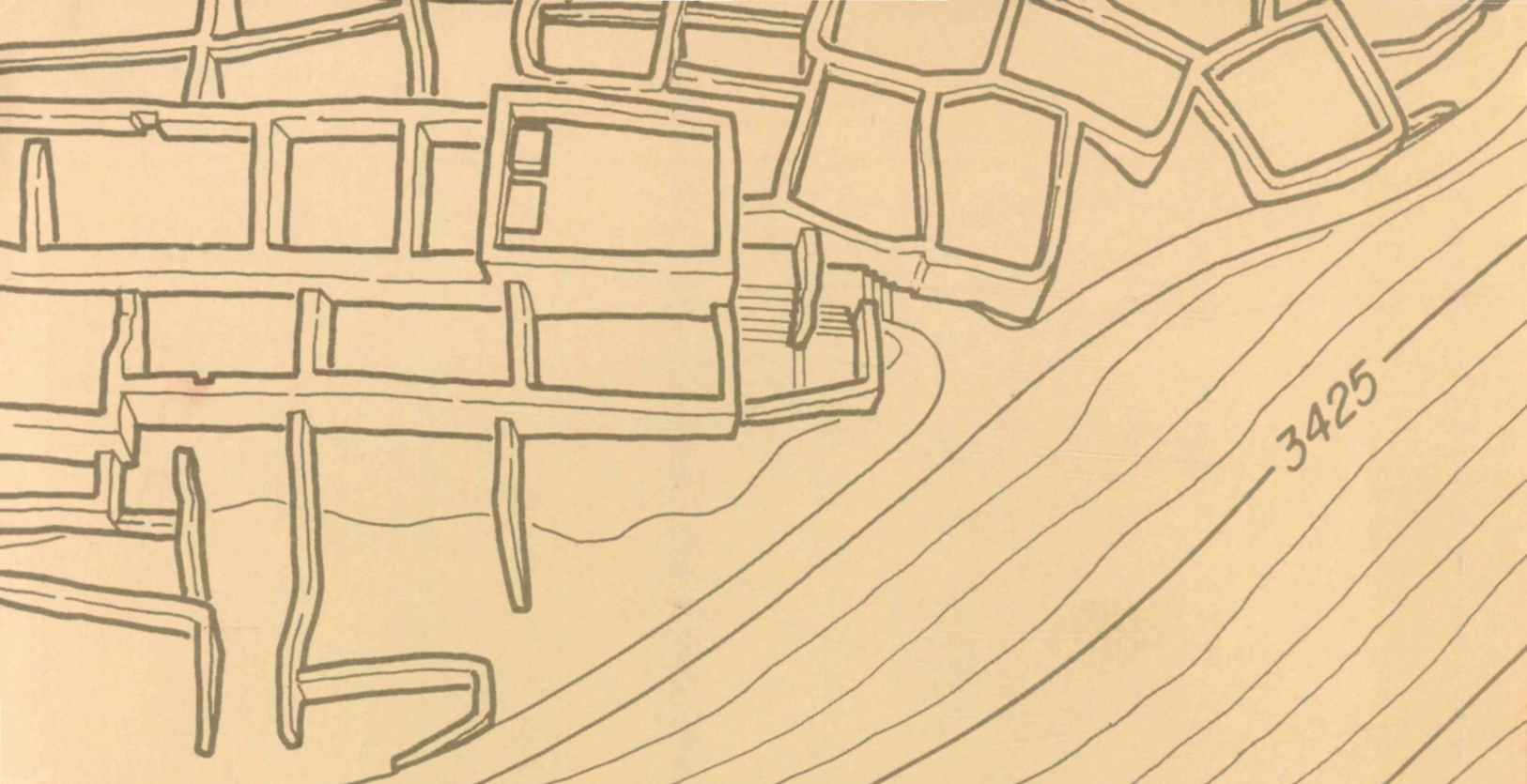




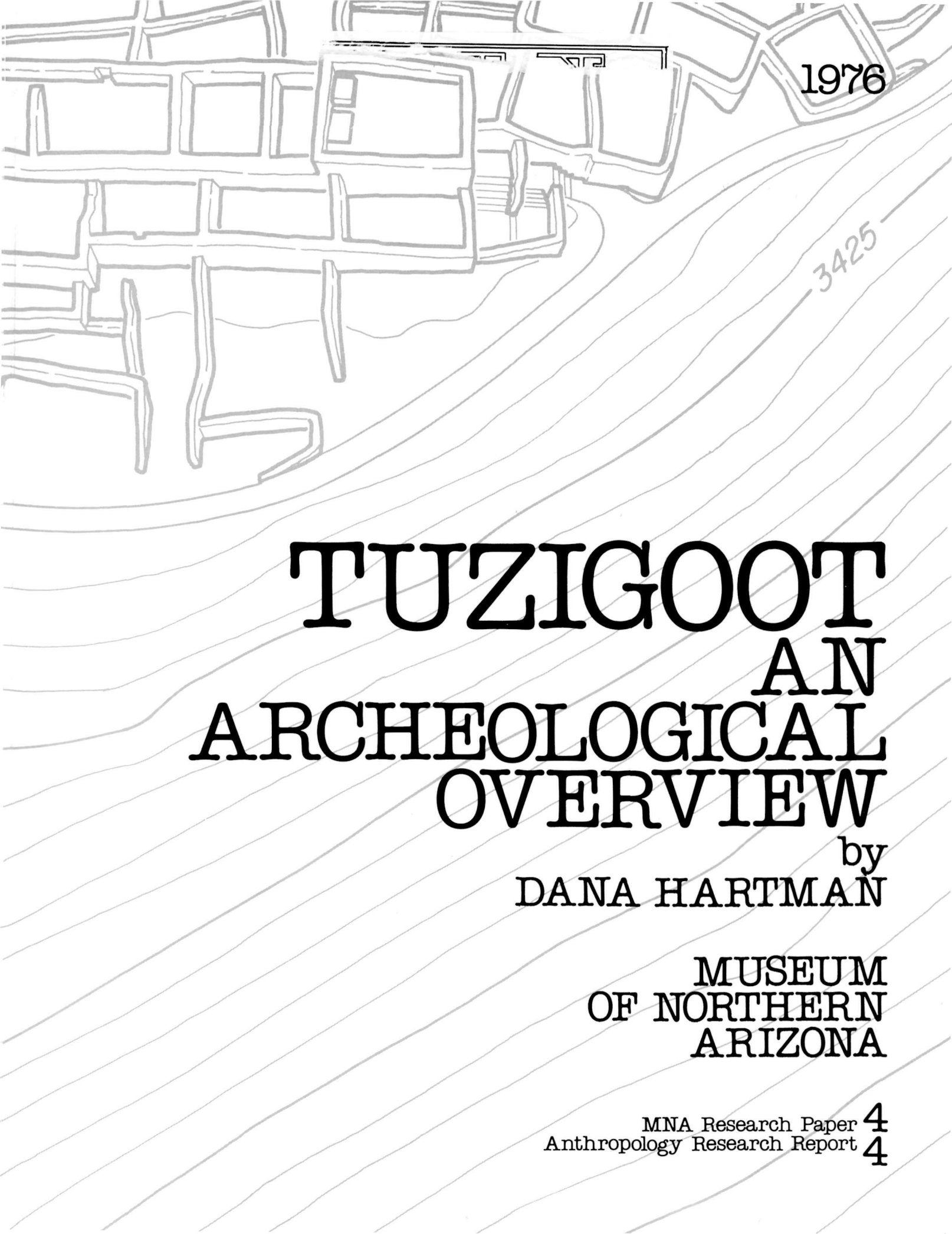
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TUZIGOOT AN ARCHEOLOGICAL OVERVIEW

by
DANA HARTMAN

MUSEUM
OF NORTHERN
ARIZONA

MNA Research Paper 4



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INTRODUCTION

This report is the result of a proposed subterrene drainage project at Tuzigoot National Monument. In June, 1975, the Museum of Northern Arizona contracted with the National Park Service (Contract No. CX810050004) to study the impact of the drainage project on the archeological resources at the Monument. In conjunction with this phase of the project, Museum archeologists were to locate all possible undisturbed deposits in the pueblo. These deposits would be plotted on an archeological base map developed from an aerial photograph of the Monument. The drainage holes were to be drilled with a rock melting penetrator, and the National Park Service desired to avoid any possible impact to undisturbed cultural material. Also, a map of these deposits would be a valuable source of information on areas of potential archeological research within the ruin. The lowest floor elevation in each room was to be mapped to facilitate the future placement of the drainage holes. A limited test excavation program was proposed to aid in the location of undisturbed deposits. Test excavations were also to be utilized in determining the effects of the rock melting penetrator on areas immediately surrounding three test holes. The original proposal also included a primary data review which would result in a room function analysis, an evaluation of previous research at the Monument and an overview of the archeology of Tuzigoot.

After the base map, the map of undisturbed deposits and the archival research portions of the project had been completed, a decision was made to postpone the subterrene drainage program. Therefore, the original orientation of the report was somewhat altered. Test excavations at the Monument were no longer necessary, but the other components of the original proposal were deemed valuable to a better understanding of the archeology at Tuzigoot. The map studies have been retained primarily because of the need for a more accurate map of the pueblo. The location of undisturbed deposits will be a useful tool in future research at the Monument; this map will also be utilized when the drainage project is eventually implemented. The lowest floor elevations were also mapped for eventual use in the drainage project.

In addition, the height of each standing wall corner was recorded; this information will provide a data base for future restoration and stabilization projects. The sections on prehistoric and historic occupation of the Tuzigoot area and past research at the Monument have been included in the format originally proposed. For a number of reasons which are explained in the room analysis section, functional interpretation was quite limited for most of the rooms. Nevertheless, each individual room is discussed as completely as possible. The environmental section was significantly expanded, due mainly to the fact that the effective environment at Tuzigoot had never been studied. The annotated bibliography included in the report was not in the original proposal. This bibliography was developed during the early stages of the project; the list includes all available material concerning Tuzigoot.

One of the major results of this project has been the identification of the tremendous research potential at Tuzigoot. For example, the prehistoric abandonment of the Verde Valley in general, and Tuzigoot in particular, has never been explained or even adequately studied. A marked climatic change is a commonly proposed reason for the prehistoric desertion of many areas in the Southwest. At Tuzigoot, changes in the climatic pattern are only hypothetical. Palynological studies at the Monument could produce evidence to support or refute this hypothesis, but only if valid prehistoric pollen samples could still be located in the undisturbed deposits. A thorough re-study of the human skeletal material would be worthwhile if the burials could be accurately dated. This would involve a re-analysis of the ceramics associated with the burials. Unfortunately, the collections from the original excavation are now in three separate localities and a re-analysis of the burials and ceramics would be both time-consuming and expensive. Nevertheless, if the burials could be correctly placed chronologically, and if the number of individuals represented constitute an adequate sample size, this re-analysis would probably illustrate any significant nutritional changes through time.

Declining nutritional status would be sufficient reason to leave the Verde area for more productive regions. Again, pollen studies could provide supportive evidence for changes in available plant food sources. Also, as discussed in the environmental section, Tuzigoot ridge is highly saline. The soil from the prehistoric farmlands near the ridge should be chemically analyzed to determine if continual erosion from the ridge could have reduced the productivity of the fields. Fire is another frequently proposed explanation for the abandonment of prehistoric Southwestern dwellings. Fires were common at Tuzigoot, but more investigation is necessary to determine the relationship between these fires and the eventual abandonment of the pueblo. Some of the rooms were never burned, and if fire was related to the abandonment, it was probably not the only factor. Since the inception of the Monument, Tuzigoot custodians have been plagued by powder-post beetles attacking wooden re-constructions in the ruin. The abundant roof supports excavated from the pueblo need to be studied to determine the prehistoric effect of these destructive pests. Harassment and/or attack by invaders has also been proposed many times as an explanation for the prehistoric migrations of settled farming groups. In the early history of Tuzigoot, there were several doorways which connected the rooms with the outside of the pueblo. At the time Tuzigoot was abandoned, all of these entrances, with one exception, had been sealed. Some time should be devoted to a study of this architectural aspect. If the doors were sealed in response to belligerent behavior on the part of invading groups, it might be possible to date the arrival of these hypothetical intruders. There are undoubtedly a number of other possible reasons for the abandonment which could be tested through re-analysis of the collections and research at Tuzigoot.

The pueblo at Tuzigoot was originally excavated under the direction of Louis R. Caywood and Edward H. Spicer in 1933-34. The earliest rooms now exposed at Tuzigoot were built about A.D. 1000. However, it is apparent from Caywood and Spicer's field notes that many of the excavated rooms rest on undisturbed cultural deposits. There are several indications of unexcavated sub-floor rooms and some of the earliest rooms

were built on significant accumulations of cultural debris. Knowledge of the pre-A.D. 1000 occupation of the ridge is only inferred. Test excavation would provide valuable information on the early history of Tuzigoot. Testing of the refuse slopes is indicated for the same reasons. Also, the excavation of in situ burials with associated artifacts is still possible on the slopes of the ridge. The trash deposits were not totally excavated and a great deal of undisturbed material remains.

Aside from the re-analyses already discussed in connection with the abandonment, two further re-studies are indicated. The faunal remains at Tuzigoot have been identified by species, but the number of each type of animal represented is not known. A faunal re-analysis would determine the composition of the meat diet at Tuzigoot. A chronological analysis of this bone material could also demonstrate changes in game species and abundance in the Verde, but it is doubtful that the Tuzigoot faunal material has any provenience data. The most comprehensive section of Caywood and Spicer's report deals with the ceramics from Tuzigoot. Nevertheless, recent developments in the field of ceramic analysis would possibly alter some of the conclusions in the original report. In the last 40 years, there have been a number of changes in nomenclature, identification criteria, chronological placement and ideas about the association between pottery types. A re-analysis of the Tuzigoot ceramics would probably not drastically change the conclusions made by Caywood and Spicer, but it would modernize the classification and probably give a more precise idea of the ceramic history.

The Verde Valley has not received the attention from archeologists that it deserves. This valley was an important prehistoric cultural crossroads which provided contact between the Sinagua and Anasazi groups to the north, the Cohonina culture to the west and the Hohokam people to the south. Pot-hunters and vandals have taken a severe toll in the valley. The Verde supported a significant prehistoric population and the area abounds with sites. Almost all of the ruins have been the object of attention from

relic hunters at one time or another. The excavation of Tuzigoot began in 1933. Even at this early date, two of the rooms in the pueblo had been partially destroyed by pothunters, and Caywood and Spicer estimated that about 150 burials and their associated artifacts had been removed from the refuse slopes. This type of

destruction continues at sites throughout the Verde area. An untold amount of information has already been lost. Intensive archeological research should be implemented in the Verde Valley as soon as possible, before the valuable cultural resources in the area are obliterated.

TUZIGOOT BASE MAP

Introduction

As one of the goals of the Tuzigoot project, a preliminary base map of the pueblo structure at the Monument was drawn (Figure 1). The map was developed from a blue-line copy of an aerial photograph provided by the National Park Service. Two one-day field trips were made to the Monument in order to correct obvious errors and distortions in the first draft of the map. Figure 1 identifies the room designations assigned by Caywood and Spicer during the excavation of Tuzigoot.

Schematic Nature of the Map

Although every effort was made to provide as accurate a map as possible, the submitted result must be considered schematic. The map was prepared from a single aerial photograph and the angle of the photograph was not provided. Tuzigoot is situated on a very abrupt ridge, so the perspective of the photograph is correct only for the rooms at the top of the ridge. With these facts in mind, it should be understood that rooms on steep slopes and at elevations lower than the main portion of the ruin are distorted. Figure 2, which also gives contour intervals of Tuzigoot ridge, is a graphic representation of the distortion resulting from the perspective of the aerial photograph.

Obvious difficulties with the initial draft of the map were identified by comparison of map room dimensions and room measurements taken at the time of excavation. In most cases, these measurements compared favorably and fell within a tolerance level of one foot. Areas of obvious measurement discrepancy were checked by remeasuring the room in the field.

Three major reasons for discrepancy between original room measurements taken during excavation and map room measurements are: 1) distortion of perspective in the aerial photograph; 2) measurement error in the excavation field journal, and 3) room modification during restoration and stabilization. Problems arising from the perspective distortion are particularly obvious in the rooms of Group VI and in Group I, Rooms 3, 4, 5, 7, 8, 9, 10, 11 and 13.

Map of Potentially Undisturbed Deposits

The preliminary base map prepared by the Museum of Northern Arizona has been used for plotting information pertaining to potentially undisturbed deposits in the pueblo structure (Figure 3). Three data sources were utilized in compiling this information: 1) Edward Spicer's excavation field journal; 2) Tuzigoot National Monument stabilization reports, 1940 to present, and 3) field observation by Museum archeologists Paul Fish and Peter Pilles. Of these, Spicer's field journal weighed most heavily in the evaluation.

Data gathered during this aspect of study has been interpreted conservatively. Undisturbed deposits were designated if any indication was provided in the records that they might exist. Similarly, sterile deposits were inferred only if clear statements and descriptions were present in the records or if unequivocal field observations were possible.

Refuse deposits on the west and east slopes below the main pueblo structure represent other potentially significant undisturbed materials which are not indicated on the map. Trenches into the refuse during Caywood and Spicer's excavations were spaced approximately three feet apart. The space between trenches was used for piling backdirt and was never excavated. Undoubtedly, a large number of burials remain in these deposits. Important research involving chronological, paleoenvironmental and subsistence studies could still be undertaken in these deposits.

Wall and Floor Elevations

The final phase of mapping at Tuzigoot was a four-day field project during which the wall corners and lowest elevation in each room were measured with an optical alidade. The results of this project are shown in Figure 4. The data on the lowest floor elevations will eventually be used in a drainage project at the Monument. The wall corner measurements are the height dimensions as they currently exist. These corner heights will be used as a data base in future restoration and stabilization projects.

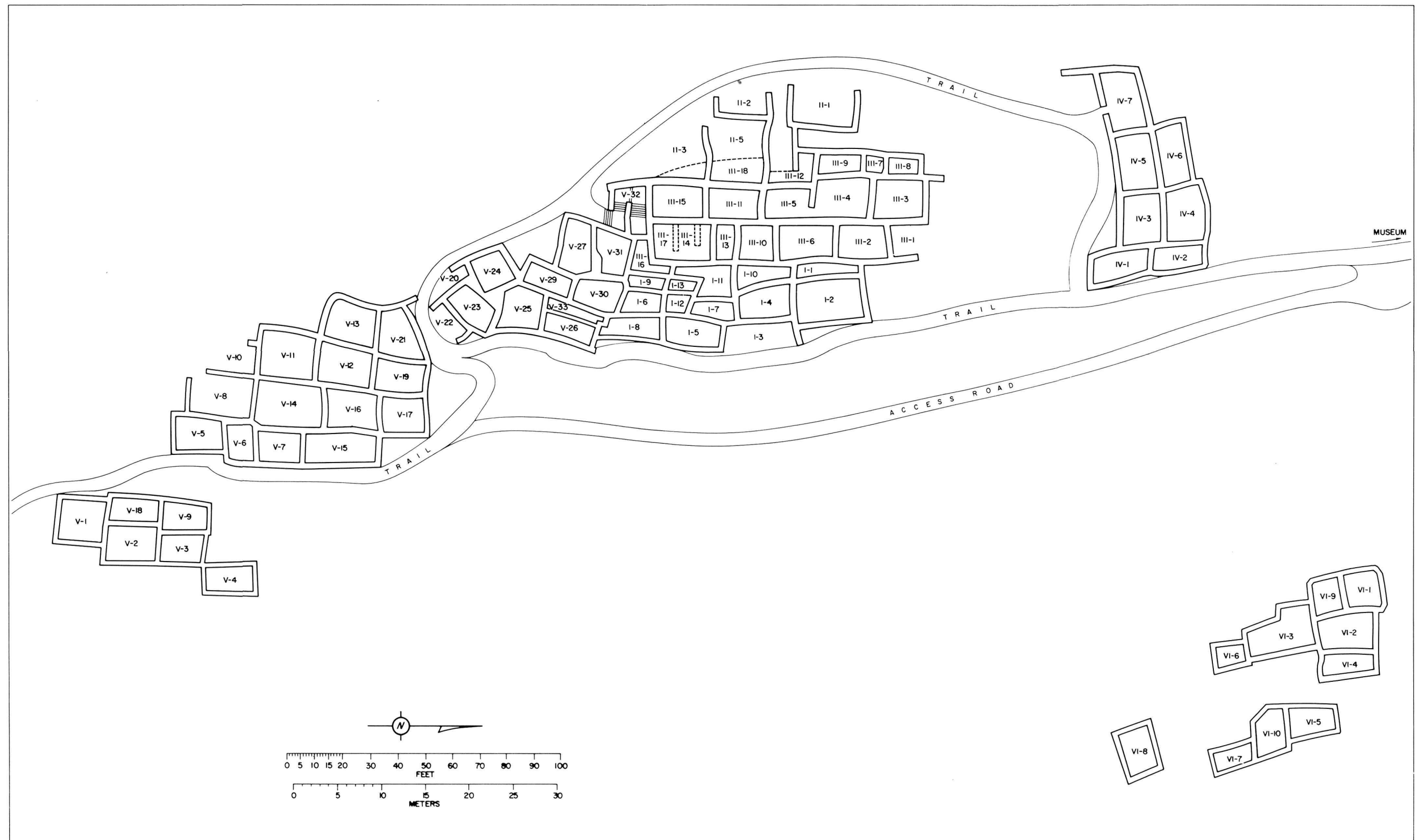


Figure 1. Base Map of Tuzigoot National Monument.



Figure 2. Perspective map of
Tuzigoot Ruin.

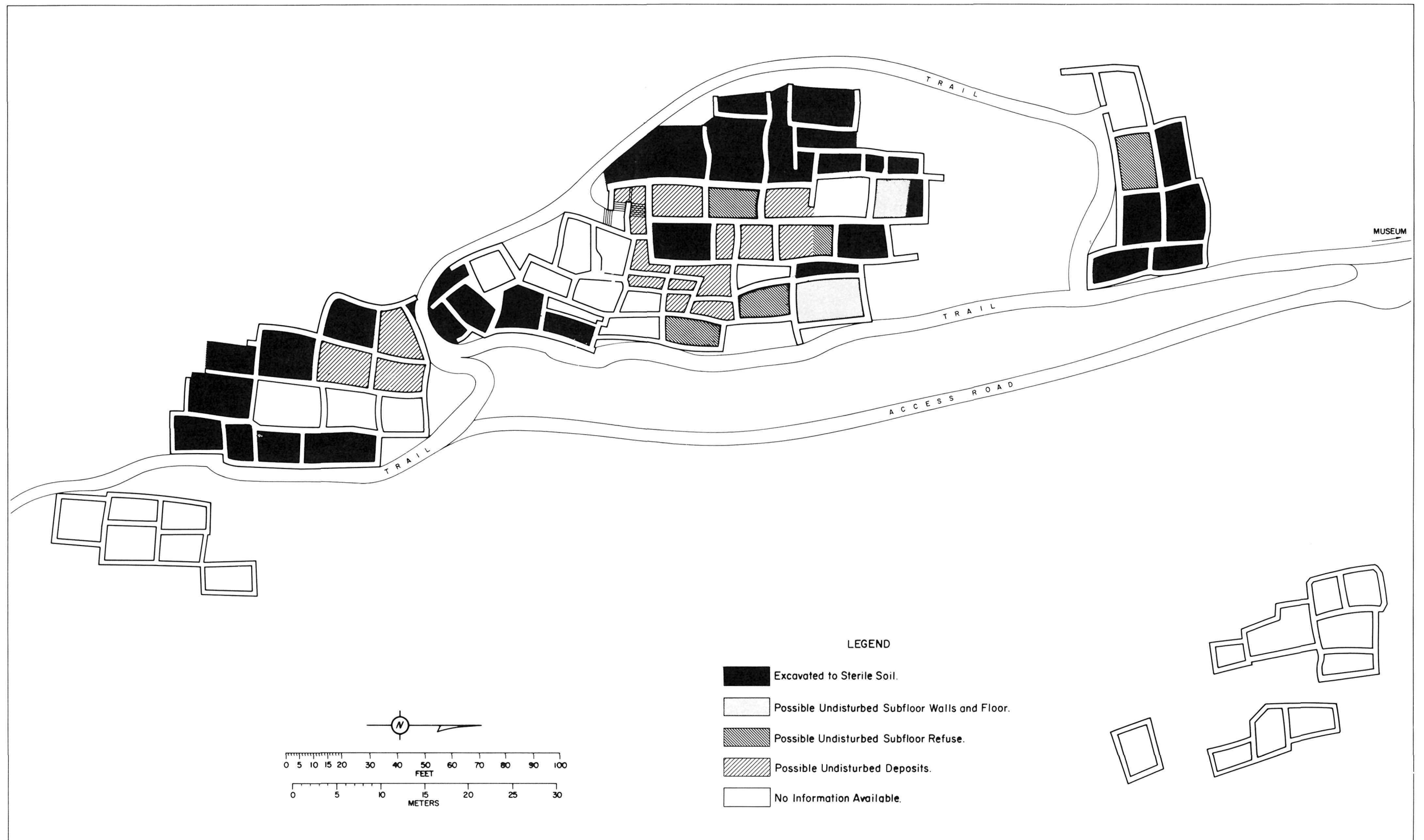


Figure 3. Potentially undisturbed cultural deposits at Tuzigoot Ruin.

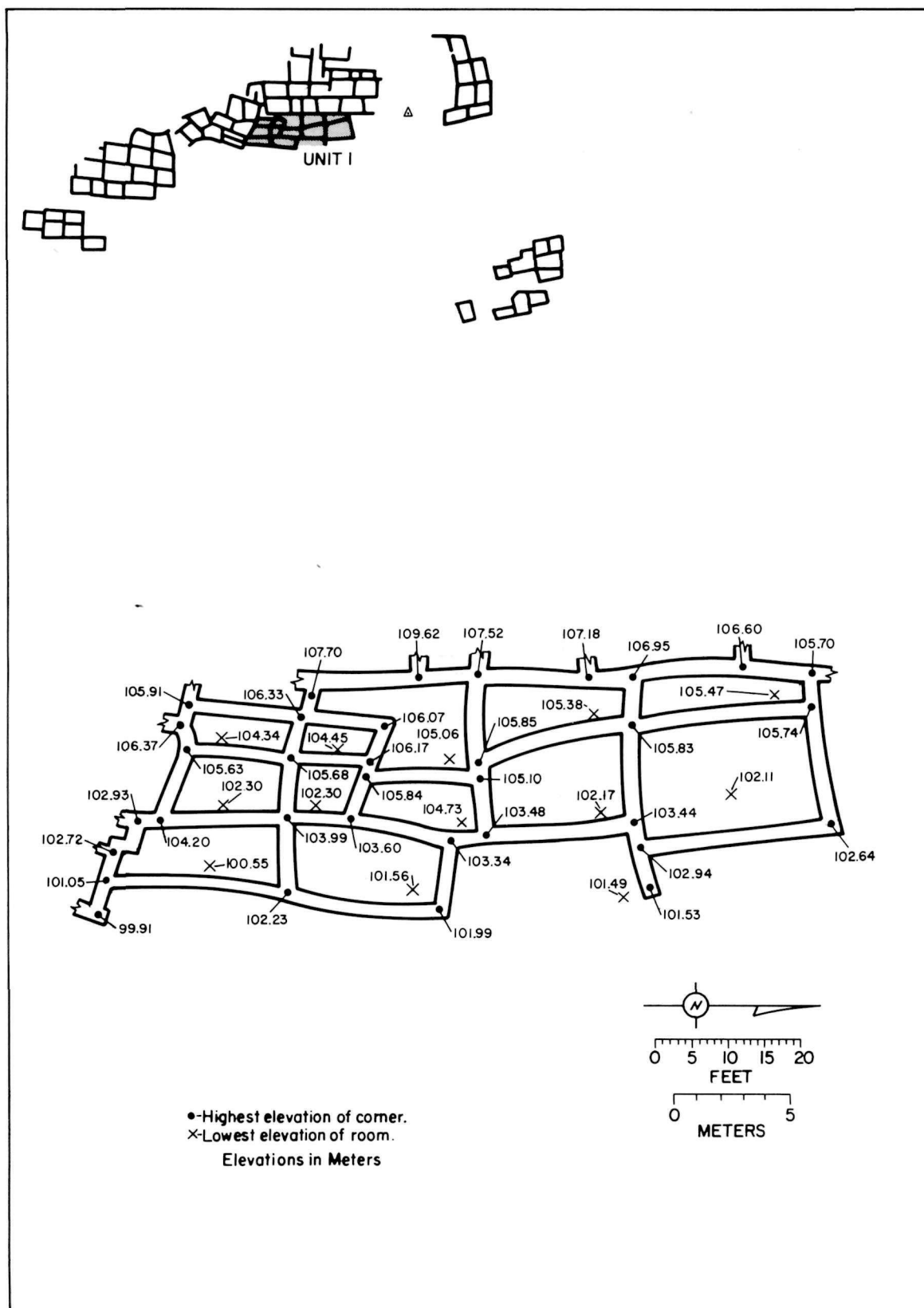


Figure 4. Wall and floor elevations at Tuzigoot Ruin (Sheet 1 of 6).

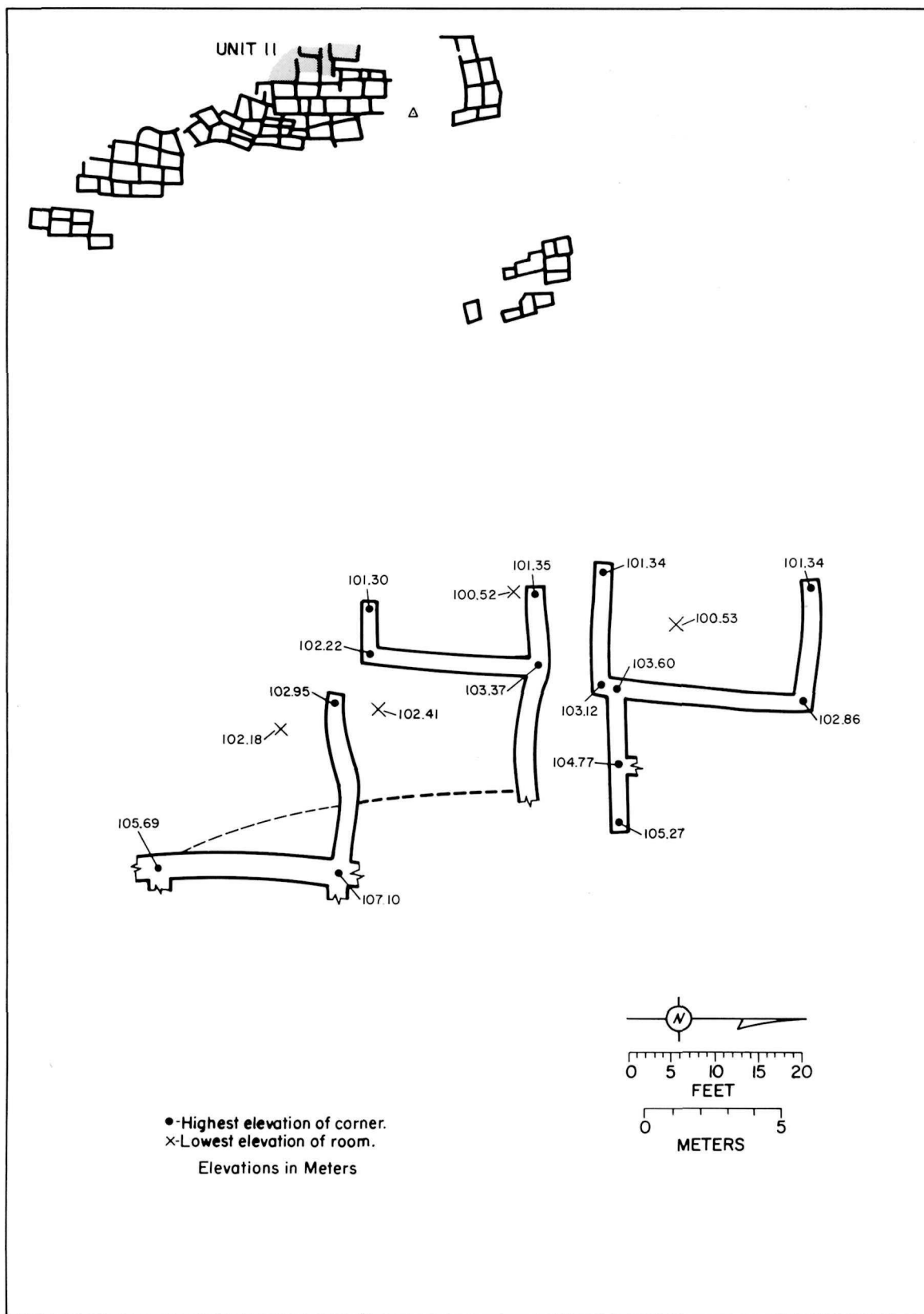


Figure 4. Wall and floor elevations at Tuzigoot Ruin (Sheet 2 of 6).

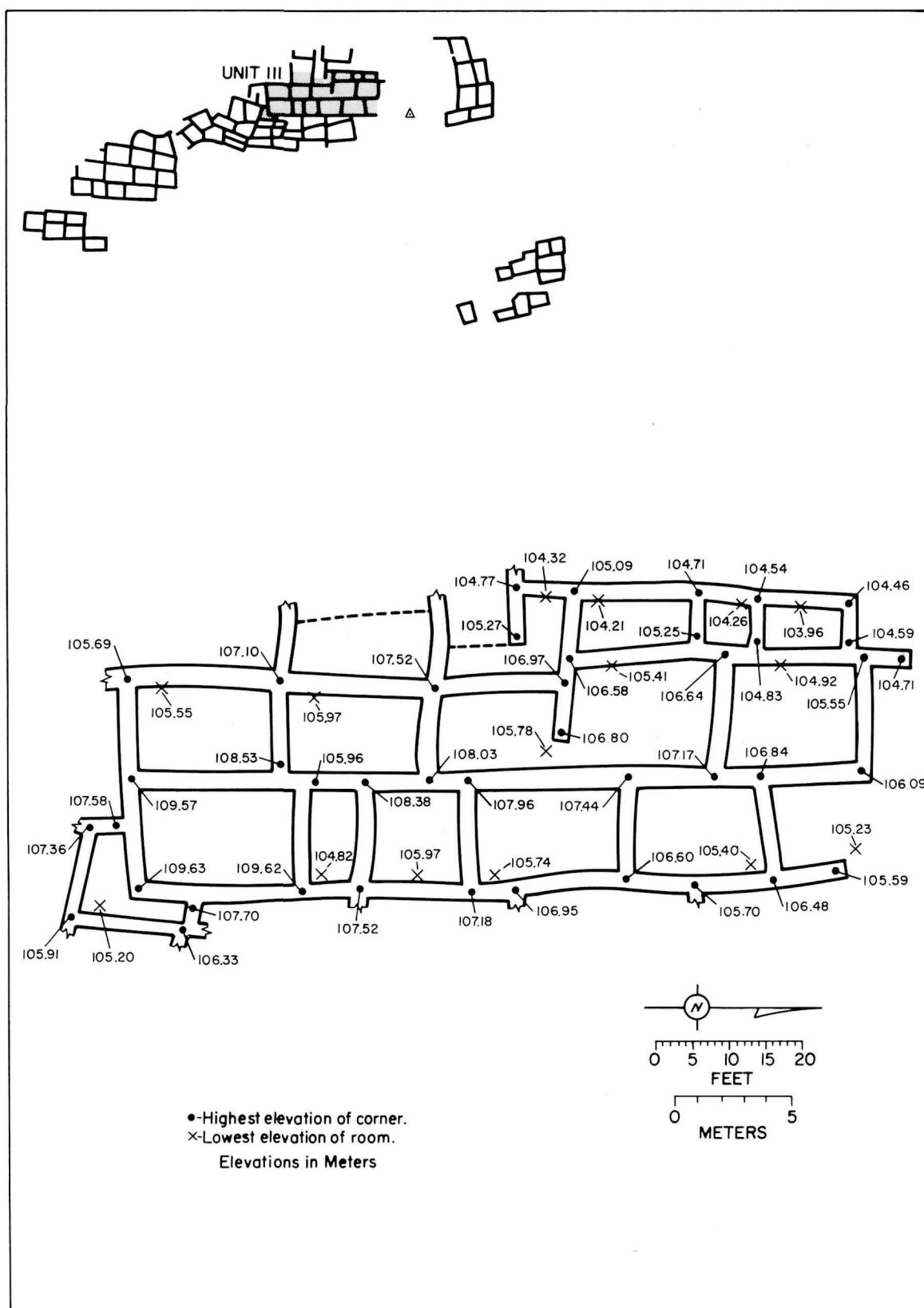


Figure 4. Wall and floor elevations at Tuzigoot Ruin (Sheet 3 of 6).

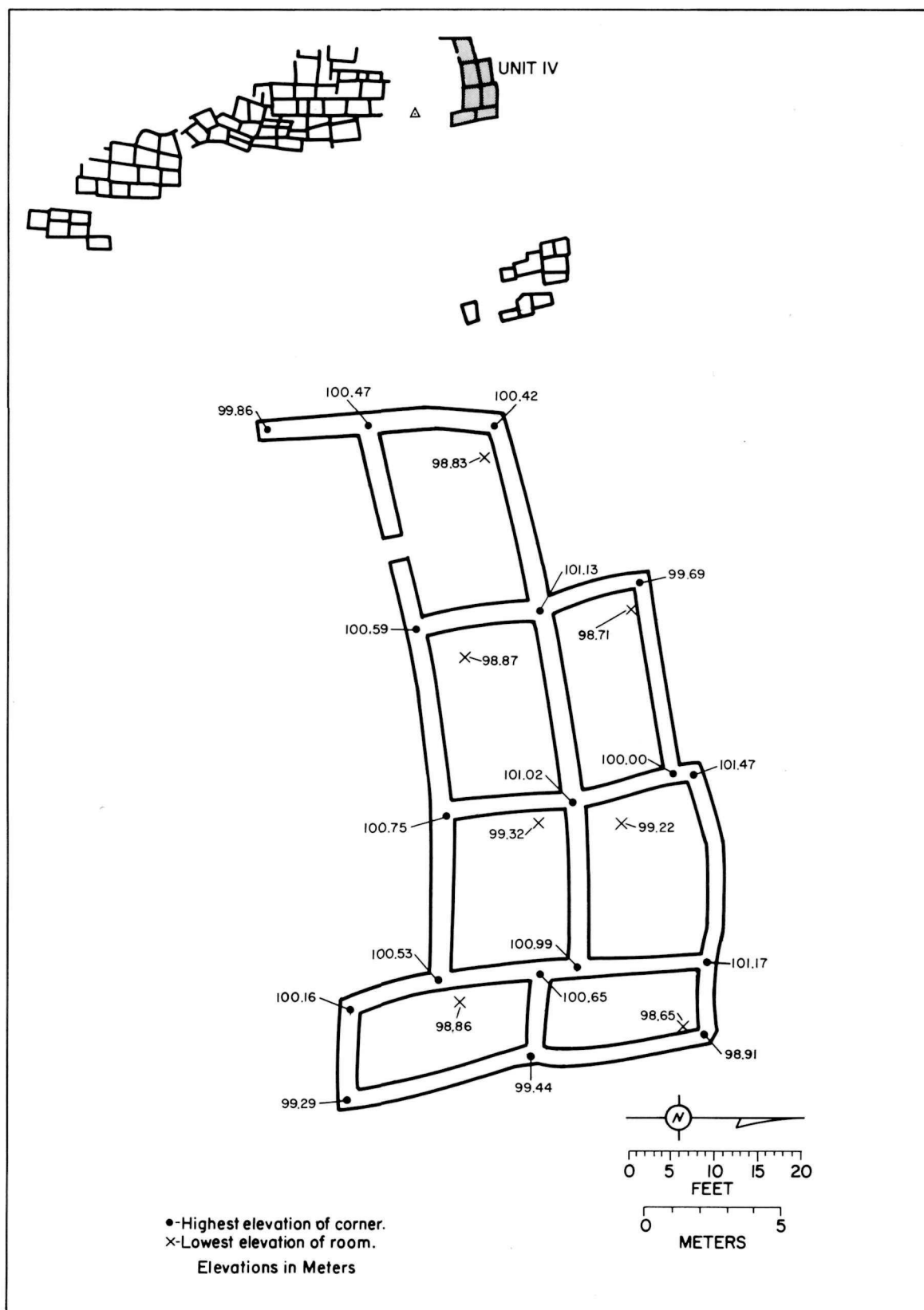


Figure 4. Wall and floor elevations at Tuzigoot Ruin (Sheet 4 of 6).

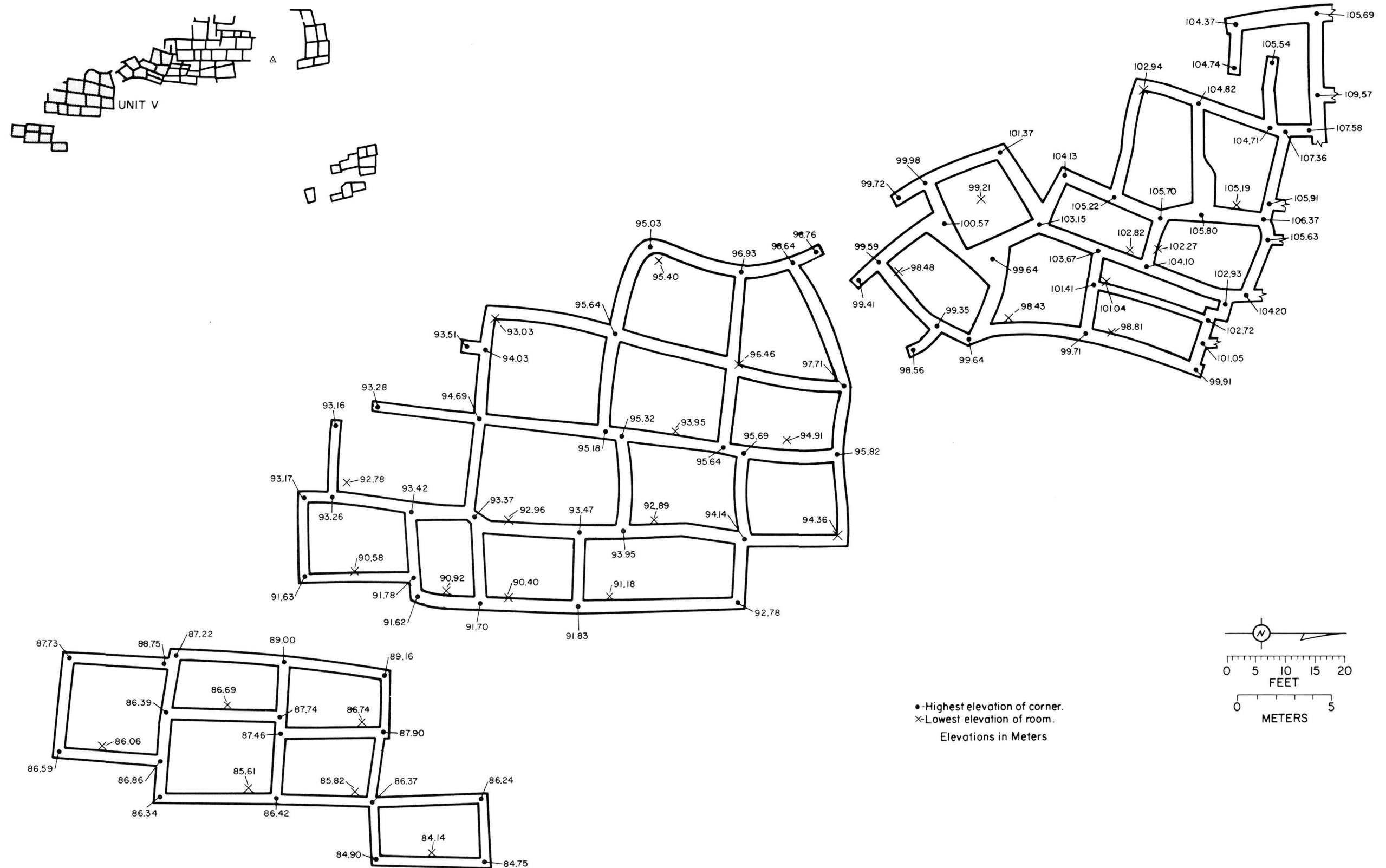


Figure 4. Wall and floor elevations at Tuzigoot Ruin (Sheet 5 of 6).

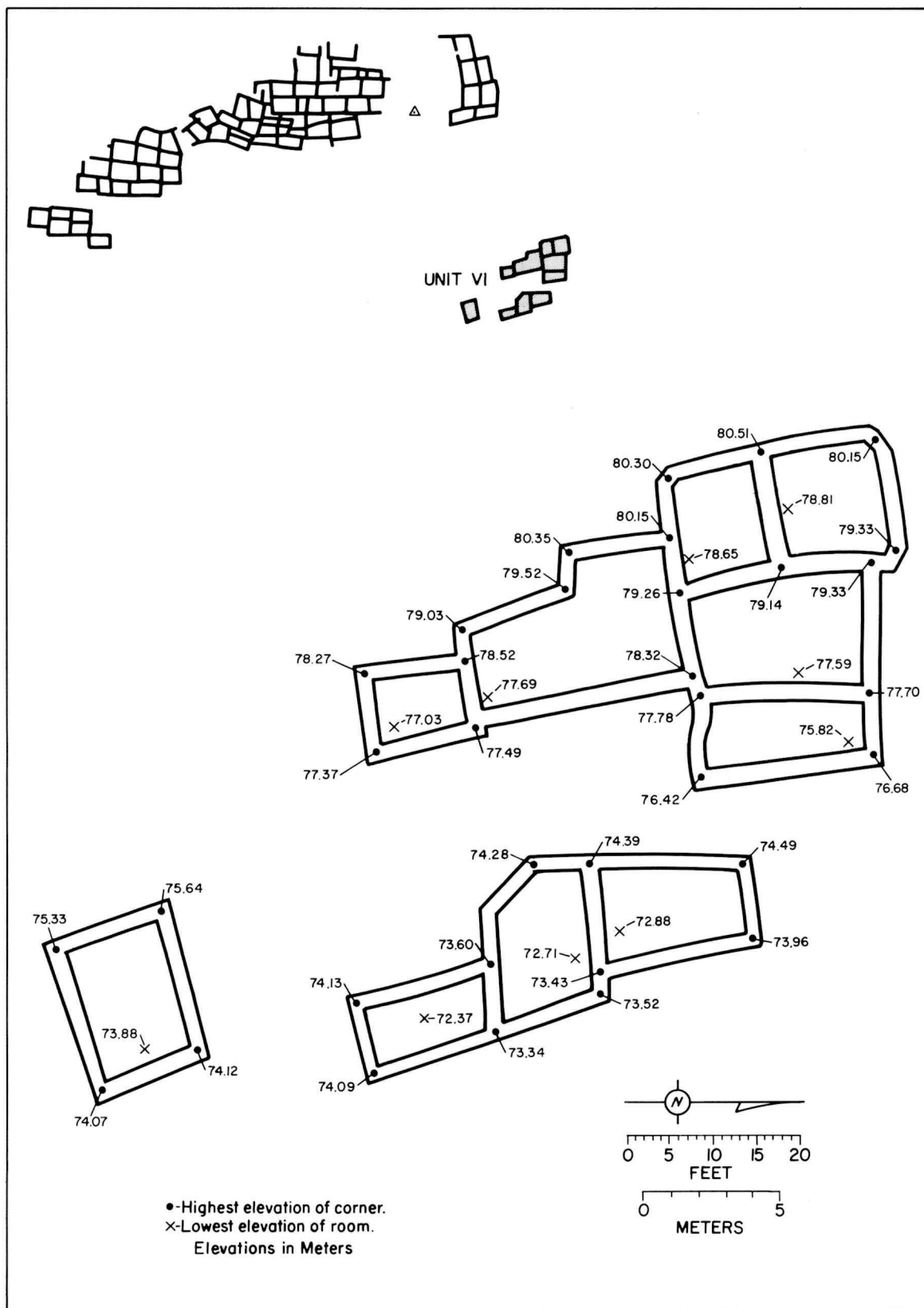


Figure 4. Wall and floor elevations at Tuzigoot Ruin (Sheet 6 of 6).

ENVIRONMENT AND HUMAN ADAPTATION AT TUZIGOOT

INTRODUCTION

Tuzigoot National Monument is located at 3420 feet elevation in the upper end of the Verde Valley, which is the major drainage system of central Arizona. The Verde River is one of the few accessible, permanent rivers in semi-arid Arizona. All of the major tributaries enter the river from the Mogollon Rim on the east. The importance of the river in the settlement of the valley cannot be overemphasized. The Verde River has provided water for irrigation and fertile floodplain for agriculture since the earliest inhabitants, who were pre-agriculturalists, entered the valley.

GEOLOGY

Tuzigoot ridge, along with a large portion of the floor of the upper Verde Valley, is composed of the Verde Formation. This formation is the result of deposition from a lake present in the valley during the Pliocene or Pleistocene (Twenter and Metzger 1963:46). The sedimentary rocks produced by this lake consist mostly of limestone and sandstone in the region of the Monument. The limestone and sandstone deposits comprising Tuzigoot ridge provided the building materials for the construction of the pueblo.

The fertile Verde Valley floodplain and the ancestral river bed which contains Pecks Lake were formed by recent river deposits. The Verde floodplain has been utilized for agriculture for at least 1000 years. However, during a stabilization effort in 1940, Custodian Jack Cotter had a chemical company analyze some soil from Tuzigoot; the analysis revealed (Norcross 1940): "...the highest quantity of water soluble salt that we have experienced in our laboratory." Although this soil was presumably from the ridge, rather than the farming area, it is possible that erosion from the ridge could have produced a high salinity in the surrounding flat lands. Such salinity would be detrimental to crops and may have played a role in the abandonment of the pueblo.

The Black Hills begin about five miles to the west of Tuzigoot. This mountain range, in places over 7000 feet high, is mostly composed of

Precambrian metamorphic formations. The area around Jerome has produced some of the richest copper deposits in the world. These deposits were mined prehistorically and by the Yavapai and Apache. It was the ore contained in the Black Hills which originally brought the Spanish into the Verde Valley.

A final geological resource in the Verde Valley is the salt mine located at Camp Verde, about 18 miles southeast of Tuzigoot. The Yavapais historically mined salt at Camp Verde; the mine was also utilized prehistorically, but the groups which used it are unknown. The people of Tuzigoot could have mined the salt themselves, or they could have traded for it with groups living near Camp Verde.

CLIMATE

The Tuzigoot region, along with the rest of the state, is influenced by the Southwestern climatic pattern (Lowe 1964:8). The Southwestern pattern is typified by winter and summer precipitation, with the dry seasons occurring during the spring and fall. At Tuzigoot, annual precipitation averages almost 11 inches; however, average yearly precipitation varies widely throughout the Verde Valley and surrounding area. Almost all of the moisture received at Tuzigoot is in the form of rain. The rare snows normally are not significant, although it snowed more than 12 inches at the Monument during the record snowstorm in late 1967. The growing season is about six months long (Bolton 1976a). Although this does not compare to the length of the frost-free season in southern Arizona, six months is long enough to grow most crops. Also, the Verde Valley is not subject in the summer to the intense, crop-withering heat of southern Arizona.

ECOLOGICAL ZONES

The pueblo of Tuzigoot is situated within the Plains and Desert Grassland ecological zone. This environment predominates in the area immediately surrounding the Monument, but four other major ecological zones are present within a ten mile radius of Tuzigoot. These environments are 1) Riparian Deciduous Forest, 2) Juniper-Pinyon Woodland,

3) Chaparral-Oak Woodland, and
4) Montane Conifer Forest. As discussion of each specific biotic environment proceeds, orientation will be directed towards available resources for human exploitation. Although the five principal biotic zones mentioned above dominate the environmental setting of Tuzigoot, these environments were not the only ones utilized by the prehistoric inhabitants of the pueblo. Transition zones, or ecotones, exist on the peripheral areas between major environments; in addition, microenvironments, such as springs, caves and intermittent streams, are present within the larger environmental zones. Although the following discussion will emphasize the five major biotic zones, ecotones and microenvironments also influenced the subsistence of the people of Tuzigoot.

Prehistoric subsistence activities in the Tuzigoot area may be inferred from the archeological evidence and by using ethnographic analogies. In the following discussion three cultural groups near Tuzigoot will serve as a source of inference for prehistoric subsistence patterns; these groups are the Northeastern Yavapai (Gifford 1936), Tonto Apache (Goodwin 1935; Gallagher 1972) and Havasupai (Emerick 1954; Schwartz 1956). Resource utilization by these groups will be discussed for each biotic environment, as defined by Lowe and Brown (1973). The data for these ethnographic studies were gathered long after Anglo contact. For this reason assumptions about prehistoric subsistence at Tuzigoot, which are derived in large part from the ethnographic material, may not be valid in all cases.

Riparian Deciduous Forest

The riparian environment comprises tall winter-deciduous broadleaf trees and is restricted to streams and drainages which provide the necessary stream flow or underflow to support these broadleaf forest species. Therefore, this environment is limited to the area immediately surrounding the banks of the Verde River and its major drainages. The riparian environment is replaced by chaparral and plains and desert grassland in areas not immediately adjacent to the Verde and its larger tributaries.

The five major broadleaf species which comprise this lower woodland of the Verde are cottonwood, willow, sycamore, walnut and ash. These species are supported by the benches and terraces of rich alluvium which the Verde deposits along its banks during floods and periods of heavy runoff. As mentioned previously, these alluvial deposits also form the rich bottomland located directly below the Tuzigoot ridge on the eastern and western sides.

Other flora associated with the riparian environment are Texas mulberry, elderberry, alder, chokecherry, boxelder, maple and Arizona grape. At the present time a number of exotic species are present in the riparian environment (see Figure 6). These introduced plants, particularly tamarisk and tree-of-heaven (Theroux 1976), unfortunately are more adaptable to the riparian zone than many native species, and they are taking over this habitat to the exclusion of indigenous plants throughout the Southwest. However, none of these exotics is believed to have been present prehistorically.

This area is the last home of many of Arizona's distinctive aquatic and semi-aquatic animal species. Fauna present include water shrews, beavers, raccoons, river otters, garter snakes, mudturtles and treefrogs. Associated with this community is a wide range of fish species and a diverse group of aquatic insects. Avian species of the riparian habitat include the water ouzel, rose-throated becard, yellow warbler, warbling vireo, vermilion flycatcher, summer tanager, Bullock oriole and Mexican black hawk.

The riparian environment would have yielded a good harvest of wholly aquatic, semi-aquatic and wholly terrestrial fauna for prehistoric hunters. Walnuts, grapes and various kinds of berries would have been available for gathering. Rich alluvium on the banks of the Verde and in the floodplain provided a source of prime farmland for the dwellers of Tuzigoot.

Ethnographic sources show that cultural groups in close proximity to Tuzigoot were in fact exploiting some of the available resources. The Tonto Apache "semi-cultivated" mulberry, Virginia creeper,

cottonwood, willow and grape. The Northeastern Yavapai were known to collect walnuts, grapes, mulberries and elderberries. The Yavapai also hunted raccoon and oriole.

Juniper-Pinyon Woodland

The juniper-pinyon is a structurally simple woodland with limited plant species represented. The juniper-pinyon woodland occurs most frequently in northern Arizona where it predominates at elevations from 5500 to 7500 feet. Annual precipitation in these regions is 12 to 21 inches. This environment occurs on a highly varied range of soils, from rocky to sandy and shallow to deep. Although junipers are very sparse in the Verde Valley, and pinyons do not occur there at all, the fully developed woodland is present less than four miles to the north of Tuzigoot.

Three juniper species and two pinyon species are the principal trees. Colorado pinyon is the common and characteristic species of pinyon throughout this environment while Utah juniper and one-seed juniper are the most common juniper trees. Single-leaf pinyon occurs locally with Utah juniper mostly in the northwestern part of Arizona. Rocky Mountain juniper is scattered primarily in the northeast section of the state. In the areas accessible from Tuzigoot, juniper trees far outnumber pinyons.

Depending on general location in Arizona, there may be an understory of either grassland, chaparral or desert scrub beneath the trees. Various types of grasses were at one time abundant throughout Arizona. In recent times, however, weedy and shrubby plants have replaced many of the grasses due to overgrazing. Blue grama grass and Arizona fescue grass remain characteristic of this habitat. Sagebrush is a widespread understory shrub, as is barberry, cliffrose and algerita.

Animals characteristic of this environment reveal a long developmental association with Great Plains to the east and the Great Basin to the north. Typical fauna include pinyon mouse, bushy-tailed woodrat, pinyon jay, plain titmouse, gray vireo, gray flycatcher and black-throated gray warbler. At one time this environment supported mammals of a larger size. Antelope, preyed

upon by wolves and coyotes, were the most abundant animals with occasional herds of mule deer venturing into the juniper-pinyon regions near Tuzigoot. In winter elk and mule deer occupied this type of forest. Wild turkeys were also present in the upper elevations of the woodland to feed on juniper berries and pinyon nuts. Turkeys, however, were neither raised nor eaten by the people of Tuzigoot.

The juniper-pinyon environment provided the major source of wood for the construction of Tuzigoot. The majority of the support posts in the pueblo are of juniper. The woodland also served as the major source of fire wood. Mescal, a staple of cultural groups in this area, was available from this environment. Juniper berries and pinyon nuts provided a common source of nutrients. Various grasses and shrubs may have been put to use as greens. Larger mammals, such as antelope and elk, probably were available to the hunter as were smaller mammals and birds.

Ethnographic sources again point to the fact that cultural groups near Tuzigoot were exploiting this environment for resources. The Tonto Apache gathered mescal, pinyon nuts and juniper berries from this area. Antelope and elk were probably available to hunters.

The Northeastern Yavapai also gathered mescal, juniper berries and pinyon nuts. Juniper logs were also collected. Prickly pear fruit was gathered in the fall. Antelope and elk were the major large fauna hunted in this environment.

During the spring and summer the Havasupai live in the Grand Canyon, a riparian environment not readily available to the prehistoric people of Tuzigoot. However, the Havasupai move to the plateau and utilize the juniper-pinyon woodland during the fall and winter. While on the plateau, the Havasupai historically engaged in hunting and gathering woodland resources similar to those utilized by the Northeastern Yavapai and the Apache.

Chaparral-Oak Woodland

The chaparral is prevalent in central Arizona between 4000 and 6000 feet elevation. The chaparral-oak woodland is recognized by relatively dense growths of shrubby,

evergreen plants. Chaparral is very apparent on the east side of the Verde Valley, particularly in the lower elevations of the Black Hills. Scrub oak is by far the dominant species of this environment, and it occurs in almost pure stands throughout the habitat. A number of other shrubs present include sugar sumac, buckthorn, mountain mahogany, brickle-brush, California fremontia, mocklocust, manzanita and squawbush. There are no grasses which occur only in the chaparral, but a number of grass species are represented in this zone. Large game is very sparse; mule deer will occasionally browse in the chaparral but prefer areas with more cover. Indigenous animal species are limited to mice and birds, as represented by the brush mouse, western harvest mouse, scrub jay, bush-tit, spotted towhee, brown towhee and blue-gray gnatcatcher.

The chaparral-oak woodland does not display much biotic diversity. Aside from the small number of species present in the chaparral, the dense ground cover characterizing the habitat would impede travel of prehistoric hunters and gatherers and would serve to make other environments more lucrative. The Havasupai are not near any chaparral areas, and there is no mention of Apache utilization of this habitat. The Yavapai did hunt jays and use some plants from the chaparral, but the exploitation was very limited. Berries of the squawbush were picked when ripe in June then mashed with water or mescal syrup to make a beverage. A few small plants, such as chia, were used for greens. In August the Yavapai gathered manzanita berries, which were mixed with water and drunk. The late fall produced berries from the alligator-bark juniper, along with sunflower and other seeds, which were gathered for various purposes.

Montane Conifer Forest

The closest true montane forest to Tuzigoot occurs on the summit of the Black Hills about six miles west of the Monument. The forest is also present to the north and east above the Mogollon Rim, but the Black Hills area is closer and much more accessible. The forest begins at about 6000 feet elevation and extends to the summit of the Black Hills, Woodchute Mountain at 7834 feet elevation. Annual precipitation is 20 to 30

inches which produces a relatively dry forest. Ponderosa pine is the dominant tree in the lower elevations of the forest, with firs growing only near the summit. Because of the lack of moisture, the understory is rather limited in the lower elevations, but it becomes more dense in the higher parts of the mountains.

The montane conifer forest displays a high biotic diversity, and it undoubtedly served as a major resource base for the people of Tuzigoot. The forest has a large game population consisting of both large and small species. Elk, black bear and mule deer are the major game species present; smaller game animals represented include the tassel-eared tree squirrel, golden-mantled ground squirrel, cliff chipmunk, forest cottontail rabbit, deer mouse, turkey and bandtail pigeon. Other birds present are the stellar jay, mountain chickadee, yellow-eyed junco and purple martin. Reptiles and amphibians are represented by the short-horned lizard, mountain king snake, Arizona green treefrog and tiger salamander. Numerous food plants abound, and the region has many plants which can be used for medicinal and other purposes. Several understory shrubs are present in the forest including buckbrush, sagebrush, dwarf juniper, bracken fern, Arizona rose, raspberry, snowberry and oceanspray. Obviously, this environment could have provided several varieties of seeds and berries. The forest understory also supports several grasses among which are mountain muhly, pine dropseed, blue grama, pinyon ricegrass, squirrel-tail, mountain brome, spike muhly, deergrass, junegrass and little bluestem. The wood supply in the conifer forest is, of course, almost unlimited; however, it is doubtful the inhabitants of Tuzigoot would have utilized this wood source when they had closer supplies in the juniper-pinyon and riparian habitats. Aside from the abundant ponderosa pine, a number of other trees grow in the Black Hills at varying elevations. These species include Douglas fir, white fir, limber pine, Mexican white pine, gambel oak, silverleaf oak, madrono, locust, bigtooth maple and quaking aspen.

Although the montane conifer forest was not available to the Havasupai, both the Apache and

Yavapai made full use of this environment. Acorns served as a staple in the Apache diet, and much of their meat supply was obtained from the mountains. The Apache hunted deer, elk, mountain sheep, bear and small game in the forest. The Yavapai also hunted deer and mountain sheep along with an occasional mountain lion. Small game hunted in the forest consisted of cottontail rabbits, porcupines, badgers, turkeys and band-tail pigeons. The Yavapai collected acorns in September, and they utilized wild lupine leaves for greens throughout the year. Because of the lack of turkey bone in the faunal remains, it is postulated that the people of Tuzigoot did not hunt or raise turkeys. However, they did exploit other mountain resources similar to those used by the Apache and Yavapai. The mountains are not suitable for settled, year-round agricultural existence, but they support a valuable, diversified resource base.

Plains and Desert Grassland

Tuzigoot is situated within the plains and desert grassland ecological zone. The plains and desert grassland was extensively exploited by the inhabitants of Tuzigoot. Originally, this habitat had much more of a grassland aspect; grazing and other environmental factors, both man-caused and natural, have caused the recent expansion of desert shrubs into the grassland area. Fire suppression has been a major cause of the geographic expansion of these shrubs. In the region of Tuzigoot, this environmental zone is actually a desert grassland rather than a prairie, although short-grass prairies do occur at higher elevations in Arizona. The true desert grassland normally occurs at 3500 to 5000 feet elevation; Tuzigoot, at slightly under 3500 feet, is in the transition zone between the desert and the grassland. The desert grassland is maintained with as little as 10 to 15 inches of precipitation per year.

The grassland in Arizona is a southwestward extension of the Great Plains, and much of the remaining flora and fauna show an association with the plains. The original range of the American bison did not extend as far southwest as Tuzigoot, but other typical plains species such as the pronghorn antelope, the black-footed ferret and the prairie dog,

have long been present in the Verde Valley. The antelope is the only large game species in the desert grassland; prairie dogs are another possible food source along with the spotted ground squirrel and the scaled quail. Small birds are numerous including the eastern meadowlark, western meadowlark, horned lark, savanna sparrow, vesper sparrow and grasshopper sparrow. The box turtle is also present; other reptiles are the milk snake and the prairie rattlesnake. These animals are all grassland-adapted species which probably derived from the Great Plains. The desert grassland in Arizona does not support any trees; the ground cover essentially consists of grama grasses mixed with woody shrubs and cacti which are expanding their range. The most prevalent grasses are blue grama, black grama, sideoats grama, tobosa grass and three-awn. Burroweed and snakeweed are now abundant, but their prehistoric distribution was much more limited. Other shrubs present include palmilla, sotol, beargrass, velvet mesquite, catclaw and Mexican crucillo. Grassland cacti are represented by buckhorn cholla, cane cholla and prickly pear.

Although specific information on Havasupai use of the desert grassland is not given, except for mention of some antelope and small game hunting, they undoubtedly exploited this environment during the fall and winter while living on the plateau. Resources such as the palmilla, which can be processed to produce soap, fiber and edible plant parts, would not have been ignored. Several of the staples in the Apache diet were provided by the desert grassland. Mesquite beans were collected along with the fruit of saguaro, broad-leafed yucca and prickly pear. The Apache also cultivated devil's claw, a wild shrub with pods which are edible when they are young. Antelope contributed significantly to the meat supply of the Apache. In midsummer the Yavapai harvested saguaro fruit and paloverde seeds. Mesquite beans and various types of yucca were also gathered. The desert grassland served as a valuable game resource for the Yavapai. Antelope, the only large mammals present, were hunted; the lack of ground cover, however, made it difficult to approach the herds, and deer from higher elevations were preferred game. Jackrabbits, quail, ground

squirrel and prairie dog were all hunted as were many animals not currently thought of as game species, such as coyote, cactus rat, skunk and tortoise. These smaller animals provided a large portion of the Yavapai meat diet.

PREHISTORIC DIET AT TUZIGOOT

There is very little direct evidence pertaining to the subsistence pattern at Tuzigoot. Caywood and Spicer's report has a limited discussion of corn, beans, wild grass seeds and a few meat sources. Judging by the numerous inconsistencies in the report, it is possible that other food materials were excavated but not mentioned in the discussion. However, Tuzigoot is totally exposed to the elements on its ridge-top location. This environment is not at all conducive to preservation; food remains, particularly plants, would decay rapidly in most cases. The corn, bean and grass seed specimens recovered were all in a charred condition; partial burning greatly extends the length of the preserved state of semi-hard plant parts. The use of more varied vegetable materials must be inferred from the evidence at other Southwestern sites. Sites which have been excavated more recently than Tuzigoot have provided a great deal of information on plant utilization. These plant materials are sometimes recovered in a preserved condition from dry cave sites. More frequently, however, species are identified through pollen analysis. Such analysis has revealed that a tremendous variety of wild plants were utilized prehistorically. The most important evidence of subsistence at Tuzigoot is the presence of still visible prehistoric waffle gardens to the east of the pueblo. These fields were obviously well-tended and they indicate a high degree of dependence upon agricultural produce. Other possible prehistoric farmlands to the west of the Monument are now covered by a tailings pond.

SUSTAINING AREA

The Tuzigoot sustaining area is that region immediately surrounding the pueblo which provided most of the subsistence material for the population (Figure 5). The sustaining area may be divided into four distinct environmental areas: 1) the pueblo and Tuzigoot ridge, which have limited resource potential; 2) farm-

lands; 3) the riparian habitat, as represented by Pecks Lake, the Verde River and Tavaschi Marsh, and 4) the desert grassland, which occupies all of the non-riparian areas and areas which were never converted to farmlands.

Tuzigoot ridge has very sparse vegetation due to high salinity and lack of moisture. Useful resources from the ridge area would be limited to a few plant products.

The primary food source at Tuzigoot was probably provided by agriculture. Caywood and Spicer devoted very little discussion to the agricultural aspect at Tuzigoot. This neglect is one of the most serious defects of their report. The first agriculturalists in the Verde Valley were undoubtedly dry farmers; irrigation, a Hohokam trait, was probably introduced to the area about A.D. 1125. Research on Tuzigoot agriculture is almost non-existent; there is an obvious potential for such research. In 1973 test excavations revealed two superimposed irrigation ditches near the eastern boundary of the Monument. The significance of these ditches might have been underestimated; from the scanty discussion, it appears at least one of the ditches could be prehistoric. They were not excavated, and their description is limited to approximate depth dimensions (Henderson 1973). Nevertheless, from the position of the test trench (Figure 6), it is apparent the irrigation canals connected the Verde with farmlands, prehistoric and/or historic, to the east of the pueblo. There are undoubtedly other unexcavated canals in the area. The fields to the east of the Monument comprise 160 acres; across the Verde River to the south are another 160 acres, and there are 1200 acres of Verde bottomland in the immediate vicinity (U.S.D.I. 1974:12). From the location of these fields, it is probable that floodwater farming was practiced prior to, or in conjunction with, irrigation. When Tuzigoot was excavated, there were also farms on the west side of the ridge. This area now contains a tailings pond from the smelter operation at Clarkdale. Anything on the western side of Tuzigoot is now totally obliterated as the tailings are up to 60 feet deep on the northwestern end of the pond (Bolton 1976b). The tailings are diked, and the area is

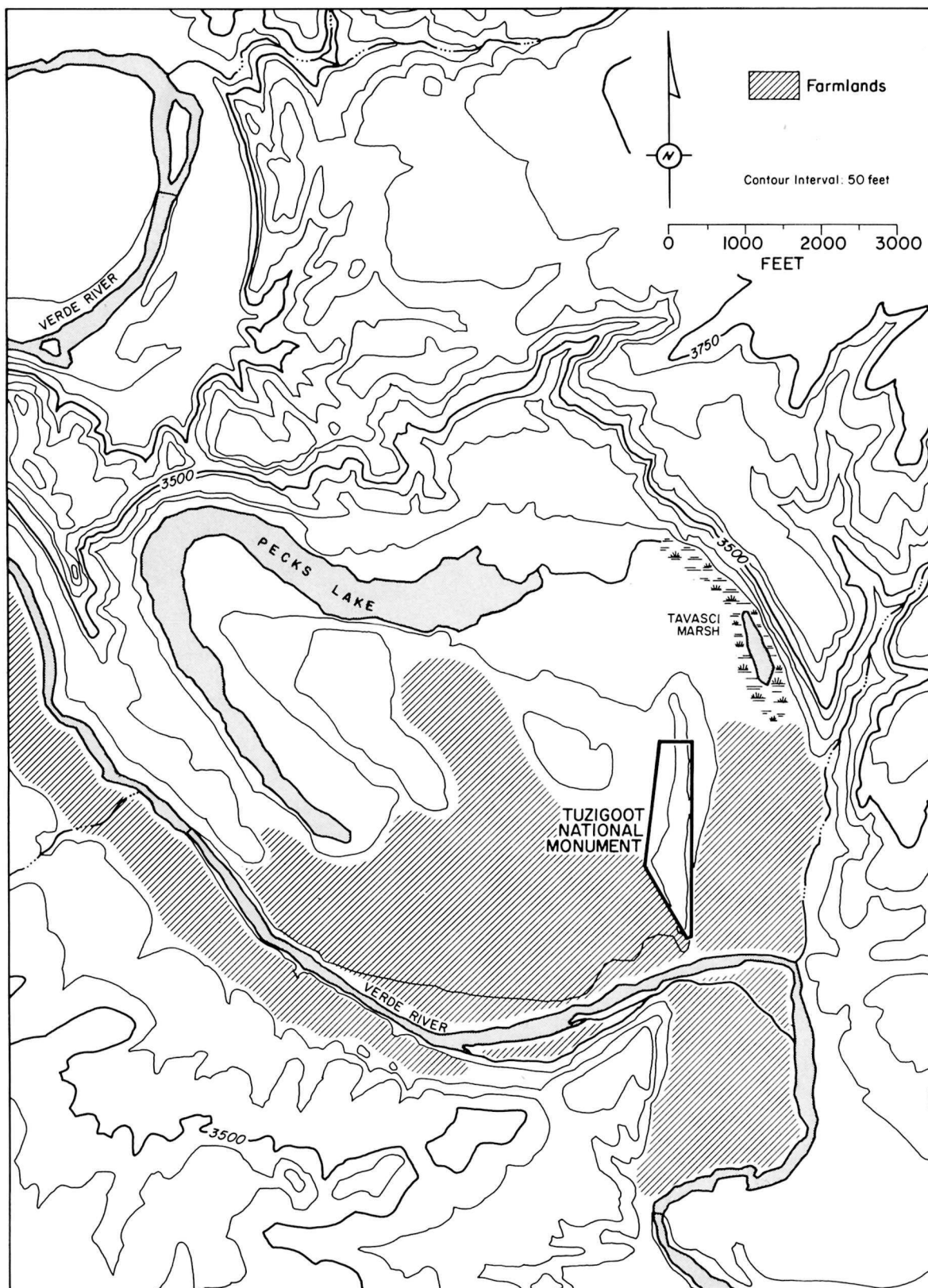


Figure 5. Tuzigoot sustaining area.

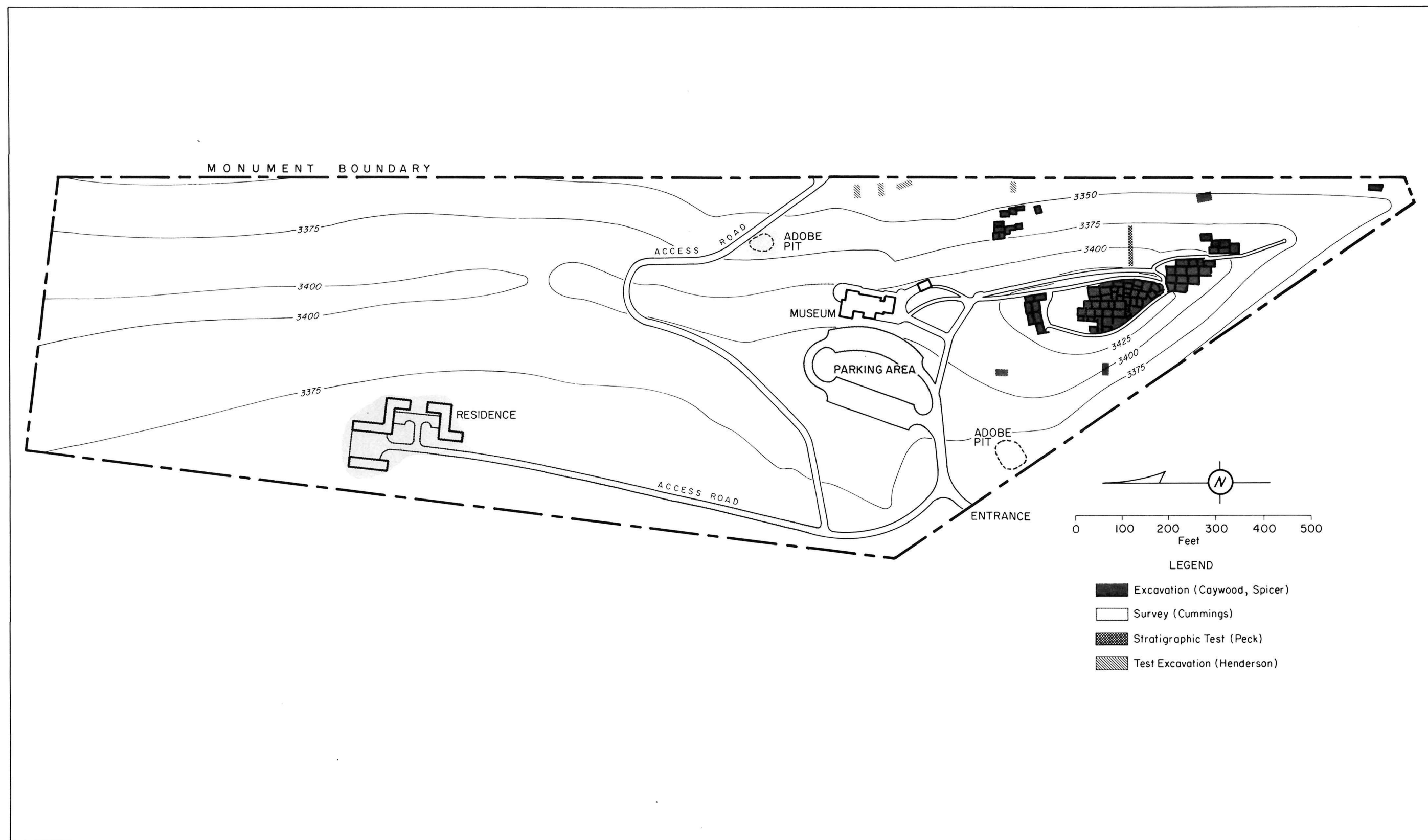


Figure 6. Previous research at Tuzigoot National Monument.

periodically flooded for dust control. This measure severely reduces the original dust problem from the detritus. Nevertheless, whatever is under the tailings is forever lost; also, the visual impact of this large, orange expanse must be seen to be appreciated. The primary crops of the people of Tuzigoot were corn and beans. Oddly enough, Caywood and Spicer do not mention any evidence of domestic squash. This may be an oversight on their part or an accident of preservation. It would be very unusual if the Tuzigoot farmers did not raise some variety of squash as it was a major prehistoric crop. The components of the squash plant, however, do not preserve as well as beans or corn cobs.

Unlike many Southwestern pueblos, Tuzigoot is in the midst of a rich riparian environment. It is almost encircled by the riparian habitats of the Verde River, Pecks Lake and Tavaschi Marsh. These areas would have made a significant contribution to the inventory of wild plants and animals used by the prehistoric population. The riparian zone supports numerous, varied species of wildlife; these resources would have been available for food and many other purposes. Fish, water birds and small game are abundant, and the area is utilized by large game during dry periods. The plants of the riparian habitat have many uses including food supply, medicines and construction materials. It is possible this environment once exhibited a more semi-tropical aspect. Early descriptions of this specific region are not available, but the Spanish explorer Espejo called Oak Creek "The River of the Parrots", which certainly hints at a climate warmer than today (Bolton 1976b).

The desert grassland predominates in the area around Tuzigoot. This area also served as a significant resource base for the pueblo inhabitants. A number of food plants, natural dye sources, medicines and weaving materials are available in the region. This is also the habitat of the valuable antelope and many small game animals. The hunting and gathering of wild products in the desert grassland greatly supplemented the domestic produce grown by the people of Tuzigoot.

Table I. is a tabulation of the wild plants in the Tuzigoot sus-

taining area. Sources for the compilation of this material were the Tuzigoot herbarium, Benson (1940), Benson and Darrow (1945), Carlson (1954), Dodge (1951), Humphrey (1970), Kearney and Peebles (1964), Little (1950), Parker (1972), Patraw (1951) and Theroux (1976). The first section lists exotics, or plants introduced from an outside area. None of these exotic species were present prehistorically. They are included to give some idea of man's impact in the Verde Valley since the Spanish first entered the area. It is probable that very few of the native plants were not used by the prehistoric people, and several of the species in the sustaining area had multiple uses.

ETHNOGRAPHIC INFERENCE

At the present time there are no cultural groups in central Arizona which practice the same subsistence pattern as the people of Tuzigoot. Sedentary agriculturalists abandoned the region prior to the arrival of the Spanish for reasons which are not fully understood. The hunter-gatherer groups in the Verde area, such as the Tonto Apache and Northeastern Yavapai, rely much more on wild foods than did the people of Tuzigoot. On the other hand, the Hopi, over 100 miles to the northeast, do supplement their domestic products with some wild plants and animals. The Hopi, however, have a much greater diversity of domesticates, both plant and animal, than were present at Tuzigoot, and the Hopi are much more dependent on agriculture. Many of the Hopi agricultural products were introduced by the Spanish and Anglos. Therefore, the Hopi subsistence pattern is not really comparable to the prehistoric subsistence at Tuzigoot. Nevertheless, ethnographic material has to be utilized for inferences about Tuzigoot subsistence patterns. Pollen analyses have never been done at the Monument, and the area is now so disturbed that it would be difficult to locate a valid prehistoric sample. Therefore, aside from Caywood and Spicer's (1935:93) mention of corn, beans and wild grass seeds, there is no idea of the wild foods being used at Tuzigoot, nor of the possibility of further domesticates such as squash. Animal foods are similarly ignored with only antelope, deer, cottontail rabbit, bear, muskrat, mallard duck and

Canadian goose mentioned as possible food sources. Considering the number of game species available, it is doubtful that these were the only animals hunted. An apparently incomplete faunal inventory also includes badger, beaver, bob cat, dog or wolf, jackrabbit, raccoon and several birds; it is possible that Caywood and Spicer did not consider these animals as food species although their value as meat sources is obvious. Caywood and Spicer do not devote any discussion to domestic animals except for stating there were no domestic turkeys. Canid bones were recovered, but they are listed as either dog or wolf; a re-analysis of the bone material would be necessary to definitely identify the species. Many Southwestern groups made formalized burials of their domestic dogs, but there were no dog burials mentioned in the excavation notes from Tuzigoot. The domestic dog was ubiquitous in the Southwest; the lack of dog burials at Tuzigoot does not necessarily indicate that animal was absent. A parrot burial was excavated from Group I, Room 2, which shows these birds were kept at Tuzigoot. Parrots were probably used for ceremonial purposes and/or ornamentation rather than being eaten. They could have been traded from Hohokam areas to the south or obtained from Oak Creek (Espejo's "The River of the Parrots"). A noticeable lack in the fauna of Tuzigoot is the turkey. Although turkeys were raised and eaten by the Anasazi to the northeast, it is quite probable that turkeys just weren't available at Tuzigoot. The wild turkey normally inhabits the montane conifer forest; it was probably too warm to raise them in the Verde Valley, and other game species would have been more readily available for hunting.

The people of Tuzigoot were sedentary agriculturalists whose yearly cycle probably depended for the most part on the success of their crops. In years of poor harvest, they would have found it necessary to greatly supplement their food supply with wild products. Of course, natural resource utilization occurred at all times, good years and bad; wild plants and animals were the only source of many necessities. The Apache were primarily hunters and gatherers; domestic plants provided only 20 to 25 percent of their diet. However, the Apache cultivated a number of wild plants by watering,

weeding and planting wild seed. The people of Tuzigoot would also have had this resource available. The Yavapai cycle of migration was based on wild produce; their only agricultural endeavor was the occasional horticulture of corn and tobacco planted near streams. This subsistence pattern is quite different from the one practiced at Tuzigoot; nevertheless, the Yavapai demonstrate the seasonal possibilities of each environmental zone, the same areas utilized by the Tuzigoot dwellers. The Havasupai practiced agriculture during the spring and summer but moved to the plateau during the fall and winter. Tuzigoot was undoubtedly occupied on a year-round basis, but hunting and gathering parties probably went out from the pueblo all during the year, and during the fall and winter these groups would have been collecting resources similar to those used by the Havasupai.

SUMMARY

There are five major ecological zones, along with numerous, diversified microenvironments, immediately accessible from Tuzigoot. The inhabitants of the pueblo primarily depended upon their agricultural produce for subsistence, but they probably supplemented this domestic harvest with wild plant and animal foods from the surrounding region. The Tuzigoot sustaining area, that region immediately adjacent to the pueblo, is a rich resource area comprising riparian and desert grassland environments. The sustaining area was probably the most intensively exploited region near the pueblo, but wild foods could have been obtained from more distant places as well. Judging from the evidence revealed by excavation, the domestic produce at Tuzigoot was limited to a few crops, probably due to the level of agricultural knowledge in the region prehistorically; it is possible that corn and beans were the only crops grown. Growing conditions in the Verde Valley undoubtedly produced bountiful harvests from these crops, but natural produce was also necessary to supplement the domestic foods. The environmental range in the Verde Valley would have produced a wide selection of wild plants and animals which provided many of the necessities of life at Tuzigoot.

Table I. Botanical inventory at Tuzigoot National Monument.

EXOTICS

<u>Ailanthus altissima</u>	Tree-of-heaven; introduced from China; riparian
<u>Descurainia sophia</u>	Flixweed; introduced from Eurasia; disturbed areas in almost any habitat
<u>Erigeron canadensis</u>	Horseweed; introduced from eastern United States; disturbed areas in almost any habitat
<u>Erodium cicutarium</u>	Filaree; introduced by Spaniards at early date from Mediterranean; moist areas in almost any habitat
<u>Hordeum leporinum</u>	Wild barley; introduced from Europe; disturbed areas in almost any habitat
<u>Marrubium vulgare</u>	Horehound; introduced from Europe; most non-riparian habitats
<u>Salsola kali</u>	Russian thistle or tumbleweed; introduced from Russia about 100 years ago; disturbed areas in almost any habitat
<u>Sisymbrium irio</u>	London rocket; introduced from Europe; moist areas beneath 4500 feet
<u>Tamarix pentandra</u>	Tamarisk or saltcedar; introduced from Eurasia in 1903; riparian
<u>Taraxacum officinale(?)</u>	Dandelion; introduced from Europe; almost any habitat
<u>Tribulus terrestris</u>	Puncturevine; introduced from southern Europe; disturbed areas in almost any habitat

NATIVES

<u>Scientific Name</u>	<u>Common Name</u>
<u>Acacia greggii</u>	Catclaw
<u>Allionia incarnata</u>	Trailing four o'clock
<u>Amaranthus graecizans</u>	Prostrate pigweed
<u>Aplopappus gracilis</u>	Jimmyweed
<u>Aristida Fendleriana</u>	Three-awn
<u>Asclepias capricornu</u>	Antelope-horns
<u>Asclepias subverticillata</u>	Western whorled milkweed
<u>Aster canescens</u>	Aster
<u>Aster tephrodes</u>	Aster
<u>Astragalus sp.</u>	Locoweed

Table I. Botanical inventory at Tuzigoot National Monument. (continued)

<u>Scientific Name</u>	<u>Common Name</u>
<u>Astragalus nuttallianus</u>	Nuttall milkvetch
<u>Atriplex canescens</u>	Fourwing saltbush
<u>Baccharis Wrightii</u>	Seepwillow
<u>Baileya multiradiata</u>	Desert baileya
<u>Berberis haematocarpa</u>	Algerita
<u>Boerhaavia caribaea</u>	Spiderling
<u>Brodiaea capitata</u>	Desert-hyacinth
<u>Bromus rubens</u>	Red brome
<u>Calochortus Nuttallii</u>	Sego-lily
<u>Cassia bauhinioides</u>	Desert-senna
<u>Chamaesaracha coronopus</u>	Small groundcherry
<u>Chenopodium leptophyllum</u>	Slimleaf goosefoot
<u>Chilopsis linearis</u>	Desertwillow
<u>Cleome jonesii</u>	Bee-plant
<u>Coldenia canescens</u>	No common name
<u>Condalia lycioides</u>	Gray-thorn
<u>Corydalis aurea</u>	Golden smoke
<u>Croton texensis</u>	Dove-weed
<u>Cynodon dactylon</u>	Bermudagrass
<u>Cyperus niger</u>	Black nutsedge
<u>Dalea aurea</u>	Indigobush
<u>Dalea formosa</u>	Indigobush
<u>Delphinium scaposum</u>	Larkspur
<u>Descurainia pinnata</u>	Tansy mustard
<u>Dyssodia Thurberi</u>	Herb with no common name
<u>Echinocereus engelmannii</u>	Hedgehog cactus
<u>Encelia frutescens</u>	Brittlebush
<u>Eriogonum trichopes</u>	Wild buckwheat
<u>Erysimum capitulum</u>	Western-wallflower
<u>Euphorbia sp.</u>	Spurge

Table I. Botanical inventory at Tuzigoot National Monument. (continued)

<u>Scientific Name</u>	<u>Common Name</u>
<u>Eurotia lanata</u>	Winter-fat
<u>Franseria tenuifolia</u> (?)	Bur-sage
<u>Gaura coccinea</u>	Gaura
<u>Gutierrezia lucida</u>	Snakeweed
<u>Hoffmannseggia drepanocarpa</u>	Hog-potato
<u>Hymenothrix Loomisii</u>	Herb with no common name
<u>Kallstroemia parviflora</u>	Caltrop
<u>Krameria parviflora</u>	Range ratany
<u>Larrea divaricata</u>	Creosotebush
<u>Lepidium lasiocarpum</u>	Sand peppergrass
<u>Lesquerella gordonii</u>	Gordon bladderpod
<u>Linum puberulum</u>	Yellow flax
<u>Lithospermum incisum</u>	Gromwell
<u>Lycium pallidum</u>	Squaw-thorn
<u>Melampodium leucanthum</u>	No common name
<u>Mentzelia pumila</u> var. <u>multiflora</u>	Blazing-star
<u>Moldavica parviflora</u>	Dragon-head
<u>Opuntia leptocaulis</u>	Christmas cholla
<u>Opuntia phaeacantha</u>	Tulip prickly pear
<u>Opuntia Whipplei</u>	Whipple cholla
<u>Parthenium incanum</u>	Mariola
<u>Polygala</u> sp.	Milk-wort
<u>Populus fremontii</u>	Fremont cottonwood
<u>Prosopis juliflora</u>	Mesquite
<u>Ranunculus Cymbalaria</u>	Desert crowfoot
<u>Rumex hymenosepalus</u>	Canaigre
<u>Scirpus acutis</u>	Bulrush
<u>Senecio longilobus</u>	Threadleaf groundsel
<u>Setaria macrostachya</u>	Plains bristle grass
<u>Solanum elaeagnifolium</u>	Silverleaf groundsel

Table I. Botanical inventory at Tuzigoot National Monument. (continued)

<u>Scientific Name</u>	<u>Common Name</u>
<u>Sorghum halepense</u>	Johnsongrass
<u>Sphaeralcea</u> sp.	Globemallow
<u>Sporobolus cryptandrus</u>	Sand drop-seed
<u>Stephanomeria pauciflora</u>	Desert pink
<u>Tridens muticus</u>	Slim tridens
<u>Typha latifolia</u>	Common cattail
<u>Verbesina encelioides</u> var. <u>exauriculata</u>	Golden crownbeard
<u>Yucca glauca</u>	Great Plains yucca

SUMMARY OF PREHISTORIC OCCUPATION AT TUZIGOOT

Introduction

The Tuzigoot site represents an example of the large pueblos constructed during the final period of Upper Verde Valley prehistory. The pueblo structure was occupied during the last three phases of the Verde farming cultures: 1) Camp Verde Phase, A.D. 900-1100 or 1125; 2) Honeanki Phase, A.D. 1125-1300, and 3) Tuzigoot Phase, A.D. 1300-1400 or 1420.

Utilizing room abandonment sequences, which were established mainly through room superposition and the relationship of rooms to refuse accumulations, Caywood and Spicer (1935) classified the occupation of Tuzigoot into three periods of architectural history.

Period I

Tuzigoot ridge was occupied prior to A.D. 1000. Period I probably is the time period which encompasses the first settlement of the site. There is a fairly strong case for pre-Sinaguan occupation of the Tuzigoot ridge, based on the presence of early ceramic types (Peck 1955) and remnants of trash deposits beneath early masonry foundations. The archaeological record, however, does not fully document these beginnings.

Possibly as many as seven rooms were constructed on top of the ridge during Period I and four rooms were built on the west slope. Small floor size and circular, clay-lined fireplaces were typical of these early rooms. It should be noted that between A.D. 1000-1200, rooms along the western slope and north end of the ridge were abandoned. This abandonment was possibly the result of a general, small decline in population.

Period II

In A.D. 1200, a probable population increase precipitated further construction at Tuzigoot. A group of eight rooms was constructed upon the foundations of the abandoned western slope rooms. This period of growth also resulted in the construction of

rooms on the south end of the ridge and along the eastern slope.

Period III

The final period of architectural expansion at Tuzigoot commenced at about A.D. 1300. Due to the amount of construction which took place during Period III, Caywood and Spicer hypothesized that whole new clans were assimilated into the population at this time. Rooms were added again along the southern slope, on the eastern slope and probably below the north end of the ridge. Typical characteristics of this final phase of the pueblo development include larger room size, rectangular stone-lined fireplaces, child burials beneath floors of rooms and central floor depressions of unknown function. The final expansion at Tuzigoot also involved the addition of several second story rooms.

Architectural expansion culminated at Tuzigoot during Period III, and the pueblo maintained these outlines until its abandonment around A.D. 1425. At the peak of growth and until Tuzigoot was abandoned, the pueblo consisted of 77 ground floor rooms, several of which had second and possibly third stories. Caywood and Spicer estimated the maximum population of the pueblo at about 450 individuals. Later workers have considered this figure too high and it is more probable that approximately 225 people were living at Tuzigoot prior to the abandonment.

Post-Period III

After abandonment of the rich Verde Valley by the Sinagua, it appears that groups of foragers and hunters migrated into the area. By A.D. 1500 the Yavapai occupied the valley, while the Tonto Apache moved east and settled in the mountains. Riverine corn horticulture supplemented their hunting and gathering pattern. Later in time, the Yavapai and Tonto Apache became important traders of minerals stripped from the Jerome mines. Remnants of these groups remain in the valley today at the Camp Verde Indian Reservation.

RECENT PARK HISTORY

After the Sinagua abandonment of the Verde Valley in about A.D. 1425, the Northeastern Yavapai and Tonto Apache moved into the area. Historic contact with the Verde Valley was initiated by Spanish explorers in the sixteenth century. In 1583, Antonio de Espejo led an expedition from Awatovi to the mines at Jerome. The narrative of this expedition mentions "...an abandoned pueblo" with a water ditch; it is possible that this is the first written description of Montezuma Well (Bartlett 1942:30). In 1598, Marcos Farfan de los Godos followed Espejo's route to the mines, and in 1604, Don Juan de Oñate traversed the valley on a journey to the Gulf of California. Neither of these latter explorers mentioned prehistoric remains in the Verde, but both of them described the inhabitants of the valley, presumably the Yavapai (Cummings 1966:12; Schroeder 1952:113).

Following the original Spanish incursions into the Verde Valley, however, it was not until the 1850's-1860's that permanent Anglo settlement in the area began as a result of western trapping and exploration. Although the local Yavapai and Apache were marched out of the area in 1875, they returned 25 years later to live at the Camp Verde Indian Reservation. Some Indians, however, were granted permission to return to their former homes in the Verde Valley. Today some of these families remain in Clarkdale.

Copper mining became an integral part of Verde Valley history in 1876 when claims were first staked in the Black Hills. The copper deposits at Jerome had been quarried by the Indians for centuries, but it wasn't until 1883 that the town of Jerome and the United Verde Copper Company were founded. By 1918, there were two smelters operating near Tuzigoot, one at Clarkdale and one at Clemenceau (Dunning 1959). This was a boost to expansion of the area, as Anglo and Indian alike migrated to the region for employment. Part of the prehistoric farmlands near Tuzigoot were used as a tailings pond for the smelting operations. In fact, all the land included within the present Monument boundaries was originally owned by the United Verde Copper Company, which was bought out in 1935 by the Phelps-Dodge Corporation.

Tuzigoot lay in obscurity until 1932, when the site was first ex-

plored by a survey party under the direction of Earl Jackson. After gaining permission from the United Verde Copper Company, excavations were begun in October of 1933 by the Archaeological Committee of the Yavapai County Chamber of Commerce, Prescott, under the direction of Louis R. Caywood and Edward H. Spicer. Excavation continued into November of 1933 with Federal Emergency Relief labor. At this time, the Civil Works Administration took over the project and work was continued until June 1934 under Caywood, Spicer, Harry T. Getty and Gordon C. Baldwin.

The goals of the project included complete excavation of the ruin, partial restoration, preservation of floors and walls and repair and preparation for display of all artifacts recovered. By the end of the project, excavation and cleaning and repair of artifacts had been accomplished. Six rooms, located in Group IV, had been fully restored, while the walls of the remaining rooms had been capped and preserved in the state in which they were found.

Through the interest of local citizens, the entire hill of Tuzigoot, with complete museum and collections, was donated to the federal government by the Verde School District, which had deeded the land from the United Verde Copper Company (Bolton 1976b). On July 25, 1939, Tuzigoot National Monument was established through Presidential Proclamation on 43 acres of land. Fifteen additional acres were added to the Monument in 1966; this area was allotted for the construction of a new approach road.

Necessary stabilization and upkeep of the Monument, from its establishment up to the present day, has been carried out by the National Park Service. As a result of a stabilization study carried out in 1942, it became necessary to remove the roof and part of the walls which had been reconstructed in Group IV rooms as a part of the original restoration program. A sizable portion of the reconstructed wall was left above the original wall in Group IV, so that additional capping was not necessary. The remaining portions of the ruin have been maintained as originally restored.

PREVIOUS RESEARCH

Introduction

Tuzigoot was originally excavated in 1933-34 under the direction of Louis R. Caywood and Edward H. Spicer. A number of stabilization and restoration projects have been conducted at the Monument since the original excavation.

Caywood and Spicer reconstructed all of the rooms in Group IV after this unit had been excavated. Unfortunately, the reconstructed portions were incongruous with the appearance of the rest of the pueblo. In addition, the roofs in Group IV began to leak water as early as the winter of 1939-40. The leakage occurred because the cement roofs were not adequately joined to the reconstructed walls. Also, the roofs were seriously weakened by persistent, uncontrollable attacks from powder-post beetles. Due to the poor quality of the reconstruction and the danger from the unstable roofs, the restored portions of Group IV were removed in 1942. The seven rooms in this group were rebuilt to conform more closely to their appearance at the time Tuzigoot was abandoned (Tuzigoot Custodians 1958).

Stabilization has been an ongoing project at Tuzigoot since the inception of the Monument. Most of the work consists of maintenance and periodic small stabilization jobs. However, along with the major restoration of the Group IV rooms, there have been four other extensive post-excavation stabilization projects at Tuzigoot. During the winter of 1940-41, the entire main portion of the pueblo, excluding Groups IV and VI, was stabilized. This work was necessitated by maintenance needs; the original stabilization was decaying and the walls were rapidly eroding. Improvements were made in stabilization materials and techniques following the 1940-41 project, and in 1953 much of the earlier stabilization was corrected. All portions of the ruin received attention during the 1953 project. In 1961 the entire pueblo was again stabilized. This project included the first complete stabilization of the Group VI rooms. The most recent major stabilization project at Tuzigoot was conducted in 1968. Again, repairs were made throughout the pueblo. This project was partially

the result of the heavy 1967 snowfall which greatly weakened the walls.

In the early 1940's, five unexcavated burials and a broken storage vessel were discovered in the ruins. These finds were revealed either through wall collapses or during stabilization work. The burials came from Group II, Room 5, Group III, Room 9 and Group V, Rooms 25 and 27. The broken storage vessel was found in Group V, Room 23. During the stabilization project in 1968, two sub-floor storage vessels were found in Group I, Room 4. All of these post-excavation discoveries are discussed more completely in the individual room descriptions in the Room Analysis section of this report. The presence of this in situ material indicates the possibility of several areas within the pueblo containing undisturbed deposits.

Archeological research at Tuzigoot has been very limited and Caywood and Spicer's report is the only published manuscript resulting from investigations at the Monument. In the following discussion of previous research, the results of the original excavation and four subsequent minor projects are evaluated. It should be apparent that much of the archeological significance of Tuzigoot lies in its potential, not in the already completed work. The collections from the 1933-34 excavation have never been thoroughly studied and much of the original work could be improved upon in light of modern techniques and knowledge. Excavation potential at the Monument is tremendous. The minor projects conducted since the original excavation only give an indication of the research possibilities at Tuzigoot.

Description of Investigations

PRINCIPAL INVESTIGATORS: Louis R. Caywood, Edward H. Spicer

SPONSOR INSTITUTION: Archaeological Committee of the Yavapai County Chamber of Commerce, Federal Emergency Relief Funds and the United States Civil Works Administration

PROJECT TITLE: Original excavation of Tuzigoot

DATES OF FIELD WORK: October 31,
1933 to June 1, 1934

LOCATION: Upper end of the Verde
Valley in Central Arizona;
U.S.G.S. 15 minute series,
Clarkdale Quadrangle

SITE DESCRIPTION: A 110 room pueblo
situated on a ridge approximately
100 to 120 feet above the flood-
plain of the Verde River;
Tuzigoot is immediately north of
the Verde River and less than
one mile southeast of Pecks Lake.

PURPOSE: The purposes of the Tuzi-
goot project included complete
excavation of the ruin, partial
restoration, preservation of
floors and walls and repair and
preparation for display of all
artifacts recovered. It was
felt that excavation would pro-
vide archeological information
on the Upper Verde drainage.

SAMPLING PROCEDURES: Using a field
crew of 48 members, Caywood and
Spicer excavated the main ruin
and four isolated groups of
rooms. Of the 110 rooms present
at the abandonment of the pueblo,
86 were excavated (78.2% of the
rooms). Unexcavated rooms were
indicated by the presence of
several walls and refuse accumu-
lations beneath the floors of
excavated rooms. In addition to
the room excavations, the refuse
areas around the main pueblo were
trenched and three stratigraphic
blocks were excavated. Prior to
the excavation, Tuzigoot ridge
was covered with cultural debris,
much of which had been exposed
by pot hunting activities. It is
unknown whether or not any col-
lection was made of this surface
material. Apparently, all cul-
tural material was collected and
saved during the excavation,
although collection procedures
are not discussed in the report
or the field notes. Only por-
tions of some of the burials were
recovered and, in some cases, the
entire burial was left in the
ground or discarded. In some
instances, it appears the cri-
teria for recovery was the
condition of the skeletal mater-
ial; however, the basis for
recovery or non-recovery is not
mentioned.

TECHNIQUES: Caywood and Spicer make
only superficial reference to
techniques employed during
excavation; therefore, informa-
tion on screening, provenience
controls, etc., is lacking and
possible inferences concerning
excavation techniques are
limited.

Prior to excavation, the
pueblo was divided into six
units and the rooms within each
unit were numbered sequentially
(Figure 1). These units were
established for purposes of
field supervision; the bound-
aries of the units were chosen
arbitrarily and bore no relation
to the chronological position
of the rooms. Apparently, the
pueblo was excavated room by
room; the only provenience given
for most of the artifacts is
room number, although many of
the sub-floor storage vessels
are located vertically and
horizontally within the room.
Of the 86 excavated rooms, only
34 were mapped. The quality of
these maps varies greatly; some
can be considered relatively
complete, showing burial loca-
tions, floor features, dimen-
sions, etc., while others are
merely unlabeled sketches. The
field notes for the room ex-
cavations reflect a similar
inconsistency. There are no
notes at all for 16 of the
rooms, including all of Group
VI, and the notes for Group V
are very poor. Notes for the
remaining rooms typically in-
clude an artifact inventory,
room dimensions, size and
location of features, descrip-
tion and location of any burials,
description and location of any
roof material and general re-
marks. There were 161 room
burials discovered (sub-floor
and in post-occupation fill);
of these burials, only 57 were
mapped, 67 were described by
general location (e.g., "under
the north wall") in the field
notes and there is no informa-
tion at all for the remaining
37.

The remainder of the Tuzi-
goot excavation consisted of
trenching the refuse slopes and
the delimitation and excavation
of three stratigraphic blocks
of refuse. Unfortunately the

documentation of this portion of the project is extremely poor. There is no information given for Stratigraphic Block #3. Stratigraphic Blocks #1 and #2 are located in relation to the pueblo, the dimensions of each block are noted and the depth of each defined stratum is given; however, there is no description of the composition of these strata, except a sherd analysis by stratum for Stratigraphic Block #1. The field notes for these stratigraphic blocks also include an artifact inventory and general remarks. In addition, there is a cross-section map of Stratigraphic Block #2. The refuse deposits on the east, west and north slopes were tested for burials by running trenches up the slopes approximately three feet apart. The dimensions and locations of these trenches are unknown. There were 250 burials uncovered in the refuse accumulations; none of these burials were mapped, and general locations were given for only seven of them. The field notes do include a description of 157 of the refuse burials, but these descriptions vary tremendously in quality and completeness.

SUMMARY OF RESULTS: Four hundred and eleven burials were discovered within the pueblo and outside the ruin in the refuse accumulations. Eighty-six rooms were excavated and three blocks of refuse were marked out and trowelled down for stratigraphic information. Following excavation, the authors were able to establish three periods of architectural history for the pueblo. Research at Tuzigoot since the original excavation has filled some of the gaps in this original chronology, but the three main periods of expansion established by Caywood and Spicer are apparently still valid. They determined this architectural sequence mainly through the superposition of rooms and the relationship of rooms to refuse accumulations. Room size and masonry type were also considered in temporal placement of the rooms. Sherd analysis was utilized for dating purposes in only a few cases, and only two tree-ring dates were obtained, because the wood

specimens were undatable by dendrochronology techniques of the time. Therefore, the architectural sequence is relative rather than absolute, and there are no actual dates given for the construction of any of the rooms. General structural features present throughout the ruin are described and an inventory of all artifactual material is given. Conclusions of the authors include: (1) the artifact inventory represents a mixture of cultural elements; (2) Tuzigoot followed a plan similar to other villages of its type, wherein rooms were built about a small open courtyard; (3) decorated pottery indicates the influence of ceramic styles from the west and north; (4) the chipped stone assemblage reflects Hohokam influence; (5) affinities with the Prescott group are reflected in clay figurines, and (6) burial techniques set Tuzigoot apart from the northern pueblo people. Concluding the report is an interpretive discussion of possible culture history at Tuzigoot.

EVALUATION: Caywood and Spicer's report reflects the general framework of archeological reporting for that time. Emphasis was on the compilation of an artifact inventory, so that the goal of collection of museum material was attained. No provenience, except for room number, is given for any of the artifacts recovered, however, making it difficult to apply this artifactual data. There was also a lack of systematic description of internal structural features within the pueblo. There is no accurate site map available or maps of structural features or of trenches and related burials. An architectural feature map is also lacking. The authors devote a lengthy discussion to the building sequence at Tuzigoot. Although superposition of rooms was the main criteria utilized for establishing this sequence, thereby formulating a relative rather than absolute chronology, the sequence is apparently sound. Nevertheless, the writing style employed in Caywood and Spicer's report was

so poor that it took a concentrated effort to understand their architectural discussion. A map of the pueblo at each of the three periods of occupation would have been most helpful. However, the greatest criticism of the report stems from the absence of any methodological framework or problem orientation. The addition of all of these details to the original report would improve its usefulness for archeological application.

RECORDS: Report: Caywood and Spicer 1935. National Park Service. Collections: Tuzigoot material may be at the Monument, at the Western Archeological Center, Tucson, or at the Panhandle-Plains Historical Museum, Canyon, Texas.

PRINCIPAL INVESTIGATOR: Fred R. Peck

SPONSOR INSTITUTION: National Park Service

PROJECT TITLE: A Stratigraphic Test at Tuzigoot National Monument, Clarkdale, Arizona

DATES OF FIELD WORK: April 23 to May 2, 1958

LOCATION: East-west along east slope of Tuzigoot ridge. Trench was three feet wide and seventy feet eight inches long, but there is no map of the location. Iron pipes were placed at each end of the trench, but these can no longer be located. A photograph of Peck standing in the excavated trench does give a general location of the test (Figure 7). Complete profiles of the trench are included in Peck's report.

PURPOSE: To establish vertical and horizontal stratigraphy in a test trench; to describe and interpret artifactual remains found in the trench; to develop a trait list for Tuzigoot.

TECHNIQUES: Fred Peck and two laborers began the project with the digging of a short north-south trench on the east slope. Examination of this trench determined the location of the head of the east-west, or main, trench. The vertical interval established for each strati-

graphic block was ten inches and the maximum length of any block was five feet. By project end, 45 blocks of trash had been removed and their contents, mostly sherds, had been cleaned and boxed. Where possible, vertical and horizontal stratigraphy were established. Blocks were dug on a level plane, cross-cutting the dipping deposits. Sherds were later classified by Peck and subsequently were checked out against study collections at the Museum of Northern Arizona. One poorly preserved burial was located but not removed. A trait list for the Monument was prepared.

SUMMARY OF RESULTS: Peck concludes that (1) relative proportions of decorated to plain ware in the sample are not significantly different from the figures given by Caywood and Spicer; (2) temporal spread and cultural provenience of the decorated trade wares agree substantially with the findings of Caywood and Spicer; (3) significant vertical stratigraphy was lacking, but there was some inconclusive evidence for horizontal stratigraphy in the frequency distributions of Verde Brown and Tuzigoot Red; (4) high percentages of Verde Brown at Tuzigoot would seem to reaffirm its placement with the Sinaguan Alameda Brown ware, and (5) Tuzigoot Brown is a valid type at Tuzigoot, as it was related to and contemporaneous with Tuzigoot Red.

EVALUATION: Peck seems to have collected some valuable data. His report, however, lacks any formal section on methodology, which might make it difficult to interpret his data.

RECORDS: Report: Peck 1959. National Park Service. Collections: A letter dated June 28, 1959, states that the collections were located at Tuzigoot.

PRINCIPAL INVESTIGATOR: Calvin Cummings

SPONSOR INSTITUTION: National Park Service

DATES OF FIELD WORK: 1964 and 1966

LOCATION: 1964--employee residences, water tank, access road and utilities at Tuzigoot National Monument; 1966--borrow pit for access road (Figure 7).

PURPOSE: To determine the presence or absence of cultural material in the above locations, so as to establish clearance for construction.

TECHNIQUES: In 1964, a survey was made of the construction sites for employee residences, water tank, access road and utilities system. After the contractor had cleared the land, the sites were resurveyed. In 1966, a survey was made of the proposed borrow pit for the access road.

SUMMARY OF RESULTS: No evidence of prehistoric occupation was found in any of the surveyed areas. A Yavapai camp was found just outside the limits of the pit for the access road, but it was not disturbed by the project.

EVALUATION: A critical evaluation of this project is not possible due to the almost complete lack of information.

RECORDS: Report: Correspondence from Calvin Cummings.
Collections: None.

PRINCIPAL INVESTIGATOR: George J. Gummerman

SPONSOR INSTITUTION: Prescott College, Archeological Survey

PROJECT TITLE: An Inventory and Assessment of the Archeology Inventory of Phelps-Dodge Selected and Offered Lands: Copper Basin and Parts of the Verde Drainage System

DATES OF FIELD WORK: November 2 to December 28, 1972

LOCATION: 216.6 acres in Township 16N, Range 3E, Sections 22 and 23, Yavapai County, Arizona. Gummerman delineates the exact boundaries of the area surveyed, but since the measurement data is all taken from a geographically unidentified "place of beginning" and there is no map

included with the report, these boundary delimitations will not be repeated here. Nevertheless, the Resources Management Plan for Tuzigoot indicates that Gummerman's survey included areas surrounding the Monument (U.S.D.I. 1974:14). The survey area may be generally located on the Clarkdale Quadrangle, U.S.G.S. 15 minute series.

PURPOSE: To ascertain the presence or absence and condition of cultural material in areas proposed for land exchange. The Tuzigoot lands are offered by the Phelps-Dodge Corporation to the National Park Service in exchange for areas to be utilized in proposed mining operations.

TECHNIQUES: The entire survey area was covered on foot by a four-man field crew, accompanied by a field photographer. The area in which the Tuzigoot lands are located was surveyed intensively in 10 to 20 meter sweeps, except for the tailings pond, which totally covers the natural ground cover. Extensive surface collections and black-and-white photographs were made at each site. Other notable features, such as vandalism, were recorded on color slides. Surface debris, architecture and areal extent and location were recorded at the sites. Also, detailed sketch maps were made of each site and locations were plotted on aerial photograph maps provided by Phelps-Dodge. This locational information later was plotted on U.S.G.S. 15 minute series maps. Prescott College site cards were used. Each site was assigned a temporary field number and was then reassigned a permanent number in the laboratory.

SUMMARY OF RESULTS: Two sites were found in the area proposed for addition to Tuzigoot National Monument. One of them was a three to four room site at the extreme southwestern end of a high ridge line, just inside the proposed new boundary (SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 22, about 0.6 miles northeast of Tuzigoot ruin). The site was vandalized so completely, it was felt by

Gummerman that little data of value remained. A few sherds and some waste flakes were found. This site was classified as a Southern Sinagua habitation site, with pit house and pueblo architecture present. Notes on size, elevation, environment and major drainage were also taken. The second site in the proposed exchange area was located in the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 22, about 0.35 miles east-southeast of Tuzigoot. This site was also classified as a Southern Sinagua habitation. The structure seems to have contained from five to eight rooms and may at one time have had two stories. This site sits on a ridge finger northeast of the Verde River and, because of this location, much of the site is being eroded away. A full range of cultural material was found on the eroded slope, and there was evidence of pit house architecture along with the pueblo. Vandalism was not as great as at the other site. The rooms appear to have been constructed of mud mortar and granite block and river cobbles. Notes were also taken on elevation, environment, size and major drainage.

EVALUATION: This report was fairly detailed in its description of methodology and techniques. A more accurate and precise description of the artifactual material would have been helpful. Gummerman neglected to give the reader the basis for his definition and classification of sites. Of all the material written about the Tuzigoot area, this is perhaps the most complete.

RECORDS: Report: Gummerman, Thrift and Miller 1973. Prescott College Archeological Survey. Collections: All collected cultural materials are on file at Prescott College.

PRINCIPAL INVESTIGATORS: Dave Forgang, Tony Razo, Leonard Ontiveros, Sam Henderson

SPONSOR INSTITUTION: National Park Service

PROJECT TITLE: Test Excavations, Tuzigoot National Monument

DATES OF FIELD WORK: April 23-25, 1973

LOCATION: Off the eastern slope of the Tuzigoot ridge near the Monument boundary (Figure 7).

PURPOSE: To test the area in which a telephone cable was to be buried and define an irrigation ditch.

TECHNIQUES: Five trenches were established and excavated. Four of these trenches intersected the proposed line for telephone cable burial and the fifth intersected an irrigation/drainage ditch. Trench 1 was excavated in order to define a small ditch which ran under and paralleled the east boundary fence for about 400 feet. The sides of this trench exposed definite profiles of two irrigation ditches. Trench 2 was located just below Group VI and cut across the telephone line roadway. Trenches 3 through 5 were additional.

SUMMARY OF RESULTS: Trench 1: A single potsherd constituted the cultural material found and it was collected from the surface. There was no material which suggested prehistoric construction or use. Trench 2: This trench revealed a definite cultural horizon. Bits of charcoal, sherds and waste flakes and cores were found. Historic material was also collected. It was decided that the establishment of a trench for the telephone cable would have a negative impact on the cultural data. Trenches 3-5: No archeological features or materials were located. After excavation of the trenches had been completed, Al Ward, an archeologist from Prescott College, came to the Monument to inspect the remains. Ward determined that there would be a negative impact on Monument resources with the installation of the telephone cable. Ward suggested that a surface collection be initiated along the cable route and that an archeologist be present when burial was begun. These suggestions will be implemented by the National Park Service.

EVALUATION: Although an outline of procedure was given by Sam Henderson for the telephone cable work, it is not really complete or detailed enough to be of any real use. It would seem that the discovery of irrigation ditches would be an important matter. However, Henderson fails to fully describe the ditches. Also, there was no attempt to describe

artifactual material found in the trenches. This report lacks any real methodological orientation.

RECORDS: Report: Henderson 1973.
National Park Service.
Collections: The location of collections was not revealed in the report. No report from Al Ward was available.

ROOM ANALYSIS

INTRODUCTION

A number of diagnostic traits have been utilized to determine room function: features, size, presence of smoke-blackening on walls, masonry, presence of floor modification, context of the room in relation to the rest of the dwelling, roof construction and artifacts (Dean 1967; Rock 1974; Sullivan 1974). Unfortunately, at the time Tuzigoot was excavated, the goals of the project were primarily oriented towards the collection of artifacts rather than interpretation of the data. As a result, the field notes of the excavation and Caywood and Spicer's resulting publication are totally inadequate for use in a room function analysis. Much of the information necessary for determination of function simply is not mentioned. For example, 32 of the excavated rooms do not even have an artifact inventory. Although the remaining 54 rooms do have presumably complete lists of artifactual content, there is no provenience data for this material. Therefore, the presence of a large number of grinding implements, for instance, does not necessarily imply that the room was used for grinding activities, as the artifacts could be sub-floor or from the post-occupation fill. The artifact lists also do not describe the material, so the condition of the artifacts is unknown. Furthermore, the quality of the field notes is so inconsistent that any analysis involving the entire pueblo would be totally unreliable if the field notes were the only source utilized. In other words, if the floor features of a room are not mentioned, it does not mean such features were lacking. Field observation at the Monument did aid in correcting and adding information for some of the rooms. The ruin, of course, has been exposed to the elements and the public for over 40 years and has undergone extensive stabilization and restoration; data gathered from surface observation was obviously limited. For these reasons, Caywood and Spicer's (1935) publication on the excavation of the pueblo was necessarily relied upon for much of the interpretive data. Unfortunately, there are some misleading statements in the report. For example, the authors (1935:37) state "...every room in the pueblo served at some time as a living room." The field notes and obser-

vation at the pueblo, however, indicate that at least three of the excavated rooms were never used as living areas. Apparently, test excavations would be necessary to confirm or deny some of the suppositions made in Caywood and Spicer's report. Appendix I lists the basic data for each room; this appendix includes pertinent information from the field notes and room dimensions as they presently exist. Data gathered during field sessions at Tuzigoot are included in the following general analysis, which necessarily omits functional interpretation when this was not possible.

THE PUEBLO IN GENERAL

Tuzigoot was not constructed according to any plan; rooms were added as the population increased. The pueblo has a general linear configuration, but this is a result of construction following the topography of Tuzigoot ridge. The main section of the pueblo is about 100 feet wide on an east-west axis; the entire pueblo, including Group VI, is about 500 feet long on a north-south axis. The room dimensions average approximately 12 by 8 feet, although there is considerable variation in size. While exceptions exist, there is a good correlation between time of construction and room size. The smallest rooms are located in the main part of the pueblo, which was the first section built. For the most part, the rooms increased in size through time, so the rooms furthest from the center of the pueblo are the largest, as they were constructed last. The rooms of the pueblo were entered almost invariably through the roof; only three unsealed doorways were found in the entire pueblo. At the abandonment one doorway between the plaza and a Group IV room was the only entrance which did not go through a roof. The plaza area, measuring approximately 35 by 100 feet, is located immediately south of the Group IV rooms. Situated between the plaza and the main part of the pueblo is a steep refuse slope. From field observations, it is possible that this slope contains unexcavated rooms. Refuse is apparent all around the pueblo, but it is most conspicuous on the east and west slopes. These refuse slopes were used extensively for

burials. Burials, mostly of children, were also made throughout the pueblo, both sub-floor and in post-occupation refuse accumulations.

GROUP I

Located on the east side of the main section of the pueblo (Figure 1), Group I, Rooms 1 through 13, represent several stages in the construction of Tuzigoot. The small rooms at the southern end of the group are some of the earliest in the pueblo, while Room 2 is one of the largest and latest rooms represented.

Room 1

Room 1 is one of the few rooms that was never utilized as a living area; it was built after the ridge had been occupied for some time, as evidenced by a four to five inch layer of debris under the north wall. This room may have served as a trash area for Group III, Rooms 2 and 6.

Room 2

At least one, and possibly two, unexcavated rooms are present under Room 2. This room, the largest in the pueblo, was built late in the history of the structure. A storage cist or roasting pit was excavated near the northeast corner of the room, and another pit of unknown function is just to the south of this feature.

Room 3

There are no field notes for Room 3, but the large size of the room indicates that it was constructed late in the building sequence.

Room 4

Room 4, probably contemporary with Room 2, was constructed upon earlier refuse accumulations. Caywood and Spicer excavated three sub-floor storage vessels from this room; in addition, two more vessels were located during the 1968 stabilization (Mayer and Waggoner 1968:3). Apparently, Room 4 was also used for storage while it was occupied.

Room 5

Room 5 is also a late room, as indicated by its size and the presence of two to three and a half feet

of sub-floor refuse. This room also contains a late architectural feature, a shallow central floor depression extending from the west wall to the hearth. The function of these depressions is unknown, and they are only present in five of the later rooms. Caywood and Spicer suggested these depressions were drains to keep the sleeping areas dry; however, as the position of some of the depressions would drain water into the hearths, this functional explanation must be questioned.

Room 6

In view of its small size and lack of sub-floor refuse, Room 6 is undoubtedly an early room. In addition, this room contained 14 large sub-floor storage vessels. Although Room 6 was a living area at one time, it was probably only utilized for storage at the time of the abandonment.

Room 7

Room 7, similar to Room 6, is small and lacks sub-floor refuse. It contains a sealed doorway in the east wall; this entrance was probably blocked when Room 5 was built.

Room 8

Room 8 is another large, relatively late room; it also has a central floor depression and at least three feet of sub-floor refuse. Based on their architectural similarity and the proximity of Rooms 5 and 8, it is probable that they are contemporaneous.

Room 9

Room 9 gives some indication of the length of the occupation of Tuzigoot ridge. Although the room is one of the smallest in the pueblo and one of the earliest rooms now exposed, the presence of five feet, three inches of refuse accumulation under the north wall shows the ridge was occupied for a significant period of time before this room was built.

Room 10

Room 10 has possible sub-floor refuse; it was used as a living room after construction, but became a refuse area before the general abandonment of the pueblo.

Room 11

There are no field notes for Room 11. Based on location alone, however, it is possible that unexcavated material is present beneath the room.

Room 12

Room 12 was probably built about the same time as Room 9. While Room 12 is also a very small, early room, it was built upon refuse, including some fallen wall material. This room was probably used for storage purposes at abandonment. Room 12 was originally a two story room with a one inch ledge of unknown function in the center of the first story floor.

Room 13

Room 13 was constructed during the same time period as Rooms 9 and 12, and it is also a very small room. Room 13 has a floor depression which is not in the middle of the floor and which does not resemble the mid-floor depressions of some of the late rooms. The sub-floor refuse in Room 13 indicates it rests on an unexcavated room; if so, this unexcavated room could be one of the earliest in the pueblo. Room 13 served as a storage area at abandonment.

GROUP II

Constructed on the west slope of the ridge, Rooms 1 through 5 (Figure 1), although relatively large, were built and abandoned early in the history of Tuzigoot. All of the rooms in this group, with the possible exception of Room 4, had a number of burials in the post-occupation fill. It is possible that the Group II rooms were built on the trash accumulated from the earliest inhabitation of the ridge. A small population decline took place after this construction, and the inhabitants moved up on the ridge, whereupon the Group II rooms again became a trash area.

Room 1

Room 1 had up to 11 feet of post-occupation fill in places and contained at least 11 burials in this refuse. Through ceramic analysis, it is known that this room was built around A.D. 1000. Nevertheless, the

north wall of Room 1 rests on five feet, seven inches of previous refuse accumulation.

Room 2

Field notes do not exist for Room 2, but it is known that the room contained nine to ten feet of post-occupation fill. This debris certainly indicates the early abandonment of the room.

Room 3

Information on Room 3 is very inadequate, and the room has been semi-obliterated since excavation. Nevertheless, this room was apparently another living area which was abandoned and partly filled with trash.

Room 4

Room 4 is possibly the only Group II room without sub-floor refuse. This room also served as a refuse area after it was abandoned. Room 4 is no longer a recognizable structure; almost all of the room has been obliterated since excavation.

Room 5

Room 5 is the only possible two story room in this group. In 1941, the partial skeleton of a three to four year old child was found at the base of one of the walls in Room 5 (Cotter 1941a:16). This burial was uncovered during restoration of the wall and it is probable the wall-floor contact area had never been excavated. The exact location of this burial is not given.

GROUP III

Group III, Rooms 1 through 18 (Figure 1), occupy the ridge top area of Tuzigoot and represent several periods of construction. The ridge top is the location of the early nucleus of the pueblo. Several of the Group III rooms served multiple uses during the occupation of Tuzigoot.

Room 1

There are no field notes for Room 1, but size and location of the room indicates probable contemporaneity with adjacent rooms to the

west and south.

Room 2

Room 2 was also built at the same time as surrounding rooms. There were no sub-floor deposits under Room 2. The room has a niche in the east wall. This niche, originally a doorway, was blocked by the construction of a new wall and then modified. The depth of the niche (15 inches) into the wall indicates its usage as a storage area.

Room 3

A datable tree-ring specimen was recovered from Room 3 which produced a cutting date of A.D. 1200. The western side of Room 3 rests on abandoned Rooms 7 and 8.

Room 4

Tree-ring dating indicates that Rooms 3 and 4 were built at the same time. Room 4 was built on the rubble of Rooms 7 and 9.

Room 5

Room 5 was also probably built on the remains of older rooms, as a possible old wall was found along the west side, together with at least three feet of sub-floor refuse. A sealed doorway was also found in the west wall. In addition, Room 5 might originally have been two stories.

Room 6

Judging from the fill material, Room 6 was one of the last rooms abandoned in the pueblo, although it was not one of the last built. Thirty-three manos were recovered from this room, but the lack of provenience data and description makes interpretation impossible.

Room 7

Room 7 is the smallest in the pueblo. It is also one of the earliest rooms presently exposed. Construction dates for the superimposed Rooms 3 and 4 make it apparent that the earlier room was abandoned before A.D. 1200, but more precise dating cannot be achieved. Room 7 was used for a refuse area after it had been abandoned, but it was originally a living room.

Room 8

Room 8 is also a very small room. It was built and abandoned at the same time as Room 7. Room 3 is superimposed on the east side of Room 8. Room 8 was also used for trash disposal after it was abandoned.

Room 9

Room 9 has the same construction history as Rooms 7 and 8, but it may never have been a living area. Room 9 was definitely utilized for refuse disposal, however, and following the construction of Room 4, Room 9 may have functioned as a terrace. Two child burials have eroded out of Room 9 since original excavation, one in the northwest corner and one from the base of the west wall (Smiley 1940; Cotter 1941b:136). Unfortunately, it cannot be determined from the correspondence whether these burials were interred prior to the construction of Room 9.

Room 10

Room 10, which was originally one living area with Room 13, was used as a storage room at abandonment. A circular pit was excavated in the northwest corner of this room, but the pit contained nothing to signify its function. Sub-floor refuse and the original size of this room indicates the room was built after the ridge had been occupied for some time.

Room 11

Room 11 gives evidence of a room being reoccupied after a fire; the final abandonment of this room, however, was not due to fire. At the time of the fire Room 15, which also burned, and Room 11 were connected by a doorway. When the rooms were rebuilt following the fire, the doorway was sealed, possibly to prevent the spread of a second fire.

Room 12

A large section of Room 12 was destroyed during excavation on the west slope. It is quite possible that one or more rooms to the west of Room 12 were also obliterated or covered up during this operation. It appears that Room 12 was used as a refuse area prior to the

abandonment of the pueblo, as evidenced by burials on the floor; its function prior to this time is unknown.

Room 13

As previously mentioned, Rooms 10 and 13 were built as one living room. After a wall was constructed dividing the room, Room 13 became a refuse area.

Room 14

Another room which was later divided to become two, Room 14 may have served originally as a ceremonial room. True kivas, as defined from the Anasazi area to the north-east, do not occur in the Sinagua area. Nevertheless, ceremonialism was practiced by the Sinagua, and there are structures with inferred ceremonial function from a number of Sinagua sites. Room 14 originally had a clay bench at the southern end of the room and two wall fragments which almost divided the room. There were no other floor features. The room, which was built on a small amount of possible cultural refuse, probably served a ceremonial or other specialized function until a partition was built just to the north of the bench. The room was then converted to a living area; no hearth was ever constructed, but a distinct fire area was defined in the center of the room. Room 14 was used as a living area until the abandonment. Whatever purpose was originally served by Room 14, it can be assumed that some other room, presumably one of the collapsed second story rooms, took over this function after the conversion of Room 14 to a living room.

Room 15

Room 15, as already discussed, was originally connected by a doorway to Room 11. Following a fire which destroyed both rooms, the doorway was sealed, apparently by the construction of a facing wall on the Room 15 side. Room 15 rests on an unmeasured, and possibly unexcavated, amount of sub-floor fill.

Room 16

No floor or floor features were ever encountered in Room 16; field observation indicated this room might have been used as a storage or refuse

area for surrounding rooms. The unusual shape of Room 16, along with its location, makes it likely that this "room" was actually an unmodified area left over after the construction of adjacent living rooms.

Room 17

When Room 14 was converted into a living area, a partition was built across the south part of the room, thereby creating Room 17. The bench originally present in Room 14 became a storage platform in Room 17, as the partition was built just to the north of the bench. After it became a separate room, Room 17 was undoubtedly used only for storage.

Room 18

Several feet of the western section of Room 18 had been destroyed by erosion before excavation began. Nevertheless, it was obvious the room had long been a part of the pueblo. Sub-floor deposits are not discussed, but it may be assumed it was built relatively early, as the room has a long history of use. Originally, Room 18 was a living area, as shown by the presence of a hearth and the impression of a sub-floor storage vessel. Following its early abandonment, the room was used as a refuse area until the pueblo was deserted.

GROUP IV

The Group IV rooms, Rooms 1 through 7 (Figure 1), were probably built as a unit during the final expansion of Tuzigoot. The rooms are contiguous with a plaza area to the south. This plaza and a possibly unexcavated refuse slope separate the Group IV rooms from the main section of the pueblo on the top of the ridge. All of the Group IV rooms were used as living areas at the time of the general pueblo abandonment; none of the rooms ever served any other function.

Sub-floor deposits were found in only two of the Group IV rooms. The lack of sub-floor material means very little in this case. The area occupied by the Group IV rooms is isolated from the rest of the pueblo and would not have been practical as a refuse area before the rooms were built.

Tuzigoot was obviously recognized as a ruin long before it was excavated. Caywood and Spicer estimated that 150 burials had been potted from the refuse slopes around the main part of the pueblo and two rooms in Group IV had been vandalized.

Room 1

Room 1 showed evidence of pot hunter disturbance. This vandalism had been limited, however, and floor features in the room were still recognizable at the time of excavation.

Room 2

Room 2 is a typical living area. Rooms 1 and 2 are similar in size; they are the smallest rooms in Group IV.

Room 3

Prior to excavation, Room 3 had been partially destroyed by vandalism. No floor features were defined because of this disturbance. However, there is a hearth now present in the room; this hearth is probably a post-excavation restoration. Room 3 may originally have had a second story connecting with the second story in Room 4. The pot hunter disturbance, however, destroyed any evidence of a room over Room 3.

Room 4

Room 4 was originally a two story room with a doorway in the south wall of the second story. It is possible this doorway connected with a second story of Room 3.

Room 5

The northwest corner of Room 5 rested on two feet of fill material. This debris may have been brought down from the main refuse areas to level the floor of this room.

Room 6

Room 6 represents another relatively large living area, typical of the later construction at Tuzigoot.

Room 7

The only unsealed doorway which connected with the outside when the pueblo was abandoned is in Room 7. The door is in the south wall and

connects directly with the plaza. This door may have been a convenience measure, as a storage cist is present immediately outside the door. Three and a half feet of refuse were under the northwest corner of Room 7. As with Room 5, the material under Room 7 was probably transported from the main refuse slopes to level the floor before the room was built.

GROUP V

Consisting of all the rooms off the southern end of Tuzigoot ridge and a slightly isolated group at the extreme south of the pueblo, Group V, Rooms 1 through 33 (Figure 1), were built during various stages in the pueblo's construction. This group includes several of the largest rooms in the ruin. All of the rooms in this group, with one exception, were used originally as living areas.

Room 1

Room 1 is the southernmost room in the pueblo. The room contained a roasting pit, but there is no mention of what was being roasted.

Room 2

Along with Rooms 1, 3, 4, 9 and 18, Room 2 is located in the small isolated group of rooms at the southern end of the pueblo. These rooms were all built during the final expansion of the pueblo.

Room 3

Although Room 3 is a relatively small room, it was also built as a living area late in the history of Tuzigoot.

Room 4

Slightly smaller than Room 3, Room 4 also displays typical features of a living area.

Room 5

Room 5 is the southeastern point of the main part of the pueblo. The outstanding feature here is the presence of sub-floor burials. There were 11 child burials excavated from below the floor of Room 5.

Room 6

Room 6 is noticeably smaller than any adjoining rooms, but there

isn't any apparent reason for this.

Room 7

Although any specifics are missing, Room 7 also had numerous sub-floor burials, presumably children.

Room 8

Room 8 is one of the largest rooms in the pueblo. The southwest corner of the room has apparently been destroyed since excavation. Room 8 appears to be contemporary with Rooms 11, 14 and 16.

Room 9

Room 9 is another of the rooms in the isolated southern unit. It is quite similar to adjoining rooms.

Room 10

There are no field notes for Room 10. Judging by the present configuration of this room, it was possibly abandoned before the rest of the pueblo and then the southwestern portion of the room was destroyed through erosion.

Room 11

Room 11 is a very large room. It is contemporary with the surrounding rooms which were all built during the final expansion at Tuzigoot. Room 11 was occupied until the abandonment.

Room 12

A large quantity of grinding implements were found in Room 12 and several adjacent rooms, but the lack of provenience data precludes inferences about this artifactual material.

Room 13

Room 13 also produced several ground stone implements which were not described.

Room 14

At the time of excavation, Room 14 was the largest in the pueblo; due to stabilization and restoration, however, Group I, Room 2 is now larger.

Room 15

Room 15 was built on two feet of sub-floor refuse; it is probable that this material was moved here to make a level foundation for the room.

Room 16

A central floor depression is present in Room 16, indicating its late period of construction.

Room 17

No features were defined in Room 17, but a charcoal deposit was found during field observation. The composition of this charcoal could not be determined, so it is not definite evidence of cooking activities. There was no sub-floor refuse under Room 17.

Room 18

Room 18 is the last of the rooms in the isolated southern unit. Again, it is similar to adjacent rooms. Room 18 was built on sterile soil.

Room 19

Room 19, also constructed on sterile deposits, was occupied long enough to accumulate at least four inches of habitational debris on the floor.

Room 20

A large section of Room 20 is no longer present due to the visitor trail which now cuts through the room. A large bench was excavated in the north end of the room, indicating Room 20 was used for storage while it was occupied.

Room 21

According to the field notes, there were no floor features located in Room 21. Visual inspection, however, makes it evident that the "floor" of Room 21 is significantly higher than those of rooms to the south and east. Although these rooms are on a slope, the "floor" of Room 21 is much higher than would be necessary to compensate for the slope. It is quite possible that this room was not excavated to the actual floor level.

Room 22

Room 22 has also been partially obliterated by the visitor trail. The only loom anchor holes mentioned in the field notes occurred in this room. Considering the population of Tuzigoot, Room 22 could not have been the only room in the pueblo with weaving equipment. Other loom anchor holes might not have been recognized as such, or looms could have been located in some of the second story rooms.

Room 23

During stabilization in 1941, the sherds of a broken Tuzigoot Red storage vessel were found in the south-southeast wall of Room 23. This find was made into an in situ exhibit, which was vandalized during World War II (Cotter 1941a:16; Richert 1953:159).

Room 24

There is no information on sub-floor deposits in Room 24, but it appears to be a late room.

Room 25

Room 25 featured a shallow, rectangular depression around the hearth; the function of this depression is unknown. Also during the 1941 stabilization, the scattered remains of an infant burial were found at the base of the south wall of Room 25 (Cotter 1941a:16, 1941b:137). The south wall-floor contact area in this room had apparently never been excavated.

Room 26

Believed to be contemporary with Group I, Rooms 5 and 8, Room 26 had five feet of sub-floor refuse. A raised platform was revealed along the north wall and the northern section of the west wall; this platform could have been used for storage while the rest of the room was used as a living area.

Room 27

There were no features found in Room 27 during excavation, and visual inspection did not reveal any. In 1940, during restoration following a cave-in, an infant burial was found in the north wall of Room 27, about five feet above the level of the floor. This burial also became an in situ

exhibit; the exhibit was vandalized in 1947 (Cotter 1940:254-255; Richert 1953:169).

Room 28

The field notes for Room 28 are minimal; this is unfortunate, as the room was totally obliterated in the construction of the visitor trail. According to Caywood and Spicer, however, it is at least known that Room 28 was built much later than Room 32.

Room 29

Room 29 was utilized for storage and habitation, probably at the same time. A storage cist and three storage vessels, one sub-floor, were found in this room.

Room 30

Room 30 is the only room in the pueblo for which we have evidence of three stories. The lowest floor had been partially destroyed for burials even before the second story was built, showing that the first story room was built rather early. The only recognizable features were a hearth and five post holes in the second story floor.

Room 31

Another sub-floor room was found beneath Room 31; the first story room here is less than half the size of the upper level. The top room contained an unsealed doorway connecting it with Group III, Room 16. This upper room was used for storage as vessels still filled with beans were found in the room.

Room 32

Room 32, which is to the north of Room 28, has also been totally obliterated by the visitor trail. The walls were reconstructed and modern flights of steps lead up through the room to Group III, Room 17. The reconstruction does not match the original configuration of the room. Again, the field notes for this room are rather sparse and there is no map of the original relationship between Rooms 28 and 32 and the refuse area between them. Apparently, Room 32, a two story room, was constructed long before Room 28. When Room 28 was built, there was a gap left

between the walls of the two rooms because of an elevation difference of three feet. This space between the walls was used as a refuse and burial area until the pueblo was abandoned.

Room 33

Room 33 is another area that was never used for habitation. It might have been used as a terrace, as a refuse or storage area for Rooms 29 and 30, or a combination of the two.

GROUP VI

The Group VI, Rooms 1 through 10 (Figure 1), are an isolated group of rooms consisting of three small units which were built on the east refuse slope during the final expansion of Tuzigoot. There are no field notes for this group of rooms; the following discussion is based on field observations and the published report by Caywood and Spicer. Although these rooms were built late, they were also apparently abandoned before the rest of the pueblo. There may have been as many as 19 burials made in the post-occupation refuse of the rooms (see Appendix I). A deep refuse slope is present between Group IV and Group VI. There is a possibility of some unexcavated rooms in the trash to the west and upslope of Group VI.

Room 1

Room 1 is a medium size room with no discernible floor features.

Room 2

Room 2 is one of the largest rooms in Group VI. The room contains faint indications of a hearth.

Room 3

There is a large bench occupying the entire northwest corner of Room 3; Caywood and Spicer did not find any other floor features in this room. The room probably functioned only as a storage area at the time the pueblo was abandoned. Room 3 is one of the largest rooms in the pueblo.

Room 4

There is a large metate on the floor of Room 4, but it may have been placed there recently.

Room 5

Room 5 has no identifiable floor features. It is an average size room.

Room 6

There are no floor features in Room 6 and it is possible that the room was not excavated to the floor.

Room 7

Room 7 contains a possible hearth and another large metate on the floor; this metate may be in situ. There is a triangular bench in the southwest corner of Room 7 which was probably a storage platform.

Room 8

Room 8 has the interesting distinction of being the only room in the pueblo not adjoining another room. In many instances, this would indicate Room 8 was a storage area; although this could be the case, Room 8 also probably used as a habitation at some time.

Room 9

Room 9 is a rather small room with no apparent floor features.

Room 10

Room 10 contains a possible hearth, but the feature is very indistinct.

SUMMARY

Tuzigoot ruin is an excellent example of the late style of pueblo architecture in the Verde Valley. Although the pueblo lacks the esthetic value of some of the nearby cliff dwellings, it represents long-term growth of a stable prehistoric agricultural community. As discussed in the main introductory section of this report, the abandonment of Tuzigoot and other sites in the Verde Valley is yet to be explained. However, one architectural feature at the ruin at least gives an indication of the possibility of warfare or some other types of harassment. At the time Tuzigoot was abandoned, there was only one doorway in the pueblo that connected to the outside without going through a roof entrance. This

doorway connects one of the Group IV rooms with the plaza area. It was probably built for convenience, as there were three storage cists in the plaza area. Also, the location of the doorway would have made it easily defendable. Early in the history of the pueblo, there had been several doorways to the outside, but they were sealed as the pueblo expanded. This indicates increasing pressure from outside groups through time, but the evidence is certainly not irrefutable.

With the exception of three storage and/or refuse areas, every room now exposed in the pueblo was used at one time or another as a living area. Several of the rooms changed function through time, usually being converted into storage or trash areas after they had served as habitations. One room, however, became a living area after it was used for ceremonial purposes or for some other specialized function.

The most valuable information revealed by the room analysis is the presence of a large amount of unexcavated material. A number of the rooms were probably never excavated to floor level, and many more were not tested for sub-floor material. Throughout the pueblo, walls of rooms are built on previous refuse accumulations. Also, several of the post-excavation discoveries came from wall-floor contact areas. The

wall-floor contact region was not excavated in several of the rooms because Caywood and Spicer did not want to endanger the walls. There is a very good possibility that several unexcavated pueblo rooms are present. Furthermore, some of the earliest rooms have sub-floor trash; this refuse either came from very early, unexcavated pueblo rooms or even from a pit house occupation of the ridge. Obviously, further excavation and testing at Tuzigoot is necessary before the full potential of this archeological resource is realized. As it appears today, Tuzigoot represents the final stage of what could be a habitation site of great duration.

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Popularized interpretation of the excavation. States the burials were oriented either north or south (formal report says no orientation). Stresses importance of buried, pre-A.D. 1000 rooms. Several photographs included.

1935

Tuzigoot. The Excavation and Repair of a Ruin on the Verde River near Clarkdale, Arizona. National Park Service, Berkeley.

- Publication resulting from original excavation of Tuzigoot. Considering the period of publication, it is a fairly comprehensive description of the material culture. Interpretive sections are very weak, and the writing style renders some portions almost incomprehensible. Illustrations are numerous enough in most sections to provide a needed complement to the text. Ceramics section particularly well illustrated and more comprehensive than other chapters.
- Colton, Harold S.
1946 The Sinagua. A Summary of the Archeology of the Region of Flagstaff, Arizona. Museum of Northern Arizona, Bulletin 22.
- Includes a four page summary of the archeology of the Verde Valley. Work in the Verde up to this time was minimal, and the interpretation is therefore limited. Includes map of Sinagua areas.
- Cotter, Jack
1941 Tuzigoot National Monument. Arizona Highways, Vol. 17, No. 11, pp. 20-23, 39.
- Popularized, but very well written. Discusses some of the more unusual cultural remains and gives a history of the habitation of the Verde Valley through contact and then Anglo settlement. Devotes a short section to the excavation. Photographs are of good quality and labeled. Mentions that fire might have caused abandonment.
- Cummings, Calvin R.
1966 A Survey of the Archeological Potential of the Upper Verde Valley, Arizona. Unpublished ms.
- A thorough report on the work completed in the Verde up to 1966. Includes proposals concerning needed archeological work and suggestions for protection of the ruins. Contains a history of the area (archeological and historical), environmental setting and an extensive bibliography. Mentions specific tree ring dates from Tuzigoot.
- Gummerman, George J. and R. Roy Johnson
1971 Prehistoric Human Population Distribution in a Biological Transition Zone. In George J. Gummerman (ed.), The Distribution of Prehistoric Population Aggregates, pp. 83-102. Prescott College Anthropological Reports No. 1.
- Defines ecotones. Excellent environmental summary for area between Phoenix and the Mogollon Rim. 50% of diet of Lower Sonoran people derived from hunting and gathering (primarily seeds) at time of contact.
- Gummerman, George J., John B. Thrift and Robert H. Miller
1973 An inventory and Assessment of the Archeological Inventory of Phelps-Dodge Selected and Offered Lands: Copper Basin and Parts of the Verde Drainage System. Unpublished ms.
- Report of 1972 survey of lands near Tuzigoot being offered by Phelps-Dodge Corporation to the National Park Service in a land exchange. Two vandalized sites were recorded in the Tuzigoot region.
- Henderson, Sam R.
1973 Test Excavations, Tuzigoot National Monument. Unpublished ms.
- A very limited report on five test trenches on the eastern side of the Monument. Mentions two superimposed irrigation ditches. Includes map of trenches.
- Jackson, Earl
1933 A Survey of the Verde Drainage. Unpublished ms.
- Devotes one paragraph (p. 16) to pre-excavation description of Tuzigoot. Notes archeological

- potential of site.
- Jenkins, Olaf P.
1923 Verde River Lake Beds near Clarkdale, Arizona. American Journal of Science, Fifth Series, Vol. 5, No. 25, pp. 65-81
- Geological description of the Verde Formation, which determined the building techniques at Tuzigoot. Geologic map included. This separate was retyped from an unavailable original; the available copy omits four figures and the section on ethnological aspect.
- Mahard, Richard H.
1949 Late Cenozoic Chronology of the Upper Verde Valley, Arizona. Denison University Bulletin, Journal of the Scientific Laboratories, Vol. 41, Article 7, pp. 97-127.
- An in-depth study of the Verde Formation. Contains a brief, but informative, section on environmental setting. Geologic map.
- Mayer, Martin T. and William J. Waggoner
1968 Tuzigoot Ruin, Tuzigoot National Monument, Arizona, Stabilization Report, 1968. Unpublished ms.
- Record of 1968 stabilization project. Major project partially resulting from record snowstorm in 1967. Complete photographic and ruins stabilization records. Mentions possibility of unexcavated rooms.
- Mindeleff, Cosmos
1896 Aboriginal Remains in Verde Valley, Arizona. Bureau of American Ethnology, Thirtieth Annual Report, pp. 179-261.
- Does not mention Tuzigoot. Discusses "undisturbed" condition of ruins in the Verde. Many photographs. Two early maps.
- Morris, Earl H.
1928 An Aboriginal Salt Mine near Camp Verde, Arizona.
- Anthropological Papers, American Museum of Natural History, Vol. 30, Pt. 3, pp. 75-97.
- No direct reference to Tuzigoot. Most evidence shows mine was used late, but earlier material may be covered. Several perishable remains (axe hafts, etc.).
- Murbarger, Nell
1949 City of the Crooked Water. Natural History, Vol. 58, No. 5, pp. 234-239.
- A popularized, well written account of the settlement, construction, habitation and abandonment of Tuzigoot. Discusses pre-pueblo dwellers in the area and causes of population fluctuations.
- Peck, Fred R.
1959 A Stratigraphic Test at Tuzigoot National Monument, Clarkdale, Arizona. Unpublished ms.
- A complete description, with excavation notes, of a stratigraphic test made in 1958. The cultural material recovered is described and several conclusions, based on this ceramic analysis, are stated. Reaffirms that Verde Brown is Sinagua pottery. No photographs, but sketch maps of trench included.
- Richert, Roland
1953 Stabilization Report, Tuzigoot Ruin, 1953, Tuzigoot National Monument. Unpublished ms.
- Record of 1953 stabilization project. Major project including work on all rooms (except Group VI, Room 10) and correction of much of the earlier stabilization effort. Introductory section includes summaries of the archeology, geology and masonry of the ruin and a resume of previous stabilization and restoration. Complete photographic and ruins stabilization records.

- Schroeder, Albert H.
 1952 A Brief History of the Yavapai of the Middle Verde Valley. Plateau, Vol. 24, No. 3, pp. 111-118.
 Short description of Verde hunting and gathering group. No expeditions to the Verde Valley between 1605 (Onate) and 1860 (first Anglo settlers).
- 1953 The Problem of Hohokam, Sinagua and Salado Relations in Southern Arizona. Plateau, Vol. 26, No. 2, pp. 75-83.
 Sinagua burial pattern of extended dead probably resulted from retention of ritual over body before cremation; after ritual, body too stiff to flex. Sinagua always chose elevated sites in Verde, while Hohokam chose river terraces.
- 1960 The Hohokam, Sinagua and the Hakataya. Archives of Archeology, No. 5.
 Excellent environmental summary. Growing season is six months long and begins in mid-April, with late winter (January-March) and late summer (July-September) precipitation. Extended study of population movements and prehistoric cultural relationships.
- Shiner, Joel L.
 1962 Stabilization of Tuzigoot Ruin, 1961. Unpublished ms.
 Record of 1961 stabilization project. Major project including first stabilization of Group VI rooms. Complete photographic and ruins stabilization records.
- Shutler, Dick, Jr.
 1950 The Dry Creek Site: A Pre-Pottery Lithic Horizon in the Verde Valley, Arizona. Plateau, Vol. 23, No. 1, pp. 6-10.
 Site report of the type site for Dry Creek phase. No direct bearing on Tuzigoot, but describes pre-pottery material culture of the Verde Valley.
- Spicer, Edward H.
 1933- Field notes of 1933-1934 excavation of Tuzigoot. Unpublished ms.
 Field notes resulting from original excavation of Tuzigoot. For the most part, these notes are an outline description of the ruin, room by room. Each description entails information such as post hole locations, firepit dimensions, artifact lists, etc. In addition, each burial is given a very minimal description. Some sketch maps of the rooms are included. Excavation notes and interpretive data are almost entirely lacking.
- Spicer, Edward H. and Louis R. Caywood
 n.d. Tuzigoot Ruins, Near Clarkdale, Arizona. Archaeological Committee, Yavapai County Chamber of Commerce, Prescott.
 Synthesis of Tuzigoot habitation taken from special articles in the Arizona Republic. Popularized and very ethnocentric. Essentially discusses history, burials and pottery from the ruin. Illustrated with sketches.
- 1934 Tuzigoot, a Prehistoric Pueblo of the Upper Verde. Museum Notes, Vol. 6, No. 9, pp. 43-46.
 Written during the reconstruction of the pueblo. Mostly devoted to the architectural history and the ceramics. Concise and readable.
- Sutton, Myron
 1953 Geology of the Verde Valley. Unpublished ms.
 Lists 25 types of minerals recovered at Tuzigoot (p. 21).
- Tuzigoot Custodians
 1939- Southwestern Monuments Monthly Reports. October, 1939 to June, 1941.

Southwestern National Monuments, Coolidge, Arizona.

Monthly reports dealing with Tuzigoot from the time it was made a National Monument until the monthly reports were discontinued.

Tuzigoot Custodians, et al.
1958 Ruins Protection - Stabilization Record and Correspondence, 1940-1958. Unpublished ms.

Mostly correspondence resulting from several minor stabilization projects over an 18 year period. A good deal of useful information, but difficult to retrieve. Several Ruins Stabilization Records included, but only one has accompanying photographs. Several good outlines of stabilization techniques and materials utilized.

United States Department of the Interior, National Park Service
1974 Resources Management Plan, Tuzigoot National Monument, Arizona. Unpublished ms.

A complete, detailed account of the modifications proposed for Tuzigoot and the expected impact of these modifications. Included are summaries of past work at the Monument, the archeological history of the area and the environmental setting of Tuzigoot. Each proposal is strictly delimited in a Natural Resources Project Statement. Accompanied by four maps.

Voll, Charles B.
1964 Maintenance Stabilization, Tuzigoot National Monument, Arizona. Unpublished ms.

Photographic record of small stabilization program carried out in April, 1964.

Whipple, Lieut. A. W., Thomas Ewbank and William W. Turner
1855 Report Upon the Indian Tribes. Explorations for a Railway Route, Pt. III, Vol. III.

Earliest comprehensive report on indigenous groups. Discusses several groups located to the north of Tuzigoot, including the Yavapai and Tonto Apache. Excellent for early descriptions of historic groups.

ADDENDUM

Bannister, Bryant, Elizabeth A.M. Gell and John W. Hannah
1966 Tree-Ring Dates from Arizona N-Q. Laboratory of Tree-Ring Research, University of Arizona, Tucson.

A complete listing of tree-ring dates from Tuzigoot; 28 dates representing at least eight rooms are given, along with a short site description and an archeological summary.

MUSEUM OF NORTHERN ARIZONA
DEPARTMENT OF ANTHROPOLOGY

APPENDIX I

Basic Room Data

GROUP I

Room 1 Features: No floor defined. Burials: 3 in post-occupation fill. Fill: Unmeasured amount of post-occupation fill; no floor, just "accumulated rubbish over the conglomerate hardpan"; 4-5' layer of debris beneath north wall. Dimensions: N - 5'5" S - 6'0" E - 25'1" W - 24'0" Notes: Possibly never a room.	Room 4 (continued) Fill: 2'10"-6'3" sub-floor refuse. Dimensions: N - 17'4" S - 21'1" E - 21'1" W - 20'0" Notes: West wall contains many mano and metate fragments along base; contemporary with Room 2; burned.
Room 2 Features: Storage or roasting pit (slab-lined), parrot burial. Burials: 2 sub-floor; 1 in trash prior to building room. Fill: 4-5" burned roof fill; at least 3' sub-floor refuse. Dimensions: N - 16'6" S - 18'8" E - 26'6" W - 25'1" Notes: Wall of earlier room 2'6" below floor of Room 2; burned.	Room 5 Features: Hearth, sub-floor storage vessel, central floor depression. Artifacts: 3 large storage vessels, circular grooved grinder(?), quantity of pipestone squares. Fill: About 6" burned roof fill; 2'-3'6" sub-floor refuse. Dimensions: N - 10'9" S - 10'0" E - 22'6" W - 21'4" Notes: Burned.
Room 3 No field notes. Dimensions: N - 9'3" S - 12'5" E - 30'3" (approximately; wall no longer present) W - 28'2"	Room 6 Features: Hearth, 2 post holes. Artifacts: 14 large storage vessels, 6 grooved metates, pieces of turquoise inlay, shell and turquoise mosaic pendant, pipestone beads, twilled weave matting, heavy yucca cord, Jeddito bowl, 3 undecorated bowls, 17 manos, pipestone pipe, Olivella beads, coiled basket fragments, yucca cord net, 4 turquoise beads. Burials: 1 sub-floor. Fill: No sub-floor refuse; 2'-3'6" floor and/or post-occupation fill; 3 1/2-5" fill from burned second story. Dimensions: N - 9'5" S - 10'7" E - 18'3"
Room 4 Features: 3 sub-floor storage vessels. Artifacts: Part of plain red bowl, 2 large plain storage vessels, obsidian knife, large obsidian nodule, metate, 7 manos, double blade axe, column of <u>Busycon</u> shell. Burials: 1 sub-floor.	

APPENDIX I

Basic Room Data

Room 6 (continued)

Notes: W - 14'1"
2 story room; 12
cement bags of sherds
removed from room
(greatest number at
east side where second
story roof fell and in
northwest corner);
fire occurred after
abandonment.

Room 7

Features: Hearth, 2 post holes,
sealed doorway.
Burials: 1 sub-floor in slab-
lined crypt; 2 sub-
floor double burials
(4 individuals); 4
sub-floor single
burials.
Fill: No sub-floor refuse;
some roof and post-
occupation fill (no
depth given).
Dimensions: N - 8'1"
S - 9'1"
E - 17'3"
W - 16'11"
Notes: Burned roof material.

Room 8

Features: Hearth, central floor
depression, 2 post
holes.
Burials: 1 in trash prior to
building room; 1 sub-
floor.
Fill: No floor fill; at
least 3' sub-floor
refuse; unmeasured
amount of roof fill.
Dimensions: N - 11'3"
S,a - 6'10"; b - 4'6"
E - 25'3"
W,a - 19'0"; b - 2'3"
(approximately)
Notes: Burned roof material.

Room 9

Artifacts: 4 large storage ves-
sels, 1 small storage
vessel.
Burials: 2 sub-floor (data
lost); 5 sub-floor.
Fill: 5'3" fill under north
wall; no floor fill;
1/2-6" roof fill;
possibly about 6'6"
post-occupation fill.

Room 9 (continued)

Dimensions: N - 7'0"
S - 6'10"
E - 13'10"
W - 13'9"
Notes: Matting; burned roof
material; cache of
beans.

Room 10

Artifacts: 3 manos, pestle, 2
trough metate frag-
ments, few dozen
sherds, 3 bone awls.
Fill: Possible sub-floor
fill (no depth
given); some floor
fill (organic; no
depth given).
Dimensions: N - 6'10"
S - 11'9"
E - 21'4"
W - 21'10"
Notes: "Room 10 was defin-
itely a room, but it
is probable that it
was abandoned some-
time during the
general occupation of
the pueblo."

Room 11

No field notes.
Dimensions: N - 17'8"
S,a - 12'10"; b - 4'3"
E,a - 16'3"; b - 10'6"
W - 22'1"

Room 12

Artifacts: Shallow trough metate,
large metate, 7 manos;
no artifacts on
lowest floor level.
Burials: 1 sub-floor.
Fill: No sub-floor refuse on
west side of room; no
depth given for sub-
floor deposit on east
side; 3-4" fill from
burned second story;
about 1'9"-4" post-
occupation fill.
Dimensions: N - 7'3"
S - 8'8"
E - 8'7"
W - 9'1"
Notes: 2 story room; second
story burned, but not
first; 1" ledge in
center of first story
floor; low ceiling;

APPENDIX I

Basic Room Data

Room 12 (continued)

probably used as storage room at abandonment, but living room at one time.

Room 13

Features: Mid-floor depression (not a typical one).
 Artifacts: Flagstaff B/W sherd, 3 manos, bone awl, prayer stick holder, turquoise pendant (from test pit in northeast corner).
 Burials: 1 sub-floor or in trash prior to building room (pelvis and leg bones of child from test pit in northeast corner).
 Fill: At least 4' sub-floor refuse; at least 3" roof fill; 3' post-occupation fill(?).
 Dimensions: N - 6'6"
 S - 7'7"
 E - 9'6"
 W - 10'3"
 Notes: Burned roof material; Room 13 probably rests on an unexcavated room.

GROUP II

Room 1

No field notes.
 Burials: At least 11 in post-occupation fill.
 Fill: 8'8"-9'10" post-occupation fill.
 Dimensions: N - 13'4"
 S - 13'10"
 E - 24'10"
 W - 25'4" (approximately; wall no longer present)

Room 2

No field notes.
 Burials: At least 4 in post-occupation fill.
 Fill: 9-10' post-occupation fill.
 Dimensions: N - 7'8"
 S - 5'4"
 E - 18'0"
 W - 18'4" (approximately; wall no longer present)

Room 1 (continued)

present)

Room 3

Features: At least 2 post holes; information taken from poorly labeled map of structure - there are possibly 4 post holes (4 features indicated).
 Burials: At least 2 in post-occupation fill.
 Fill: 3'3" floor fill(?); about 1'11" post-occupation refuse(?); information taken from poorly labeled cross-section of structure.
 Dimensions: South and west walls no longer present; south, west and east dimensions cannot be determined.
 N - 20'3" (approximately)

Room 4

Features: Hearth, 6 post holes.
 Burials: At least 2 sub-floor; 1 either sub-floor or in post-occupation fill.
 Fill: No sub-floor refuse(?); at least 1'9" post-occupation fill.
 Dimensions: North and south walls obliterated since excavation; west wall never present; measurements taken from field notes.
 N - 5'5" (so far measurable)
 S - 5'1" (so far measurable)
 E - 15'3"

Room 5

Features: Hearth, 6 post holes.
 Artifacts: Large deer horn fragment.
 Fill: At least 3-5" fill from possible burned second story.
 Dimensions: N - 10'6"
 S - 12'1"
 E - 20'6"
 W - 19'2"
 Notes: Burned roof material;

APPENDIX I

Basic Room Data

Room 5 (continued)
probably 2 stories.

GROUP III

Room 1

No field notes.

Dimensions: N - 9'10" (approximately; wall no longer present)
S - 11'6"
E - 9'10" (portion of wall destroyed)
W - 15'1"

Room 2

Features: Hearth, sub-floor storage vessel, 2 post holes, cache of obsidian and jasper flakes, niche in east wall.
Artifacts: 2 small trough metates, 23 manos, 1 large plain storage vessel, 1 circular rubbing stone, cache of obsidian and jasper flakes.
Burials: 5 sub-floor.
Fill: No sub-floor refuse; unmeasured amount of floor and/or post-occupation fill.
Dimensions: N - 10'6"
S - 11'11"
E - 16'1"
W - 17'6"
Notes: Burned in northwest corner.

Room 3

Features: Hearth, 2 post holes.
Artifacts: Basalt pestle, 3 trough metates, 2 mortars, 15 manos, 2 scrapers, rubbing(?) stone, bone awl.
Burials: 2 sub-floor.
Fill: "Floor rests on conglomerate hard-pan, except along W side, where test-holes revealed floors of Rooms 8 and 7."
Dimensions: N - 13'10"
S - 14'6"
E - 18'2"
W - 17'11"
Notes: Room 3 built over east

Room 3 (continued)
ends of Rooms 7 and 8.

Room 4

Features: Hearth, 4 post holes.
Artifacts: Calcite crystal, digging stone, projectile point, whetstone, trough metate, scraper, 8 manos, 3/4 groove axe.
Burials: 4 sub-floor; 1 grave has 2 disturbed burials and 1 intrusive burial.
Fill: About 3" burned roof fill in northeast corner.
Dimensions: N - 14'11"
S - 14'6"
E - 19'3"
W - 19'3"
Notes: Burned in northeast corner.

Room 5

Features: 2 post holes, hearth, sealed doorway in west wall, niche(?) in northwest corner.
Artifacts: Trough metate, 3/4 groove pick, 2 bone awls, 2 double notched projectile points, Olivella bead, arrow polisher(?), 5 manos, circular grooved stone.
Burials: 2 under walls.
Fill: Unmeasured amount (at least 3'-3'6" at west end) of sub-floor fill; 4-4 1/2" roof fill; 2 1/2" floor fill.
Dimensions: N - 10'6"
S - 9'4"
E - 17'6"
W - 16'8"
Notes: Remains of old wall or banquette along west wall; 2 rocks embedded in east wall possibly steps to second story.

Room 6

Features: 2 post holes, niche in east wall, possible hearth (no lining defined).

APPENDIX I
Basic Room Data

Room 6 (continued)

Artifacts: Oval sandstone slab with circular hole (mortar?), Conus tinkler, 3/4 groove maul, 2 bone awls, 33 manos, large piece of azurite-malachite, polishing pebble, quantity of specular hematite.

Burials: Fragmentary child remains on floor; 6 sub-floor.

Fill: At least 3" floor fill; no post-occupation cultural debris.

Dimensions: N - 12'0"
S - 12'9"
E - 21'9"
W - 21'6"

Room 7

Features: "No floor features located."

Fill: No sub-floor fill; 15-29" floor fill.

Dimensions: N - 5'3"
S - 5'11"
E - 7'0"
W - 7'2"

Notes: Deer or antelope skeleton and many sherds in east end, under southwest corner of Room 3; Room 3 built over east end of Room 7.

Room 8

Features: Hearth.

Artifacts: Mano, 2 Walnut(?) B/w sherds, turquoise pendant, many plain sherds.

Burials: 1 on floor; interrment made after room abandoned.

Fill: 2-6" sub-floor fill; at least 1'1"-2'6" post-occupation cultural refuse.

Dimensions: N - 4'8"
S - 5'0"
E - 12'4"
W - 12'4"

Notes: Room 3 built over east end of Room 8.

Room 9

Fill: Unmeasured amount of

Room 9 (continued)

fill above "floor".

Dimensions: N - 5'1"
S - 4'4"
E - 17'3"
W - 16'5"

Notes: Not determined to be a room; might be exterior area utilized during occupation of Room 4; definite refuse area.

Room 10

Features: Pit (function unknown) in northwest corner; "Floor very indistinct except in N central part."

Burials: 4 sub-floor.

Fill: 2"-2'8" sub-floor refuse; 3'2"-4' floor fill; 3-5" burned roof fill; 1'-3'6" post-occupation fill.

Dimensions: N - 13'8"
S - 14'0"
E - 13'9"
W - 13'0"

Notes: Burned roof material; Rooms 10 and 13 originally one room.

Room 11

Features: Hearth, 1 post hole, 2 sub-floor storage vessels.

Burials: Fragmentary infant remains beneath post hole; 4 sub-floor.

Fill: 1'8" sub-floor burned roof material; 4"-2' floor fill; 2-4" unburned roof fill; 4-7" post-occupation fill.

Dimensions: N - 9'3"
S - 9'4"
E - 18'11"
W - 19'10"

Notes: Room burned once, then reoccupied; final abandonment not caused by fire.

Room 12

Artifacts: Flagstaff(?) B/w, Tusayan(?) B/r and Kayenta polychrome sherds.

Burials: 1 outside west wall of

APPENDIX I

Basic Room Data

Room 12 (continued)

Room 5; 1 under east wall of Room 12.
 Fill: No sub-floor deposit; 8" floor fill; about 3" burned roof fill; 3'5"-6'10" post-occupation fill.
 Dimensions: N - 10'10"
 S - 3'7"
 E - 16'4"
 W,a - 10'11"; b - 6'0"
 Notes: Burned roof material.

Room 13

Features: Hearth, 1 post hole.
 Burials: 8 sub-floor; 1 on floor (interrment made after room abandoned).
 Fill: Unmeasured amount of floor fill; 4-5" burned roof fill; 18"-2' post-occupation fill.
 Dimensions: N - 13'10"
 S - 13'4"
 E - 7'9"
 W - 7'10"
 Notes: Burned roof material; Rooms 10 and 13 originally one room.

Room 14

Features: No features located.
 Burials: 8 sub-floor; 8 skulls found, but post-cranial remains of only 4 individuals.
 Fill: No sub-floor fill in north and south parts of room; 4" sub-floor fill (cultural?) along east wall.
 Dimensions: N - 13'10"
 S - 13'1"
 E - 11'10" (approximately; partition dividing Rooms 14 and 17 does not meet east wall).
 W - 12'1"

Room 15

Features: Hearth, 2 post holes.
 Artifacts: Sherd of B/w storage vessel.
 Burials: 1 sub-floor.
 Fill: Unmeasured amount of sub-floor fill; 12 1/2" floor fill; 3 1/2" burned roof fill.

Room 15 (continued)

Dimensions: N - 9'9"
 S - 8'9"
 E - 18'4"
 W - 18'9"
 Notes: Room possibly burned twice and was rebuilt after first fire.

Room 16

Features: No floor defined.
 Burials: 1 at floor(?) level; 2 sub-floor(?).
 Dimensions: N,a - 7'4"; b - 5'7"
 S - 13'5"
 E - 16'3"
 W,a - 9'3"; b - 3'10"

Room 17

Features: No features found.
 Burials: 2 at floor level; 1 sub-floor.
 Fill: 1'7" sub-floor fill (cultural?); 6" floor fill.
 Dimensions: N - 13'3"
 S - 12'9"
 E - 6'10" (approximately; partition dividing Rooms 14 and 17 does not meet east wall).
 W - 5'6"

Room 18

Features: Hearth.
 Artifacts: Many Prescott B/g sherds in fill.
 Burials: 2 above floor level.
 Fill: At least 3'6" post-occupation fill; unmeasured amount of either floor or post-occupation fill under burials.
 Dimensions: West side of room eroded away, so north, south and west dimensions are approximate.
 N - 11'6"
 S - 8'4"
 E - 20'6"
 W - 19'2"
 Notes: Impression of sub-floor storage vessel (vessel removed prior to abandonment); "Fill of room indicates use as refuse area"; room abandoned early.

APPENDIX I

Basic Room Data

GROUP IV

Room 1

Features: 2 post holes, 1 sub-floor storage vessel.
 Artifacts: 31 obsidian flakes, broken bone awl, trough metate, 5 manos, polishing pebble, charred corn cob, black spherical stone, Flagstaff(?) B/w sherd, obsidian knife fragment.
 Burials: 2 sub-floor (double burial).
 Fill: Over 1" burned roof fill.
 Dimensions: N - 9'1"
 S - 10'6"
 E - 22'6"
 W - 22'8"
 Notes: Burned roof material; pot hunter disturbance.

Room 2

Features: 1 post hole, hearth.
 Artifacts: Large jasper knife, large obsidian knife, polishing pebble, obsidian drill, 14 obsidian flakes, B/w sherd, 3/4 groove axe, 3 manos, 2 scrapers.
 Burials: 1 sub-floor.
 Fill: No sub-floor deposit; at least 1" burned roof fill.
 Dimensions: N - 10'3"
 S - 9'7"
 E - 20'0"
 W - 18'10"
 Notes: Probably burned.

Room 3

Features: No features found because of pot hunter disturbance.
 Artifacts: White shell beads (in pot hunter's dirt), 2 obsidian knives, 2 bone awls, large jasper nodule, polishing pebble, 5 Jeddito B/y sherds, scraper, handle of Jeddito ladle, 3/4 groove axe, mano, digging stone.
 Burials: 2 sub-floor (disturbed).
 Fill: At least 5" burned roof fill.
 Dimensions: N - 19'4"

Room 3 (continued)

S - 20'10"
 E - 14'8"
 W - 14'3"
 Notes: Room disturbed and partially destroyed by pot hunters; burned roof material.

Room 4

Features: Hearth, 2 post holes, mano imbedded in floor, second story doorway.
 Artifacts: From trash area outside north wall - 4 bone awls, small axe, Jeddito sherds, fragmentary B/w (Tularosa?) storage vessel; From room - 3 trough metates, large plain storage vessel, unfinished 3/4 groove axe, piece of pipe-stone, grass matting, bone awl fragment, 2 manos, 3 mano fragments, 2 axes, Jeddito ladle handle, obsidian knife, mortar, stone blade, hammerstone, rubbing stone, Turitella bead, braided yucca rope, piece of abalone shell.
 Burials: 2 sub-floor (double burial).
 Fill: 4" floor fill; 7" of fill material from second story and roof of first story.
 Dimensions: N - 21'3"
 S - 20'0"
 E - 14'1"
 W - 12'3"
 Notes: Burned; probably 2 stories.

Room 5

Features: Hearth; no post holes found.
 Artifacts: 3 bone awls, double notch projectile point, piece of striated hematite, 174 obsidian flakes, 40 flint and jasper flakes, trough metate, 3 manos, 4 obsidian knives, Jeddito sherd,

APPENDIX I

Basic Room Data

Room 5 (continued)

3/4 groove axe (in south wall).
 Burials: 4 sub-floor (2 double burials).
 Fill: 2" sub-floor fill in northwest corner.
 Dimensions: N - 22'2"
 S - 21'6"
 E - 14'3"
 W - 14'0"

Room 6

Features: 1 post hole, hearth.
 Artifacts: Double bladed axe, 2 obsidian knives, digging stone, plain storage vessel, Jed-dito sherd, rim sherd from B/g storage vessel.
 Burials: 2 sub-floor.
 Fill: Unmeasured amount of floor fill.
 Dimensions: N - 22'10"
 S - 22'11"
 E - 11'6"
 W - 10'11"

Room 7

Features: Hearth, 2 post holes, doorway.
 Artifacts: 2 Glycimeris bracelets, rubbing stone, 2 obsidian knives, 2 bone awls, 3 pieces of worked bone.
 Burials: 1 sub-floor.
 Fill: 3'6" sub-floor fill in northwest corner.
 Dimensions: N - 23'0"
 S - 23'8"
 E - 13'5"
 W - 13'8"

GROUP V

Room 1

Features: Roasting pit, 2 post holes.
 Artifacts: 5 manos, rolling (milling?) stone, smoothing stone.
 Dimensions: N - 15'2"
 S - 15'1"
 E - 18'1"
 W - 16'11"

Room 2

Features: Hearth, 2 post holes.
 Artifacts: 2 manos.

Room 2 (continued)

Dimensions: N - 13'5"
 S - 13'5"
 E - 19'2"
 W - 18'9"

Room 3

Features: Hearth, 2 post holes.
 Artifacts: Obsidian spear point.
 Dimensions: N - 10'0"
 S - 9'9"
 E - 16'6"
 W - 16'2"

Room 4

Features: Hearth, 2 post holes.
 Dimensions: N - 9'1"
 S - 8'6"
 E - 18'1"
 W - 17'8"

Room 5

Features: Hearth, 2 post holes.
 Artifacts: 4 manos.
 Burials: 11 sub-floor.
 Dimensions: N - 10'4"
 S - 12'7"
 E - 17'5"
 W - 17'11"

Room 6

Features: Hearth; no post holes found.
 Artifacts: Hammerstone, 2 manos, metate.
 Dimensions: N - 13'8"
 S - 12'4"
 E - 9'2"
 W - 8'9"

Room 7

Features: Hearth, 2 post holes, 2 sub-floor storage vessels.
 Artifacts: 7 manos, spear point.
 Burials: No description or specific location of burials, but notes say floor of Room 7 "...was pitted with burials."
 Dimensions: N - 10'5"
 S - 10'11"
 E - 15'5"
 W - 16'2"

Room 8

Features: Hearth, 2 post holes (1 auxiliary).
 Artifacts: 2 manos, pestle, metate, projectile

APPENDIX I

Basic Room Data

Room 8 (continued)

point, stone hoe.
 Dimensions: N - 14'2"
 S - 13'5" (length of
 remaining wall; south-
 west corner no longer
 present)
 E - 22'7"
 W - 18'10" (length of
 remaining wall; south-
 west corner no longer
 present)

Room 9

Features: Hearth, 2 post holes.
 Artifacts: 2 metates, 3(?) manos,
 rolling (milling?)
 stone, 3/4 groove axe.
 Dimensions: N - 10'6"
 S - 10'2"
 E - 17'8"
 W - 16'2"

Room 10

No field notes.
 Dimensions: South wall and most of
 west wall missing;
 some of east wall miss-
 ing; southern dimension
 unknown; east and west
 dimensions are for re-
 maining portions of
 walls.
 N - 9'4"
 E - 23'0"
 W - 3'2"

Room 11

Features: Hearth, 2 post holes.
 Artifacts: 9 manos, 5 rolling
 (milling?) stones,
 large milling stone,
 3/4 groove axe, hand
 axe.
 Dimensions: N - 16'1"
 S - 16'1"
 E - 20'2"
 W - 20'4"

Room 12

Features: Hearth, 4 post holes
 (2 auxiliaries).
 Artifacts: 10 manos, rolling
 (milling?) stone,
 metate, large red-
 brown storage vessel
 sherd, milling stone.
 Fill: Unmeasured amount of
 roof material.
 Dimensions: N - 12'11"
 S - 15'4"

Room 12 (continued)

E - 20'0"
 W - 20'6"

Room 13

Features: Hearth, 2 post holes.
 Artifacts: 2 metates, 7 manos,
 spear point.
 Dimensions: N - 14'7"
 S - 14'10"
 E - 19'4"
 W - 17'10"

Room 14

Features: Hearth, 2 post holes.
 Artifacts: 3 bone awls, bone
 knife (awl?), slab
 metate, 6 manos.
 Dimensions: N - 15'2"
 S - 16'4"
 E - 25'1"
 W - 23'11"

Room 15

Features: Hearth, 4 post holes
 (2 auxiliaries).
 Artifacts: 16 manos, 2 mauls,
 bone knife (awl?).
 Fill: 2' sub-floor refuse.
 Dimensions: N - 9'5"
 S - 10'10"
 E - 25'6"
 W - 25'6"

Room 16

Features: Hearth, 2 post holes,
 central floor depres-
 sion.
 Artifacts: Metate.
 Dimensions: N - 13'0"
 S - 14'10"
 E - 19'6"
 W - 20'6"
 Notes: Burned.

Room 17

Features: No features found.
 Artifacts: 2 metates, 3 manos,
 2 bone awl fragments.
 Fill: No sub-floor refuse.
 Dimensions: N - 12'9"
 S - 13'3"
 E - 15'2"
 W - 15'0"

Room 18

Features: Hearth, 2 post holes.
 Artifacts: Metate, 3 manos.
 Fill: No sub-floor refuse.
 Dimensions: N - 8'5"
 S - 8'5"

APPENDIX I

Basic Room Data

Room 18 (continued)

E - 19'0"
W - 18'0"

Room 19

Features: Hearth, 2 post holes.
Artifacts: 10 manos, 3/4 groove
axe, hammerstone.
Fill: No sub-floor refuse;
at least 4" floor fill.
Dimensions: N - 10'0"
S - 11'11"
E - 18'2"
W - 18'10"

Room 20

Features: Hearth, 2 post holes,
bench.
Artifacts: 12 manos, polisher(?),
stone storage vessel
cover, 2 milling
stones.
Dimensions: Southeast wall and
section of southwest
wall missing (also,
probably a section of
northeast wall);
measurements for
southwest and north-
east walls are for
remaining portions;
southeast wall dimen-
sion unknown.
NE - 19'5"
NW - 4'2"
SW - 5'7"
Notes: Bench used as alcove
or for storage.

Room 21

Features: No features found.
Artifacts: Metate, 7 manos.
Dimensions: N - 21'3"
S - 15'5"
E - 18'0"
W - 8'10"

Room 22

Features: Hearth, 2 post holes,
1 ladder hole, 2 loom
holes.
Artifacts: Metate, paint palette,
10 manos, 2 milling
stones, stone pot
cover, stone axe, corn
grinder(?), obsidian
projectile point.
Burials: 2 sub-floor.
Dimensions: NE - 5'3"
NW - 14'0"
SE - 13'11" (approx-

Room 22 (continued)

mately; wall no
longer present)
SW - 4'10"

Room 23

Features: Hearth, 2 post holes.
Artifacts: Metate, paint palette,
6 manos, bone awl,
3 stone axes, corn
cutter(?).
Dimensions: NE - 9'2"
NW - 14'11"
SE - 19'10"
SW - 9'0"

Room 24

Features: Hearth, 2 post holes.
Artifacts: 5 manos, 6 stone
axes, bone awl, 8
charred corn cobs,
milling stone, 4
pieces of malachite,
piece of hematite.
Burials: 7 sub-floor.
Dimensions: NE - 12'10"
NW - 12'3"
SE - 12'7"
SW - 11'10"

Room 25

Features: Hearth, 4 post holes,
rectangular depression
surrounding hearth.
Artifacts: 2 charred corn cobs,
5 manos, stone pestle.
Burials: 1 sub-floor.
Fill: 3-7 1/2" burned roof
material.
Dimensions: N - 13'10"
S - 13'11"
E - 16'2"
W - 14'11"
Notes: Burned roof material.

Room 26

Features: Hearth, 2 post holes,
raised platform along
north wall and nor-
thern section of
west wall, mineral
cache.
Artifacts: Lumps of malachite
and azurite.
Burials: 1 sub-floor (inter-
ment made before room
was built).
Fill: 5' sub-floor refuse.
Dimensions: N - 7'0"
S - 6'11"
E - 18'6"

APPENDIX I

Basic Room Data

Room 26 (continued)

Notes: W - 19'10"
Room 26, Group V,
contemporary with
Room 5 and 8, Group I.

Room 27

Features: No features found.
Artifacts: 3 stone axes, mano,
bone knife (awl?),
2 plain red storage
vessels, scraper.
Dimensions: N - 17'11"
S - 19'0"
E - 12'7"
W - 8'9"

Room 28

Artifacts: Stone axe, Prescott(?)
B/g sherd.
Burials: 4 sub-floor.
Dimensions: Room obliterated since
excavation and south-
west corner never
present; dimensions
are from field notes.
N - 12'6"
S - 5'0" (out to slope)
E - 13'6"
W - 10'0" (out to
slope)
Notes: Room 28 considerably
later than Room 32.

Room 29

Features: Hearth, 2 post holes,
storage cist, sub-
floor storage vessel.
Artifacts: Bone knife (awl?),
plain brown-red stor-
age vessel, bone awl,
2 metates, large brown
storage vessel.
Burials: 1 sub-floor.
Fill: 14 1/2" roof fill.
Dimensions: N - 7'0"
S - 8'5"
E - 18'2"
W - 17'5"

Room 30

Features: Room 30B - Hearth, 5
post holes.
Artifacts: Room 30A - Shell ring
fragment, stone grind-
er (pestle or mano?),
stone pick, small
metate, hammerstone,
fragment of clay stor-
age vessel lid, 2 bone
awls, 2 plain storage

Room 30 (continued)

vessels; Room 30B -
Arrow polisher(?).
Burials: Room 30B - 13 sub-
floor (4 burials
interred prior to
building Room 30B).
Fill: Room 30A - 3 1/2"
burned roof fill;
Room 30B - 5'10"
floor and post-
occupation fill on
west side, 0'12" sub-
floor refuse.
Dimensions: N - 12'0"
S - 8'10"
E - 16'5"
W - 16'11"
Notes: Burned roof material
from Room 30A; defin-
itely 2 stories,
probably 3; remains
of third floor be-
neath floor of Room
30B.

Room 31

Features: Room 31A - Wall across
center of room,
hearth, unsealed door-
way; Room 31B -
Hearth, 1 post hole.
Artifacts: Room 31A - 2 metates,
stone pestle, mano,
2 storage vessel
rests, 4 baskets;
field notes mention
2 storage vessels
filled with beans, but
do not mention whe-
ther or not they were
recovered.
Burials: Room 31A - 5 sub-
floor; Room 31B - 2
sub-floor.
Fill: Room 31A - Unmeasured
amount of roof fill;
Room 31B - 2'6" floor
and post-occupation
fill.
Dimensions: N - 18'8"
S - 19'1"
E - 10'3"
W - 13'7"
Notes: 2 stories.

Room 32

Features: No floor features
found.
Artifacts: Stone hoe, Conus shell.
Fill: Unmeasured amount of

APPENDIX I

Basic Room Data

Room 32 (continued)

sub-floor refuse;
burials and unmeasured
amount of refuse fill
between walls of Rooms
28 and 32.

Dimensions: Room obliterated since
excavation and west
wall never present;
dimensions are from
field notes.

N - 14'6"

S - 13'0" (as far as
traceable)

E - 9'0"

Notes: Room 32 considerably
earlier than Room 28;
2 stories.

Room 33

No field notes.

Dimensions: N - 4'6"
S - 7'3"
E - 23'3"
W - 24'3"

Notes: Probably never a room;
possibly used as a
terrace for surround-
ing rooms.

GROUP VI

Note on this unit: There are no
field notes for this group of rooms.
The only information available is that
21 burials (2 sub-floor) were from
this unit. There are no locations
given for these burials; however, as
19 of the 21 burials were presumably
interred after the rooms were aban-
doned, this area was conceivably
utilized as a refuse area during the
later occupation of the pueblo.

Room 1

Dimensions: N - 13'6"
S - 12'6"
E - 12'4"
W - 14'2"

Room 2

Dimensions: N - 15'4"
S - 12'0"
E - 19'9"
W - 23'6"

Room 3

Dimensions: N - 18'2"
S, a - 9'7"; b - 7'2"
E - 27'10"
W, a - 13'5"; b - 13'2"

Room 4

Dimensions: N - 8'1"
S - 8'5"
E - 21'4"
W - 19'10"

Room 5

Dimensions: N - 9'8"
S - 11'8"
E - 17'10"
W - 17'11"

Room 6

Dimensions: N - 7'6"
S - 9'0"
E - 11'9"
W - 12'4"

Room 7

Features: Bench in southwest
corner.

Dimensions: N - 8'0"
S - 10'4"
E - 15'10"
W - 18'8"

Room 8

Dimensions: N - 19'5"
S - 18'0"
E - 10'9"
W - 13'0"

Room 9

Dimensions: N - 12'0"
S - 12'0"
E - 10'7"
W - 10'6"

Room 10

Dimensions: N - 19'10"
S - 14'0"
E - 12'3"
W, a - 9'9"; b - 4'9"

