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Foraging Societies in an Arid Environment

Coping with Change in the Greater Southwest

Bradley J. Vierra

The traditional Southwestern Culture Area was primarily defined by the spatial distribution of agricultural societies who lived among the plateaus and deserts of the region. However, a variety of foraging societies surrounded the area—including California, the Desert West, Great Basin, Rocky Mountains, and the Plains and bush country of south Texas—and foraging societies lived throughout the Southwest prior to, and in some areas contemporary with, farmers. This vast expanse provides an ecologically diverse landscape that ranges from the Sonoran Desert to the Mogollon Rim transition, from the San Luis Valley to the Chihuahuan Desert, and from mountains to river valleys. As Wirt Wills (1988) once pointed out, in a simple sense the region can be separated into the heterogeneous northern uplands and the homogeneous southern deserts. These regions offered opportunities for foraging societies to flourish while coping with a variety of challenges in these arid lands.

Much has changed over the last twenty or so years of research on foragers in the Southwest. The paper I presented at the Southwest Symposium in 1988 discussed several topics, including the Paleoindian/Archaic transition, Archaic settlement-subsistence, early agriculture, and stone tool technology (Vierra 1990). In fact, these are the same basic issues with which we are still grappling. The big difference between then and now is that we have much more information, and we are beginning to identify regional
variability about which we had previously only speculated. Yet much of this information was, and still is, limited to the Late Archaic.

**PALEOINDIAN/ARCHAIC TRANSITION**

Little has changed over the last twenty or so years in understanding the nature of the Paleoindian/Archaic transition in the American Southwest. This has been in part a result of the lack of data on this critical time period, with few sites having been excavated. Therefore, much of what we currently know is derived from observations on isolated projectile points. Nonetheless, the Southwestern paleoenvironmental data indicate a marked Middle Holocene dry period from circa 8,000 to 5,000 BP (Blinn, Hevly, and Davis 1994; Doerner 2007; Haynes 1995; Holmgren et al. 2003; Weng and Jackson 1999). One example is the drying of bogs in the Jemez Mountains from circa 8000 to 6500 cal yr BP (or ca. 7200–5700 BP) (Anderson et al. 2008). Middle Holocene drying had a significant impact on regional resource structure, which appears to be associated with the transition from Late Paleoindian to Early Archaic.

I am aware of only a single systematic study on this period of transition. A projectile point study conducted by Margaret Jodry, Steven Shackley, Michael Dilley, and myself revealed a pattern of large-scale regional movement by Late Paleoindian groups between the Plains, Rocky Mountains, and even the Great Basin into the San Luis Valley and down the Rio Grande Valley to the Jemez Mountains (Vierra et al. 2005, in press). This migration was followed by a shift to a more restricted pattern of north-south movement within the valley and adjacent areas by Early Archaic groups who used two specific point types, Jay and Bajada. These changes in regional mobility and technology presumably relate to changes in hunting strategies involving a mix of lowland grassland and upland woodland hunting. For example, Early Archaic projectile points were more durable and were probably designed for the encounter hunting of medium to small game, which increased the number of target misses. These points are similar to hunting weapons used by Rocky Mountain and Great Basin Late Paleoindian groups. In contrast, Late Paleoindian Plains groups used points that were manufactured for deep penetration, were commonly scavenged from bison carcasses at kill sites, and were rebased and reused.

Nicholas Chapin’s (2005:560) preliminary study on the adjacent areas of the Rio Puerco of the East and the San Juan Basin of northwestern New Mexico also provides productive insights into this time period. He suggests that prior to about 7000 BP Cody groups occupied the middle Rio Grande Valley, with a subsistence strategy oriented toward the east and the Plains. Data on the Early Archaic occupation of the San Juan Basin are generally lacking, but foraging groups in this area may have already been implementing a more generalized strategy similar to those groups situated across the desert scrub lands to the west. By circa 6000 BP foragers residing in both areas appear to have been implementing a similar strategy to that characterizing the regional Early Archaic.

This raises a significant question: how did the Middle Holocene drought affect Southwestern foraging groups? In particular, how do Jay materials found in the north-
ern Rio Grande Valley relate to the pre–6000 BP occupation in the San Juan Basin? Foragers residing in the San Juan Basin were related to groups that were moving across the southern Colorado Plateau from northeastern Arizona to northwestern New Mexico. Yet there is very little evidence of Jay and only limited evidence of Bajada during this time frame, with the latter possibly appearing circa 6000 BP. Jay points are most common in the San Luis Valley of southern Colorado, while Bajada points are found in the Rio Grande Valley from Taos to Santa Fe, New Mexico (Vierra et al. 2005, in press). Perhaps seasonal hunting of bison was still important to these Jay groups but not to foragers residing in the nearby San Juan Basin and subsequent Bajada groups. This simply represents a single local pattern, which is obviously surrounded by a much larger picture of hunter-gatherer land use throughout the Southwest during this dry period, including the movement of foragers out of the southern deserts (Huckell 1996; Mabry, Carpenter, and Sanchez 2008; Matson 1991; Waters 1986).

**ARCHAIC FORAGING TECHNOLOGY**

At the first Southwest Symposium I discussed several issues involving Archaic foraging technology, including projectile point typologies, comparisons between Archaic and Ceramic period lithic assemblages, and debitage analyses designed to identify temporally distinctive groups. Currently, most projectile point typologies are still poorly dated, and many researchers no longer use the traditional phase designations, preferring to segregate the Archaic into early, middle, and late periods.

Chapin’s (2005) study of long-term changes in Archaic stone tool technology stands as one of the most detailed studies conducted. He provides an excellent baseline analysis of unpublished sites excavated by the Anasazi Origins Project supplemented with recently excavated cultural resource management (CRM) sites, which date from circa 7000 to 1700 BP. The wealth of information provided is beyond what I can summarize here, but let me review several important conclusions. His analysis revealed several significant periods of cultural change:

1. As previously noted, the preliminary data indicate that prior to about 6000–7000 BP two separate foraging strategies may have been implemented in the middle Rio Grande Valley but not in the San Juan Basin.
2. By circa 6000 BP people in both areas were implementing similar generalized strategies that included an emphasis on biface production activities using non-local materials for projectile points and bifacial knives (Early Archaic).
3. Circa 4500 to 5000 BP there was a shift toward greater emphasis on exploiting plant resources and small game, which coincides with a mix of core reduction and biface production activities and increase in use of local materials (Middle Archaic).
4. Circa 2000 to 3000 BP, during the Late Archaic there was a shift toward increased biface reduction, but one primarily geared to bifacial knives and not projectile points. Eventually the trend shifted toward an increasing presence of core reduction after 2000 BP.
5. Last, the defined phases of the Oshara Tradition do not appear to coincide with the temporal changes identified in his study.
My own technological study focused on the northern Rio Grande Valley, where I was interested in linking changes in projectile point technology to the expansion of piñon-juniper woodlands and subsequent changes in Archaic foraging strategies (Vierra 2007). In this case, Early and Middle Archaic points consist of single types used to hunt a variety of game, primarily produced on biface blanks and eventually discarded when exhausted. In contrast, a variety of Late Archaic points was produced on flake blanks, presumably used to hunt specific target species, and fewer were discarded when exhausted. This seems to fit what Steven Kuhn (1989) has referred to as a “replacement when exhausted,” as opposed to a replacement “prior to failure” strategy. That is, Early-Middle Archaic groups were residentially mobile, with Middle Archaic foragers the first to systematically integrate upland piñon-juniper woodlands into their seasonal rounds. This is reflected in the use of mostly lowland dacites for Early Archaic points and upland obsidian with dacite for points made by Middle Archaic groups. Eventually, mobility during the Late Archaic was more restricted to a seasonal lowland-upland pattern, coupled with the dominant use of obsidian. The diversity of point types manufactured during the Late Archaic presumably set the stage for the eventual use of the bow and arrow by circa AD 400.

No comparable study has been done of the Archaic in other areas of the Southwest, although J. Sliva (2005) does provide a review of technological change during the Middle to Late Archaic in southern Arizona. She implies a greater degree of similarity between Middle and Late Archaic stone tool technology than that observed in the northern Southwest. Jonathan Mabry and colleagues (2008) suggest that foraging groups from the northern Southwest (e.g., San Jose/Pinto points) and northern Mexico (e.g., contracting stemmed points) moved into the region after the Middle Holocene dry period, with a similar pattern evident in southern New Mexico (Miller and Kenmotsu 2004). On the other hand, Cortaro points span the Middle-Late Archaic transition and are associated with early agriculture (Gregory 1999; Mabry 2007; Roth and Huckell 1992; Sliva 2005; Whittlesey, Hesse, and Foster 2007). Nonetheless, by circa 400 BC overall changes in core,debitage, and retouched tool assemblages appear to indicate a shift toward greater residential stability. Late Archaic assemblages have more point forms, including both large stemmed side-notched and corner-notched forms, with smaller stemmed styles. However, the smaller forms appear to be restricted to the circa 800 BC to AD 50 time frame, in contrast to the larger side- and corner-notched forms that span the entire Late Archaic period. Sliva (1999, 2005) also acknowledges the importance of this formal variability and argues that some of the smaller forms may actually represent arrow and not dart points.

VanPool’s (2003, 2006) study of the projectile point sequence at Ventana Cave provides interesting insights into this issue, arguing for the continuing use of the spear and atlatl during the post-Archaic period. As he points out, this technology probably does have an advantage over the bow and arrow while hunting large game in these open desert settings. Researchers have also described a similar situation in southeastern New Mexico, indicating continued use of dart technology and the late introduction of the bow and arrow by circa AD 900 to 1000 (Kelley 1984:113; Miller and Kenmotsu 2004). This appears to contrast with the earlier use of the bow and arrow in northern
woodland settings by circa AD 400. Thus the adoption of bow and arrow technology could be associated with the increased use of upland settings, where it was more efficient than the spear and atlatl (e.g., Yu 2006). Nonetheless, thrusting spears continued to be an important part of bow and arrow hunting (e.g., see Churchill 1993).

Other studies have included obsidian source analyses in an attempt to identify what Shackley (1996, 2005) has referred to as "procurement ranges." These ranges often covered distances over 200 km in diameter to include both lowland desert and wooded upland resource areas (e.g., Sonoran Desert and Mogollon Highlands). Upland areas were especially important for the collection of piñon nuts during Middle and Late Archaic times (also see Vierra 1994). In addition, Shackley (2005:122–125) suggests that foraging groups could have commingled during the fall piñon harvest to meet potential mates, since these upland areas may not have been defended. However, access to these upland areas does appear to have become more restricted from Middle to Late Archaic times. This pattern was also identified in the Tucson Basin (Roth 2000) and the northern Rio Grande region (Vierra 2007).

Maxine McBrinn's (2005, 2008) recent work has focused on identifying regional social networks for Late Archaic groups in southern New Mexico by studying projectile points and textiles (e.g., sandals). Her comparison of Mogollon cave sites with the Fresnal Shelter in the Sacramento Mountains indicated a similar distribution in projectile point types that she attributed to regional social networks. These networks were critical for providing information on the distribution and availability of various subsistence resources. In contrast, she identified marked differences in the production techniques used for textiles between the two areas and argued that this reflects differing marriage groups. That is, information on these techniques was presumably being taught and passed on separately between the two areas. A comparison of this study with others in the northern Southwest could be particularly fruitful. For example, R. G. Matson (1991) and Phil Geib (2002) have argued that differences in textile and knapping technology can also be used to discriminate western from eastern Basketmaker groups. Although this dichotomy may relate to the spread of early agriculture, it could also simply reflect differing marriage groups, as implied by McBrinn's argument. At any rate, current studies of organic technology are providing new insights into Archaic social organization (also see Coulam and Schroedl 2004; Geib 2000; Robins and Hays-Gilpin 2000).

EARLY AGRICULTURE

Certainly, the most significant change in our understanding of Archaic foraging societies involves the Late Archaic and early agriculture. No longer do we view these populations as simple foragers, but we see them instead as the earliest agriculturalists who lived in communities and modified the landscape to divert water into their fields.

The earliest dates for Southwestern maize have been pushed back to circa 3600 BP at the Old Corn, Las Capas, and Clearwater sites in southern Arizona and west-central New Mexico, spreading across the region by circa 3000 BP (Mabry 2007; Miljour and Huber 2005; Thiel and Mabry 2006). The current evidence indicates a rapid spread of
maize once it entered the Southwest. Archaeologists offer various explanations for the spread: the northern movement of farmers (Berry 1982; Berry and Berry 1986; Coltrain, Janetsky, and Carlyle 2007; Huckell 1990, 1995), the integration of this cultigen into hunting-and-gathering economies (Hard, Mauldin, and Raymond 1996; Minnis 1992; Vierra 2004a, 2008; Vierra and Ford 2005, 2007; Wills 1995), or a mixture of the two (Mabry 2005a; Matson 2005). Indeed, recent arguments have focused attention on the spread of maize cultivation with a possible Uto-Aztec migration from northern Mexico. Here the view is that farmers with cultigens expanded to the north, representing the western Basketmakers. In contrast, the eastern Basketmakers were indigenous groups who were less dependent on maize cultivation (Hill 2001, 2002, 2003; LeBlanc 2003, 2008; Mabry 2005a; Mabry and Doolittle 2008; Matson 2003). At any rate, the two important questions are: (1) did the entire suite of cultigens arrive at the same time, and (2) is there a roughly simultaneous appearance of cultigens with farming communities or a time lag between the initial use and dependence on these domesticates?

The answer to the first question is currently unresolved, but maize, domesticated amaranth, and squash appear to have arrived early. In contrast, beans appear to date later, arriving in the Southwest in the first few centuries BC; however, disparities in preservation and processing may be playing a significant role in the differential representation of beans (Adams and Fish 2006; Hard et al. 2008; Mabry 2005b). Indeed, the tentative identification of a possible bean from the Las Capas site in southern Arizona indicates that all of these domesticates could have arrived as a single suite (Mabry 2005a).

The second question is currently being debated, but several researchers argue that the northern expansion of farming communities explains the dispersal of maize in the western Southwest, in contrast to the later adoption of and dependence on maize in the eastern Southwest. Certainly, southern Arizona and northern Mexico have provided some of the most exciting new insights into the early agricultural period. Excavations conducted at the Tucson Basin sites, Las Playas, and Cerro Juananqueña have documented some of the earliest villages containing evidence of middens, cemeteries, and even irrigation features; however, houses have only been identified at the Tucson Basin sites (Carpenter, Sanchez, and Villalpando 2005; Hard and Roney 2005; Mabry 2005a, 2007). Whether these sites represent stable village communities, are the culmination of multiple separate occupation episodes, or both is not clear. Robert Hard and John Roney (2005:153) suggest that Cerro Juananqueña was occupied most of the year, perhaps “nine months annually.” On the other hand, D. Gregory and M. Diehl (2002) argue that some of the early agricultural villages in the Tucson Basin appear to have had multiple occupational episodes of varying duration.

Important changes in labor organization at these early settlements were certainly occurring, as reflected in Marsha Olginic’s (2005) biological study. She identified that male femora were similar to their foraging counterparts, while female femora were similar to their farming counterparts. 1 have also suggested that changes in the nature of the retouched tool, debitage, and ground stone assemblages at Cerro Juananqueña are indicative of the same difference in sexual division of labor (Vierra 2005, 2006). In addition, as argued by Wills (1991; Wills and Windes 1989), the shift from exterior to interior storage features associated with a shift from communal to household shar-
ing and commensurate changes in site organization can also provide important insights into changing social organization. Interpreting the implications of these patterns can be fairly complicated, given the importance of this transitional period.

Great regional variability in the timing, nature, and context of early agriculture existed across the Greater Southwest, as revealed by Hard and colleagues’ (1996) study. Amber Johnson’s (1997, 2008) research addressed timing and context. She argued that the transition to agriculture is more likely to have occurred in regions where hunter-gatherers had intensified on wild plants (also see Binford 2001; Mabry and Doolittle 2008) and that maize horticulture can be expected to have developed more rapidly in the less productive, resource-poor areas of the southern Southwest than in the more productive, resource-rich environments in the northern Southwest. In this case, her research predicts that the period of transition to maize agriculture should be shorter in the southern deserts than in the northern uplands because of differences in resource structure, rainfall, and length of the growing season.

Research by Diehl (1997; Diehl and Waters 2006) and myself (2004a, 2008) indicates that maize did not surpass wild plant seeds in the Late Archaic diet until circa AD 150 in the Tucson Basin and AD 600 in the northern Rio Grande Valley. Fremont sites containing maize also increased dramatically by circa AD 600, whereas maize did not surpass wild plant foods until circa AD 1200 in the Jornada Mogollon region of southeastern New Mexico (Barlow 2006; Miller and Kenmotsu 2004). I am skeptical of maize dependence arguments based on the carbon isotope data, since wild C4 plants contributed so highly to the Late Archaic diet (e.g., Coltrain, Janetsky, and Carlyle 2007). Nonetheless, at least in the former three cases, the importance of maize agriculture is roughly coincident with the use of ceramic vessels. Diehl and Waters have even argued that “as a direct result of the improved storage properties of ceramics, the dependence on crops increased (2006:81).” This pattern needs further evaluation, but I am more cautious given that the evidence indicates that more productive varieties of maize were present during this time period and that they were stored dried on the cob (Adams 1994; Schmader 1994:156). In addition, a recent analysis of tecomates in southern Arizona indicates that they were used for a variety of functions, including cooking, storage, and serving (Heckman, Garraty, and Shenandoah 2008). Other researchers have also argued for the importance of ceramic technology for cooking, especially beans (Crown and Wills 1995; Skibo and Blinman 1999; Wilson and Blinman 1994). Finally, archaeological evidence of both beans and squash increases during this period in the northern Rio Grande; beans may have replaced cheno-ams as an important source of vegetal protein. Besides protein, beans also provide the amino acid lysine, for which maize is deficient. A similar pattern was identified in the Jornada Mogollon area (i.e., lower Rio Grande), with an increase in beans corresponding with increased maize consumption; however, as previously noted, maize did not make a significant contribution to the diet until circa AD 1200 in this area. This transition also corresponds to changes in ceramic technology (Miller and Kenmotsu 2004). Domestic beans supplemented mesquite pods as a source of both protein and lysine. Therefore, it seems likely that coincident changes in ceramic technology are partially related to the increasing consumption of beans.
Two primary perspectives have been used to explain the relationship between foraging and farming: the density dependent model (Binford 1983; Hunter-Anderson 1986) and the diet breadth model (Barlow 2002, 2006). The former model assumes that subsistence resources are exploited in proportion to the density of their occurrence within the environment. Subsistence diversification and intensification is viewed as a product of regional population packing. That is, as the size of annual foraging ranges began to shrink, the number and type of resources available to these hunter-gatherers began to diminish. Maize was added to the diet to offset seasonal shortfalls in natural resource productivity (e.g., pine nuts). In contrast, the diet breadth model predicts that resources are not added to the diet based on their own availability but rather in relation to the conditions of higher-ranked foods. Renee Barlow (2002, 2006) argued that maize cultivation could have been conducted with little investment, thereby providing a low-cost and high-return option to wild grass seed collection, a common plant exploited by Southwestern foraging groups. That is, maize was simply planted in areas with a reliable source of moisture and later collected with little effort in maintaining the fields. A unilinear scheme is implied in the density dependent model, whereas the diet breadth model assumes the potential for variability.

Research does not support the resource abundance argument assumed with the density dependent model (e.g., Vierra 1995:33–35; 2004b:134). In respect to the Southwest, R. Dello-Russo’s (1999) study identified an increase in the number of exploited plant species during periods of drought at Late Archaic sites in the middle Rio Grande Valley and not a decrease, as predicted by the resource abundance argument. On the other hand, the diet breadth model uses a cost-benefit analysis to rank species with respect to the energetic costs of search and handling in relation to the energetic content of a particular prey species (Kelly 1995:78–90; MacArthur and Pianka 1966; Stephens and Krebs 1986:17–24). Given that wild seed plants dominate the archaeobotanical record until the first few centuries AD, I wonder if early maize cultivation deserves a lower ranking until the development of more productive varieties of maize. As Mabry and Doolittle (2008; Doolittle and Mabry 2006; Mabry 2005b) have pointed out, there was presumably a great deal of diversity in cultivation techniques, varieties of maize, and the manipulation of these varieties in the prehistoric Southwest. Certainly, an early variety of chapalote was not as productive as a later variety of Fremont Dent (e.g., see Adams 1994). Nonetheless, as Hard and Roney (2005:154) suggest, whether one is arguing that maize arrived with new immigrants or was integrated into the local foraging economies, the diet breadth model provides a detailed framework within which to evaluate decisions concerning which wild and domesticated resources should be selected.

**FORAGER-FARMER RELATIONS**

Almost thirty years ago Katherine Spielmann (1982) first discussed trade relationships between foragers and farmers, involving the exchange of game (protein) for agricultural products (carbohydrates) between Plains and Pueblo groups. Today the discussion revolves around the expansion of farming communities and the eventual displacement
of foraging groups. This research indicates that coincident with a growing dependence on agriculture is an increase in fertility and a decrease in birth spacing and infant mortality, which results from changes in diet, intensive food production, and residential stability (Ammerman and Cavalli-Sforza 1984:64; Bellwood 2005:18; Binford and Chasko 1976; Ford 1984; Kakos 2003; Lee 1979:318; Renfrew 2005:8). Current arguments concerning increased population growth imply that the descendants of these early farmers may have expanded into territories already occupied by foragers. These foragers initially could have set up mutual exchange relationships while occupying nearby upland areas; however, they eventually may have been forced to adopt cultivation practices, integrated into these agricultural communities, or displaced into areas not conducive to maize agriculture.

In the northern Rio Grande, this process began with the northward expansion of farming communities by about AD 600 and the potential for forager-farmer interactions through the AD 1100s. Agriculturalists subsequently moved into these upland areas with the cultivation of more productive twelve-row maize, thereby displacing foragers from their homeland (Lakatos 2003; Vierra and Ford 2007). This displacement would have had a limiting effect on local hunter-gatherer population growth, making it more difficult for men to find mates during traditional fall foraging activities, with the possibility that some women were marrying into neighboring agricultural communities.

Another example of forager-farmer interactions may have occurred in the Phoenix Basin with the expansion of farming communities toward the Mogollon Rim. Initially, foraging groups could have coexisted with lowland agricultural communities, until these farmers eventually moved into the foothill transition zone while seasonally occupying agricultural sites linked to the lowland communities (Ciolek-Torrello 1997; Heilen 2008; Wegener et al. 2008). Robert Wegener and colleagues (2008) investigated one possible example of this in the Mogollon transition zone near Florence Junction and Superior, Arizona. Their excavations revealed the presence of at least six separate occupational episodes dating from circa 350 BC to AD 500, each with two to four houses often associated with middens and burials. Although the site was extensively sampled and appeared to have been occupied during the warm growing season (May to August), no maize was recovered from the earlier Cienega phase component, and only 2 percent of the flotation samples from the later Red Mountain phase component contained maize. A review of contemporaneous sites in the region also identified a general lack of cultigens. These data indicate later use of maize cultivation in the Phoenix Basin in contrast to the Tucson Basin and the potential for forager-farmer interactions across the region. Therefore, Wegener is currently faced with the same dilemma many archaeologists encounter: how do we discriminate between contemporaneous forager and farmer land-use strategies? This is even more critical during late prehistoric time periods when attempting to identify the archaeological signature of possible foragers (e.g., see Seymour 2009a, 2009b). In addition, the paucity of cultigens in the Phoenix Basin area raises questions concerning the expansion of farmers out of the Tucson Basin and into the Four Corners region by circa 500 BC (i.e., western Basketmakers).

Southwestern archaeological research is lacking in efforts to understand potential forager-farmer interactions and their archaeological correlates (Spielmann and Eder
1994; Vierra and Ford 2007). Nonetheless, the Four Corners region was mostly abandoned by Ancestral Pueblo groups by the fourteenth century, followed by the expansion of Athapaskan foragers into these vacated areas by the fifteenth century (Dean, Doelle, and Orcutt 1994; Towner 1996). Most of the archaeological research conducted on the Protohistoric period has focused on early Navajo or Apaches (e.g., Adams, White, and Johnson 2000; Towner 1996), with the archaeological record of indigenous groups like the Yavapai in central Arizona and the Mansos and Sumas in southern New Mexico poorly documented (Seymour 2002; Whittlesey, Deaver, and Reid 1994). In the case of the Yavapai, Shackley (2005:126) does suggest that the seasonal pattern of movement, which characterized Middle and Late Archaic groups, "was probably much like the... Yavapai hunter-gatherers" who continued this foraging lifestyle in central Arizona until historic times. Some researchers suggest that the Sumas and Mansos may represent a continuation of the local El Paso phase populations but with a greater emphasis on foraging (Beckett and Corbett 1992; Carmichael 1986). On the other hand, D. Seymour (2002) suggests, based on archaeological evidence, that Plains groups arrived in the area circa AD 1300 during the El Paso phase (i.e., Suma and Mansos), with the later arrival of Apache groups sometime during the fifteenth to seventeenth centuries.

SOUTHWESTERN HUNTER-GATHERER ARCHAEOLOGY

The New Mexico State Historic Preservation Office recently asked me to give a lecture on the effects of the National Historic Preservation Act (1966) on hunter-gatherer archaeology. The title of the lecture was "The Archaic: We Get No Respect," which certainly reflects my view on the subject. There seems little doubt that the act had a significant effect on hunter-gatherer research in the Greater Southwest. Just look at the recent excavation of Late Archaic communities in the Tucson Basin. Figure 3.1 provides data on the total number of Archaic and lithic scatter sites recorded in New Mexico during the years 1966–2005. As can be seen, there is a general linear increase in the number of Archaic sites recorded over time. These presumably represent large palimpsests that contain Archaic points. In contrast, the recording of small ephemeral lithic scatters witnessed an almost exponential increase from 1988 to 2005, indicating that they are finally receiving their due attention. In fact, these small ubiquitous lithic scatters comprise about 50 percent of the archaeological record in New Mexico. An

![3.1. Total number of Archaic and lithic scatter sites recorded in New Mexico, 1966–2005]
excellent example of this recent research is Raymond Mauldin's (1996) small site study in the Jornada Mogollon region. When taken together, data derived from the isolated hearths he recorded revealed a robust pattern in the occupation of the central Tularosa Basin during Late Archaic and early Ceramic periods from circa 3000 to 1000 BP. Even these ephemeral campsites can make a significant contribution to our understanding of hunter-gatherer land use.

Much has changed over the last twenty+ years of hunter-gatherer research in the Greater Southwest. Some say that 99 percent of human history was spent living in foraging societies. Over time, foragers were forced to live in increasingly marginal environments, a situation that has limited our view of this ancient way of life. Yet there is much diversity to be expected and much variability in the Southwestern archaeological record in need of explanation. So, after twenty years there is still much more work to be done.

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