models and problems surrounding the establishment of Basketmaker III Villages have been explored since Steward (1937), 1955) first addressed Basketmaker III village organization. He emphasized environmental and technological parameters in an environmental ecology framework that facilitated lineage groups coming together. Based on work in the Mesa Verde area, Birkedal (1976), Lightfoot and Feinman (1982) interpret that larger Basketmaker sites existed at the band level of social organization. However, a few (Altschul and Huber 2000, Gilpin and Benallie 2000, Hurst and Allison 2008) argue for more communal living at the sites containing a community center (great pit structures/kivas). Evidence of different levels of social, political, and ritual organization exist for later Puebloan periods. However, the clustering of residences and the presence of public structures found at Basketmaker III sites suggest complex social organization well beyond the band level.

Basketmaker III village organization developed in respect to a naturally integrated environment, physical space, households, and community centers in the homeland of the Ancestral Puebloan peoples on the Colorado Plateau.

Little research has been done using GIS spatial analysis techniques beyond creating maps and showing relationships within interstice components. Spatial analysis provides an answer to problems dealing with distributions in space (Hodder and Orton 1976). Geographic Information Systems (GIS) and spatial analysis present opportunities for large-scale regional analyses and predictive modeling of settlement patterns and land use.
A GIS program (ESRI ArcView) showed spatial distribution of site features that allows me to illustrate that Hidden Village (Sa2112) has a site profile that is similar to settlement patterns established for Basketmaker III and Anasazi sites across the Four Corners region and in southeastern Utah. Using the software application, I use methods for showing the clustering of features by overlaying different data sets within the site boundaries, stone lined features, middens, lithic scatters, and geographic features. This method can be used for examining sites within a specific geographic area, such as Montezuma Canyon and the surrounding canyons, to test for the levels organization. I then used published research on basketmaker sites from the Four Corners area and from northwestern New Mexico to test for site clustering and to better understand the relationships of other site features including public constructions. This method can be further used by applying it to previous models of Basketmaker, Pueblo I, and Pueblo II communities.

The potential of GIS as a tool for the organization and analysis of large amounts of spatial data presents research opportunities for the development of new models and methods.

The application of GIS methods in my study allowed and analysis of observed data where it was easy to discern simple to complex village characteristics. Once the essential characteristics of Basketmaker III villages were assembled they served as a model for comparison. In the case of Hidden Village in Montezuma Canyon the visible features recorded in ground mapping showed significant similarity to other large Basketmaker III villages found in the Four Corners area (Roberts 1929) and Morris annad Burgh (1954), and later by Bilpin and Benallie (2000), Altschul and Huber (2000), and Kearns, McVickar, and Reed (2000).

Hidden Village represents considerable vested interest in repeated or permanent use
of the structures. At this point of the investigation there is no apparent evidence that the site was occupied year-round or seasonally. I can only speculate that the quantity of constructions required the labor and planning of at least a small community and is not the work of occasional visitors. The presence of at least garden terraces, considerable middens, stone-lined habitations, storage structures, and a public center, strongly suggest a solid social commitment to manage more than just the space for habitations.

The implication is there for management of the necessary resources for food production and procurement of wild foods to sustain life. For me it is difficult not to call Hidden Village anything else less than a corporate village organization.

The layout of Basketmaker III sites usually have pithouses with ante-chambers oriented to the southeast. The pithouses are distributed in a linear fashion, some clustered together and others separate. A ubiquitous feature is the slab-lined, semi-subterranean, small, round structure most often interpreted as a storage pit. Smaller cist-like structures and middens also are found in the village setting. When a large centrally located pit structure is present, that is the center focus of the layout, the site is thought by many scholars to represent a phase of social complex society.

The pattern of the component layout of Hidden Village is similar to the pattern of Shabik’eshchee Village. Both sites exhibit large, public-like structures that divide the sites into two sections. Each has clusters of habitation structures laid out in linear fashion, with numerous associated smaller round, slab-lined pit structures and a large public-like structure separate from other constructions. A site divided by a public structure at its focus suggests a division of its inhabitants but it functions to join the divided community together as a focal point. Just what this may have meant to the Basketmaker people at these sites can only be speculated upon at this time---perhaps a moiety division.
There is a basic difference in habitation structures at Shabik’eschee, Hidden Village and other Basketmaker III sites in Montezuma Canyon and a Recapture Wash. The Hidden Village habitations consist of small round, slab-lined clusters of three-to-seven units (Figure 5.8, 5.9) sometime accompanied by small cist-like features. whereas most other sites have pithouses with ante-chambers, there are none at Hidden Village. Despite the difference in habitation structures with other Basketmaker III sites, Hidden Village displays the familiar layout pattern of habitation placement and public structure found at Shabik’eschee Village. Since the BLM work permit did not allow excavation or pickup of artifacts. Observation techniques excluded taking evidence for chronological study of the site. A possible scenario for the site is that it is an early Basketmaker manifestation before deep semi-subterranean dwellings were used in the Four Corners area. There probably are other possible scenarios that could explain the Hidden Village structures but excavation will have to have the last word on this topic.

Just below the upper terrace bench where Hidden Village is found, on the first rock-cut terrace of Montezuma Creek, de Haan (1972 reported slab-lined, 1 1/2 - 2 m diameter pit structures that had no cultural remains in or near them but by their design and comparisons with other sites, clearly they were Basketmaker III constructions. similar pit constructions also are found a Cave Canyon village located 4.7 km south of Hidden Village. Cave Canyon Village excavations revealed four pithouses with ante-chambers and 10 stone-lined circular cists in a two-part separated village setting. Six of the cists are contiguous but are not clustered like those of nearby Hidden Village showing that a significant difference in their use was in vogue when the deep pithouses were constructed. Another difference between Hidden Village and Cave Canyon Basketmaker village setting is that there is no evidence for a public structure between the two. Just what this means in terms of understanding Basketmaker III village site plan layout is not known.
Conclusion

The initial question posed in my research was: Were Basketmaker III peoples organized beyond the band level in a more complex social organization? By addressing this question in the context of the few Basketmaker sites noted in this research I conclude that the larger sites did indeed have a configuration that reflects a more complex social organization than the band level. In exploring the data with this question in mind I examined Basketmaker III village organization in Montezuma Canyon, southeastern Utah to determine if this organization reflected some level of social grouping that is perhaps the antecedent to later Puebloan II-III social structure as identified in clans and moieties.

The data examined from a few large Basketmaker III sites in the Southwest and Montezuma Canyon helped to answer four specific questions posed in my initial introduction. On various plan maps I identified different household groupings and propose that the spatial distance between them and orientation to a large public feature implies that there was social interaction by the different household groups.

The first question asked was, what are the cultural characteristics that define Basketmaker III villages? Beyond the material culture of basketry, lithic types, pottery, and other characteristic artifact assemblages, the cultural characteristics of village organization are the existence of unique pit structures used for habitation (pithouses) and storage (cists), also middens associated with the habitation units which are separated from similar units on the sites, and finally the existence of a large communal feature initially defined as a kiva by Roberts. These architectural features spatially oriented show some social separation of groups within the community that may further be defined as a village.

It was difficult to answer the question, how does size and layout of Basketmaker III villages reflect organization? The previous researchers of Basketmaker III sites did not for the most part address the size of sites and orientation of the features on the site.
However, the discussion of the plan map of Shabik’eshchee Village by Roberts (1929) and added to by Wills and Windes (1989) established a default type model and reference to it was made in comparing features and plan maps by other researchers in my thesis, there is little discussion regarding the village layouts in context of social organization. However by examining their data and illustrations it is evident that the segregation of household units and community features reflect a community organization. Further spatial analysis using GIS methods might make correlations that could become a baseline how the size and layouts reflect social separation and possibly social differentiation.

I have identified the locations of four Basketmaker III villages in southeastern Utah. Brew identified the first recorded site in Alkali Ridge. However, he positioned it as a Basketmaker III - Pueblo I site and did not discuss the village components of the site. De Haan’s survey in Montezuma Canyon revealed six Basketmaker III sites. Five of them were in close proximity to Hidden Village, he also identified Cave Canyon Village which was later excavated by Nielsen and Christensen. The excavation of portions of the Basketmaker III component of Cave Canyon gave the first detailed descriptions of the Basketmaker III component of Cave Canyon Village in Montezuma Canyon. Jacklin’s excavations at Recapture Wash are significant in establishing Basketmaker III communities in southeastern Utah. Her detailed excavation confirmed the material culture of a Basketmaker settlement. At Bluff, Utah a Basketmaker III Village has been reported but general information about it is not available to me at this time.

My thesis identifies Hidden Village (42Sa2112) in Montezuma Canyon, southeastern Utah as a significant Basketmaker III community. Its size, architectural layout, and the existence of a public structure answers the question as to its fitting the pattern of a Basketmaker III village.
Previous research reveals that Basketmaker III communities frequently have a large pit structure strategically located among smaller slab-line pit features. Large pit structures were previously identified as public components (Great Pit House or Proto-Kiva). Whether that is the case or not continues to be debated, however, Michelle Hegmon argues that “-the built environment- helps to create the social order that maintains living communities.” (1989:5). This leads to at least one conclusion that the spatial relationship of structural components reveals how architecture can contribute to understanding social order.

Previous research by Lipe and Ortman (2000) developed a community succession model for Puebloan I-III periods that was applied to Montezuma Canyon by Baer (2003). Similarly a community succession model could be developed for Basketmaker III sites in the Four Corners Region and I pose that Hidden Village would meet the criteria for being established as a Basketmaker III community (village).

Whether these Basketmaker III sites are contemporary or not would require further qualification of the data with temporal components identified. Further field research needs to be done at Hidden Village. Sample test pits in the middens need to be performed to establish temporal values. A complete site survey needs to be performed including identifying and making an inventory of all of the lithic and ceramic assemblage. Analysis is only as good as the quality and quantity of the data obtained,

I recommend that more analysis of the GIS data from Hidden Village needs to be performed including separating the features and artifacts for comparative studies with other Basketmaker III sites in the Four Corners area. It is beyond the capability for one researcher to complete the documentation and excavations necessary to fully understand the nature of Hidden Village. Therefore, I propose at least a two week field school be organized to completely survey the site and perform test excavations on the middens.
Figure 6.1. Montezuma and Southeast Utah Basketmaker III Sites.
and cists. Additionally, I propose excavation of the community center to extract data to
determine its significance to the rest of the site.

I recommend a joint program with the BLM and Utah State History to update the
site data for Montezuma Canyon and southeastern Utah. The site data should not only
include site GIS information but should minimally include site type, site size, artifact
assemblage, and occupational type. Once this is accomplished then more detailed
GIS analysis could be performed by isolating the different occupational periods. The
occupational periods could then be analyzed by looking at site type and distribution
across the landscape to determine the relationship to each other.
## Appendix A

Table A.1. Grid Data for Hidden Village (42Sa2112)

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