Doctoral Dissertation Improvement Grant: The Protohistoric Tewa World: Coalescence and Identity in the Northern Rio Grande Region, New Mexico

Introduction

The village is a dynamic environment best defined as a nexus of people, materials, and ideologies. Although bounded by the built environment, it is neither static nor homogeneous but rather an aggregation of intersecting identities (Rapoport 1990). Village size, composition, and location within the larger social and physical landscape are the result of both environmental adaptations and social changes (Cordell 1984; Wilcox 1981). One important process that occurred periodically in prehistoric societies worldwide is coalescence, when populations aggregated into larger but fewer villages and adapted their social, economic, and religious systems to the restructured settlement system (Hill et al. 2004).

In the American Southwest, many studies have addressed why villages grow or shrink, populations move or nucleate, and the "push" and "pull" factors in the process of population aggregation (e.g., Axtell et al. 2002; Cordell 1984; Van West and Dean 2000). In recent years researchers have begun to investigate the often ignored aspects of the social impact on the coalescing population itself (e.g., Adams 2002; Hill et al. 2004; Neuzil 2005), although how coalescence results in changes in group identity is still relatively understudied. With this in mind, I propose to examine how group identities were transformed during the late prehistoric period coalescence in the Tewa Basin of the northern Rio Grande Valley, New Mexico. This research will contribute to the study of prehistoric village organization, emphasizing a multiscalar, multidimensional approach to understanding the social consequences of coalescence.

The proposed research will examine archaeological correlates of residential restructuring to understand village dynamics among ancestral Tewa populations during the Classic Period (AD 1325-1600). Over an approximately 250 year period the 40 large pueblos located in the Tewa Basin experienced processes of population coalescence. By the time of Spanish colonization in 1598, only six Tewa villages were occupied along the Rio Grande (Barrett 2002; Ramenofsky and Feathers 2002). Although researchers have suggested declining environmental conditions (Orcutt 1991) and competition and conflict (Wendorf 1953) as possible causes for this coalescence, few have reexamined the regional occupational sequence, the social interactions between villages, or the social consequences on the migrants themselves. I propose to examine a subset of Classic Period Tewa villages to understand the ways in which group identity manifests in the archaeological record in the context of population coalescence. I then explore how this identity was produced across three dimensions: (1) the movement of people, (2) the movement of material, and (3) the elaboration of ritual technologies.

Ethnographic and ethnohistoric research has shown that people act with and through their group identities to adapt to population coalescence. In the American Southwest this has been demonstrated by the social transformation triggered by Spanish colonization (Barrett 2002; Dozier 1960, 1961; Liebmann 2006) that culminated in the Pueblo Revolt of 1680 (Pruecel 2000). The purpose of this research is to understand how population interactions and ritual identities changed as a result of population coalescence among possibly disparate protohistoric Tewa populations, and how coalescence contributed to the formation of a historic Tewa identity encountered by the Spanish colonists in the sixteenth century.

Theoretical Approach

Dramatic residential restructuring that brings small villages together into large ones is not solely a Southwestern phenomenon; this process has been documented worldwide, generating questions regarding the factors that compel people to come together, and what social change is necessary to make these new arrangements function. The Protohistoric period (AD 1275-1600) is characterized by a decreasing number of sites, the depopulation of large areas of the Southwest, and the creation of large villages or the expansion of smaller ones in limited areas (Adams and Duff 2004). Early research on this reorganization focused on external factors such as environmental degradation (Cordell 1984) and warfare (Wilcox 1981) that could have driven populations originally living in small hamlets to live in large villages. While these external events are certainly important factors that can initially cause population aggregation, it is unlikely that these pressures were persistent enough to sustain aggregation in large villages (Adams 2002). However, long-term threats of conflict (Fowles 2004a; Plog and Solometo 1996; Solometo 2004) or fundamental social changes caused by migration (Triadan 2006) likely contributed to this change.

Reorganization in the protohistoric Greater Southwest was a complex phenomenon of which aggregation was only one component. Also included were dramatic changes in social, political, religious, and subsistence organization. Kowalewski (2001, cited and applied in Hill et al. 2004:699) lists multiple
behaviors that are associated with coalescence worldwide, including: (1) population aggregation, (2) the formation of multi-ethnic communities, (3) heightened concern for safety, (4) intensification of subsistence and exchange, (5) enhancement of community integration, (6) formation of collective leadership institutions, and (7) increased interaction at a macro-scale. Each of these processes will vary according to local histories and geographies and need not all be present (Hill et al. 2004). This “Coalescent Societies” model incorporates both traditional causes of population aggregation and internal factors of social consequence. The most robust and testable aspect of the Coalescent Societies model is its emphasis on interaction (e.g., the movement of people, materials, and ideas).

With coalescence, populations may alter their religious organization (Adams 1991), socio-political organization and leadership structure (Adams 2002; Graves and Spielmann 2000; Potter and Perry 2000), and group identity (Graves 2004; Mills 2006; Neuzil 2005). Although there are examples in the Southwest of coalescent societies disbanding into smaller hamlets (Nelson 1999), the reorganization of smaller villages into larger villages was a more common pattern that persisted into the historic period. By focusing on changes within these populations, researchers have begun to investigate the social consequences of village coalescence. One of these consequences is the creation of new group identities. Identity as used in this proposal is defined as “the ways in which individuals and collectives are distinguished in their social relations from other individuals and collectives” (Jenkins 1996:4). It is based on relativity: a group cannot have an identity without a comparison to another group of individuals. Recent research shows that identity was expressed at multiple scales (Jenkins 1996), from the individual to the nation. Identity itself is a fluid and situational construct (Barth 1969), and individuals have agency to change, alter, or construct new identities in response to societal pressures or historical contingencies (Gonzales, ed. 1989; Shennan, ed. 1989).

The archaeology of identity has embraced this multi-scalar approach (Duff 2002; Jones 1997; Meskell 2002) as inherently important in understanding how populations interacted and organized themselves in the past. Traditional debates of social and political organization (McGuire and Saitta 1996) and complexity (Lekson 2006) have tended to ignore multiple pathways to leadership (Mills 2000) or the social differences of identity within and between populations (Duff 2002). By understanding how populations viewed and expressed themselves via material culture, the fluid and mutable yet important distinctions of identity allow for a clearer understanding of how human social networks, rather than preconceived political and social systems, were organized in prehistory. Although social boundaries have been notoriously difficult to delineate (e.g. papers in Stark, ed. 1998), using a multi-scalar approach to understand identity such as presented by Duff (2002) creates quantifiable tests for social boundedness. Following Duff, this project focuses on “group identity” which examines different markers (social, economic, and religious) of group membership traditionally but erroneously termed ethnicity that encompasses multiple spatial scales (the village, the inter-village “cluster,” and the region).

I will focus on group identity not only as a multi-scalar phenomenon but also as a multi-dimensional construct. Renewed interest in critical geography (Lefebvre 1991) and recent research in cultural anthropology has identified multiple measurable dimensions of how identity is manifested across space and time: the movement of people, the movement of materials, and the elaboration of ritual technologies (Hudson 2000). Each of these dimensions has behavioral and archaeological correlates which are indicative of how group identity is created and changes within and between village settlements.

Archaeological Attributes of a Multiscale, Multidimensional Coalescence Model

While pan-Puebloan social changes occurred during the Protohistoric period, which is evident by population coalescence at a regional scale (Hegmon 1989), these changes also happened at the sub-regional level within and between villages. Inter-village identity differentiation has been demonstrated by Graves (2004) in the Jumanos Pueblo cluster in the southern Rio Grande region, and in the Silver Creek area in east-central Arizona (Kaldahl et al. 2004) using attributes of ceramic style and village interaction.

To create archaeological expectations for how coalescent societies are transformed at different social levels, I have linked the majority of Kowalewski’s coalescent behavioral principles to the three dimensions of group identity with material correlates described above: the movement of people, the production and distribution of materials, and the elaboration of ritual technologies (Table 1). Also included in this table are examples and references that illustrate each coalescent principle.

The Movement of People. The movement of people is important in two respects: 1) residential movement is indicative of social relationships between villages (Triadan 1997; Zedeño 1994, 1998); and 2) increased population densities alter the intensity and frequency of interactions among people in a
village (Eckert 2003; Glassow 1977) and contribute to the creation of new group identities (Graves 2004; Mills 2006). The first point has been successfully demonstrated in the archaeology of migration (Anthony 1990; Clark 2001; Lyons 2003; Neuzil 2005) where it is highly unlikely that immigrating populations are not familiar with the inhabitants of the host village, although they may not share a group identity. For non-migrating coalescence it has also been established that related individuals are more likely to nucleate (Adams 2002) possibly based on the alleviation of actual or perceived strife (Fowles 2004a).

The second point concerning increasing population size has been illustrated using architectural and ceramic data. Neuzil (2005) demonstrated that based on the size of the immigrant population, identity could either be maintained or transformed, and members of the founding village population often remained in the primary positions of power (Adams 2002; Haury 1958). Understanding population movement and its effect on site size is necessary for evaluating the resulting changes in village identities.

The Movement of Materials. The production and distribution of material culture, especially ceramics, is significant for the study of group identity for a number of reasons. Ceramic circulation between villages is indicative of social interactions (Habicht-Mauche 1993; Spielmann 1994; Zedeño 1994) that provide the basis for archaeological reconstruction of the formation and scale of regional Pueblo identities (Duff 2004). Ceramic exchange does not necessarily act as a proxy for a shared group identity, but combined with other lines of evidence (histories of population mobility and shared ritual landscapes) it can represent shared networks of interaction that are pathways for migration. In addition, depending on their use, these ceramics may also provide material evidence for shared ideologies (Crown 1994).

Differences in the intensity and scale of long-distance exchange and the presence of non-local ceramics may signify differential relationships between villages, leading to potential village hierarchies (Blanton et al. 1996) and possible changes in group identity. This has been demonstrated in the Jumanos Pueblos by non-uniform distributions of imported ceramics exhibited between villages in close proximity, illustrating differences in power and prestige between villages (Graves 2004).

The Elaboration of Ritual Technologies. Elaboration of ritual technologies at the village scale indicate social and religious transformation. Much of the literature on ritual architecture in the Greater Southwest concerns ritual serving as a primary function of integration in coalescing populations, binding together disparate people and preventing factionalization (Adams 1991; Hegmon 1989). In the Coalescent Societies model, village integration is a key behavioral component. There is little question that the use of plaza architecture in Protohistoric period pueblos increased with dramatic population nucleation, as did the adoption of overarching ritual such as the Katsina religion (Adams 1991) or a dual-division moiety cosmology (Anshuetz 1998). Recently, however, researchers have started to rethink the use of ritual architecture as indicative of a more complex social phenomenon. While ritual served an important integrative function in some coalescing villages, social integration is only one possible cause for the elaboration of ritual technology. With religious elaboration there comes the possibility of disintegration, as suggested by Fowles (2004b) for the Northern Tiwa and Kaldahl et al. (2004) for the Western Pueblos. Adams (2002) examines power relationships amongst Ancestral Hopi villages and argues that changing numbers and the layout of kivas and plazas reflect both a shared communal ritual space of community integration (plazas) but also an exclusionary space reserved for only a small number of individuals who held control of social and religious power (kivas). Clearly, ritual technologies can be used to integrate villages but they can also be divisive as they are used to create power differentials (Cameron 1999; Fowles 2004a; Plog and Solemeto 1996). In either case, the elaboration of ritual technologies plays an important role in creating or maintaining suprahousehold group identities.

In the proposed research I will specifically examine the way in which village identity is created and changed in the three dimensions explicated above. Table 2 creates a set of testable hypotheses for new identity creation based upon permutations of the three measures of group identity. Understanding how behavior is socially organized during the process of coalescence will serve as a proxy for understanding consequences to group identities, and will be tested in the context of the Classic Period Tewa Basin.

The Research Context

Historical Background. The Tewa Basin is positioned along the Rio Grande, running north to south from the upper tributary reaches of the lower Rio Chama to the northern Pajarito Plateau (Figure 1). There was no significant habitation in the Basin until the Coalition Period (AD 1175-1325) when the area experienced substantial immigration, likely from the Four Corners region (Ford, Schroeder, and Peckham 1972). Site size was small (20-50 rooms) and ceramic types were widely used and produced, representing expansive social networks across the Rio Grande region (Habicht-Mauche 1993).
transition to the Classic Period is marked by a decrease in villages but an increase in both site size and population and the sub-regionalization of distinct ceramic types (Wendorf and Reed 1955).

The Classic Period is characterized by the last stage of rapid population mobility, with villages coalescing into larger but fewer settlements. Both the Rio Chama valley (Anschuetz 1998) and northern Pajarito Plateau (Orcutt 1991) showed internal population growth rather than continued immigration based on demographic models. The resulting large pueblos tended to group together in discreet “clusters” often along major drainages, which some researchers have interpreted as representing integrated polities (Wilcox 1981). However, Fowles (2004b) argues that these clusters may also be indicative of disparate competing (but culturally similar) villages reacting to external stimuli of conflict or resource stress. The question regarding the scale which group identity was practiced in the Classic Period remains unresolved, as does the level of social and ritual integration across the Tewa Basin.

By the time of Oñate’s 1602 census, continued coalescence resulted in the entire Basin population being limited to six pueblos along the Rio Grande. Although mobility was certainly constrained by Spanish occupation (Lycett 1995), accounts of earlier explorers (Schroeder and Matson 1965) and the material record (Fowles 2004b) indicate that this final coalescence occurred prior to Spanish colonization.

Ethnographic Background. Historically, the Tewa pueblos shared a cultural, linguistic, and ritual identity (Ortiz 1969) which has been documented through a century of ethnographic research illustrating Tewa conceptions of the social and ritual landscape. In Tewa religion a dual-division (moiety) system is represented by the Summer and Winter people (Ortiz 1969). Members from both moieties share in the leadership of the village. Ortiz (1969) describes this religious duality as an integrative function where multiple social groups cooperate in running society. Historically, this system was also prone to disintegration, as evident by the ritually charged population splits at Santa Clara Pueblo between 1701 and 1913 (Dozier 1966; Hill and Lange 1982:191). Although each village was an autonomous political and social entity (Parsons 1996 [1939]), the Tewa pueblos shared a unique group identity bound together by ritual and linguistic affiliation (Kroskrity 1993; Ortiz 1969).

Besides ritual structure, ethnographic research has offered historic analogies to two additional dimensions important to my project: the movement of people and the movement of materials. First, population movement was common and fluid in the past century, with large portions of a village’s population attending ceremonial rituals at other pueblos (Parsons 1996 [1939]) and exchanging both material goods and ritual knowledge (Ford 1972). Mobility was also the result of village factionalism to which the Tewa moiety system was especially prone. It can be reasonably suggested that this degree of population movement extends into prehistory because inter-village population movement is recorded in Tewa oral tradition through emergence and migration stories (Parsons 1994 [1926]).

Second, ethnographic research has identified multiple pathways for exchange that can be used as a proxy for understanding social relationships. A large amount of material exchange existed between Tewa villages due to inter-marriage, visitation, residential relocation, and ritual obligations (Ford 1972). Additionally, the Tewa villages had complex exchange relationships based on social and religious obligations with other Pueblo peoples, and also maintained trade relationships with neighboring Apache groups to the north (Ford 1972). These observations were based on behavior constrained by Euroamerican activity and I can expect to document for the past equally if not more complex circulation patterns based on social, ritual, and economic networks.

Previous Archaeological Research. Table 3 displays the current state of archaeological knowledge about the Tewa Basin viewed through the lens of the behavioral principles of the Coalescent Societies model. Some of the large pueblos have been studied with large-scale excavations (Creamer 1996; Creamer et al. 2002; Fallon and Wening 1987; Jeancon 1923; Wendorf 1953) and general surveys (Anschuetz 1998; Beal 1987; Mera 1932, 1935; Wendorf and Reed 1955). Two primary questions addressed by archaeologists are: What were the reasons for population coalescence? And, what was the nature of Tewa social interactions during the Classic Period?

Classic Period Tewa population coalescence has been attributed to degrading environmental conditions as well as to increased competition and conflict within the region (Fallon and Wening 1987; Jeancon 1923; Wendorf 1955). In the northern Rio Grande climatic conditions were generally variable and relatively poor throughout the fourteenth and fifteenth centuries, but improved through the sixteenth century (Orcutt 1991). Environmental stress appears not to have been the significant “push” factor for villages in the Rio Chama drainage to coalesce during the sixteenth century. Competition over land and resources, probably stemming from growing populations in smaller areas, has been used to explain the mass homicide in a kiva at Te’ewi (Wendorf 1953), as well as burning at multiple villages in the late
fifteenth century along the Rio Chama (Jeancon 1923). These episodes coincide with possible site abandonment, leading these researchers to conclude that either internal or external conflict was the result of residential reorganization. However, the occupational sequences of these sites remain poorly documented, as does their relationships with contemporaneous villages—data that are necessary to understand how and why villages were coalescing and the effects of this process on village populations.

Economic networks and social boundaries have posed an equally puzzling phenomenon. The Classic Period in the Tewa Basin shows a sub-regionalism in ceramic types, a pattern also observed in east-central Arizona (Duff 2002), Zuni (Huntley and Kintigh 2004), and the central (Eckert and Cordell 2004) and southern (Graves 2004) portions of the Rio Grande. Whereas potters in the rest of the Rio Grande region south of the Tewa Basin were producing glaze wares, the Tewa Basin villages continued a black-on-white pottery tradition. The division of these traditions appears geographically to correlate with the distribution of historic Pueblo ethnic and linguistic boundaries: glaze ware is associated with the Keres and Tano and biscuit ware with the Tewa (Futrell 1998; Graves and Eckert 1998; Kidder 1936; Mera 1932; Shepard 1936). The most dramatic example of this glaze-biscuit “boundary” is on the Pajarito Plateau, where northern sites have very little glaze ware in contrast to almost entirely glaze ware assemblages at sites a few miles to the south. This division of pottery types has been interpreted as differences in identity and attributed to historic linguistic and ethnic boundaries that possibly formed in the Classic Period (Futrell 1998). The Tewa Basin ceramic sequence within this black-on-white tradition includes the biscuit wares (Abiquiu Black-on-gray [1375-1450] and Bandelier Black-on-gray [1400-1550]) and the later Sankawi Black-on-cream (1550-1650). Also included in this assemblage are the utility wares Potsui‘i Incised (1550-1650) and Sepawe Washboard (1425-1600).

As a pilot project I analyzed ceramic assemblages from two sites (Tshirege and Otowi) on the northern Pajarito Plateau, which represent the southern portion of the proposed research’s study area (Duwe 2006b). Ceramic types included Biscuit Wares, Sankawi Black-on-cream, Potsui‘i Incised, and Sepawe Washboard. I interpreted the sequence of occupation at these large sites based on the frequency of pottery types combined with spatial analysis. Tshirege dates more recently and based on site size and the distribution of late-dating ceramics the population of Otowi possibly joined with that of Tshirege, a process that I expect to see in other villages as well (Figure 2). Additionally, I performed clay oxidation analysis on pottery from both sites with results that indicated wide variation in clay composition, suggesting intensive inter-village exchange toward the end of the Classic Period in the Tewa Basin.

Research Objectives

To investigate the social consequences of coalescence on group identity I will 1) construct a seriation of the Classic Period Tewa Basin Pueblos to interpret the sequence of coalescence and population movement; 2) interpret material exchange relationships between Basin sites and the larger Northern Rio Grande region; and 3) quantify the elaboration of ritual technologies (Table 5).

1) Sequence of coalescence and population movement of the Tewa Basin Pueblos. The poor chronological control of Classic Period Tewa sites has made it difficult to explore the sequence of coalescence, ceramic exchange relationships, and changes in the elaboration of ritual space associated with coalescence. Although tree-ring dates are available from portions of some sites, the primary means of resolving occupational sequences of coalescence villages must be through ceramic analysis. One of my major objectives is to construct a chronological sequence of pottery (based on ceramic types and technological attributes) that will act in concert with architectural data to place occupational events within and between villages in a temporal framework.

2) Regional and inter-Tewa Basin material exchange relationships. As noted above, Tewa Basin villagers appear to have imported only small amounts of pottery from surrounding regions in the Classic Period suggesting limited interaction with or isolation from the rest of the northern Rio Grande region. Little research has addressed these ceramic regional exchange patterns through time between Tewa villages and the surrounding region. Additionally, no studies have examined the circulation of ceramics between sites and site clusters in the study area. Because the movement of materials is essential to reconstructing the spatiality of identity, understanding ceramic provenance as well as provenience allows me to ask: Do certain villages produce and exchange pottery differently, and does this create unique social and economic relationships with other villages and the surrounding region? And, how do these relationships change through time? To answer these questions I will examine the chemical composition of pottery and local clays to investigate how ceramics were produced and circulated at multiple scales.
Elaboration of Tewa ritual technologies. The Tewa Pueblos in the Classic Period appear to have diverse patterns of ritual architecture (based on numbers of kivas and plazas, see Table 4). How did the elaboration of ritual space evolve throughout the Protohistoric period? And how did this contribute to changes in group identity? To understand the elaboration of ritual technologies, data on the types, size, number, and location of ritual architecture are required.

Methods

I will synthesize published and archival architectural and ceramic data (from both excavation and survey contexts) from the 40 Classic Period sites in the Tewa Basin to understand general trends in my research objectives. To better understand these processes between villages, village clusters, and the region I will intensively surface sample 11 sites (Figure 1, Table 4). These sites form three distinct clusters that span the entirety of the Classic Period and represent the spatial extent of the traditional Tewa area: the Rio del Oso and Rio Ojo Caliente drainages (tributaries of the Rio Chama) and the Pajarito Plateau. In contrast with some areas of the Basin (such as the Rio Santa Cruz) all locales have histories of extensive survey and moderate excavation. The proposed research entails no excavation but rather employs a synthesis of archival and published material, site surface mapping, surface collection, and analysis of previous museum collections. The museum analysis will focus on three sites from the Rio del Oso and Rio Ojo Caliente drainages that have been partially excavated and whose collections are located at the Museum of New Mexico (Howiri, Pose, and Te’ewi).

Sequence of coalescence and population movement of the Tewa Basin Pueblos. My first objective will be to understand the relative chronological sequence of coalescence in the Basin, which is necessary to understand how changes in ceramic exchange and the elaboration of ritual space correlate with population movement. This will be achieved by using ceramic and architectural data.

Researchers acknowledge that a large pueblo need not to be occupied fully throughout the entirety of its use life, but can grow accretionally (Riggs 2001) or can be occupied sparsely for long periods of time (Creamer 1996). The largest sites in the Tewa Basin have over 1,000 ground floor rooms (Mera 1935) although it is unlikely these were all inhabited simultaneously. Based on demographic considerations it appears that Classic Period populations increased in step with internal population growth for both the Pajarito Plateau (Orcutt 1991) and Rio Chama drainage (Anschuetz 1998); there is no evidence for further intensive migration into the area. Therefore, much of the population movement likely occurred within the Basin itself. This proposed research relies on intensive mapping of surface architecture and analysis of ceramics from each architectural feature, which is unquestionably less reliable than excavation data. Due to the size and diversity of the sampled sites, however, I will be able to define general trends of inter-site Classic Period occupation during coalescence and some intra-site variability in growth. Surface mapping of sites can produce a large amount of information on construction sequences (Ferguson 1993). This can be further enhanced by surface collection of ceramics that provide spatial chronological data based on ceramic type (Kintigh 1985; Liebmann 2006), which can be controlled by analyses of previously excavated and dated subsurface ceramic assemblages.

Ceramic analysis of pottery from both surface and excavated contexts will be my primary means to date Tewa Basin sites. Northern Rio Grande ceramics have been shown to seriate by both ceramic type and individual attributes. By examining relative proportions of these types spatially archaeologists have constructed both inter and intra-site chronologies (Habicht-Mauche 1993; Gauthier 1987). I was successful in dating sites on the Pajarito Plateau previously using surface ceramics (Duwe 2006b; Figure 2). Another approach is to seriate the various ceramic attributes listed above, the most important being painted framing line thickness. This measure has been successfully used to create relative intra- and inter-site chronologies from excavated contexts at sites in the Rio Chama, chronologically trending toward a thicker first framing line on biscuit ware bowls and jars (Creamer et al. 2002). These attributes will be measured and seriated for ceramics from both surface and excavated contexts spatially across each site, with the excavated pottery serving as a chronological control. Although ceramic assemblages from surface contexts are often mixed, their analysis can indicate the last date of occupation at site before depopulation. This is important information in determining the sequence of site occupation during coalescence.

Architectural data from detailed surface mapping and published and archival data will also help me to construct the sequence of site occupation and population coalescence. In non-excavated contexts, bond and abutment patterns are indistinguishable in the adobe constructed Tewa Basin sites. However, Fallon and Wening (1987) demonstrated at Howiri that later roomblocks did not fit the original village plan and
were non-connected or off-set from existing architecture. This suggests that detailed site mapping will allow me to identify roomblocks that appear to have been added after the initial village construction and represent the addition of coalescing populations. Additionally, site mapping will allow me to assess site size (based on the area of roofed habitation areas) to understand which sites grew in size over time. By comparing sites based on architecture I will interpret which villages were accepting incoming people.

The fieldwork component of this project is primarily concerned with recording architectural features and collecting ceramics for subsequent analysis. I will record site boundaries, roomblocks, plazas, kivas, and middens from eight sites using a Total Station (Tshirege, Otowi, and Ku were previously mapped). I will enter all data in a GIS database. During mapping I will recover ceramics by establishing 1-m radius circular collection units in or near each major architectural feature. I will sample ceramics from nine sites (Tshirege and Otowi have already been analyzed; Duwe 2006b) (Table 6). Through ceramic analysis of these surface collections I will sort sherds by type and record attributes of weight, vessel form, paste color and texture, temper, surface treatment, painted framing line thickness, and rim size and length. I will also analyze approximately 6,000 previously excavated ceramic sherds from three sites with secure stratigraphic contexts: Howiri, Pose, and Te'ewi.

The sequence of site occupation and population coalescence will be examined by comparing site architectural layout with the ceramic chronological data. I will assign occupational date ranges to each of the 11 sites, creating a base occupational intra and inter-site sequence to interpret group identity.

(2) **Regional and inter-Tewa Basin material exchange relationships.** As noted above, Tewa Basin villagers appear to have imported only small amounts of pottery from surrounding regions in the Classic Period suggesting limited interaction with or isolation from the rest of the northern Rio Grande region. Little research has comprehensively addressed these ceramic exchange patterns through time. Additionally, no studies have examined the production and circulation of ceramics between sites and site clusters in the study area which require one to understand ceramic provenance as well as provenience. Ceramic exchange and group identity are rarely a one-to-one ratio as demonstrated archaeologically and ethnographically. Groups may exhibit highly fluid and complex exchange relationships as illustrated for the Western Pueblos (Duff 2002) or trade pottery for purely economic reasons in the case of historic Pueblo-Apache exchange (Ford 1972). This project is not interested in defining social boundaries but rather focuses on analyzing the intensity and directionality of ceramic exchange as a proxy for social interaction. By comparing this data between villages, village clusters, and the region, I will interpret the scale of interaction which is one measure of the organization of group identity.

The methods employed are two-fold: 1) the identification of non-locally produced pottery using traditional ceramic analysis; and 2) compositional provenance analysis. The former addresses exchange between the Tewa Basin and adjacent regions and focuses non-local pottery which will be identified during my ceramic analysis. Imported pottery in the Tewa Basin primarily includes Rio Grande Glaze Ware, which is found in only very small percentages in Classic Period sites (<5%). My previous analysis on the Pajarito Plateau (Duwe 2006b) demonstrated that roughly contemporaneous sites situated six miles apart had strikingly different frequencies of Glaze Ware. This suggests that Tewa Basin sites, or site clusters, may have had differential exchange relationships with the greater Rio Grande region.

The latter requires provenance data relating to both ceramic production and distribution within the Tewa Basin. The analysis of ceramic circulation between villages requires a technique that has more resolution than typological identification or microscopic analysis, both of which have failed to differentiate production sources in the Tewa Basin (Gauthier 1987). The use of chemical compositional analyses in the Southwest has been successful in many cases to establish the provenance of ceramic production (e.g., papers in Glowacki and Neff, eds. 2002). When combined with pottery provenience and population movement data, detailed interpretations can be made about migration, exchange, and social relationships (Duff 2002; Triadan 1997, 1998; Zedeño 1994). This approach is not without problems: it requires chemically and geologically heterogeneous deposits to differentiate production areas. Also, a large dataset is needed to make statistically reasonable interpretations.

To perform a provenance analysis with a large dataset I will employ two techniques: chemical composition and clay oxidation analyses. Petrographic analysis, while important to understand clay and pottery mineralogy, will not be used due to time and monetary constraints, but I will look at temper characteristics of each sherd under a binocular microscope. For my chemical analysis I will use a relatively new technique, time of flight-laser ablation-inductively coupled plasma-mass spectrometry (TOF-LA-ICP-MS), which has been demonstrated to be effective in addressing this type of question (e.g., papers in Speakman and Neff, eds. 2005). Although it has been shown to have a lower level of precision
than some other chemical techniques (Durrant 1999), the technique allows for the rapid processing of samples and hence large datasets (Neff 2003). No previous research has attempted this type of chemical analysis of clay or ceramics in the area, but because the Tewa Basin is relatively heterogeneous geologically, especially between tributary drainages of the Rio Chama and Pajarito Plateau, chemical analyses may be able to distinguish unique clay procurement and ceramic production locales.

Clay oxidation does not provide the detailed provenance information of petrographic and chemical composition, but it does provide an inexpensive and expedient method for assessing the relationships between raw materials (clay) and the finished pottery found in archaeological contexts (Bubemyre and Mills 1991). Refiring sherd drives out organic impurities and chemically changes major components in the clay body, most importantly, iron. Diversity in paste color results from differences in clay composition (Shepard 1995 [1956]:103). By qualifying the resulting color of raw clays and refired sherd using a Munsell color chart, I will be able to achieve a very large dataset to evaluate the diversity of clays used in the manufacture of pottery. I was previously successful in evaluating clay diversity used in Northern Rio Grande pottery production by oxidation analysis (Duwe 2006b). This secondary analysis will be compared with the results of the fine-grained chemical compositional data to permit more conclusive discussion of patterning in ceramic production and exchange between the Tewa Basin villages.

I will sample 100 raw clay sources (from both primary and secondary deposits) from locations adjacent to the large villages relevant to this study (see Table 4) and along the drainages where these sites are located. The chemical analyses of these clay samples will allow me to understand the chemical diversity of clays in the Tewa Basin. I will sample 1100 sherd (both decorated and plainware) from Classic Period surface collections and excavated collections from the Museum of New Mexico. A total of 100 sherd will be sampled from each of the 11 sites, with 60 sherd from the roomblocks and 40 from plazas (Table 6). These numbers will be adapted relative to the total duration of site occupation; more samples will be analyzed at sites exhibiting longer occupation sequences and conversely, fewer samples from sites with shorter occupations. To create larger statistically robust datasets I will pool sample data from multiple sites at the level of the site cluster to interpret broad patterns of exchange across the Tewa Basin. I will also refine very small portions (to reduce artifact destruction) of 10% of the analyzed ceramics for clay oxidation analysis, including sherd that are analyzed using TOF-LA-ICP-MS. I will sample and analyze both painted and utility wares, for each type of material has been shown to demonstrate different circulation patterns (Zedeño 1994, 1998). By comparing these two datasets I will be able to interpret the social and economic relationships between villages and village clusters between early and late occupied sites within the Tewa Basin and how these relationships changed through time.

(3) Elaboration of Tewa ritual technologies. The degree to which ritual architecture is elaborated over time is a direct indication of changes in ritual identity at the village level, which has a direct bearing on overall group identity. Recent research has shown that ritual elaboration, as either an integrative or divisive mechanism, correlated with population coalescence. I seek to understand how coalescence changed the ritual dynamics of villages by analyzing two aspects of ritual architecture, structure and diversity, of Tewa Basin sites. This requires that I measure the size, number, and location of ritual architecture through site mapping, and combine this with published and archival excavated data (to identify areas not recorded by surface mapping such as kivas in roomblocks).

Ethnographic research has demonstrated that village open space, or plazas, are the central ritual and social nexus in the Pueblo world (Swentzell 1988), and represent the center point of Tewa identity (Ortiz 1969). Acting as a public arena of social and ritual performance, plazas offer a place where members of a village participates in events that structures the cosmology of the pueblo. Plaza space is also the most easily identifiable ritual architecture for archaeologists examining surface contexts (Ferguson 1993) and can be analyzed to understand the scale and intensity of village social and ritual interactions which are indicative of group identity. If these interactions are low, a pueblo would have multiple plazas that are spaced well apart suggesting multiple ritual-based group identities. Conversely, if these interactions are inclusive to the entire village, plaza spaces would be primarily accessible to the most areas of the pueblo and grouped closely together (Mills 2007). Following Potter (1998), I will measure plaza structure (the frequency and intensity of social interaction) by applying spatial statistics to mapped site data. The most important measurement will be "convex space" which is the area in which any two people who can be seen by a third can also see each other (Ferguson 1993:48). In effect, the measurement of convex space delineates meaningful areas of ritual performance, and includes information about the plaza morphology (shape and placement) and scale (size). Convex space will be drawn in ArcGIS as a series of polygons and the area of each polygon will be recorded. Potter (1998) demonstrated that if the total area of the
three largest polygons is divided by the total area of open plaza space the resulting numerated “score” is a reliable indication of the degree of ritual interaction. A high score is indicative of plaza space used by the majority of an integrated village community, whereas a low score represents multiple, independent open ritual spaces, each possibly used by a different ritual community. By comparing these values across early and late occupied pueblos I will observe changes in the scale of ritual interactions at the site level.

Changes in the elaboration of ritual architecture will also be measured by typological diversity. Researchers of both the Western Pueblos (Adams 2002) and Northern Rio Grande (Crown et al. 1996; Fowles 2004a) have shown that during coalescence villages displayed dramatic increases in both the types and numbers of ritual structures. Although the causes of this elaboration are debated, the appearance of different kinds of ritual architecture is meaningful in the development of new ritual systems and identities. I will measure this diversity in the Tewa Basin by examining both richness and frequency (evenness). Richness is simply the total number of types (Kintigh 1984), which may include small kivas, great kivas, open plazas and closed plazas (Adams 2002:131). Frequency will measure the amount of each type of ritual architecture. Because of the nature of surface remains, I expect plazas and great kivas to be the most consistently useful in the analysis.

The degree of ritual elaboration will be inferred by combining and interpreting measurements of structure and diversity. Because ritual architecture is difficult to date and is the result of generations of site accretion, my analysis will necessarily focus on the end of the occupation of each village. By comparing early and late occupied sites I will interpret general chronological and spatial trends of how ritual elaboration and group identities were affected by coalescence.

Applying the Coalescence and Identity Model

The above research objectives illustrate how I will analyze key elements shown to be important to maintenance and creation of group identity, and how each element changes through time and space during coalescence. How can these dimensions combine to interpret the scale of group identity at the village, village cluster, and regional level? And how did group identity change with coalescence?

Group identity is a multi-dimensional and multi-scalar product of the ways groups express themselves in social relationships. My proposed model (Table 2) incorporates this multi-dimensionality by examining three measures of group identity: historical distinctiveness (the movement of people), social relationships (the movement of materials), and religious identity (the elaboration of ritual technologies). By combining these three dimensions the model outlines possible permutations of my research objectives (simplified as qualified variables) and their effects on coalesced group identity. These outcomes include maintenance of pre-coalescence identities, the dominance of established identities, or the creation of new group identities that reflects social integration, or inherent factionalism, in restructured communities.

To fully understand changes in coalescing group identity I will apply my model to multiple scales that includes the village, the village cluster, and the region. Although ethnographic literature describes the Historic Tewa as a linguistically and culturally unified group (Ortiz 1969), current archaeological data provides evidence of distinct social relationships within and outside the Tewa Basin. This includes the formation of site clusters (Fowles 2004b; Wilcox 1981) and differential long-distance exchange in ceramics (Duwe 2006b). Was there a unified Tewa identity in the late Protohistoric period, or rather a conglomeration of disparate yet seemingly similar peoples? If there were multiple identities, how did was the process of coalescence affected by interacting village and village clusters with similar or dissimilar backgrounds? Did certain villages or village clusters influence the ultimate post-coalescence Tewa identity? My model will be applied to each of these scales of analysis the determine how the scale and types of group identities changed through time and how the process of coalescence altered Tewa group identity to the form witnessed by the Spanish in the late-sixteenth century.

Plan of Work and Budget

Table 7 outlines the proposed research plan of work. In September of 2007 I will perform a clay survey along major drainages associated with my sampled sites. In October of 2007 I will produce total station maps of the surface architecture of the four sites along the Rio del Oso with a research assistant. During mapping we will also surface collect ceramic samples from kivas, roomblocks, plazas, and middens from each site. In November and December of 2007 I will travel to the Museum of New Mexico in Santa Fe and analyze relevant ceramics from three sites in my study area that have been professionally excavated. During the spring of 2008 I will analyze the collected ceramics as well as build maps of village architecture. In May of 2008 I will conduct mapping and surface collection of five sites along the Rio Ojo.
Caliente with a research assistant. In June and July of 2008 I will continue to analyze the surface collections and incorporate these results into a GIS database, as well as perform my clay oxidation analysis at the Southwest Laboratory at the University of Arizona. During the ceramic analysis I will subsample a number of sherds of different wares and types for provenance analysis based on the observed variability in binocular identifications of apastics and oxidation colors. In August 2008 I will travel to California State University, Long Beach to perform chemical compositional analysis using LA-ICP-MS with Dr. Hector Neff. After my fieldwork and laboratory analyses, dissertation write up and defense will take place over 2008-2009 academic year. Collections and supporting documentation will be curated at the Museum of New Mexico. I have asked for $14,990 to cover the cost of field work, travel and room and board during museum and chemical analysis, and laboratory time for the chemical analyses of ceramics.

Feasibility and Tribal Consultation

I have accomplished a number of steps in the completion of this work. First, through a comprehensive literature search and subsequent visits to the Museum of New Mexico’s Archaeological Research Management System I have compiled an inventory of all Classic Period sites in the Tewa Basin. This information has been entered into a GIS database that will be used to map both site location and also the spatial production data. I have contacted the appropriate land holding agencies (Bureau of Land Management, Santa Fe National Forest, Los Alamos National Laboratory) and have begun permitting procedures to both map and surface collect sites. I have acquired permission and funds to analyze ceramics from sites at Los Alamos National Laboratory. I received $10,000 from the Laboratory to analyze 8,500 sherds for my pilot study (Duwe 2006b) at the University of Arizona Southwest Laboratory in 2006. I have also made contacts with archaeologists at the above Federal land holding agencies and the Museum of New Mexico. In addition, I have acquired extensive experience in mapping, ceramic analysis, and chemical compositional analyses (Duwe 2006a; Duwe and Neff 2007; Fowles et al. 2007).

Because this project focuses on material that has been previously excavated and that I will surface collect, no excavations will be performed and thus the legal aspects of the Native American Graves Protection and Repatriation Act (NAGPRA) do not apply. However, because my research has a direct bearing on the known descendent populations of the modern Tewa Pueblos in both land claims and relatively recent social history I will share information with all Tewa Pueblos (San Juan, Santa Clara, San Ildefonso, Tesuque, Pojoaque, and Nambe). I will give regular progress reports to each Pueblo, as well as offer site tours to disseminate this project’s findings and interpretations. The results of my analyses will be useful in future land use management and legal claims, as well as providing information on the location of raw material sources and ritual areas.

Project Significance and Broader Impacts

The methodologies created by this research can be used by archaeologists working in many regions and time periods. Research in cultural anthropology and geography suggests that monolithic organizational systems imposed by archaeologists over simplify and misrepresent the complicated nature of human social behavior. The archaeological study of group identity formation uses (albeit incomplete) material culture to begin to explain this behavior in a meaningful way. The model and material correlates used in this study will further archaeological interpretations and provide additional avenues in which to understand coalescence and residential restructuring.

The proposed research will make substantial regional contributions to both the Northern Rio Grande and the Greater Southwest. This dissertation will provide chronological and spatial data for both residential and ritual architecture, as well as the first chemical compositional analyses of ceramics from the Tewa pueblos and the largest such study in the Northern Rio Grande region. The interpretations made on the creation and formation of Tewa identities will be important for others working in the Greater Southwest who study similar processes of coalescence.

The project will also have practical applications to the ethical and political aspects that permeate modern anthropological research. Because this project tracks the formation of historic and modern Tewa Pueblo group identity, the data collected in this project will provide information on prehistoric people that may support links to contemporary populations by looking beyond traditionally defined archaeological culture areas. Group identity is also fundamentally important to modern descendant communities who have a large stake in NAGPRA cultural affiliation studies (Watkins 2000). This project aims to provide information to the modern Tewa Pueblos regarding past land use and cultural affiliation which may be useful to Tewa groups in the future.
Figure 1. Map of Tewa Basin with Classic Period Site over 50 rooms in size (the 11 sites to be used in the proposed research are highlighted).
Figure 2. Seriation of Northern Rio Grande painted ceramic types from Otowi (LA 169) and Tshirege (LA 170) based on relative frequencies of weight and count.

<table>
<thead>
<tr>
<th>Dimensions of Group Identity</th>
<th>Coalescent Principles</th>
<th>Archaeological Expectations</th>
<th>Protohistoric Period Examples from the Greater Southwest</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Movement of People</td>
<td>Population aggregation (scales and rates)</td>
<td>Movement of people at multiple scales (household, suprhousehold, village) from depopulated villages to new or existing settlements</td>
<td>Homol’ovi, Arizona Silver Creek, Arizona Zuni, New Mexico</td>
<td>Adams (2002); Mills (1998); Kintigh (1985)</td>
</tr>
<tr>
<td></td>
<td>Heightened concern for safety</td>
<td>Movement to highland, terraced, or fortified sites</td>
<td>Northern Rio Grande; Perry Mesa, Arizona; Chevelon Creek, Arizona; Taos, New Mexico</td>
<td>Wendorf (1953); Wilcox et al. (2003); Solemoto (2004); Fowles (2004a)</td>
</tr>
<tr>
<td></td>
<td>Formation of multi-identity communities</td>
<td>Material remains (esp. architecture and ceramics) indicating multiple group identities</td>
<td>Central Rio Grande; Northern Rio Grande; Safford Valley, Arizona Grasshopper, Arizona</td>
<td>Eckert (2003); Habicht-Mauche (1993); Neuzil (2005); Riggs (2001)</td>
</tr>
<tr>
<td>The Movement of Materials</td>
<td>Intensification of subsistence systems</td>
<td>Use of technology for higher agricultural yields such as intensive use of grid gardens and gravel mulching</td>
<td>Northern and Central Rio Grande; Rio Chama Valley</td>
<td>Cordell (1989); Anschuetz (1998)</td>
</tr>
<tr>
<td></td>
<td>Intensification of exchange systems (within region)</td>
<td>Increased frequencies of imported materials (pottery, ochres, stone) between villages in region</td>
<td>Northern Rio Grande; Upper Little Colorado, Arizona</td>
<td>Habicht-Mauche (1993); Spielmann (1994); Duff (2002)</td>
</tr>
<tr>
<td></td>
<td>Increased interaction at a macro-regional scale</td>
<td>Increased frequencies of imported materials (pottery, ochres, stone) from outside immediate region</td>
<td>Northern Rio Grande; Upper Little Colorado, Arizona</td>
<td>Creamer (1996); Duff (2002)</td>
</tr>
<tr>
<td>The Elaboration of Ritual Technologies</td>
<td>The integration or disintegration of community systems</td>
<td>Elaboration of the structure of open plaza space and the diversity of types of ritual architecture (kivas and plazas)</td>
<td>Taos, New Mexico Northern Rio Grande; Homol’ovi, Arizona Silver Creek, Arizona</td>
<td>Fowles (2004a); Anschuetz (1998); Adams (1991, 2002); Mills (1998)</td>
</tr>
</tbody>
</table>

Table 1. Linking the Behavioral Principles of the Coalescent Societies Model with Dimensions of Group Identity
### Table 2. The Coalescence and Identity Model

<table>
<thead>
<tr>
<th>Movement of People (population size)</th>
<th>Movement of materials</th>
<th>Elaboration of Ritual Technologies</th>
<th>Consequences for Group Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased</td>
<td>Increased</td>
<td>Increased</td>
<td>New group identities created based on increased population size, social interaction, and ritual elaboration; possible integration or identity negotiation (Homol'ovi; Adams 2002a)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Status quo</td>
<td>Previous group identities maintained OR new identities created based on increased population size and social interaction; possible ethnic co-residence and expanding social and ritual relationships at other scales</td>
</tr>
<tr>
<td>Decreased or status quo</td>
<td>Increased</td>
<td>New group identities created AND dominant identities subsumes others based on ritual elaboration and increased population size; new ritual identities are created to facilitate newcomers but area continues its own isolate and unique historical group identity (Zuni; Duff 2002)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Status quo</td>
<td>Previous group identities maintained based on no internal changes besides increased population size; possible ethnic co-residence</td>
</tr>
<tr>
<td>Decreased or status quo</td>
<td>Increased</td>
<td>New group identities created based on increases in ritual elaboration and social interaction; possibly due to factionalism</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Status quo</td>
<td>Previous group identities maintained OR new identities created based on increased social networks; possibly in response to fulfill ritual and biological responsibilities (Western Pueblos; Duff 2002)</td>
</tr>
<tr>
<td></td>
<td>Increased</td>
<td>New group identities created based on ritual elaboration with no internal changes; possibly due to factionalism (Northern Tiwa; Fowles 2004a)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3. Current Knowledge of Research on Classic Period Sites in the Tewa Basin and how Each Behavioral Principle in the Coalescent Societies Model Fits with this Data

<table>
<thead>
<tr>
<th>Dimensions of Group Identity</th>
<th>Coalescent Principle</th>
<th>Current Classic Period Tewa Basin published knowledge</th>
<th>Tewa Basin References</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Heightened concern for safety</td>
<td>Yes – many sites on hilltop/terraced locations, although without a refined chronology it is not known whether this increases or decreases with time</td>
<td>Beal (1987); Fowles (2004b); Jeancon (1923); Wendorf (1953); Wilcox (1981)</td>
</tr>
<tr>
<td></td>
<td>Formation of multi-identity communities</td>
<td>? – villages with multi-identity communities have not been examined</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Intensification of exchange systems (within region)</td>
<td>? – no provenance research of inter-region material circulation</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Increased interaction at a macro-regional scale</td>
<td>? – very little imported ceramics (such as Rio Grande glaze ware) but how this changes through time is undetermined</td>
<td>Futrell (1998); Gauthier (1987); Graves and Eckert (1998)</td>
</tr>
<tr>
<td>The Elaboration of Ritual Technologies</td>
<td>The integration or disintegration of community systems</td>
<td>? – although there appears to be more use of plaza and kivas (of greater size and morphology)</td>
<td>Anschoetz (1998); Crown et al. (1996); Munson (2002)</td>
</tr>
<tr>
<td>Site (LA Number)</td>
<td>Drainage</td>
<td>Occupational Sequence</td>
<td>Max. Room Estimate</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------</td>
<td>-----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Howiri (LA71)</td>
<td>Rio Ojo Caliente</td>
<td>1400?-1525</td>
<td>1700-1865</td>
</tr>
<tr>
<td>Hupobi (LA380)</td>
<td>Rio Ojo Caliente</td>
<td>1300?-1500?</td>
<td>1075-1200</td>
</tr>
<tr>
<td>Pose (LA632)</td>
<td>Rio Ojo Caliente</td>
<td>1300?-1680+</td>
<td>1020-2000</td>
</tr>
<tr>
<td>Ponsipa (LA297)</td>
<td>Rio Ojo Caliente</td>
<td>1250?-1680+</td>
<td>1500-2000</td>
</tr>
<tr>
<td>Nuté (LA298)</td>
<td>Rio Ojo Caliente</td>
<td>1350?-1680+</td>
<td>100-140</td>
</tr>
<tr>
<td>Te’ewi (LA252)</td>
<td>Rio del Oso</td>
<td>1250?-1680+</td>
<td>600-1090</td>
</tr>
<tr>
<td>Ku (LA253)</td>
<td>Rio del Oso</td>
<td>1250?-1680+</td>
<td>450-555</td>
</tr>
<tr>
<td>Pesede (LA299)</td>
<td>Rio del Oso</td>
<td>1250?-1680+</td>
<td>375-500+</td>
</tr>
<tr>
<td>Maestas Pueblo (LA90844)</td>
<td>Rio del Oso</td>
<td>1250?-1425</td>
<td>160-200</td>
</tr>
<tr>
<td>Otowi (LA169)</td>
<td>Northern Pajarito Plateau</td>
<td>1325-1540</td>
<td>450</td>
</tr>
<tr>
<td>Tshirege (LA 170)</td>
<td>Northern Pajarito Plateau</td>
<td>1325-1540</td>
<td>600</td>
</tr>
</tbody>
</table>

Table 5. Plan of Work Based on Research Assumptions and Data Requirements

<table>
<thead>
<tr>
<th>Dimensions of Group Identity</th>
<th>Assumptions</th>
<th>Research Objectives</th>
<th>Plan of Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Movement of People</td>
<td>- Increased population densities alter the social landscape of the village (socially, economically, and ritually)</td>
<td>- To construct a site-level sequence of occupation during coalescence - To attempt to delineate trends in intra-site occupation sequences - To understand sites that accepted incoming populations</td>
<td>- Mapping of 9 village pueblos - Surface collect ceramics at the 9 village pueblos - Analyze ceramic assemblages (from the surface collections as well as the three previously excavated museum collections) to understand date site occupation sequence during coalescence - Use architectural data to identify add-on roomblocks and surface area of habitation spaces to interpret which sites were accepting incoming populations</td>
</tr>
<tr>
<td>The Movement of Materials</td>
<td>- Ceramic circulation is a proxy for shared group identities - Long-distance exchange may signify differential relationships between villages leading to village hierarchies</td>
<td>- To understand exchange relationships between villages in the Tewa Basin and other regions - To understand production and distribution of materials within the Tewa Basin between village and village clusters</td>
<td>- Record obvious non-local ceramics (Glaze Wares) in the abovementioned ceramic collections - Sample ceramics for chemical analyses (painted and utility wares) - Perform raw clay source survey and collection - Analyze both the clay and archaeological ceramic samples using TOF-LA-ICP-MS and oxidation analysis - Interpret how exchange patterns change through time by comparing early and late occupied sites</td>
</tr>
<tr>
<td>Elaboration of Ritual Technologies</td>
<td>- Changes in the elaboration of ritual technologies are indicative of social and religious transformation</td>
<td>- To understand the structure (frequency and intensity of ritual interactions) and diversity (richness and frequency of types) of ritual architecture</td>
<td>- Mapping of village ritual architecture (plazas and kivas) to record types, size, numbers, and locations of this architecture - Understand structure of ritual architecture by spatial statistical analysis - Understand diversity (richness and frequency) of ritual architecture by using the number and types of plazas and kivas - Interpret how ritual elaboration change through time by comparing early and late occupied sites</td>
</tr>
<tr>
<td>Sampling Event</td>
<td>Sampling Strategy</td>
<td>Total Ceramic Sherds Sampled</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td>Field Surface Collection</td>
<td>Approximately 2,000 samples for nine sites</td>
<td>18,000</td>
<td></td>
</tr>
<tr>
<td>Museum Analysis</td>
<td>Approximately 2,000 samples for 3 sites</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Chemical Compositional Analysis (TOF-LA-ICP-MS)</td>
<td>Primary and Secondary Clay Samples</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Roomblocks (60 samples for 11 sites)</td>
<td>660</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plazas (40 samples for 11 sites)</td>
<td>440</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total samples for chemical analysis</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>Clay Oxidation Analysis</td>
<td>Approximately 10% of analyzed ceramics</td>
<td>2,400</td>
<td></td>
</tr>
</tbody>
</table>

Table 6. Ceramic Sherd Sampling Events, Strategies, and Totals

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2007</td>
<td>Finalize permitting with landholding agencies to map and surface collect artifacts conduct raw clay survey</td>
</tr>
<tr>
<td>September 2007</td>
<td>Perform clay survey for compositional analysis</td>
</tr>
<tr>
<td>October 2007</td>
<td>Map surface architecture, surface collect on 4 Classic Period sites in the Rio Ojo Caliente drainage</td>
</tr>
<tr>
<td>November-December 2007</td>
<td>Museum collections analysis of 3 sites at the Museum of New Mexico, Santa Fe</td>
</tr>
<tr>
<td>Spring 2008</td>
<td>Ceramic and spatial analysis, write background chapters of dissertation</td>
</tr>
<tr>
<td>May 2008</td>
<td>Map surface architecture, surface collect on 5 Classic Period sites in the Rio del Oso drainage</td>
</tr>
<tr>
<td>June-July 2008</td>
<td>Ceramic and spatial analysis</td>
</tr>
<tr>
<td>August 2008</td>
<td>TOF-LA-ICP-MS compositional analysis at CSU-Long Beach</td>
</tr>
<tr>
<td>Fall 2008-Spring 2009</td>
<td>Write dissertation</td>
</tr>
<tr>
<td>April 2009</td>
<td>Defend dissertation</td>
</tr>
</tbody>
</table>

Table 7. Plan of Work
References Cited

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Adams, E. Charles, and Andrew I. Duff

Anschuetz, Kurt Fredrick

Anthony, David W.

Axtell, Robert L., Joshua M. Epstein, Jeffrey S. Dean, George J. Gumerman, Alan C. Swedlund, Jason Harburger, Shubha Chakravarty, Ross Hammond, Jon Parker, Miles Parker

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Beal, John D.


Bubemyre, Trixi and Barbara J. Mills

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Clark, Jeffery J.

Cordell, Linda S.

Creamer, Winifred

Creamer, Winifred, David Burdick, Patricia Hamlen, Jonathan Haas, Lisa Renken, Aaron Wenzel, and Kit Nelson

Crown, Patricia L.

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Dozier, Edward P.

Duff, Andrew I.

Durrant, Steven F.

Duwe, Samuel

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Glowacki, Donna and Hector Neff (editors)

González, Nancie L. Solien (editor)

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