# Prehistoric Land Use in the Perkinsville Valley

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## ABSTRACT

Several seasons of archaeological excavation in the Perkinsville Valley, Arizona, have been carried out by the Department of Anthropology at Arizona State University. This research has produced considerable information on the little known cultural sequence in the Upper Verde Valley and has also given insight into Hohokam and Anasazi relationships in central Arizona. The results of these excavations are reviewed within the framework of prehistoric land use. Special emphasis is placed on information relating to past and present environment.

## LOCATION OF THE STUDY AREA

The Perkinsville Valley is a marked broadening of the Upper Verde River in northeastern Yavapai County, Arizona. It is bounded by parallels 34° 53' 30" and 34° 54' 30" latitude and 112° 9" 00" and 112° 14" 00" longitude. The only modern settlement within this locality is the small mining and ranching community of Perkinsville (See Figure 1).

# INTRODUCTION

Since the landmark publication Prehistoric Settlement Patterns in the Viru Valley (Willey 1953), American archaeologists have paid increasing attention to patterned spatial arrangement both within and between prehistoric settlements (Chang 1958: 299; 1962: 28; 1968: vii; Trigger 1967: 149). The current popularity of settlement archaeology can be best attributed to the fact that this concept provides a realistic descriptive framework which allows for a fuller interpretation of past human behavior. As Fitting (1969: 360) points out, "Settlement pattern studies have provided a new lens for the study of prehistoric peoples, one which can more accurately focus on changing patterns of human activity . . .". Prehistoric land utilization in the Perkinsville Valley is discussed within this conceptual framework.

Survey of the Perkinsville Valley has revealed nearly thirty major habitation sites and at least limited excavation has taken place at six. A time range from the Archaic to approximately A. D. 1425 is manifest in the survey data and excavations were conducted at sites dating from A. D. 800 to 1400. Although the complete culture sequence is of regional interest, this study is restricted to change in certain distinctive attributes of settlement patterns in the valley. Patterned correlations between placement of sites, environmental change and natural resources in the region are sought.

## SETTING

The Perkinsville Valley is considered a minor intrusion of the Upper Sonoran Life Zone into the Arizona Highlands (Fenneman 1936). The most impressive physiographic features in the vicinity are the Mogollon Rim and Colorado Plateau to the north and Woodchute Mountain in the Black Hills to the south. The eight-mile stretch between the Verde River and Woodchute Mountain is gently inclined, while the Mogollon Rim rises abruptly seven miles to the north. Rock formations in this region are of volcanic and sedimentary origin.

The climate of the valley is arid to semi-arid with a yearly average precipitation of 14.39 inches and a mean annual temperature of 67°F. Ranges in both precipitation and temperature are considerable. The maximum temperature recorded is 110°F. and the minimum is 7°F. The number of frost-free days within a single year ranges between 160 and 190 days. Yearly rainfall varies between a recorded low of 11.29 inches and a high of 18.79 inches (U.S. Weather Bureau 1965). Early spring and late summer are the two major seasons of precipitation in the region.

An extensive riparian flora including ash, cottonwood, hackberry, sycamore, cattails, and arrowweed is found on the Verde River bottom. Outside this limited riverine environment, the vegetation within the valley would be generally classified as juniper woodland and savanna. Covering seven miles the transition between the riparian flora of the Verde and the Ponderosa Pine forests of the Mogollon Rim is rapid.

## ENVIRONMENTAL ZONES AND THEIR ECONOMIC POTENTIAL

On the basis of distinctive floral assemblages, it has been possible to define four major environmental zones which would have been easily accessible to the prehistoric inhabitants of the Perkinsville Valley (See Figure 2). Each has diverse and characteristic resources which were potentially exploitable during all periods of occupation in the valley. The zones are discussed individually with an emphasis on the availability of natural resources.

Zone 1 - Riverine. The Riverine Zone consists of the Verde River and its flood plain. The Verde River, now occupying an eroded channel, flows between cut banks in fairly stable areas but meanders widely and forms extensive gravel bars near the mouth of the Perkinsville Valley. It flows throughout the year and, even in the driest periods, contains enough water for the irrigation of modern crops. About ninety acres of flood plain are currently farmed in this manner.

Since the turn of the century, the Verde has been undergoing an erosional cycle similar to that well-documented in southern Arizona (Hastings and Turner 1965). In the 1880's, the river was deep, flowed slowly, and was impeded by many beaver dams (Mearns 1904: 354-59). Except for depressions near river obstructions, the Verde is today a shallow and strongly flowing stream. Changes in the river have caused corresponding changes in the flood plain and the vegetation found there. For example, the marshes that occupied much of the flood plain fifty years ago are gone today and the now prevalent mesquite trees were formerly uncommon. As a result of the extensive marshes when the valley was first settled in the 1870's the Yavapai Indians, using simple ditch irrigation, were able to cultivate only twenty of the 125 acres on the flood plain. (Mrs. Nick Perkins: personal communication).

A variety of aquatic resources together with arable land near a permanent water supply probably made the riverine zone an intensively exploited area during all periods of occupation. Plants of important economic potential are found abundantly in the zone and include: Black walnut, netleaf hackberry, canyon grape, chenopodium, amaranth, arrowhead, and tule. Raccoons, muskrat, otter, beaver, three species of fish, and a variety of birds are known historically to have inhabited the riparian zone.

The flood plain covering approximately 125 acres, (almost ninety per cent of the flood plain is on the south side of the Verde) is bounded by the first Pleistocene bench. The soil is finely stratified alluvial deposit consisting of a mixture of unconsolidated clay, silt, sand, and gravel.

The Quaternary gravels which occur along the Verde River as both river wash and terrace deposits provide a veritable warehouse of basalt, limestone, chalcedony, chert, obsidian, and quartzite for knapping raw materials. The impressive Redwall formation which encloses the east end of the valley contains many solution caverns of sufficient size for habitation. Large deposits of red argillite similar to those near Del Rio described by Bartlett (1939: 75-78) are found in one such cavern (Arizona N: 4:29-A.S.U.). These show evidence of intensive prehistoric mining.

Zone 2- Juniper-Grassland and Savanna. Juniper-Grassland extends nearly to the slopes of Woodchute Mountain to the south but is primarily restricted to the Pleistocene benches north of the Verde River. The topsoil is a colluvial silt intermixed with a coarse-grained sand. The surface is covered with large river boulders and numerous outcrops of sandstone bedrock.

There are three definable river benches north of the Verde and two to the south. The upper benches are over 150 feet higher than the flood plain. Numerous ephemeral streams dissect this zone and are the only potential water supply. Night temperatures here average eight to ten degrees warmer than on the river bottom due to an inversion phenomenon.

Since the early 1900's, a considerable amount of erosion and undercutting has taken place in the arroyos and washes. Some of these streams have extensive alluvial fans which open onto the first and second river benches. Although the larger alluvial fans contain only five to six acres of arable land, together approximately seventy acres would be available for cultivation with dry farming techniques.

The greatest number of habitation sites in all phases are found in Juniper-Grassland Zone. They are situated on the edge of the first or second bench and within two miles of the river. Even though no water control devices such as check dams have been found in the washes, dry farming during certain periods is inferred from the patterned placement of habitation sites on higher elevations adjacent to the fans. It is interesting to note that commercial dry farming took place on the Verde terraces near Camp Verde and Cottonwood in the 1920's (Agnes 1952). Chert and jasper deposits occur in many filled solution channels in the Redwall formation on the second and third Pleistocene benches and five of these (Arizona N:4:31 (ASU); N:4:32 (ASU); N:4:33 (ASU); N:4:34 (ASU); and N:4:36 (ASU) show evidence of extensive mining in prehistoric times.

Numerous economically important plants are found growing wild in the Juniper-Grassland and Savanna zone. These include: prickly pear, cholla, salt bush, amaranth, mesquite, Rocky Mountain beeweed, yucca, and buffalo gourds. Skunks, rabbits, rodents, deer, antelope, coyote, and a variety of large birds including turkey are among the vertebrates known for this zone. The many species of snakes and lizards found here also provide another potential food source.

At higher elevations in the valley, the savanna grades into juniper woodland. Oak and, to a lesser extent, pinyon pine form minor elements within this woodland association. Economically exploitable species, characteristically interspersed near the grassland-savanna boundary, include manzanita, catclaw, mountain mahogany, apache-plume, bear grass, mesquite, greasewood, squaw berry, and cliffrose.

Zone 3- Juniper-Pinyon. In a transect of the general area, the Juniper-Pinyon zone is found only to the north of the Verde River and outside the confines of the valley. It occurs on the upper reaches of the bajada between the Pleistocene river benches and the slopes of the Mogollon Rim. Altitude varies from about 4500 feet to over 5200 feet above sea level.

The zone is dissected by a profusion of draws, many of which are deep and rugged canyons in the white limestone bedrock of the Supai formation. Aside from a few intermittent springs, there are no permanent water sources. With the significantly higher orographic rainfall here, it seems probable that some of the major drainages flowed seasonally in the past.

While fewer plant species of economic importance are found in the zone, seasonal abundance of particular species probably encouraged yearly exploitation. Juniper, pinyon, agave, common dandelion, sunflower, and yucca are among those with economic value. Mule deer, mountain lion, and black bear are the larger vertebrates characteristic of the Juniper-Pinyon zone.

Intensive survey of the zone has not yet taken place. Aside from a number of small camp sites and widely scattered lithic implements, exploratory investigations have revealed no major habitation sites. Ceramics found at camp sites indicate long periods of use as well as intermittent utilization by archaeological cultures, such as the Cohonina, not represented in the Perkinsville Valley itself.

Zone 4- Ponderosa-Pinyon. Ranging from five to ten miles from the Verde River, the Ponderosa-Pinyon zone is physiographically defined by the slopes of the Mogollon Rim. This area was likely utilized seasonally by the inhabitants of the Perkinsville Valley in order to exploit its abundant plant resources. Such plants that would have been sought after include pinyon, gooseberry, wild raspberry, common chokeberry, elder berry, dandelion, and sunflower. Historically extinct mammals characteristic of the zone include the larger mule deer, elk, and mountain sheep (Mearns 1904: 215, 337). Documented use of resources from the Ponderosa-Pinyon zone is limited to elk bone recovered from sites in the valley.

## PAST ENVIRONMENT AND SUBSISTENCE

Most students agree that there has been no major climatic change in the Southwest for the past five thousand years. However, considerable evidence has accumulated indicating that various environmental changes influenced by climatic fluctuations have occurred. These fluctuations have been interpreted as changes in average annual effective moisture values (Fitz, Smith and Stokes 1965), seasonal shifts in precipitation pattern (Dittert 1968; Schoenwetter and Dittert 1968), and increases or decreases in temperature (Schroeder 1968; Woodbury 1961).

While changes in distribution and relative abundance of many species are indicated by information from pollen and faunal analysis, studies of the modern ecology in the Perkinsville Valley reflect a general similarity between the modern and prehistoric biota. Minor climatic fluctuations and environmental shifts during the past one thousand years are inferred on the basis of data recovered from archaeological contexts in the valley. Furthermore, certain insights into the varied subsistence patterns practised by the prehistoric inhabitants of the valley are provided by this information.

Faunal Remains. In the course of excavations in the Perkinsville Valley, approximately 6000 fragmentary and complete animal bones, teeth, antlers, and freshwater shells were recovered from five sites dating from A. D. 800 to 1400. Analysis of these remains was undertaken by Dr. W. L. Minckley, Zoology Department, Arizona State University. As is customary in Southwestern sites where the extraction of bone marrow commonly occurs, most of the faunal sample (nearly 80%) were unidentifiable splinters from the limb bones of ungulates. Although actual quantitative information is not yet available, statements of relative abundance and presence/absence provide clues not only to subsistence practices but also to local environment (See Table 1).

TABLE 1.

| | N:4:1 | N:4:2 | N:4:6 | N:4:7 | N:4:12 |
|---|---|---|---|---|---|
| Woodrat (Nestoma sp.) Zones 1, 2, 3, 4 | X | X | X | X | X |
| Striped Skunk (Mephitis mephitis) Zones 2, 3, 4 | X | | | | |
| Beaver (Castor Canadensis) Zone 1 | X | X | | X | |
| Elk (Cervus canadensis) Zone 4 | X | | X | | |
| Porcupine (Erethizontidae dorsetum) Zones 3, 4 | X | | | X | |
| Rock Squirrel (Cetellus variegatus) Zones 1, 2, 3, 4 | X | X | X | X | X |
| Mule Deer (Odocoleus hemionus) Zones 2, 3, 4 | X | X | X | X | X |
| Desert Cottontail (Sylvilagus auduboni) Zones 2, 3 | X | X | X | X | X |
| Pocket Gopher (Thomomys bottae) Zones 1, 2, 3, 4 | X | X | | | |
| Black-Tailed Jackrabbit (Lepus californicus) Zones 2, 3, 4 | X | X | X | X | X |
| Racoon (Procyon lator) Zone 1 | X | X | | X | |
| Prong-Horned Antelope (Antilocapra americana) Zones 2, 3 | X | X | | | |
| Long-Tailed Weasel (Mustela frenata) Zone 1 | X | | | | |
| Mountain Lion (Felis concolor) Zones 3, 4 | X | | | X | X |

The prehistoric inhabitants of the Perkinsville Valley were hunters of deer, rabbits, squirrels and small rodents throughout the occupation sequence. These animals, with the addition of minor increments of mountain lion and elk, account for the total assemblage of identifiable remains recovered from earlier contexts (ca. A. D. 800 to 1200).

A diversity of small game including raccoon, pocket gopher, weasel, porcupine, beaver and striped skunk supplemented continued utilization of deer, rabbit, and squirrel during later phases. One of the most striking changes in the faunal sequence was an obvious increase in utilization of aquatic resources. Hundreds of fragments of fish, turtle, fresh water mussel and migratory water fowl are recorded from sites dating from A. D. 1200 to 1400. Information from earlier sites gives little indication of this kind of intensive exploitation of the riverine environment.

Fish remains from Arizona N:4:2 (Minckley and Alger 1968) and N:4:1 support an interpretation of pronounced changes in river and flood plain conditions. Three of the fish species (Pantosteus clarki, Catostomus insignis, and Gila robusta robusta) still live in the Verde River near Perkinsville and two (Xyreuchen texanus and Ptycheshellus lucius) are no longer present, suggesting probable changes in the river. The latter species are indicative of large, strongly flowing streams of extensive stands of swampy water. The recovery of large quantities of fresh water mussels (Anadonta sp.) and turtles (Kinosternon Sp.) support the argument for more swampy conditions.

Diversification of the hunting pattern and the appearance of numerous remains of aquatic animals seen in faunal record of the Perkinsville Valley fits a "faunal break" hypothesized by Thomas Mathews for the general region (personal communication). Only deer, antelope, jackrabbit, and cottontail rabbit are known from excavated sites in the Middle Verde Valley dating prior to A. D. 1200 (Breternitz 1958, 1960; Shutler 1950, 1951). However, a diversity of faunal remains similar to that found late in the Perkinsville sequence is represented in assemblages from other contemporary Middle Verde sites. These include Tuzigoot (Caywood and Spicer 1935), Montezuma Well and Swallet Cave (Thomas Mathews: personal communication). Available information is not sufficient to determine which aspects of "faunal break" are the results of environmental change and which can be attributed to variation in cultural pattern through time.

Vegetal Remains. Charred vegetal remains from open archaeological sites are scant. Small pits with caches of black walnuts (Juglans major were found in rooms at Arizona N:4:6 and N:4:7. Charred Zea Maize ha been found at Arizona N:4:2 and N:4:7 but there has been no study to determine race. Some charred, human fecal material containing seed of the prickly pear was found in the basin of a metate at Arizona N:4:6 and is believed to represent a possible instance of "second harvest" (J. A. Pinkava: personal communication). Yucca quids and twine, Zea maize, cucurbits, and black walnuts were recovered during the excavation of a dry cave (Arizona N:4:1) but analysis of this material has not yet begun.

Palynology. The first archaeological pollen analysis in the Perkinsville Valley was undertaken by Dr. James Schoenwetter upon six samples from Arizona N:4:6, N:4:2, and N:4:7. The sediments were productive of pollen, but tabulating techniques and environmental correlations of spectra developed for the Colorado Plateau proved inapplicable in the Perkinsville area. It was not possible to match the pollen data from Perkinsville with the corresponding segments of the Colorado Plateau pollen chronology (J. Schoenwetter, personal communication).

An expansion of the preliminary study by Suzanne Kitchen (n. d.) followed in which a series of samples from the modern surface of the valley were collected and analyzed to provide information on the local palynological expression of environmental variation. All the archaeological sites sampled for pollen analysis occur within the modern confines of the Juniper-Grassland and Savanna Zone: the climatic variation during the time period investigated archaeologically would likely have produced effective moisture values within the mesic and xeric extremes found in the zones. A single woodland sample, high in arboreal types, produced a spectrum unmatched in the archaeological record. Six samples from typical Juniper-Grassland and Savanna situations yielded statistically similar spectra characterized by 35 to 50 per cent Compositae and about 20 per cent Cheno-Am pollen. A sample from a locally more xeric environment in which thin soil over partially exposed bedrock resulted in reduced effective moisture availability contrasted with the other six. This sample yielded 21 percent Compositae and 55 per cent Cheno-Am pollen.

Ten more archaeological samples were tabulated and earlier counts wer

raised to a total of at least 200 grains. On the basis of these counts, a tentative outline of climatic variation through time in terms of effective moisture is advanced (See Figure 3 and Table 2).

The very high Cheno-Am values at Arizona N:4:12 and N:4:13 exceed those from the driest locals within the Juniper-Grassland and Savanna Zone today. Either effective moisture availability was more reduced during these time intervals than in the driest locals in the valley today or part of the Cheno-Am record results from cultural introduction. Even in the archaeological samples which have been interpreted as representing effective moisture conditions like present on the basis of Compositae values, Cheno-Am values run 10 to 15 per cent higher than the modern surface samples from typical juniper grassland localities. Only the samples from the Arizona N:4:17 burial exactly match modern Cheno-Am percents. Pollen-bearing plant parts of economic value would less likely have been introduced into a grave context than house floors or midden deposits. Furthermore, when Cheno-Am frequencies were dropped to the 55% value of modern xeric locals, and other percentages recomputed, the archaeological spectra with high Cheno-Am values gave results similar to the modern surface. Therefore, although Arizona N:4:12 and N:4:13 yield spectra indicative of dry conditions, part of their high Cheno-Am values are likely to be the result of economic introduction.

Other potential economic types that are so rare in surface spectra as to imply cultural introduction are Cleome (beeweed) at Arizona N:4:6 and N:4:12, Sphaeralcea (globe mallow) at N:4:6, Liliaceae at N:4:6, N:4:7 and N:4:12, Platyopuntia (prickly pear) at N:4:17, Agave at N:4:6 and Leguminosae at N:4:6 and N:4:7. All sites from which samples were analyzed yielded pollen of Zea.

TABLE 2.

| Site | Time Range | No. of Samples | Effective Moisture Value |
|---|---|---|---|
| N:4:12 | A. D. 800-900 | 4 | Drier-than-present. |
| N:4:13 | A. D. 1000-1075 | 2 | Drier-than-present. |
| N:4:17 | A. D. 1050-1125 | 2 | Slightly drier than present? |
| N:4:6 | A. D. 1190-1210 | 7 | Like present. |
| N:4:7 | A. D. 1200-1250 | 1 | Like present? |

## SETTLEMENT PATTERN

The purpose of this segment of the paper is to present a descriptive summary of the settlement pattern sequence in the Perkinsville Valley. A temporal sequence has been developed within the operational structure of the phase concept as it is defined by Willey and Phillips (1958: 22-24). Two kinds of criteria were used to gauge culture change and set up the phase sequence: (1) changes in artifact styles, such as decorative motifs in ceramic design; and (2) economic or adaptive changes as seen through such traits as habitation location and subsistence pattern. Each phase is characterized by a different complex of stylistic and adaptive traits. Because of the high correlation between the introduction of new stylistic traits and new subsistence patterns, it is suggested that such changes may be functionally interrelated.

Although cross-dating with ceramic types of known age has been the primary mechanism for dating habitation sites, tree ring dates and lithic typology have played important roles in individual instances. By using the ceramic groups outlined by Colton (1946:20; 1953: 66-67) and dating revisions for individual pottery types suggested by Breternitz (1966), it has been possible to place all ceramic-bearing sites within an absolute time sequence.

Discussion of each phase in terms of settlement patterns has involved a limited description of local culture history. An effort has been made to include as much detail as possible concerning settlement plan, house form, community spacing, and environmental relationships. Figures 4 and 5 summarize sequential change in settlement plan and site location.

Prepottery Sites - prior to A. D. 800. Little is known of this time period and only more work can permit sufficient description of trait

complexes and cultural affiliations to set up phases for the earliest remains in the valley. Lithic debris in Quaternary terrace gravels described as Tolchaco by Bartlett (1942) have been interpreted in the Little Colorado Valley as suggestive of an early period of occupation. However similar remains in such gravels in the Perkinsville Valley are not believed to represent any great antiquity on the basis of occasional association with ceramics and evidence that the gravels were lithic raw material sources during ceramic periods. A similar association with later quarrying activities has been advanced for other terrace lithic remains including the socalled Tolchaco industry (i. e., Lindsay 1969; Sharrock 1966).

Five sites in the valley have been assigned to the Archaic period on the basis of an inferred hunting and gathering subsistence pattern and typological similarities to preceramic complexes in adjacent regions. Surface remains are scant and sites appear to have been only temporary camps. Diagnostic artifacts include Cochise, San Jose, and Amargosa-style projectile points, faceted one-handed manos, basin metates and a variety of flake scrapers. Although implements from the Perkinsville sites resemble certain artifacts from the Dry Creek site (Shutler 1950: 19) and Calkins Ranch (Breternitz 1958: 12-21) in the Middle Verde Valley, there is insufficient evidence to suggest a necessary temporal correlation.

Aside from an extensive deposit of Archaic remains in a test trench in the talus slope at Arizona N:4:1, all lithic sites are known only from surface remains. The sites located thus far are situated on the highest Pleistocene bench above the Verde River.

No ceramics with local affinities dating prior to A. D. 800 have been found in the valley but excavations at Arizona N:4:12 (ASU) produced a number of Pioneer Hohokam wares (Vahki Red, Sweetwater Red-on-gray and Snaketown Red-on-gray) in the fill of later houses. As extensive trenching at the site revealed no other indication of a Pioneer component and such ceramics are not found elsewhere in the valley, an hypothesis of an early Hohokam occupation here would be weak.

Phase 1 - A. D. 800 to 1000. Chronological placement of three sites is based on ceramics conforming to Colton's (1953: 66) Group 4 and Hohokam pottery (Santa Cruz Red-on-buff). Although temporally

equivalent to both the Cloverleaf phase and the earlier portions of the Camp Verde Phase (Breternitz 1960: 22-24), this phase shows little cultural relationship to those defined for the Middle Verde Valley.

Excavation of habitation units dating to Phase 1 has taken place at only one site (Arizona N;4:12). The site is situated on the first Pleistocene bench and over-looks the broadest section of the flood plain. The remnants of several sections of prehistoric irrigation canals are located on the flood plain below and are apparently associated with the site. On the basis of extensive trenching, it is estimated that the number of pit houses may be close to 100. Five were excavated. Most of the houses were situated close to the edge of the first river bench and seem to be oriented and spaced in a random manner (Fish n. d. )

Two major varieties of house types were found. One shows many affinities to comparably dated Sinagua pit houses (Colton 1946). The other is a type of house-in-a-pit which characterizes the Santa Cruz and Sacaton Phases of the Hohokam (Gladwin et al. 1937).

The artifact inventory from the site indicates that peoples of two traditional archaeological cultures--the Hohokam and the Northern Sinagua--were occupants of the same village. Kana-a Black-on-white and Santa Cruz Red-on-buff account for almost half of the decorated pottery and spectographic analysis of sherds indicates that most of them were locally made (Robert Dickie, personal communication). As with ceramics and house units, other artifacts including figurines, projectile points, and ornaments indicate cultural affinities with both the north and south. Large numbers of red argillite ornaments and specialized areas of production of these items within particular house units suggest that availability of raw material with trading potential was a factor in drawing people from both desert and plateau.

Ceramics similar to those found at Arizona N:4:12 come from the talus trench at N:4:1 but unfortunately these are in a mixed association with later wares. Another site (Arizona N:4:21) dating to Phase 1 apparently resembles N:4:12. It covers about two acres on the first Pleistocene bench and the lack of surface architecture indicates that it is a large pit house village. Ceramics indicate contemporary Northem Sinagua and Hohokam occupation here as well.

Phase 2 - A. D. 1000 to 1125. Sites are more numerous during the next 125 years, with a total of seven major habitation localities surveyed. Sites are on both sides of the Verde and five of them are situated on the first Pleistocene bench. The basis for dating the phase is Colton's Ceramic Group 6. The earlier Hohokam occupation does not seem to have continued into this phase in the Perkinsville Valley, although Hohokam presence is recognized in the contemporary later Camp Verde Phase in the Middle Verde Valley (Breternitz 1960: 23-24).

Two sites on the north side of the river appear to be small pit house communities situated on erosional projections of the first Pleistocene bench. There is no evidence of masonry construction in these sites and only enough ground surface is available for one or two house units. Nearly eighty per cent of the pottery at these locations is little Colorado Ware. Tusayan Black-on-red and Black Mesa Black-on-white are also significantly represented painted wares. Such high percentages of pottery types normally found in the Winslow region probably indicates minor intrusions of people from that area rather than trading activity.

Three small pit house villages of partial masonry construction are apparent on the south side of the river. Although in on instance (Arizona N:4:13) two pit house rooms appear contiguous, the villages typically contain five or six detached habitation units seemingly oriented in a random manner. Decorated pottery indicates a general contemporaneity with the sites on the north side of the river but over 90% of the surface ceramics are Alameda Brown Wares. Painted wares are represented by a very few sherds of non-local origin.

Information from Arizona N:4:17 indicates that two important traits were introduced into the Perkinsville Valley towards the end of the phase--extended burials and Verde Black-on-gray pottery (Fish, Kitchen and McWilliams n. d. ). Both the extended burial and Verde Black-on-gray pottery are characteristic elements of the Prescott Culture and mark the first evidence for contact with an area which greatly affected the later prehistory of the Perkinsville Valley.

Phase 3 - A. D. 1125 to 1300. Tree-ring dated pottery types in Colton's Ceramic Groups 6 and 7 allow chronological placement of sites in this phase. Phase 3 equates temporally and in certain aspects of material culture with the Honanki Phase of the Southern Sinagua and the Prescott Phase of the Prescott Culture (Breternitz 1960; Colton 1936).

Numerous small caves and cavities in the east end of the valley were inhabited for apparently the first time. Also the phase marks the first evidence of contiguous rooms and surface architecture. Eight pueblo sites are located on the flood plain and the first and second Pleistocene benches.

Four pueblo sites in the phase are situated on the second Pleistocene bench near alluvial fans on the first Pleistocene bench formed by the mouths of major washes. Later there is a shift of settlement location to the edge of the first Pleistocene bench and the flood plain itself.

A greater amount of data from excavation exists for Phase 3 than any other--a masonry pueblo with associated pit houses (Arizona N:4:6) and two rooms of a masonry pueblo (Arizona N:4:7) have been excavated (Fish and Wiffen n. d. ). Arizona N:4:6 is a three room pueblo with two contemporary pit houses which enclose one end of a plaza. A single tree ring specimen from this site yielded a date of A. D. 1183 (William Robinson, personal communication).

Although both pit house and pueblo structures are found at Arizona N:4:6, all excavated rooms were apparently contemporary and occupied at the time of abandonment. The importance of documenting pit house and pueblo architecture within a single community and archaeological culture in this region cannot be underestimated. Similar associations have been documented in the Kayenta and San Juan Regions (Hobler 1964; Lindsay 1969; Lindsay, Ambler, Stein, and Hobler 1968; Gumerman 1969), a unilineal model of architectual development from subsurface pit houses to above ground masonry structures has long been standard in the literature for central Arizona (Colton 1946; McGregor 1952).

More sites have been recorded for this time span in the Perkinsville Valley than any other, but the relative abundance may be attributed more to increased utilization of small caves rather than to any actual increase in population. Surface evidence indicates that settlements are slightly larger during the later portions of the phase, but this too may be an illusion of easy visibility resulting from the final dominance of masonry pueblo over pit house architecture.

Phase 4 - A. D. 1300 to 1425. Only two sites (Arizona N:4:1 and N:4:2) date to Phase 4 and these are dated on the basis of Colton's Ceramic groups 10 and 11. The presence of a large masonry pueblo resembling

Tuzigoot and an extensive cliff dwelling similar to Montezuma's Castle, in association with Alameda Brown Wares, indicated cultural affiliation with the better known sites of the Tuzigoot Phase in the Middle Verde Valley (Colton 1939: 46-47). A hiatus exists in the archaeological record of the Verde Valley from the end of this phase until Spanish contact with the Yavapai (Schroeder 1952: 112).

## CONCLUSIONS AND SUMMARY

Ecologically, the Perkinsville Valley is transitional between the Colorado Plateau to the north and the Sonoran Desert to the south. The valley itself is a minor intrusion of the Upper sonoran Life Zone into the Arizona Highlands. Studies of the present biota have shown a rich diversity in the flora and fauna of this district.

Four major environmental zones have been described for a north-south transect cutting the Perkinsville Valley. Each zone has a characteristic flora as well as a diverse and unique set of resources which would have been available to the prehistoric inhabitants of the valley.

Paleoenvironmental data when correlated with settlement information shows patterned change through time. Sites occupied during Phase I are located on the first Pleistocene bench. The potential for irrigation agriculture on the flood plain was probably great at this time and thus made the area appealing to Hohokam settlers. The drier-than-present conditions indicated by the pollen spectrum would decrease extensive marshes such as the ones known historically on the flood plain and make the construction of an irrigation system feasible. Occupation of the first Pleistocene bench continued through Phase 2. Pollen samples from a site early in the phase indicate drier conditions, while the record from a later one shows moisture availability approaching the modern condition.

Settlement data from the early portion of Phase 3 indicates a shift in site location from the first Pleistocene bench to the second. Sites are situated near alluvial fans which open onto the first Pleistocene bench. Interestingly, palynological data from this period indicates a corresponding shift from drier-than-present conditions to moister ones.

It is believed that site situations in the Perkinsville Valley reflect the

agricultural potential of the flood plain and the first Pleistocene bench. Sites would tend to be situated on the higher river benches under conditions like present or moister because the marshy condition of the flood plain would not lend itself to agricultural purposes. Dry farming, however, would have been possible under such conditions in alluvial fans and washes of the first river bench. Under drier conditions, canal and flood water irrigation could have been practised on the entire flood plain and the sites would be located on the first Pleistocene bench or flood plain.

Schroeder (1960) suggests a progressive shift in the Middle Verde Valley of Settlement situations to higher and higher elevations. This appears to be true for the Perkinsville valley in only the most general sort of way. Elevations of sites at particular points in time are consistent but changes in situation through time include movement to lower as well as higher elevations. The correlation of site situation, environmental change, and the availability of agricultural land offers more insight into the settlement patterns of the region than previous interpretations.

## FIGURE CAPTIONS

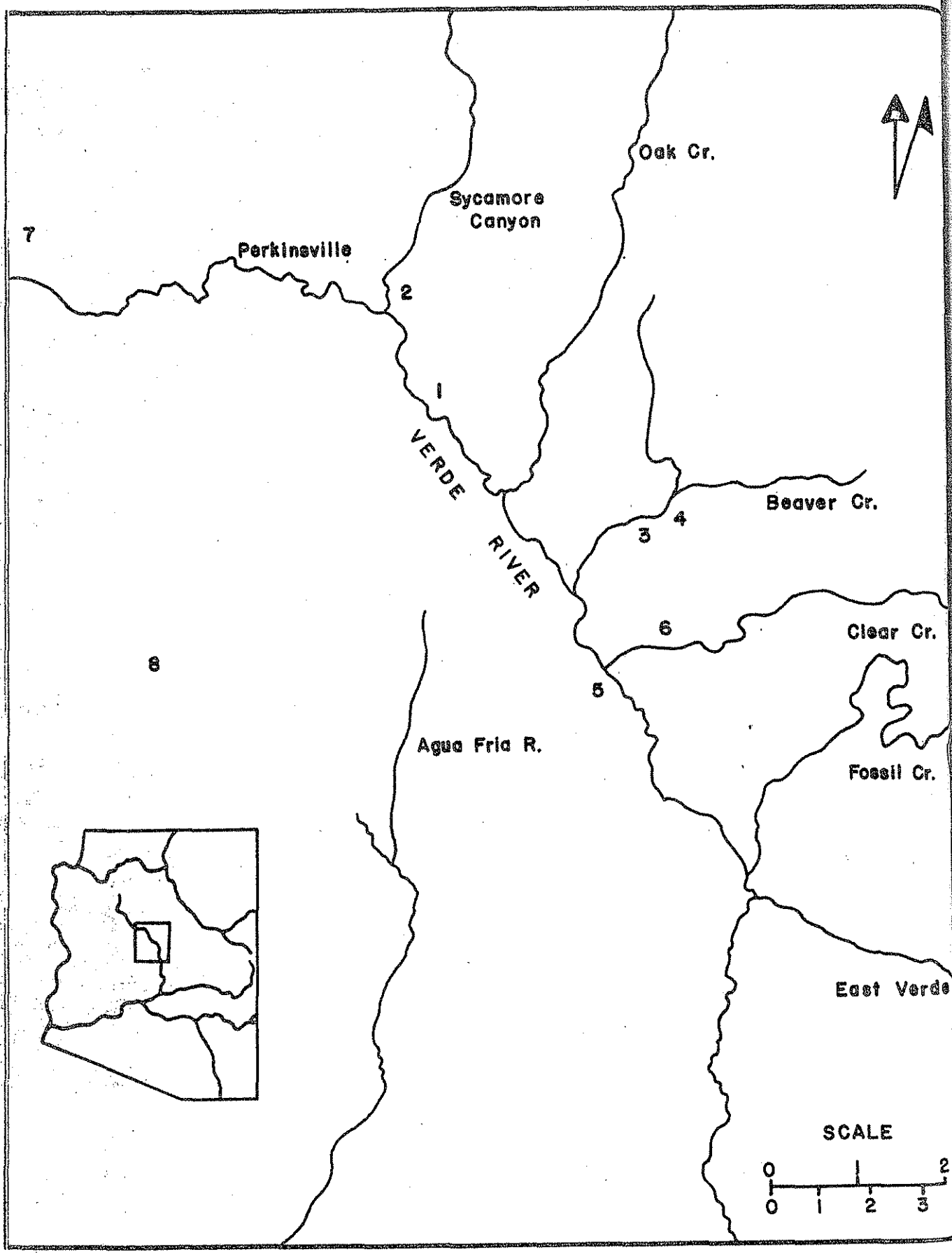
Figure 1. Map of the Upper and Middle Verde Drainage. Numbers indicate principal excavated archaeological sites in the region. 1. Tuzigoot. 2. Hidden House. 3. Montezuma Castle. 4. Montezuma Well. 5. Calkins Ranch Site. 6. NA2385. 7. King's Ranch Ruin. 8. Fitzmaurice Ruin.

Figure 2. North-south transect of the Perkinsville Valley showing major environmental zones. Zone 1 - Riverine. Zone 2 - Juniper-Grassland and Savanna. Zone 3 - Juniper-Pinyon. Zone 4 - Pinyon-Ponderosa.

Figure 3. Diagram of pollen spectra from archaeological sites in the Perkinsville Valley.

Figure 4. Contour map of the Perkinsville Valley. Numbers indicate archaeological site designations. Special Resource localities include 25, 29, 31, 32, 33, 34, and 36. All others are habitation sites.

Figure 5. Architectural sequence in the Perkinsville as known from both excavated and surface remains.


Oak Cr.
Sycamore Canyon
7
Perkinsville
2
1
VERDE RIVER
Beaver Cr.
3
4
6
Clear Cr.
8
5
Agua Fria R.
Fossil Cr.
East Verde
SCALE
0
2
0
1
2
3



F

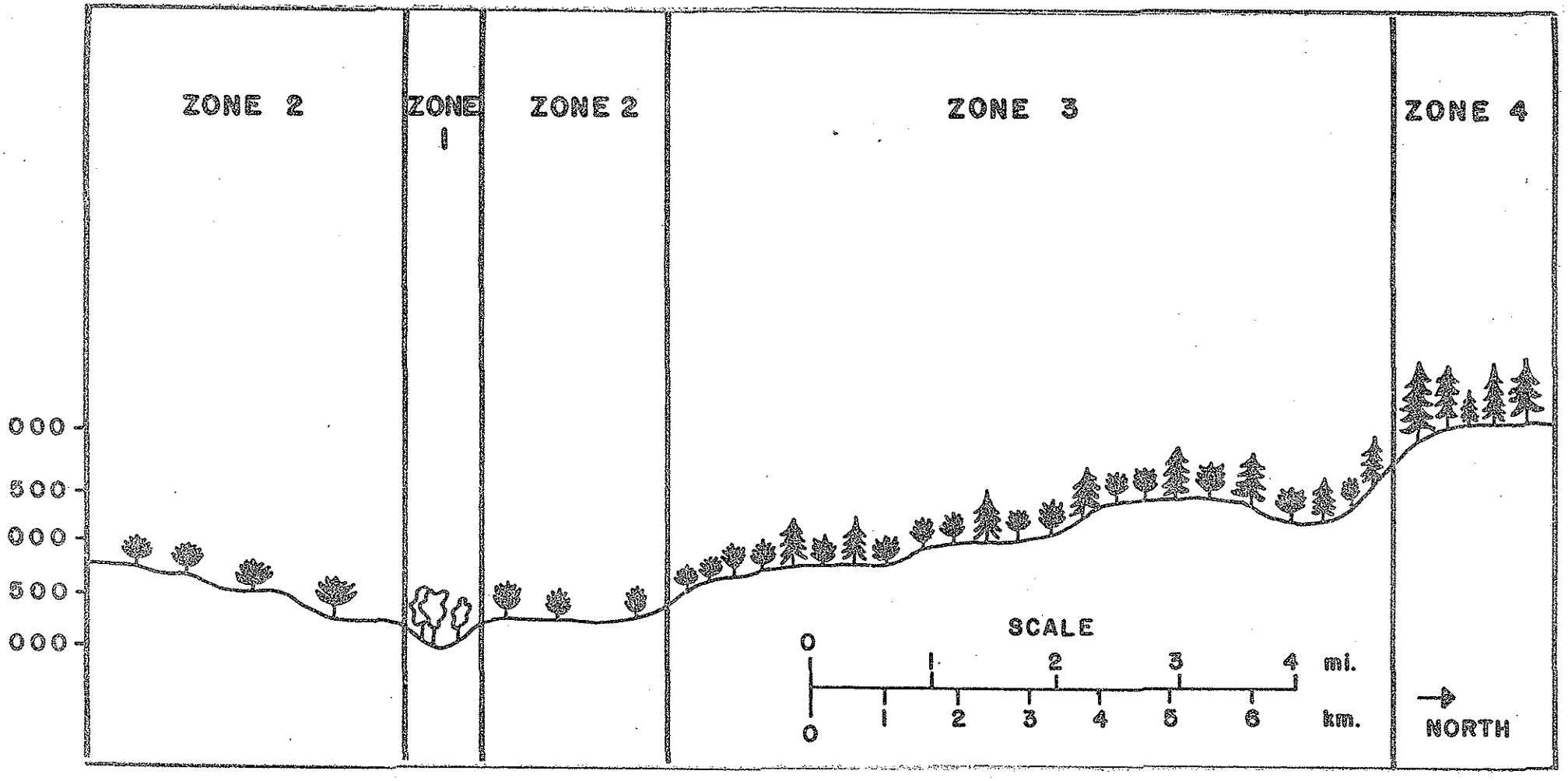
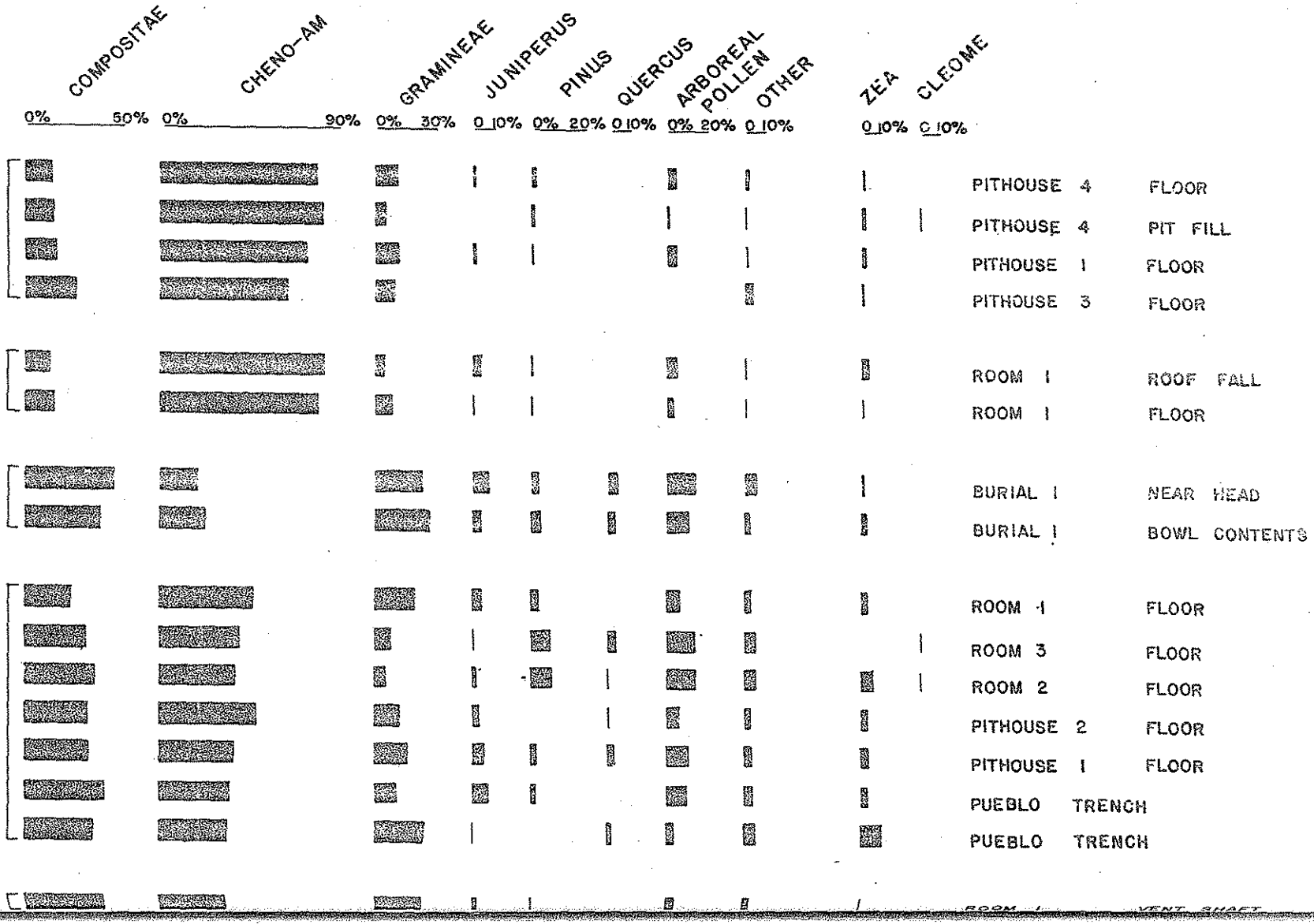

ZONE 2
ZONE 1
ZONE 2
ZONE 3
ZONE 4
000
500
000
500
000
SCALE
0
2
3
4
mi.
0
1
2
3
4
5
6
km.
NORTH

FIG-2.

# ARCHAEOLOGICAL POLLEN DIAGRAM, PERKINSVILLE VALLEY, ARIZONA



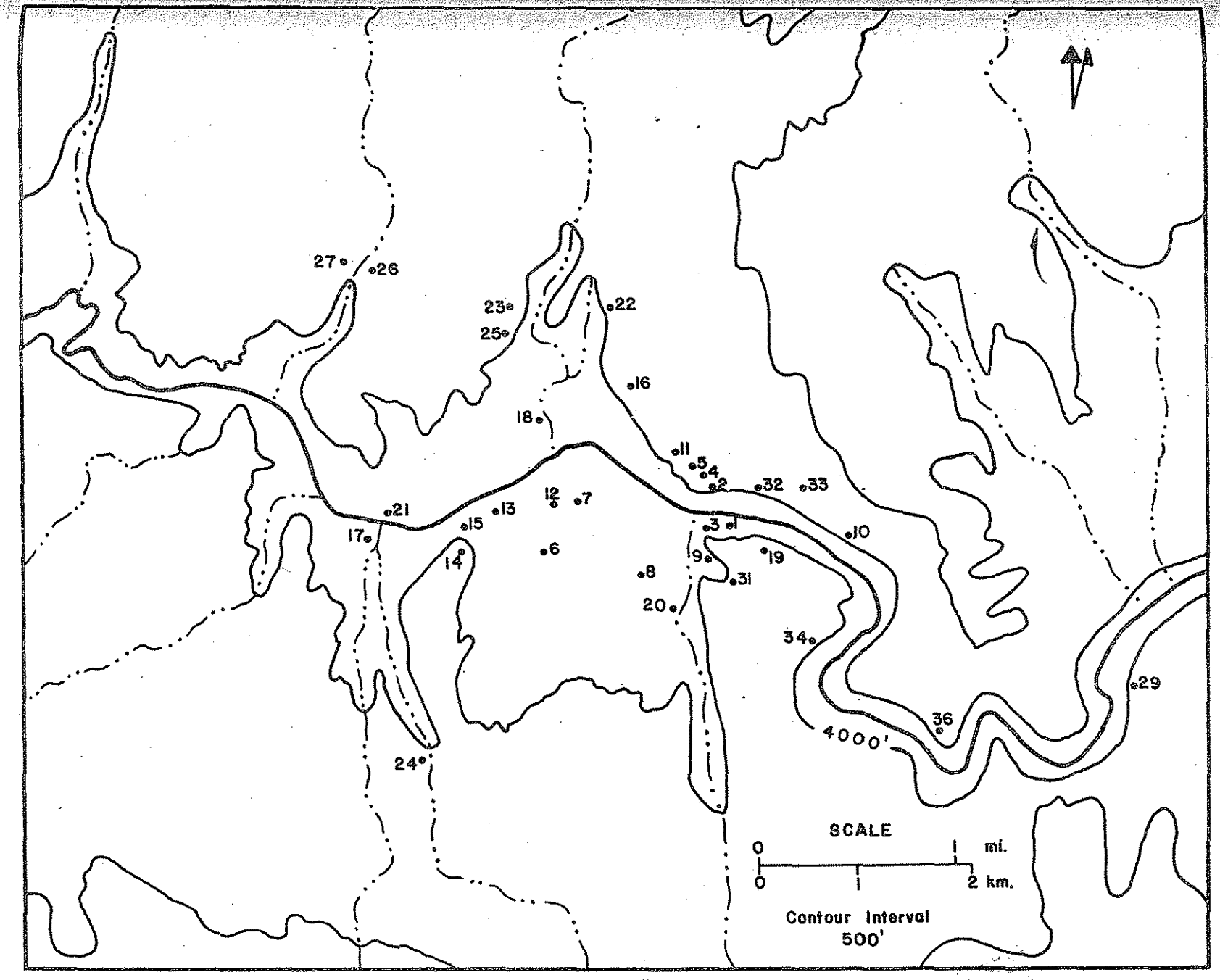
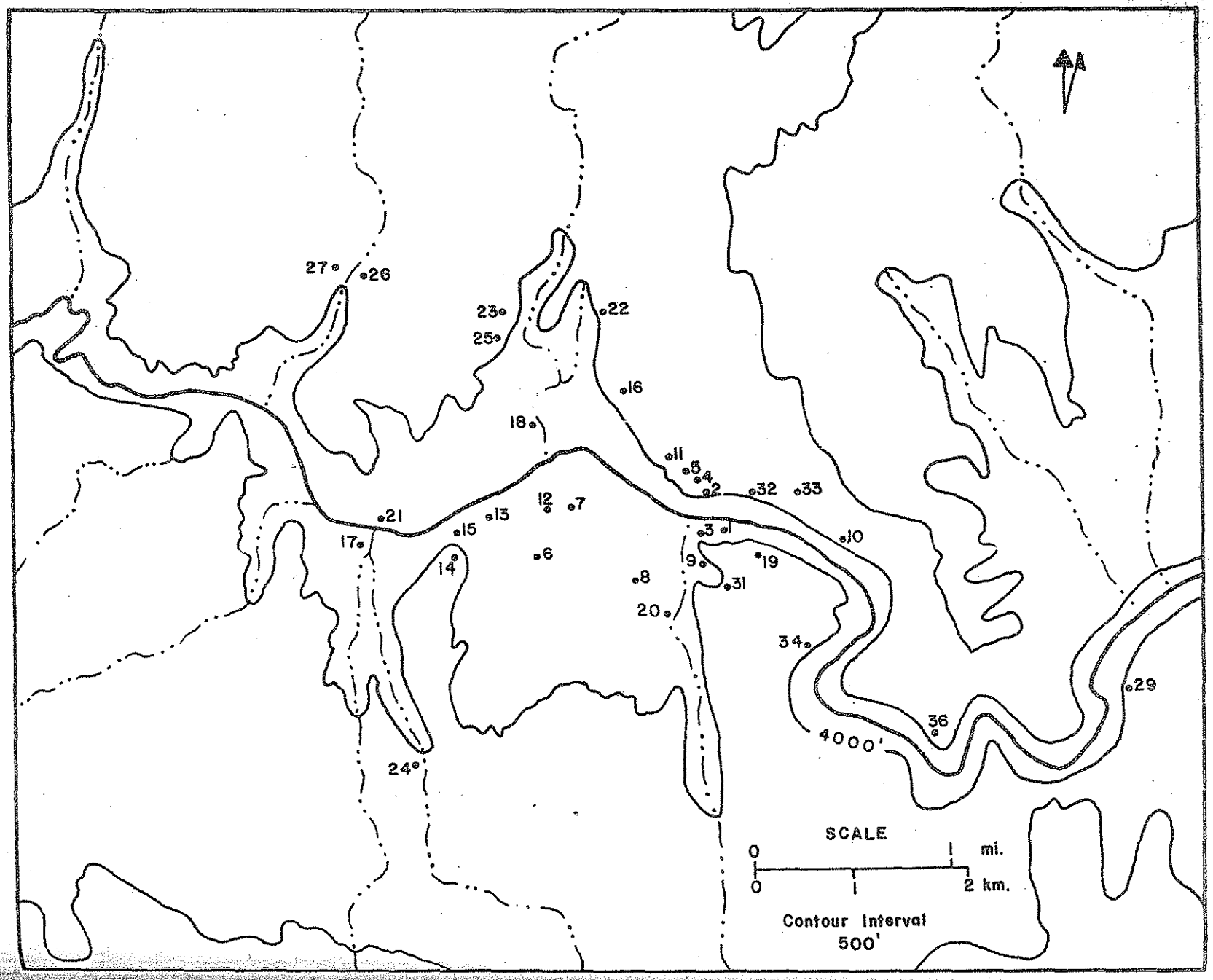
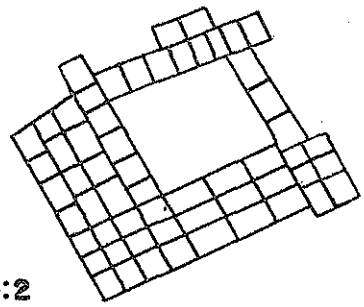

27
26
23
25
22
16
18
11
5
4
2
32
33
21
15
13
12
7
3
1
10
17
6
9
19
14
8
31
20
34
29
36
4000'
24
SCALE
0
1
mi.
0
1
2 km.
Contour Interval
500'

FIG-4.


27
26
23
25
22
16
18
11
5
4
2
32
33
12
7
21
15
13
3
1
10
17
6
9
19
14
8
31
20
34
29
36
4000'
24
SCALE
0
1 mi.
0
2 km.
Contour Interval
500'

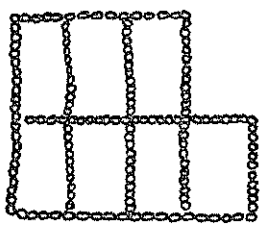
PHASE 5
AD 1425
to
AD 1300



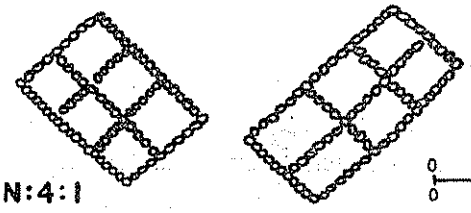
N:4:2

0 90 M.
0 50 100 FT.

PHASE 4
AD 1300
to
AD 1225



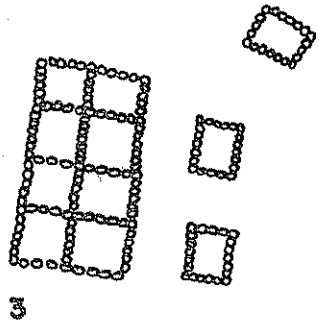
N:4:7



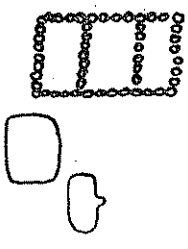
N:4:1

0 20 M.
0 30 60 FT.

PHASE 4
AD 1225
to
AD 1125



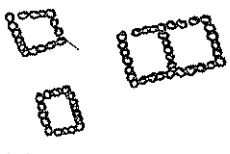
N:4:3



N:4:6

0 10 M.
0 20 40 FT.

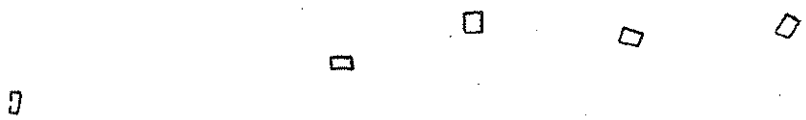
PHASE 3
AD 1125
to
AD 1000



N:4:13

0 10 M.
0 40 FT.

PHASE 2
AD 800
to
AD 1000



N:4:12

0 60 M
0 200 FT.



FIG - 5.

## ACKNOWLEDGEMENTS

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