

Changes in regional organization and mobility in the Zuni region of the American Southwest during the Pueblo III and IV periods: insights from INAA studies

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ABSTRACT

The transition from the late Pueblo III (AD 1200–1275) to Pueblo IV (AD 1275–1400) period marks one of the most dramatic eras of demographic and social upheaval in the American Southwest. At this time, much of the northern Southwest was depopulated as thousands of ancestral Pueblo people moved to new homelands. In the Zuni region, this transition included a residential shift from dispersed, largely household-scale settlements to massive, multi-storied pueblos housing hundreds of people and a simultaneous contraction of regional settlement to a central core along the Zuni River and its major tributaries. This article presents a synthesis of our recent independent efforts to utilize instrumental neutron activation analysis (INAA) to investigate changes in social interaction in the Zuni region before and after this transition. We suggest that in addition to significant local and regional settlement shifts, the Pueblo III–IV transition in the Zuni region was accompanied by a major reorganization of pottery distribution networks as clear social boundaries began to emerge between village clusters. More generally, our combined study also highlights the iterative nature of INAA data analysis, the benefits of large sample sizes, and the utility of a diachronic interpretative approach.

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1. Introduction

Over the past 30 years, archaeologists working in the American Southwest have employed instrumental neutron activation analysis (INAA) of ceramics to study a variety of topics, including pottery production and exchange, the structure of pan-regional ritual systems, regional social organization, and population movements. INAA has revolutionized analysis of the movement of pottery in many areas and time periods within the Southwest, such as the Zuni region, where finished ceramics often lack tempers that could be easily analyzed petrographically. In general, INAA and other methods of chemical compositional analysis have indicated that Southwest exchange, mobility, and regional organization were more complex and extensive than previously hypothesized by researchers who lacked what are now common analytical tools.

Here, we synthesize our recent efforts to address regional organization, pottery production and exchange, and population movement in the Zuni region (Duff, 2002; Huntley, 2008; Schachner, 2007). Our individual studies addressed these processes largely

synchronously and lacked the comparative perspective enabled by diachronic analyses. In this article, we combine our data to examine changes in ceramic distributions during a major shift in settlement pattern that occurred during the transition from the late Pueblo III (AD 1200–1275) to early Pueblo IV (AD 1275–1400) period. Our analysis indicates that networks of ceramic distribution within the region contracted and simplified during this transition. These changes appear to have been the products of: (1) shifts in intraregional population circulation and distribution, which decreased the number of clay sources utilized; and (2) possible increases in community specialization in the production of painted bowls. Diachronic comparison of Pueblo III and Pueblo IV period ceramic distribution bolsters prior observations that the Zuni region became increasingly isolated during the AD 1200s, at least as viewed from the lens of pottery circulation, and that internal regional organization became more segmented with the formation of socially bounded village clusters.

Our study also illustrates two inherent challenges in the analysis of chemical compositional data. First, it exemplifies the iterative nature of INAA data analysis and the benefits of large sample sizes. As the overall Zuni region INAA sample increased as we each completed our individual research, new compositional groups were defined, earlier conclusions regarding their structure and area of

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production had to be revised, and in some cases these revisions required changing previous behavioral interpretations. Although some may view this process as a shortcoming, we note that it is instead a function of the sample size dependent and iterative nature of the quantitative measures employed to examine data set structure, not the analytical method itself. Second, in addition to the technical and quantitative challenges of working with INAA data, there is also a major interpretative dilemma. Although archaeologists often examine INAA data to assess the proportion of pottery (or other objects) moved among settlements, there are no universal metrics for inferring the importance or meaning of these movements. To address this interpretative problem, archaeologists often turn to a traditional tool: controlled comparisons across space or time. In our case, improved knowledge of patterns of ceramic distribution during the earlier Pueblo III period strengthened our interpretations of Pueblo IV period ceramic distribution patterns and provided new insights into the relationship between shifts in mobility, ceramic distribution, and regional changes in social organization.

2. The Zuni region during the Pueblo III and IV periods

The Zuni region is located along the southern edge of the Colorado Plateau in what is now Arizona and New Mexico (Fig. 1). Although sparsely occupied for much of the ancient past, the Zuni region emerged as a population center during the late AD 1000s, just as Chaco Canyon became the socio-religious center of much of the ancestral Pueblo world (Duff and Schachner, 2007; Kintigh, 2007). During the Chacoan era, the thousands of people residing in the Zuni region lived in dispersed farmsteads containing one to a few households each. By the late Pueblo III period (AD 1200s), total population continued to increase and the most densely occupied

residential areas began to shift to higher elevation zones. Discrete settlement clusters began to appear, each with dozens of households residing in tens of small pueblos within a stone's throw of one another (Kintigh, 1996). By the late AD 1200s, the eastern Zuni region, including the El Morro Valley and Pescado Basin, contained a few dozen of these settlement clusters and was among the most densely populated parts of the Southwest (Wilcox et al., 2007). In the late AD 1200s, settlement clusters were rapidly replaced as a settlement form. Dozens of large pueblos, each containing hundreds of rooms and the population of one or more of the earlier settlement clusters, completely supplanted a residential pattern that had persisted for hundreds of years. As these new, large pueblos were constructed, regional population contracted into the core of the region along the Zuni River (Huntley and Kintigh, 2004). Explanations for these shifts have focused on the emergence of new forms of community organization in the face of increasing levels of interregional migration and violence as the Four Corners region was depopulated (LeBlanc, 1999; Schachner, 2007) and local changes in agricultural strategies (Kintigh, 1985).

A long-standing research goal in the Southwest has been to understand the social mechanisms that generated regional distinctions in material culture. This question is particularly important during the AD 1200s and after, as large expanses of unoccupied land opened up between regions and the material culture of individual regions became increasingly distinct. The spatial and material culture distinctions of this era contrasted sharply with those of prior periods, when most areas suitable for agriculture were inhabited and artifact and architecture styles were similar across the northern Southwest. Various models to account for the appearance of regional differences have been proposed, including the emergence of distinctive ethnic identities (Duff, 2002), centralized polities (Upham, 1982), contingently activated alliances (Spielmann, 1994),

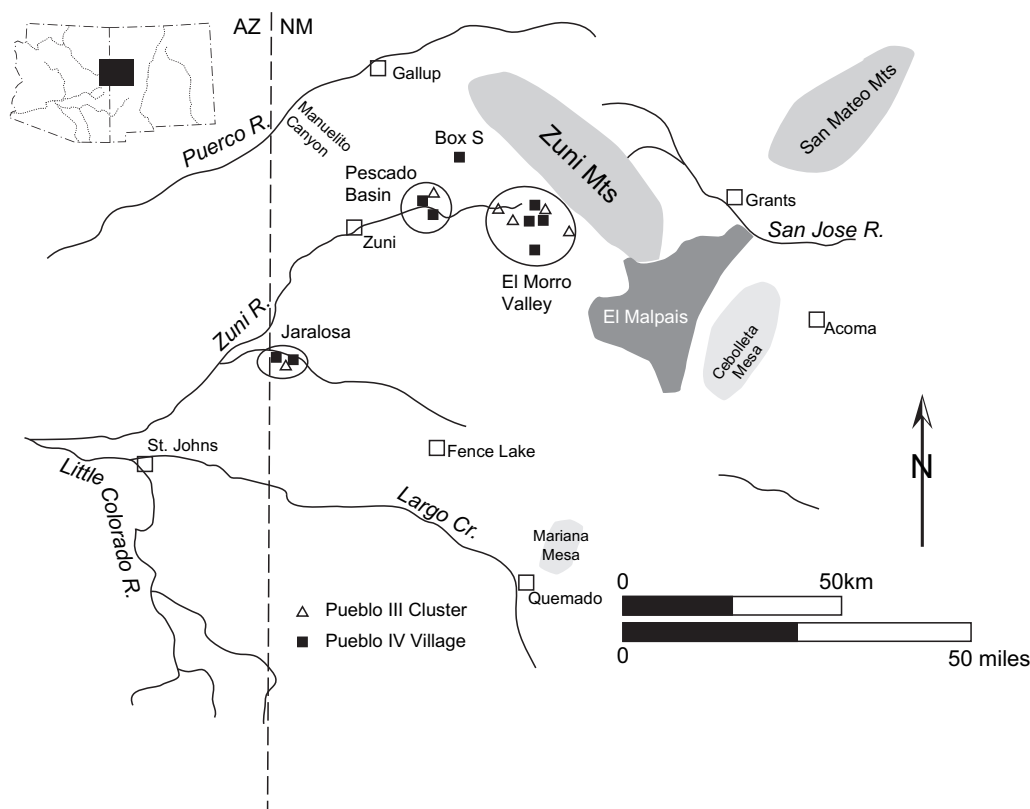


Fig. 1. Sampled sites in the central Zuni region.

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