

# **2005 EXCAVATIONS AT THE MOUSE HOUSE SITE (5MF6175): EVIDENCE FOR SEASON-LONG WINTER OCCUPATION OF A LARGE HOUSEPIT IN NORTHWESTERN COLORADO**

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Alpine Archaeology excavated a portion of site 5MF6175, known as the Mouse House site, in 2005. The site is located in Moffat County, Colorado, near the Colorado-Wyoming border, on an upper river terrace of the Little Snake. Discovery of the site occurred during REX-Entrega Gas Pipeline construction in the fall of 2005, when a large section of cultural fill appeared in a pipeline right-of-way profile. Alpine personnel immediately began data recovery at the site, in order to salvage the exposed remains before the start of additional construction activities. During excavation, the deposit was found to contain the remains of three slightly superimposed Archaic house pits, as well as an ephemeral occupation zone and thermal feature dating to the Formative Era. The large size of these housepits, among other factors, is thought to support a view of winter semi-sedentism among the groups who constructed and occupied them.

The site is located on rolling sagebrush uplands and has long-distance views to the Little Snake River. The housepit locus is situated on the lee side of a hill and is encompassed by a "sand shadow" that provided for easy depression construction (McFaul 2006). An abundance of quartzite cobbles associated with the ancient Little Snake floodplain is located on the next terrace above the site; these cobbles would have provided quick access to lithic raw material.

## **The Mouse House Site**

The site's original discovery stain was basin-shaped and almost six meters across. Based on differences in apparent depths on both sides of the stain, as well as a significant contrast between the fill colors on each side of the stain, it was suspected that the profile actually exposed two superimposed house depressions. This suspicion was confirmed following later excavation in the block, and a third structural depression was identified behind the dark stain shown on the left. This third depression was also partially superimposed on the remains of House 1, creating a "Mickey Mouse" effect in plan view. Five radiocarbon samples obtained from the structures produced similar date ranges within the Settled Archaic period, all of which fell between 4400 and 4000 cal B.C. (Beta Analytic-212275 through 212279). As the structural depressions were partially superimposed on one another, the sequence of construction was difficult to recognize; however, some evidence for the interpretation of house sequence is available from stratigraphic information.

The presence of a thermal feature and associated occupation surface above the Archaic-era deposits also indicated a reoccupation of the site during the Formative era. A radiocarbon sample from the feature produced calibrated date of A.D. 400 to 640 (Beta-212274). Additionally, a Rose Spring projectile point was recovered from the vicinity of the feature.

## ***Structural Depression 1***

Structure 1 was a large, deep housepit oriented approximately northwest to southeast. This housepit was the largest and most complete structure excavated during 2005 salvage excavations at the site. A large portion of the structure's eastern boundary was destroyed by pipeline construction prior to excavation. One possible posthole was identified on the structure's floor, near the perimeter of the housepit on its southern side. Sides of the structure were sharply slanted to the deeply excavated floor, which was slightly basin-shaped and somewhat undulating. No entrance was identified within the remaining portion of the structure; however, chances are that the entryway was located on the downhill side of the structure, the portion that was removed during pipeline

construction. Five thermal pits were located around the structure perimeter, including one especially large feature that contained charred biscuitroot remains. This feature was consequently identified as a roasting pit. Two concentrations of FCR were located on the floor of the structure, in association with the roasting pit and other thermal pits on the structure's northern end. Although no floor artifacts were recovered from the structure, three of its features contained a total of 59 chert and quartzite flakes. Measurements of the portion of the structure remaining at the time of excavation showed that the structure was at least 5 m long by 4 m wide, with a depth of approximately 95 cm to 1 m. Pooled radiocarbon dates from floor features yielded a date range of 4244 to 4048 B.C. (Beta Analytical-212275; Beta Analytical-212277), a range that falls within the Settled Archaic period (Reed and Metcalf 1999).

### ***Structural Depression 2***

This depression was located to the south of Structure 1 and was only partially excavated in 2005, as a significant portion of the structure lay outside of the 2005 discovery excavation block. Based on work so far, the relationship between Structures 1 and 2 is unclear—Structure 2 may have been excavated after House 1, concurrently with it, as an adjoining room or antechamber, or it may potentially even have been constructed before House 1 and simply cleared of fill for use as an activity area during occupation of House 1. Whichever way it happened, it is clear from the structure's excavation block profile that the last use of the structure did not pre-date the occupation of House 1. As for the form of the depression itself, it can be seen in profile that Structure 2 had steep sides, at least on its northern margin, and a sloped floor, in keeping with the slope of the hillside before it was bladed. The total length of this structure, as seen in the western wall profile, was approximately 3 m, with a maximum depth of approximately 45 cm. Two small pits were found on the floor of the depression that may have served as post sockets or small hearths. Additionally, two concentrations of FCR were found on the floor that may have been associated with thermal pit features located outside the excavated area of the pit. A sample of fill from Structure 2 returned calibrated radiocarbon dates of cal 4338 to 4067 B.C., placing construction and occupation of this structure approximately contemporaneous with House 1.

### ***Structural Depression 3***

Structure 3 was located in the discovery profile, along with Structure 1. Only a sliver of this structure remained, as it was, in addition to having been truncated by the original construction of Structure 1, the structure to experience the most damage from pipeline trench construction. Structure 3 had an undulating floor and a rather sharply slanting southern wall. A portion of the overlying fill of the structure appears to have been removed during construction and occupation of House 1 and replaced by activity debris associated with this larger, later house. Houses 1 and 3 appear to share the same prehistoric ground surface and so many have had similar periods of occupation. Pooled radiocarbon dates place House 3 within a range of cal 4337 to 4239 B.C. (Beta-212276; Beta-212279), a date range slightly earlier than and statistically different than the range produced by the House 1 samples. The original diameter of the structure is unknown but may have been as much as 5 to 6 m, with a depth of approximately 75 cm. One possible posthole socket was present along the perimeter of the structure depression, and a single thermal feature, possibly situated in the center of the housepit, was identified. Artifacts recovered from the feature included a grinding slab recycled as a roasting rock and two flakes; additionally, a reconstructible grinding slab and an associated mano were found on a high spot of the structure's floor.

### **Modeling Occupation of the Mouse House Site**

Having summarized what was found at the Mouse House Site in 2005, I would like to discuss the implications of these findings. The results presented here are preliminary to some degree, as the results of pollen and faunal analysis have not yet been received. Consequently, in this paper I focus on using structural evidence to support a particular model for Archaic mobility in northwest Colorado. This model, which is presented as one *choice* available to Archaic hunter-gatherers in the

area, is based on excavation results from the Mouse House site and supports a view of season-long, winter occupation of housepits, at least the deeper and more formal ones, as well as the relative stability of seasonal migratory rounds.

### ***Season of Occupation: The Housepit as a Winter Comfort Strategy***

Although basin houses and other semi-subterranean structures have traditionally been associated with cool-season occupations (Gilman 1987), several features of the housepits excavated at the Mouse House site suggest that they functioned as winter residences, possibly sheltering their occupants during the coldest portions of the winter. This discussion focuses primarily on Structure 1, the largest of the structures and the one for which the greatest amount of structural information is available. Although many aspects of Archaic hunter-gatherer seasonal mobility are still unknown, the discovery of larger housepit structures such as Yarmony House (5EA799) in Eagle County (Metcalf 1997) and House 1 at the Mouse House site demonstrates the need for prehistoric settlement and mobility models that allow for the winter occupation of high-elevation areas in Colorado. According to the model of Archaic mobility presented by Metcalf and Black (1997) in association with the findings at Yarmony House, groups of individuals operated within a fairly limited area of yearly movement, concentrating on moving between higher and lower elevations to manage seasonal changes in temperature and other environmental conditions. Winter occupation, as maintained by this model, typically occurred in lower-elevation parks and valleys and was semi-sedentary in nature, with individuals depending on a variety of previously collected and stored foods for subsistence (Metcalf and Black 1997). In this view, elaborate, deeply constructed structures such as Yarmony House represent a strategy intended to provide occupants with some degree of comfort during the cold season.

Although Metcalf and Black's (1997) model is focused on the Colorado Rocky Mountain interior, it seems that aspects of their model may apply outside the intended study area, as well, as House 1 at the Mouse House site seems to conform closely to the typical characteristics they discuss with regard to housepits built for winter occupation. According to Metcalf and Black (1997), structures or residential bases constructed for cold-season inhabitation should exhibit a certain set of common characteristics, which include (1) site placement on slopes above valley floors, in areas that fall within big game winter range; (2) the presence of "substantial shelters, associated storage facilities and interior hearths for heating" (195-196); (3) the occurrence of "storable plant foods" and marrow and fat rendering (196); and, finally (4) an artifact assemblage exhibiting a high level of diversity, such as would be evident at any residential base such as that described by Binford (1980). Based on these characteristics, it seems likely that House 1 was constructed and used as a winter habitation. First, in terms of site placement, House 1 is located on the lee side of a hill above Bighole Gulch, in a location that would provide shelter from southwest winds. The area is intensely used by game animals, including antelope, deer, and elk, in late fall and, presumably, winter as well. Large, modern game blinds were located nearby, almost within view of the site, and were located at approximately the same elevation as the housepit complex. Second, concerning the architectural design of the house, the structure was particularly large, as compared to the range of housepit sizes recorded in Colorado and Wyoming, and deeply excavated, an aspect of construction that would have contributed significantly to insulation from the cold. A high density of apparent thermal features was present within the housepit, comprising 11 percent of the total surface area of the floor. Yarmony House and the Kewclaw housepit, in comparison, have heat feature area to floor area ratios of only 4 percent and 3 percent, respectively (based on Conner and Langdon 1991; Metcalf and Black 1997). Overall, in terms of site placement and architectural organization, it seems that House 1 is well situated as a winter residence. Certain aspects of the structure's construction, such as its high level of insulation and high density of thermal features, seem understandable only in the context of an exceptionally cold-weather occupation.

The third and fourth criteria presented by Metcalf and Black (1997) are concerned not so much with season of occupation as with duration of occupation, a topic that I'll get to in the next

section. In terms of subsistence and artifactual evidence, however, it appears that residents of House 1 were sufficiently equipped with storage space to make wintering-over a possibility; the artifact assemblage, additionally, is sufficiently diverse to account for long-term use of the site as a residential location.

### ***Seasonal Mobility: The Housepit as a Season-long Residential Base***

The length of time for which housepits were occupied is a topic of debate, with views of occupation length ranging from year-around (Shields 1997; Miller and McGuire 1997) to season-long (Metcalf and Black 1997) to a much briefer, yet unspecified period of time (Smith 2003). In his article regarding hunter-gatherer mobility and housepit construction, Smith (2003) discusses an aspect of this debate that seems crucial to understanding hunter-gatherer mobility patterns—he characterizes the majority of Wyoming housepits as ephemeral structures without a great degree of effort put into their construction, citing this fact as evidence that these houses represent relatively short-term occupations (Smith 2003). Larger houses, such as Yarmony House and Wyoming’s Medicine House, in particular, fall outside of this argument and are identified as likely representing “entirely different mobility patterns and settlement systems” (Smith 2003: 185). This association of house size (i.e., construction effort) with length of occupation seems crucial to understanding the range of choices available to hunter-gatherers with regard to mobility. House 1 at the Mouse House site, for example, seems to fall more in the way of these larger houses with regard to its likely length of occupation; evidence recovered from 2005 excavations suggests that this housepit may have been occupied over the course of an entire winter.

Metcalf and Black’s (1997) model concerning winter residences seems to presuppose that a house built for winter occupation would be occupied throughout the entire season, a circumstance that Smith’s (2003) argument does not necessarily support. In Smith’s (2003) view, housepits may have been occupied during the winter, but they were occupied briefly, with the amount of labor spent in constructing them being returned by the fact that they would later be available for reoccupation if needed. To explain why it seems that, at least in the case of House 1, winter occupation *was* a season-long affair, we will discuss three different lines of evidence: (1) subsistence information, including the potential for food storage; (2) direct, artifactual evidence; and, finally, (3) in what seems like the most important argument for season-long winter occupation, the level of effort placed into the construction of larger structures such as House 1. First, as mentioned by Metcalf and Black (1997) in their criteria for winter occupation, in residence intended for over-wintering a researcher would expect to find evidence of plant and animal food storage and the use of stored foods. As ancillary and faunal analyses have not yet been returned, it is difficult to create a picture of subsistence practices associated with the structure; however, the potential for extensive storage space exists both within the structure and within the numerous pits excavated in the interior of the structure. Additionally, biscuitroot, a food occasionally described as stored before use (Francis 2000) was located during Alpine’s macrobotanical analysis. Although evidence of sagebrush charcoal was recovered from all five pits, indicating that they were used as heat-producing features at one time, these pits could just as easily have been used as storage pits, perhaps converted to fire pits after their food supply was exhausted. Second, in terms of direct, archaeological evidence for long-term occupation of the site, it seems that artifactual and archaeological evidence suggests that the site was used as a residential base in the sense laid out by Binford (1980). This criterion is a fourth measure for winter occupation identified by Metcalf and Black (1997). Although artifact counts from the site were low, in keeping with the trend in semi-subterranean structures excavated in this part of Colorado, artifact diversity was high. Both local quartzite and regionally available chert raw materials were present in the artifact assemblage, as well as a variety of tools types, both expedient and bifacial. The ground stone found at the site was nearly worn out, additionally, indicating a substantial length of occupation, and a thick, stained layer extended out from the structure itself for some distance in the discovery profile, indicating that sufficient activity had occurred at the site to create an extensive and deep occupation surface.

Finally, a third line of evidence for season-long winter occupation of House 1 at the Mouse House site is based on the nature of the house itself and the effort required to construct such a substantial structure. Why, for example, would a family group choose to build a bigger house, rather than a smaller one? For one, a bigger house provides more living and sleeping area, as well as a greater amount of interior workspace. It will house more occupants, additionally, as well as, potentially, impress the neighbors. On the other hand, why would a family group choose to build a smaller house? Smaller houses, of course, are easier and quicker to build, as well as more efficient to heat. Apparently, then, as it turns out, smaller houses, as a more efficient use of human resources, would be preferable to individuals or groups, unless someone had a particular reason for wanting to build a bigger one. This trend, clearly, is reflected in the numbers of small houses, as compared to large ones. This histogram, showing data from excavated housepits in western Colorado and Wyoming, shows a clustering of housepit volumes, measured in  $m^3$ , between 0.10  $m^3$ , a very shallow house, and 8  $m^3$ . This distribution suggests that “normal” housepit size was likely between 0.10  $m^3$  and 8  $m^3$ , with structures larger than that having had an important reason to be excavated to such a size. House 1, at over 15  $m^3$  (see Figure 1) falls well outside this range, as do Yarmony House (Metcalf 1991; Metcalf and Black 1997) and Medicine House (Miller and McGuire 1997). In terms of structure floor area, additionally, floor areas have been measured between 1.3 and 33.5  $m^2$ , with the majority of structures measuring approximately 13  $m^2$  or smaller. Again, with an estimated floor area of over 15  $m^2$ , House 1 appears to have had an above-average level of effort devoted to its construction.

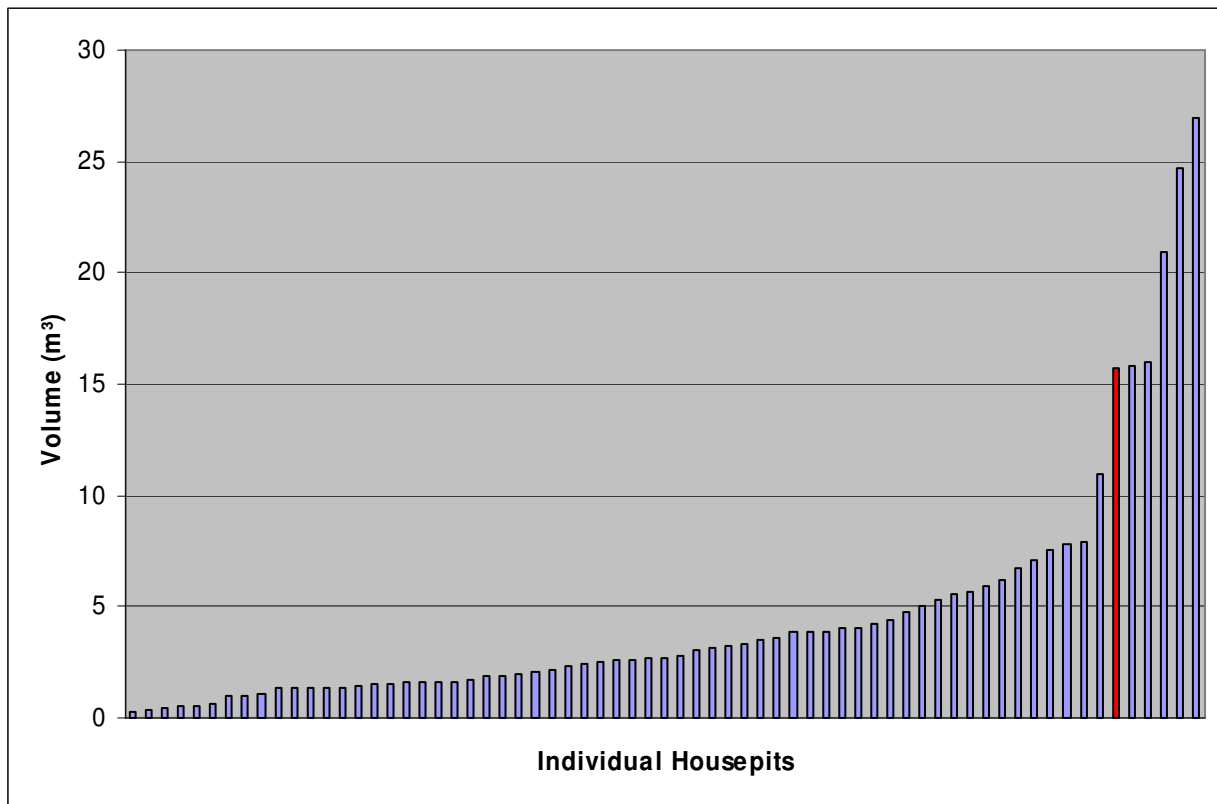


Figure 1. Range of housepit volumes throughout Wyoming and northwestern Colorado. Structure 1 at the Mouse House site (5MF6175) is shown in red.

Structure depth, additionally, seems likely to have been governed largely by choices about efficiency and perceived benefit. A deeper house, naturally, would have greater headroom and be much better insulated against changing temperatures. Deeper structures, additionally, would create more secure storage areas. On the other hand, however, the excavation of additional depth from a

structure's floor is a very labor-intensive operation and one that becomes more labor-intensive as the floor area becomes greater. As shown in this graph, pit structure depths show two modes, at 0.3 m and 0.5 m, respectively, after which frequencies grade off significantly. This patterning might indicate, then, that excavation to a depth below 0.5 m below the prehistoric ground surface was unusual and only occurred if sufficient motivating factors were present to make this added degree of excavation "worthwhile" for some reason or another. Clearly, these two outliers (see Figure 1Figure 2), with interior depths of 1.3 m each, differ from the population as a whole and as such can be considered to be operating under a separate set of social and cultural factors. Yarmony House (Metcalf 1991; Metcalf and Black 1997), Medicine House (Miller and McGuire 1997), one structure at site 48FR2330 (Reiss 1990), and House 1 were all excavated to depths at least 80 or 85 cm below the prehistoric ground surface, consequently lying well outside of the normal range of depths for housepit structures. This circumstance should lead to a discussion of what might motivate individuals in a group to tackle such time-consuming building projects.

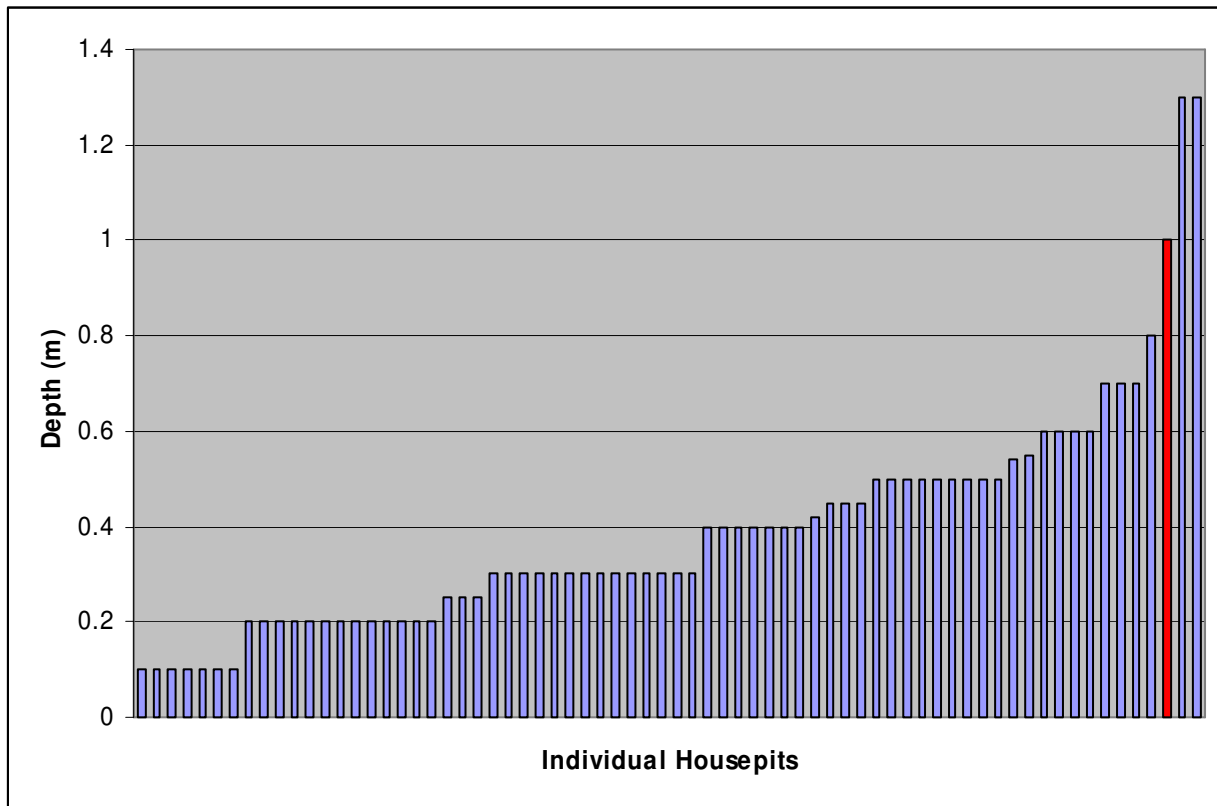


Figure 2. Range of housepit depths throughout Wyoming and northwestern Colorado. Structure 1 at the Mouse House site (5MF6175) is shown in red.

This analysis of housepit size distributions was intended to show two things. First, it was supposed to show the range of variation in housepit dimensions and highlight the differences between smaller houses, which tend to cluster in size, and the larger houses, whose size measurements seem to increase exponentially after reaching a certain size. Second, this analysis was aimed at highlighting the extraordinary level of effort placed into the construction of these houses. If it is assumed that 8 m<sup>3</sup> is the maximum excavated volume removable for housepit construction by a typical family group, then it seems clear that individuals would not just leave an excavated structure of this size, which was apparently the result of some type of special effort, before the need to leave it was absolute. Although Smith (2003) discusses the potential ease of winter migratory movement, it seems that leaving such a structure would be potentially dangerous during the winter months. In addition to the fact that another group would likely co-opt the structure after

its initial abandonment, it seems risky to set off from some known, sheltered spot, only to find that a newly selected spot was already under claim of another group of individuals or otherwise unsuitable in some way.

## **Conclusions**

In summary, it appears that House 1 at the Mouse House site was constructed as a substantial winter base for a group of individuals operating under a collector-based resource procurement strategy. The site was likely occupied through the winter, possibly to be abandoned in the spring—the presence of charred biscuitroot fragments in an internal pit feature at abandonment might suggest that biscuitroot roasting was among the last activities to have occurred on-site during that particular occupation. Overall, excavations in House 1 tend to support models of Archaic mobility that allow for the construction of large housepits for over-wintering as one strategy available to hunter-gatherers to use.

As shown by the multiple reoccupations of the site, including at least three apparently separate occasions of housepit building, as well as a later, Formative-era occupation of the site, the Mouse House site was a good spot, or at least it may have been from the point of view of Archaic hunter-gatherers. The site is characterized by good views above Bighole Gulch to the Little Snake River, including a viewshed of over a mile down-valley in many cases, easy, sandy digging, and a nearby, if relatively poor quality, quartzite lithic source. Reoccupation of the site as many as three times during, at most, a two hundred year period may indicate that a special set of circumstances was in effect during this period, such as the availability of some particular resource, the lingering visibility of site occupation in the area, or, even, historical memory that a substantial residence was once located on-site.

In conclusion, I would just like to say that, from a theoretical perspective, it seems that models of Archaic mobility should emphasize individual choice from among multiple alternatives—that a continuum appears to have existed along which differing degrees of seasonal sedentism were present on the cultural landscape. In this view, people chose one strategy over others based on individual needs, preferences, or gut feelings about the best strategy by which to manage environmental and seasonal conditions. In the case of the Mouse House, the preferential aspects of its locations may have been sufficient to warrant an extra amount of construction effort, if it meant that a family group would then be able to spend the winter in that spot.

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