

X. SITE INTERPRETATIONS

The research problems and hypotheses that guided the 1981-1982 project are outlined in Section II. The Site Interpretations section presents a summary discussion and evaluation of these problems and hypotheses. We were able to address most of the problems defined in the research proposal during the field season and subsequent analysis. Some of the posed questions can now be answered. Other questions remain valid as we did not recover the data necessary to provide good answers. The following discussion will address each problem and hypothesis and summarize the relevant data presented elsewhere in this report. Additional interpretations are presented in Section XII.

MAJOR PROBLEMS AT 41 JW 8

Site Limits: Figure 1 shows the approximate extent of the site boundaries. As discussed in the previous section, the only site limit defined by excavation was the eastern limit. The intensive occupation zone begins about 5-10 m from the bluff edge. The WTA northeastern excavations do illustrate that some cultural features occur on the immediate bluff edge (Features 8 and 9), although cultural material density is noticeably lower near the edge. All of the excavation areas except those along the bluff edge were placed within the major occupation zone. Thus, the site limits indicated in Figure 1 are based primarily on surface and topographic indications. The two off-site excavations suggest that the site is not surrounded by a broad low-density scatter of materials. This is also confirmed by the lack of visible cultural materials across most of the plowed agricultural field to the west of the site. The maximum site area, as defined by concentrated surface materials and testing, is an elliptically shaped area paralleling the creek bank. This area measures approximately 35 x 80 m (grid E-W x N-S) and contains approximately 2200 m².

Site Depth: The 1981-1982 excavations found only scattered materials and ephemeral features below the well-defined Late Prehistoric horizon. The possibility that the lower materials and features (Feature 4 and several small rock clusters) may represent an earlier occupation cannot be ruled out. However, it is significant to note the complete lack of chronological indicators, well-preserved features, or datable quantities of charcoal in the deeper deposits. Although a few artifacts were recovered which could be interpreted as being earlier Late Prehistoric (the expanding stem arrow points, A2) or Archaic materials (the triangular bifaces, B3), these materials were found within the upper deposits. The excavated areas of the site do not evidence any well-defined earlier components.

Bone Bed: As discussed in Section III, we did not reopen the immediate area of the bone bed during the 1981-1982 season. Therefore, the question of "what the bone bed actually represented" cannot be fully evaluated. However, the exposure of cultural features in the WTA that had clustered faunal materials suggests that the bone bed represents a disposal area as originally hypothesized. This will be further discussed in this section.

Seasonality: It was hypothesized that the site was exclusively occupied during the winter and spring when the bison herds were thought to have been present in the region. Several lines of evidence suggest that the site was occupied for a longer period of the year, including the early spring, summer, and the fall. The presence of various fish, amphibians, and reptiles indicates occupation during the warm months of the year. The presence of freshwater drum suggests an early spring occupation. The presence of several charred persimmon, *Chenopodium*, and possibly *Helianthus* seeds as well as many charred hackberry seeds also evidences a warm month occupation. As Steele notes in Section VII (Analysis of Vertebrate Faunal Remains), there are few reliable indicators of winter occupation; hence we cannot rule out the possibility that the site was occupied during most of the year. Based on the evidence we do have, much of the occupation occurred during the spring through fall seasons.

Occupational Span and Frequency: Occupational span and frequency of occupation were recognized in the proposal as a difficult problem. The radiocarbon dates are not consistent and are simply not precise enough to be able to pin down the occupational span. The primary occupational zone appears to be 20-30 cm in thickness. It is very difficult to determine the rate of deposition. The presence of intact features at several depths within the WTA could be used to argue that the cultural deposits accumulated over time. Perhaps the best indication of repeated occupation is the sheer volume of cultural materials at the site.

The Hinojosa site cultural materials definitely indicate a major accumulation of occupational debris. This suggests either a very intensive single occupation or more likely, a number of repeat occupations. Assuming that the site occupation zone is elliptical and that the intensive zone extends only slightly beyond the excavation areas from where high artifact densities were recovered, one can estimate that the minimum area covered by the intensive occupation zone is 1000 m². This figure is conservative; the actual zone is probably 20-40% larger. Using the conservative figure of 1000 m², some projections of total artifact counts can be made. The site average density figures (Section IX) were multiplied by 1000 to arrive at gross estimates of the minimum number of artifacts present at the site (Table 30). The actual number of artifacts may well be 50% higher.

These estimated site totals provide very good evidence of the intensity of occupation that occurred at the site. These numbers could be manipulated in various ways to suggest the intensity of various occupational activities. For example, for the estimated 340 cores, each represents a chert cobble that was transported at least 35 km to the site. If one were to assume that a single man could carry 15 cobbles, then some 23 man trips were made to the flint sources. If one were to assume that a person could gather 300 land snails in a gathering session, then 777 gathering sessions were made. If one were to assume that 10 end scrapers were necessary to scrape the hide of a single large mammal (deer, bison, or pronghorn), then at least 71 large mammals were processed. If one were to assume that each hunter carries 30 arrows, then 57 hunters left behind their entire supply of arrow tips. It should be emphasized that these numbers are merely guesstimates of a few activities conducted at the site and are not based on any ethnographic analogies or replicative experiments. The main point is that the density of

TABLE 30. MINIMUM ESTIMATED ARTIFACT QUANTITIES AT 41 JW 8

Artifact Type	Count
Perdiz arrow points (A1)	1,710
Arrow point fragments (A4)	1,020
Bifaces (B and FB)	2,230
End scrapers (U1)	710
Pottery sherds (S)	8,230
Modified debitage (MD)	10,770
Unmodified debitage (D)	150,360
Cores (C)	340
Mussel valves	3,280
Rabdotus snails	232,960
Burned rock (kg)	1,230

the cultural materials at the site suggests that many repeated activities are represented.

There is little doubt that the Hinojosa site is the result of many repeat visits by people who had a standardized artifact inventory. The total occupation span may have been as few as 50 to 75 years or as much as 500 years. The longer occupation span assumes that Feature 6 dates to roughly A.D. 1100 and that the triangular arrow points (similar to **Starr** and **McGloin**) indicate an occupation around A.D. 1600. The occupational frequency cannot be estimated from the available data. The evidence of feature reuse (Features 5 and 6), the evidence of extensive faunal processing, and the fact that flint was brought to the site from considerable distances in some quantity, can all be used to suggest that the site functioned as a major base camp. Thus, each occupation probably occurred over at least a several week period.

Faunal Exploitation: The faunal study (Section VII: Analysis of Vertebrate Faunal Remains) suggests that deer rather than bison were the most important animal resource. Bison and pronghorn were the second and third (not necessarily in that order) most important animals, followed by rabbits and rodents. Lacking accurate data for minimum numbers, meat weight, and nutritional value, it is impossible to accurately assess the precise contribution of each animal species. The smaller animals, particularly rats, rabbits, and turtles, were no doubt collected in much greater quantities than the larger mammals. However, the larger animals contributed more to the diet by virtue of their size. It should be realized that the smaller animals and other supplementary resources such as seeds, fruits, land snails, and mussels probably provided the bulk of the daily subsistence because of their relative abundance and ease of collection. The large animals represented an important but less predictable resource.

It is argued elsewhere in this report that the peoples who occupied the Hinojosa site had a technological inventory specifically adapted to the exploitation of large mammals. *Perdiz* arrow points killed the animals, beveled knives were used to butcher the animals, and end scrapers were used to process the hides. The fact that virtually every deer, bison, and pronghorn bone (except phalanges and teeth) is broken suggests intensive processing. Also many of these fragmented bones are spiral fractured, burned, or have cut marks which supports this interpretation. The bone clusters themselves suggest that the larger mammals (as well as smaller animals) were efficiently processed and then carefully disposed of. Thus, we appear to be dealing with a group of people who were actively seeking and fully exploiting the large mammal resources available in the area.

All of the bones identified at the site are from animals that probably could be found in the immediate site vicinity. The environmental setting model (Fig. 2) suggests that diverse habitats were available very near the site. Under favorable environmental conditions (adequate moisture), such as posited for the site occupational period, the local vicinity could be characterized as a "high resource density" area (Hester 1981:122). The wide variety of animals identified at the site also suggests that all of the available animal habitats were exploited. The larger mammals were probably hunted by the adult males, and the women and children hunted and snared smaller animals and gathered a variety of supplementary resources. The males probably had to go some distance from the site to find the larger mammals at times. This may be documented by the general scarcity of deer, bison, and pronghorn cranial materials, as presumably the entire carcasses would not have been brought to camp for distant kills. On the other hand, virtually the entire deer skeleton is represented in the collection; hence at least some deer were killed close enough to camp to bring back the complete carcass. Thus, we can infer that several exploitive patterns are represented.

Cultural Pattern: The cultural pattern represented by the Late Prehistoric occupation at the Hinojosa site is clearly related to the Toyah phase of central Texas (Jelks 1962; Prewitt 1982, 1985). This is further discussed in the following two sections of this report.

RESEARCH HYPOTHESES

Hypothesis #1, Site Function: That the site represented a Late Prehistoric pattern of repeated seasonal occupation (winter to spring) emphasizing a specialized resource (bison and pronghorn).

As has been discussed, the evidence suggests occupation during all or most of the warm months rather than the cooler months. This does not rule out the possibility of winter occupation. The specialized resource was deer as the major species followed by bison and pronghorn. Repeated occupation is definitely evidenced. The expectations are evaluated individually (refer to Section II for a complete listing of each expectation).

1. The block excavations did evidence most of the predicted features, including refuse discard areas (the bone cluster features), cooking areas (Features 5 and 6), and occupational features (Features 7 and 11). These

features were not overlying each other, and they do not occur at a single elevation or surface. No area was identified as a "bison processing area"; however, the clusters of end scrapers and beveled knives in the WTA, as well as the presence of bison bones in most of the bone cluster features, are evidence of bison processing.

2. No meat weight analysis was done; the relative importance of meat in the diet was based on the rough proportion of bone recovered from the site (see Section VII: Analysis of Vertebrate Faunal Remains). The most numerous bones collected were deer rather than bison. Bison and pronghorn were secondary to deer in importance at 41 JW 8.
3. Minimum individual analysis was not done; based on the relative numbers of elements, a large number of smaller faunal species were indeed harvested as supplementary resources.
4. No specific study was done of the bison bone distribution because all of the bone was not studied. The fact that all of the bison bone recovered is fragmented and that many fragments have spiral fractures or cut marks, argues that the resource was maximized.
5. No winter occupation was evidenced. A warm month, spring to fall occupation was evidenced.
6. The excavations revealed minimum evidence of an earlier occupation. If any earlier occupation is actually present, it is very different and of very little extent.
7. The closest similarities to 41 JW 8 in terms of the Late Prehistoric material culture are found at other sites in southern Texas, including 41 LK 201 (Highley 1986), 41 MC 296 (Hall, Hester, and Black 1986), and the Berclair site (Hester and Parker 1970). All of these sites are closely related to the Toyah phase of central Texas and are considered as Toyah **horizon** sites by this author. This concept will be discussed in the following sections.

Hypothesis #2, Bison-Hunter's Chipped Stone Tool Kit: That **Perdiz** arrow points, end scrapers, and beveled knives make up the chipped stone tool kit used during the Late Prehistoric in south and central Texas for hunting and processing bison.

The artifacts collected at the Hinojosa site suggest that this specialized tool kit was present, and the tools were used as hypothesized. However, it is now recognized that deer were more important than bison and also that antelope were important. Thus, the tool kit could be better termed the "artiodactyl-hunters chipped stone tool kit." Bison bones have been given a prominent place in the analyses of collections from similar sites, hence the common inference that bison hunting was the most important subsistence activity. It is predicted that faunal studies at similar Toyah horizon sites will also show that deer is the dominant artiodactyl. Bison as the largest animal was no doubt highly prized and sought after, however, deer were more common. The same tool kit was no doubt used for both.

The two expectations were more or less borne out by the excavations with some modifications.

1. All three of the tools (A1, U1, and B1) were found in indirect association with the artiodactyl remains.
2. The wear and breakage patterns of the three tools are consistent with the hypothesized functions as discussed in Sections VI and VII (Perdiz Arrow Point Studies). Perdiz points have light wear patterns that intuitively resemble what would be expected from a projectile tip used to hunt large mammals. The end scrapers have very patterned wear that is very consistent with hide scraping. The beveled knives also show patterned wear that is consistent with use as a meat or hide cutting tool. Extensive replicative studies would be required to confirm these functions and to rule out other similar functions, nonetheless, on an intuitive assessment, the tools have the hypothesized wear patterns.

Hypothesis #3, Function of Cluster Features: That burned rock clusters at 41 JW 8 represented different functions such as cooking hearths, warmth hearths, or discard piles.

Some differences were observed in rock cluster features at the Hinojosa site. Cooking hearths were definitely present. Warmth hearths may or may not have been present. The concept of the "warmth hearth" is hard to demonstrate. While fires may have been built just to keep warm, this will be very difficult to ever prove. Discard piles were probably present. Feature 8 consisted of two rock clusters that lacked a regular shape and direct evidence of burning. These are suggested to have been discard piles. This is a difficult assertion to prove due to the possibility that the clusters could be cooking hearths that were exposed on the surface long enough for all the charcoal, ash, and baked clay to have been destroyed by weathering. Thus, the expectations can only be partially evaluated.

- 1.a. Cooking hearths were identified. Feature 5, which had little burned rock, and Feature 6, which had a distinct ring of burned rock, are both cooking hearths. Evidence of this is direct burning (stained soil), ash, charcoal, baked clay, charred plant remains (seeds and fruits), charred and uncharred bone, and very high phosphate levels.
- 1.b. Features 8, 1, 4 (the rock clusters), and several rock clusters not formally recorded could be interpreted as discard piles. They generally lacked the evidence of direct burning, charcoal, ash, and charred food remains. They also had lower phosphate readings than the definite cooking hearths. They could also be weathered cooking hearths.
2. Functionally related artifact clusters were found in apparent association with the two cooking hearth features. Feature 6 was found on one edge of the living surface, Feature 11. Within Feature 11, artifact clusters suggest a number of activities such as flintknapping and hide scraping. In addition, many of the bone clusters (Features 2A, 2B, 3, and 10) may be associated with the cooking hearths. It can be stated, contrary to ~~be~~ my original expectation, that similar activities were

evidenced around the possible discard piles. In fact, Feature 8 is associated with bone clusters and several artifact concentrations.

Hypothesis #4, The "Bone Bed" Activity Area: That the bone bed area functioned as a bison butchering/processing and bone disposal area.

This hypothesis cannot be evaluated due to the fact that we were not able to open an excavation block around the "bone bed" because of the problems with leaf cutter ants as discussed in Section III. However, the recognition of six other features with clustered bone at the site suggests that the "bone bed" was simply a larger example of the same type of feature, a bone disposal area. The expectations are not reviewed.

ADDITIONAL PROBLEMS

Lithic Sources: As discussed in Section VI, two areas are thought to have been the sources for most of the siliceous stone used at 41 JW 8. The most important source was probably along the Nueces River some 35 km east of the site. The secondary source was the hilltop gravel lag deposits in northwest Duval County and vicinity, a minimum of 45 km from 41 JW 8.

Projectile Point Neck Width Hypothesis: As discussed in Section VII (Perdiz Arrow Point Special Studies), the Hinojosa site Perdiz points were used to evaluate the hypothesis advanced by Fawcett (1978). While the 41 JW 8 data seem to support the hypothesis, shortcomings in the construction of the original formula limit the application of this dating technique. The idea remains viable and could be better evaluated if more single component samples were measured.