LOCAL LEVEL LEADERSHIP AND CENTRALIZATION IN THE LATE PREHISPANIC YARETANI BASIN, BOLIVIA

by

Ana Luz Alejandra Sejas Portillo

Licenciada en Antropología mención Arqueología, Universidad de Chile, 2004

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This dissertation was presented

by

Ana Luz Alejandra Sejas Portillo

It was defended on

May 20, 2019

and approved by

Elizabeth Arkush, Associate Professor, Department of Anthropology

Robert D. Drennan, Distinguished Professor, Department of Anthropology

Bryan K. Hanks, Associate Professor, Department of Anthropology

Josef Werne, Professor, Department of Geology and Environmental Science

Dissertation Director: Marc Bermann, Associate Professor, Department of Anthropology

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During the Late Intermediate Period, the prehispanic southcentral Andean region was home to the "Aymara *señoríos"*. These polities are known mostly from ethnohistoric and ethnographic reconstructions rather than archaeological research. As typically reconstructed, the *señorío* was a loose confederation of nested kinship groups, with segmentary organization, and more ceremonial than political centralization, integrated through activities carried out at the open spaces at capitals called "*marka*" sites.

This project aimed to test archaeologically the political dynamics and regional settlement integration proposed in the ethnographically based Aymara *señorío* model in the southern Bolivian *Altiplano*. Field research consisted of a multi-scalar program of regional survey, surface collections, and test pit excavation covering the 91 km^2 area Yaretani Basin. The data generated were used to compare: (1) shifts in agropastoral adaptation with changes in political centralization and demography; (2) leadership processes and social differentiation from the Formative through the Late (Inka) Periods; and (3) the basis for authority and socioeconomic differentiation at leadership or central place sites.

At a regional level, this research shows that several marked shifts occurred in the agropastoral strategies of the population living in this area from the Middle Horizon through the Late Periods. In each period, the Basin was occupied by several small, supralocal communities grouped around one or more *marka* sites. Seen at the inter-site level, these is little evidence for an elite wealthy class although some individuals were given special burial treatments in the Middle Horizon and Late Intermediate Periods. At the intra-site level, there is moderate evidence of social differentiation, especially within the Middle Horizon and Late Period potential *marka* sites. For the Late Intermediate Period, such intra-site differentiation was less pronounced.

Overall, archaeological evidence from the Yaretani Basin is not totally consistent with the *señorío* model. No regional *marka* or central places could be identified during this research. It is possible that the elite stratum was "poor chiefs" rather than wealthy chiefs.

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PREFACE

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1.0 LOCAL LEVEL LEADERSHIP AND CENTRALIZATION IN THE LATE PREHISPANIC YARETANI BASIN, BOLIVIA

1.1 Introduction

A traditional view of the prehistoric southern *altiplano* population is one of small scale societies relatively simple socially and politically, relaying mostly on camelid herding as the altitude, cold, and aridity were sharply limiting factors for large scale agriculture. In the Late Intermediate Period, this region was home to the "*señoríos"* (or "ethnic polities" or "Aymara kingdoms") known and reconstructed, in a very conjectural way, from ethnohistoric sources. There has been little archaeological research on these polities as polities. As typically reconstructed, the *señorío* was a loose confederation of nested kinship groups sharing a common territory, language, and ethnic identity (Abercrombie 1998; Bouysse-Cassagne 1987; Murra 1968; Platt et al. 2006; Saignes 1986). The *señoríos* had more ceremonial than political centralization, and were integrated through activities carried out at the open spaces such as plazas at capitals referred to as "*marka*" sites (Espinoza Soriano 1981; Izko 1992; Medinacelli 2010). Some scholars have even portrayed the *señorío*s as expressions of a unique, indigenous sociopolitical arrangement; an alternative form of societal complexity to that featured in models typically deployed by archaeologists (Albarracín-Jordan 1996a, 1996b; Janusek 2008). We know little about how these *señoríos* looked archaeologically, nor even if they existed as described. Furthermore, the biases of the

ethnohistorically-generated constructs make it particularly desirable to study late prehispanic leadership and centralization diachronically, and at a local level.

This project studied local *señorío* settlement, leadership, centralization, and inequality through investigation in the Yaretani Basin, Bolivia (Figure 1). This area was chosen for research because ethnohistoric accounts and my own preliminary archaeological work pointed to a *señorío* central place or *marka* site in the region which I designated the Puqui Complex. The Puqui Complex[1] is well-preserved, sprawling, multi-component (Formative – Inca Periods) site ethnohistorically identified as the last residential place of the leadership Guarachi family and as a minor *marka* of the Aullagas-Uruquillas *señorío*, itself part of the huge Quillaca-Azanaque Confederation. My year-long project of regional survey, surface collection, and excavation in an area of 90 km^2 documented long term (4000 BC – AD 1530) changes in prehistoric subsistence, settlement, long-distance exchange, ceremonial practices, and conflict. The fieldwork generated data for comparing: (1) shifts in agropastoral adaptation and their relationship to political centralization and demography (2) leadership processes and social differentiation from the Formative through the Late Periods; and (3) late prehispanic sociopolitical patterns to those idealized in the ethnohistorically-derived "*señorío* model."

[1] Although the town of Puqui was founded as such during Republican times the location of Puqui presents a long occupation from the Archaic Period through Inka times. When I refer to Puqui for this dissertation, I will be be referring to the archaeological Puqui Complex and not the modern town.

1.2 The Southern *Altiplano Señorío*s and Agropastoral Social Organization

The basic sociopolitical structure of the *señorío* was segmentary and nested, consisting of dual moieties (often called Anansaya and Urinsaya), in which the basic social unit was the *ayllu*, a kin-collective (Bouysse-Cassagne 1987; Izko 1992; Platt 1987; Rivera Cusicanqui 1992). *Ayllus* were composed of *estancias* (households) at the lowest levels, and towns and cities at the upper levels (Rivera Cusicanqui 1992). Maximally, some Aymara *señorío*s would form confederations, such as the Quillacas-Azanaque and the Qaraqara-Charcas, to protect territory or secure economic benefits through exchange (Platt 1987; Platt et al. 2006). The nested units of the *señorío* were integrated (often more ceremonially than politically) through activities at sites called *markas* (Albarracín-Jordan 1996a; Izko 1992; Platt 1987; Rivera Casanovas 2004; Rivière 1983). The *marka*, the general Aymara term for a center, could range in scale from the large capital of a *señorío* or confederation, to a settlement serving as the political and ritual center for *ayllu* residents dispersed in homesteads around it (Janusek 2004:42).

The southern Bolivian *señorío*s developed in an area of agropastoral adaptation (the Andean *altiplano*), where agriculture potential is limited by elevation, frosts, and aridity. In upper *altiplano* elevations, and it places in the southern *altiplano*, some prehispanic populations may have been largely full-time camelid herders. Cross-culturally, the *señorío* construct is well in keeping with the traditional characterization of pastoral societies as relatively heterarchical, segmentary confederations of corporate or group-oriented leadership. But current research, particularly in the Eurasian Steppes, has greatly changed this perception of highly pastoral groups (Drennan et al. 2011; Frachetti 2008, 2012; Hanks and Linduff 2009; Honeychurch et al. 2009). The Eurasian work has documented significant (and highly variable) sociopolitical complexity and economic integration in pastoral societies, while also revealing the extent to which these societal

"features" may shift through time within an agropastoral population (Hanks 2009; Honeychurch 2014). The diachronic variability in degrees of political centralization and subsistence emphasis require that such societies be examined as flexible, dynamic systems, rather than characterized statically based on a set of observations made at a single moment in time (for instance, at time of Spanish Conquest; see Capriles and Tripcevich 2016).

In historic times in the Andes, small-scale specialized pastoralism existed at high altitudes (over 4200 m.a.s.l. where frosts and aridity (precipitations lower than 200 mm a year), make agriculture unproductive or impossible (Parsons et al. 1997). Modern residents living in these areas of the high *altiplano* typically own land at lower elevations where they go to cultivate quinoa or potato during wetter seasons, or they systematically exchange products with people living in the valleys (Flores-Ochoa 1968; Harris 1987). In this region we can distinguish the principle that communities will occupy places in or closer to the their most important production zones (Mayer 1985). Heavily pastoral groups (sedentary or mobile) will favor zones optimal for herding, and more agricultural populations will favor zones most suited for farming.

A dichotomy between pastoral and agricultural societies has been seen mostly in studies of the Old World, where the separation can be noted in some groups in a clearer way than in the New World (Cribb 1991; Franchetti 2008; Khazanov 1994). In the present and no doubt in the past, Andean populations living in lower sectors of the highlands (2800 – 4200 m.a.s.l.) were agropastoral, farming specialized highland grains and tubers, including quinoa and potato while managing camelid herds. A shifting and flexible agropastoral mix acted effectively in risk management, allowing for buffering of temporal risks (of seasonal or longer duration), and in redistributing population relative to resources in times of scarcity (Browman 1990, 2008). In addition to coping with environmental fluctuation, the agropastoral strategy was also responsive

to socioeconomic and political factors. For example, overarching economic or political conditions might favor camelid production for exchange, or push communities out of pasturage lands and into defensive settings (hilltops) that favored increased agriculture. The complex politico-economic dynamics of agropastoral production can be seen today in the Yaretani Basin. Modern communities are much more agricultural in their agropastoral mix than in the recent past, bolstered by a burgeoning world market for quinoa and national capitalization schemes that made possible the acquisition of tractors to more members of the community (Platt 1987; West 1988).

1.3 The Ethnohistoric View: Poor Chiefs?

There is considerable discussion in the *señorío* literature of the sociopolitical structure of the *señorío*s, but treatment of leaders' actual activities and lifestyles is sketchy and inferential. Much ethnohistorical information is derived from Spanish accounts dating to the first centuries when native leadership was being redefined in accord with colonial administrative and legal purposes. Scholars reconstructing *señorío* political economy at the time of Conquest generally stress its relatively egalitarian and heterarchical nature, noting, for example, that resource ownership was vested in groups, not individuals (Platt 1987, Rivera Cusicanqui 1978). The principal authority at a regional level (the *señorío* level), was the *Mallku* mayor (*Capacmallku*), of the *Urcosuyo* moiety, who held the "power of decision" over the members of all the *ayllus* and *estancias* (Izko 1992; Platt 1987; Rivera Cusicanqui 1992). This *Mallku* has been described as a mainly ceremonial leader and mediator in land tenure disputes, although he also had the authority to decide to go to war (Izko 1992; Platt 1987; Platt et al. 2006). The second figure (*Segundo*

mayor) was the *Mallku* leader of the *Umasuyo* moiety, and a third authority figure was the *Jilaqat'a* who mediated among the members of the different *ayllus* (Izko 1992; Rivera Cusicanqui 1992).

Cross-culturally, leadership, as well as the basis for social inequality, may be rooted in economically based strategies (staple and wealth) and/or prestige based strategies (Earle 1997). Staple strategies involve domination of subsistence production, while wealth strategies involve domination of the production, circulation, or accumulation of high value (typically imported or craft-good) items (Brumfiel and Earle 1987; D'Altroy and Earle 1985; Earle 1997; Gilman 2001; Hastorf 1990; Tripcevich 2010). Prestige based strategies are those activities that bolster leadership or social differentiation in the absence of strong economic inequality or wealth differences. Leaders or elite may dominate ceremony, judicial duties, or mobilization of labor through charisma or kinship institutions (Drennan and Peterson 2012; Earle 2001). In these cases, hierarchy rests on ideology, rather than directly on economic processes, so that leaders may be powerful without being wealthy, and resources are more likely to be mobilized for "communal" rather than personal undertakings.

Current reconstructions of the Bolivian *señorío*s emphasize the greater role for prestige strategies in leadership than for economically based staple or wealth strategies. These reconstructions highlight authority constructed through ritual observance (including ancestor veneration), redistribution, and ceremonial expressions of reciprocity (Janusek 2004). Power rested on control of people, rather than control of resources directly. A leader's social and symbolic capital lay in the number of people offering obedience and respect, rather than in material goods (Nielsen 2014:106; Ramirez 1998:217). Wealth goods and surplus were managed by leaders for conspicuous, redistributive generosity, ceremonial display, funding communal projects, and commensal politics (Nielsen 2006a). In the case of the Southern *señorío*s of Quillacas and

Charcas, Platt (1987) has argued that the *senoríos* had no "visible" leaders controlling people in everyday situations, but leaders who only become visible in case of conflict or for integrative ritual (Bouysse-Cassagne 1987; Izko 1997; Platt 198t; Rivera Cusicanqui 1997). A leader's high value goods tended to be items of adornment and ritual, including drinking vessels, emblems of office, and clothing symbolic of authority (Nielsen 2014; Ramirez 1998; Rivera Casanovas 2004:9). There are no early ethnohistoric accounts of lavish *Mallku* lifestyles, and Nielsen (2014) characterizes them as "poor chiefs".

1.4 Questioning the *Señorío* Model

Although the *señorío* construct is widely accepted among scholars as describing late prehispanic *altiplano* sociopolitical organization, there are several reasons the construct should not be projected uncritically into the prehistoric past. Among these reasons: (1) The ethnohistoric accounts describe a situation existing for a relatively brief period of societal upheaval associated with the Inka and Spanish Conquests, yet are taking as representing perduring native patterns (Murra 1968); (2) The construct focuses more on formal leadership domains (particularly the pervasiveness of kinship and ritual authority) rather than on the lifestyle of leaders themselves; (3) The construct (and the sources from which it derives) is most concrete in describing dynamics at the macro or superregional level. Many of the ethnohistoric accounts are concerned with abstract principles of political interaction at the higher levels of the *señorío* and have little to say about governance at lower levels, including that of the community. It may be that at the *ayllu* or local level, leadership was much less divorced from economic processes; (4) The ethnohistoric accounts themselves raise questions about the assumed separation of leadership from economic processes.

As several scholars stress, the *señorío*s were stratified societies with "hierarchies of groups rather than individuals" (Lecoq 1999:83; Nielsen 2006a, 2014:105; Rivera Cusicanqui 1978). The highest tiers of the hierarchy drew from only certain *casas principales,* and these privileged lineages, "enjoyed the resources "…that corresponded to their founding ancestor" (Nielsen 2014:104). These corporate leadership groups may have been both powerful and wealthy, controlling prime parcels of land, large camelid flocks, and exchange of valued goods (Arze and Medinacelli 1991; Espinoza Soriano 1969; Medinacelli 2010; Nielsen 2006a; Platt 1988). Wealthy leaders are attested to in colonial era accounts. The *Mallkus* of Quillacas held lands in the valleys of Cochabamba, Potosí and Sucre, and are described as wealthy individuals that monopolized trade within and between *ayllus* in maize, meat, and coca leaves (Rivera Cusicanqui 1978); (5) Finally, in regions that have seen good archaeological study of the late prehispanic period such as the northern *altiplano* (north of Lake Titicaca), the archaeological studies undercut key aspects of the *señorío* scenario (Arkush 2008, 2014; Frye 1997; Frye and de la Vega 2005). The Lupaca and Colla are ethnohistorically portrayed as hierarchical polities governed by hereditary lords (Murra 1968). Yet, in contrast, the archaeological record indicates numerous autonomous, local-level polities in conflict with one another, little in the way of settlement hierarchy, and only "subtle status distinctions within communities" (Arkush 2008:345; Stanish 2003:14-15). Fry and de la Vega (2005:184) conclude "at present there are no archaeological indicators to suggest the existence of a Lupaqa king, a Lupaqa capital, or a unified Lupaqa confederation during the *Altiplano* Period."

As described below, there is also solid archaeological evidence indicating wealthy or economically dominant leadership in the late prehispanic Cinti Valley, Chuquisaca, Bolivia, identified ethnohistorically as part of the Qaraqara *señorío* (Rivera Casanovas 2004).

In sum, what is needed to better understand leadership (whether by households or groups of households) in the Bolivian *señoríos* is investigation at leadership sites (*markas*), documenting their development, functions, and residential status, wealth, and economic patterns.

1.5 Archaeology of the *Marka*

To date, there have been only a handful of investigations of *marka* sites in the southern *altiplano*, mostly of very limited fieldwork: Laqaya Bajo, a large (5 ha, 200 structures) center of the Lipez *señorío* (Nielsen 2006b, 2014); Caquiaviri (20 ha, 70+ structures), of the Urco segment of the Pacajes *señorío* (Pärssinen 2005). Just to the west of my research zone, Lecoq (1999) excavated houses, storages structures, and burial caves at a likely Aullagas-Uruquillas *marka* site (*Ayllu* Hatari) of Acalaya. Like Puqui, Acalaya consists of a complex of site components. The LIP component (Loma Acalaya) includes over 400 structures (both residential and storage), terraces, and burial caves. Roughly 400 contiguous sq. m of residential and storage structures were exposed, but the published data does not allow for any intrasite comparison (Lecoq 1999). More intensive work has been done at Pukara de Khonko, a probable Pacajes *marka* (500 structures) near Lake Titicaca (Zovar 2012). Here residential, public, and mortuary contexts were mapped and test pitted. Analysis of structure size and the extremely sparse floor assemblages from roughly 20 structures suggested specialized workshop and storage buildings, but no evident household wealth/status differences.

The most comprehensive investigation of leadership at a likely Bolivian *marka* (of the Qaraqara *señorío*) was done far to the southeast, in the Cinti Valley. Here, Rivera Casanovas (2004:161) found that C-48, the largest late prehispanic (LRD Period; AD 800 - 1430) center in

the Valley, was differentially associated with agricultural terraces and canals. C-48 exhibited strong internal residential status/wealth variation, with a "leadership segment" in Sector 3 differentiated by houses of more elaborate architecture and higher proportions of decorated pottery and serving vessels. Sector 3 households did not stand out in terms of craft or prestige goods (Rivera Casanovas 2004:163). She (2004:170-1) concluded, "C-48 indicates that the *marka* has more of the attributes of the central place in the traditional, hierarchical models than implied in the current *ayllu* models." Notably, none of these investigations provide significant information on the diachronic *development* of the *marka* site.

1.6 The Timing of *Señorío* Development: The Middle Horizon – Late Intermediate Transition

A second critical investigative issue is the time-depth of the socioeconomic pattern described in the ethnohistoric accounts. The Middle Horizon - Late Intermediate Period has been intensively investigated in the Lake Titicaca basin, but the patterns seen here should not be extrapolated to the very ecologically and politically different southern *altiplano* (Albarracín-Jordan 1996a, 1996b; Stanish 1992; 2003:14, Stanish et al. 2002; Zovar 2012). The limited archaeological research in the southern *altiplano* means very little is known about leadership and social inequality in southern *altiplano* Middle Horizon Period (AD 500 – 1200) populations; thus (unlike the case for the Titicaca Basin), we lack information on the antecedents of the supposed *señorío* configurations. It has been proposed that the *señorío*-type configurations, if not the polities actually named ethnohistorically, were of great time depth in the deep southern *altiplano*, originating in the Middle Horizon Period (Nielsen 2002).

However, the prevailing view is that the *señorío* polities emerged in the 11th or 12th centuries directly from the sociopolitical fragmentation of the Middle Horizon Tiwanaku Empire (Albarracín-Jordan 1996b; Arellano and Berberián 1981; Janusek 2008; Michel 2008; Stanish 1997). In contrast, researchers in the northern *altiplano* have argued that the polities encountered by the Inca reflect marked societal shifts near the end of the Late Intermediate Period, around AD 1300 (Arkush 2008, 2011), or even later, through opposition to and administration by the Inca empire (Nielsen 2002; Stanish 2003:14).

There have only been three large-scale investigations of the MH – LIP transition in the southern *altiplano*. In Oruro, McAndrew's (2005) systematic survey of the La Joya zone examined changes in settlement from the Formative through Inca Periods. A Middle Horizon nucleation was represented by the 8 ha site of Jachakala; a socially stratified community with elites households clustered in the northern portion of the site differentiated from other residents through their greater use of Tiwanaku-style pottery (particularly serving ware), household storage, possession of exotic goods, and camelid consumption (Beaule 2003, 2012). Jachakala was abandoned around the time of the Tiwanaku Empire's collapse, and the region's population both grew and dispersed. Most Late Intermediate settlement consisted of scattered homesteads, with no evidence for settlement hierarchy or internal wealth differentiation (McAndrews 2005:105). This pattern persisted with little change through the Late Horizon.

Michel (2008) surveyed roughly 40 km^2 in the area surrounding the *marka* (Quillacas) of the prehispanic Quillacas – Azanaques *señorío*). The Middle Horizon population was aggregated into villages, often associated with agricultural terracing such as at the center of SH9. Michel argues that sociopolitical complexity emerged in this period through elite domination of staple surplus (agricultural and camelids) and domination of a burgeoning Middle Horizon caravan trade

associated with the Tiwanaku Empire (Lecoq 1999; Michel 2008). Lecoq (1999) links this emergence of complexity to climate changes around AD 600 that favored sedentary agriculture. While few Tiwanaku materials were found at SH9, Michel treats the imported basalt at the site as evidence that site residents were involved in an important trade network supplying urban Tiwanaku with material for agricultural implements. Occupation continued at SH9 through the Late Intermediate Period, (or Late Regional Development in Michel's chronology; AD 900 – 1450), during which regional population increased. There was no marked dispersal of settlement or abrupt abandonment of sites at the end of the Middle Horizon. Michel (2008:197) identifies the Quillacas – Azanaques *señorío* as developing at the beginning of the Late Regional Development Period, "as indicated by the use of a common ceramic style".

Further south, just to the west of my research area, Lecoq's (1999) survey of a zone of the Aullagas-Uruquillas *señorío* identified at least 44 late prehispanic fortified sites in an area of 75km^2. He argues that this indicates a period of conflict stemming from the AD 1200 onset of a prolonged drought. Unfortunately, Lecoq (1999) does not present much information on Middle Horizon ("Expansive Tiwanaku") settlement in this zone. He does not posit a significant role for the Tiwanaku polity in sociopolitical dynamics here generally. Although he writes of very strong continuity in settlement patterns from the Middle Horizon through the Late Intermediate Period, his map shows a marked increase in the number of sites in the Late Intermediate, the construction of several large pukaras, and a shift in settlement preference to hill side and hill top elevations. Given the distribution of storage structures and corrals, Lecoq (1999) suggests that Late Intermediate Period elites may have been controlling staple production.

1.7 Research Questions

Central research questions for my research included:

(1) Did the Yaretani population exhibit continuity through time in agropastoral balance, demography, and sociopolitical organization, or were there fairly abrupt changes?

The idea that Andean agropastoral societies persisted relatively unchanged through the centuries, save for episodes of imperial reorganization , has tended to dominate reconstructions of south central Andean prehistory This passive and simplistic view of the enduring peasant Andean agropastoral lifeway has prevailed into modern times, and it is now slowly changing thanks to more historical research and study of present day Aymara communities (Eisenberg 2013; Laguna 2011; West 1981). For example, such work has underscored that particular agropastoral stances cannot simply be projected into the historic or prehistoric past. The mix of agriculture and pastoralism in *altiplano* agropastoral adaptations is dynamic and highly responsive to overarching politico-economic conditions as well as to shifting grass-roots strategies. Analyzing settlement patterns reveals if there were significant shifts through time in agropastoral mix and/or settlement hierarchy, and whether such shifts were related.

As explained in Chapter 3, one line of evidence I used to evaluate the agropastoral mix was occupation relative to zones of differing agropastoral potential. Occupation in zones of higher pastoral potential was treated as reflecting herding activity, while occupation in zones of higher agricultural potential (including areas of terracing) was treated as reflecting farming activities.

Proportions of artifacts assemblages and architectural features were also used as proxies for evaluating the agropastoral mix. A greater proportion of stone hoes, grinding stones, and storage facilities were treated as agricultural production related, while a greater proportion of scrapers and similar stone tools were treated as relating to animal processing and herding. These

categories form admittedly very rough proxies, but are built on the reasonable assumption, for example, that an increased emphasis on agriculture would be manifested in more evidence of occupation in areas of highest agricultural potential and increases in proportions of farming implements such as hoes.

Settlement analysis also allows assessing the degree to which non-subsistence factors may have shaped settlement patterns, including warfare, trade, and political centralization. Of particular interest was documenting changes in population size in the survey region. Regrettably, few of the previous archaeological investigations in the southern *altiplano* have generated data that could be used as demographic proxies (even basic figures such as site sizes and surface artifact densities), and none of these studies attempted to estimate the population represented by the archeological materials. Early colonial census data of tributary people for the Yaretani indicates a low residential population for the region. A relatively low population is consistent with historical and modern population levels, and, as my work revealed, with estimated Late Horizon Period population. However, the assumption that low regional population density characterized all prehispanic periods in the region has contributed to the perception of the southern *altiplano* as "marginal." As my research shows, in fact, occupation during the Middle Horizon and Late Intermediate Periods in the Yaretani Basin had a size and complexity not seen since.

(2) ***In what ways did the potential leadership sites (or marka sites) differ from other sites?***

Prior to my dissertation fieldwork, I had identified the Puqui Complex as the likely central place or *marka* site in the Basin. The dissertation fieldwork revealed a more complex picture, less centralized picture, with a half dozen or so centers or potential *marka* sites in the Middle Horizon and Later Intermediate Periods. My analysis examples whether residents of these potential *marka*

sites were differentially involved in: (a) ceremony (as seen in disproportionate amounts of public spaces such as plazas, mortuary facilities such as *chullpas* relative to site size, and in relatively higher proportions of ceremonial items such as *challadores*); and (b) staple production, as seen in higher proportions of storage structures and basalt hoes. Analysis also examined whether these potential *marka* sites were distinguished by relatively higher proportions of particular artifact categories (decorated pottery, serving vessels, large storage vessels, long-distance trade material, imported lithic material) than other sites. The overall objective, then, was to assess settlement hierarchy in Middle Horizon and Late Intermediate Periods, identify some of the central place functions or attributes of higher order (potential *marka*) sites, and assess how this hierarchy or central place functions may have changed through time.

One research goal was to the time depth of the *señorío* settlement pattern ethnohistorically documented at the end of the Late Intermediate Period. In particular, I sought to know whether the *señorío* pattern emerged early (in the Middle Horizon), with the beginning of the Late Intermediate (Michel 2008; Zovar 2012), or closer to the time of Inka Conquest (Nielsen 2006; Platt et al. 2006).

(3) ***If there was a leadership stratum residing in Yaretani communities, in what activities was it engaged?***

It is assumed that the *ayllu marka* site would be home to an "elite" or leadership stratum and/or the activities associated with it. Therefore, intrasite analysis of architectural and artefactual patterns should illuminate the processes (economic, social, and ritual) associated with leadership. Both this research question and the previous one aimed at allowing us to choose between the two important alternatives argued for the *marka* community: either as the residence of "poor chiefs"

whose authority lay in ritual (as in the "*señorío* model"), or as leaders that dominated economic processes (as suggested by Rivera Casanova 2004 and Lecoq 1999).

In doing so, I look at intersite and intrasite variability in: (a) wealth (as measured in proportion of decorated ceramics and fineware); (b) staple production (storage capacity, grinding stones, and stone hoes); (c) craft production (including bead working); (d) ceremonial activities (access to ritual paraphernalia, proportions of ritual objects, proximity to ceremonial features such as plazas and monumental tombs); (e) conflict (presence of fortifications); and (f) long-distance exchange (proportions of imported pottery and obsidian). In doing so, I can address several specific hypotheses concerning sociopolitical complexity in the southern *altiplano*, including one that sociopolitical complexity in the southern *altiplano* emerged through local leaders dominating Middle Horizon (AD 500 – 1100) caravan trade particularly that associated with the Tiwanaku Empire (Lecoq 1999; Michel 2008). By comparing the degree of wealth differentiation between Middle Horizon and Late Intermediate Period potential *marka* sites, I sought to examine how such leadership processes may have changed in the Late Intermediate Period, perhaps even diminishing with the supposed materially egalitarian principles of the *señorío*.

Some of the results of this intracommunity analysis are presented in Chapter 6. However, the difficulty encountered in distinguishing in a clear way a household or set of households likely to have represented a leadership stratum at larger sites meant to some extent that my findings in this dissertation are largely based on patterns at the inter-site level.

2.0 PAST AND PRESENT OF THE YARETANI BASIN

The study area (Figure 2.1) is located in the Department of Oruro, in the Ladislao Cabrera Province. It lies about 800 kilometers from the city of Oruro and north of the Uyuni Salt Lake (Figure 2.2). The region's main modern economic activity is quinoa cultivation.

Figure 2.1. North of the Yaretani Basin

2.1 Archaeological Background

The southern Bolivian *altiplano* presents a long sequence of occupation. The Archaic Period (4000-2000 BC) has not been thoroughly studied. The few investigations providing information on the Archaic suggest that the settlement pattern consisted of small seasonal hunter

and gatherer camps (Michel 2008). Most of the sites were located next to river courses, lakes and grazing lands (Capriles et al. 2011). Investigations carried out in the northern zones of Chile also suggest that camelids begun to be domesticated during the later phase of this period, but the hunting of wild species such as vicunas and guanacos prevailed as the most important source of meat (Cartajena et al. 2007).

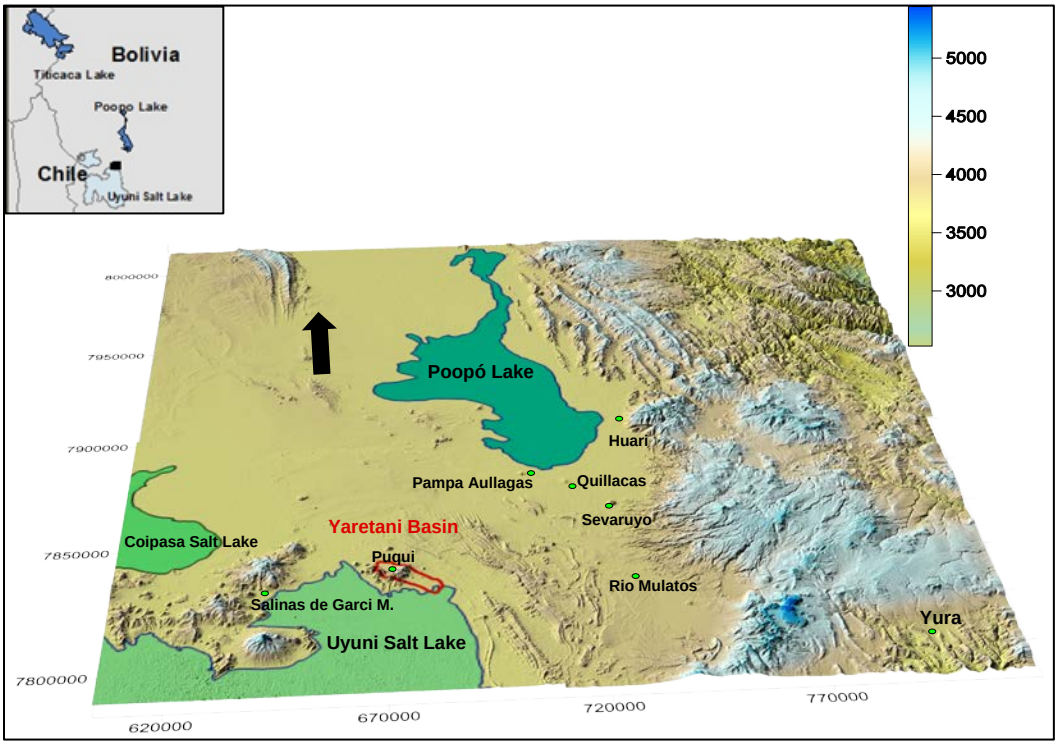


Figure 2.2. Southern Bolivian *Altiplano*, showing the Yaretani Basin, and other referenced locations

The Formative Period (800 BC- 400 AD) is characterized by the Wankarani archaeological complex of central Oruro, an early semi-sedentary, agropastoral villages, with little evidence for social inequality (Bermann and Estevez Castillo 1995; Capriles 2014; Drennan and Peterson 2011). The long-term occupation at some of these settlements lead to the formation of large and visible earth mounds (Bermann and Estevez Castillo 1995; Ponce Sanginés 1970). Several

investigators have concluded that the Wankarani settlement pattern corresponded to sedentary villages with an agropastoral economy (Fox 2007; McAndrews 2005; Rose 2001). Most of the Wankarani settlements were located near water courses, large rivers or lakes, and thus near grazing lands (Fox 2010; McAndrews 2005). Some Wankarani settlements display corrals. These strategic places were well located to facilitate foddering domestic camelids, hunting wild camelids, or smaller animals, fishing, gathering wild resources, and cultivating crops (quinoa, potato) on a seasonal basis.

However, more recent investigation in the zone of Iroco has led to an argument that these early populations were mobile pastoralists with, at best, incipient cultivation (Capriles 2014). Capriles (2014) argues that the population here relied mostly on mobile herding and foraging. On the other hand, the presence of storage facilities next to houses and the density of stone hoes suggest that agricultural practices were not marginal in the Formative Period and that invested in storing significant food surpluses. Storing quinoa could have been a way to cope with bad agricultural years.

The subsequent Middle Horizon Period (AD 500-1100) saw an increase in social complexity among the societies living in the southern highlands of Bolivia. A possible exception to this trend may be in zones to the south and east of Uyuni Salt Lake where researchers suggest the presence of corporate groups with little evidence of inequalities during this period (Cruz 2009). However, this work was not comprehensive in its study of social differentiation. Investigators suggest that this growth in social and political complexity was mainly influenced by a greater reliance on agriculture (Lecoq 1999; Michel 2008), interaction with the Tiwanaku state to the north (Capriles 2014; Michel 2008), or an increased in long-distance exchange and camelid caravan movement (Cruz 2009; Nielsen 2000). In general, settlement patterns during this period changed,

with occupations concentrating along hills where rain fed terraces were built and where natural water springs could be found (Lecoq 1999; Michel 2008). Although, the nature of the Tiwanaku states presence in the southern *altiplano* region is not yet well understood, Tiwanaku-style materials such as textiles, ceramics, metals and drug paraphernalia show up in almost all the studied settlements from the Middle Horizon Period (Cruz 2009; Michel 2008; Nielsen 2013).

The presence of Tiwanaku-affiliated material (originating from the city of Tiwanaku itself of manufactured elsewhere in the Tiwanaku style) in communities in the southern *altiplano* raises several possibilities. It is likely that the local populations were well connected to Tiwanaku, if not necessarily directly, though intensified long-distance exchange networks using llama caravans (Capriles 2014; Michel 2008). This scenario is supported by the presence in the research area of Tiwanaku-style pottery made in the Cochabamba Valleys to the east. It is also well established that raw materials (such as basalt) from were moving to Tiwanaku from southern *altiplano* sources.

One possibility is that the emergence of southern *altiplano* complexity could be related to the intensification of agricultural activities and the resultant accumulation of surplus by certain people pursuing staple finance strategies. Alternatively, or perhaps in conjunction, emergent elites may have also elevated their wealth and status by dominating these long-distance exchange networks (Michel 2008). In this way, drawing from the interaction network models proposed by Nuñez and Dillehay (1995) and re-evaluated by Berenguer (2004), the presence of Tiwanaku-style materials in settlements of the region reflects highly active circulation networks (Nielsen 2014) . These settlements would have been inter-nodal places, which form part of a larger and wider interaction networks that articulated the Circum-titicaca region with populations in the eastern Andean valleys of Bolivia and to the southwest in the Atacama Desert (Berenguer 2004; Nielsen 2014).

The Late Intermediate Period (AD 1200-1450) has been argued to have been concomitant with the early formation of the Quillacas-Azanaques Confederation, one of the major Aymara kingdoms of the southern Bolivian *altiplano*, emerging after the collapse of the Tiwanaku polity with its presumed associated political and economic changes (Medinacelli 2010). Radio Carbon dates taken at the Intersalar Zone, suggest that this late date for the start of this period (see Lecoq 1999:168, Cruz et al. 2017). Prior to the research described here, no archaeological projects have taken place in the Yaretani Basin, but two were carried out along the neighbor area of the Intersalar Zone and these provide some information on Late Intermediate Period settlement in the region. These minor projects offered an interpretation of the Late Intermediate Period as a time of political conflict in the area, evidenced by the founding of pukara sites. These projects also suggest the emergence of an important ancestral veneration tradition manifested in funerary towers (Lecoq 1999). However, these minor surveys were not designed to explore centralization or hierarchy, nor to provide a statistically based picture of occupation. In contrasts to the Intersalar, research in the southern Basin of the Poopó Lake, a zone also occupied by the Quillacas-Azanaques Confederation, did not reveal marked changes in settlement patterns with the beginning of the Late Intermediate Period, and some settlements of the Middle Horizon Period continued to be occupied throughout the Late Intermediate Period (Lima 2008; Michel 2008; Sejas Portillo 2014). Also in contrast to the Intersalar Zone reconstruction, fortified settlements have not been identified in the southern Poopó Lake Basin (Michel 2008). Cruz et al. (2017) argue that agriculture emerged as main activity during the Late Intermediate Period, associated with warmer climatic conditions. Rain fed terrace populations would have been able to rely more on agriculture, leading populations to concentrate around zones of greater agricultural potential.

The Late Horizon Period (AD 1450-1530) is signaled by Inka conquest of the region. Conquest included the construction of roads and administrative centers, as well as changes in the social organization of the Quillacas-Azanaques Confederation (Lima 2008; Sejas Portillo 2014). The regional and local changes implemented by the Inka state have not been as extensively studied as in other areas of the Inka Empire, (Albarracín-Jordan 1996; Pärssinen 2003; Arkush 2011; Stanish 1992), so the impact of Inka conquest on the southern *altiplano* remains largely based on fragmentary ethnohistoric records. The few archaeological investigations on the Quillacas-Azanaques Confederation suggest that the Inka state induced made important social and economic changes in the interaction networks of local populations, reorienting interaction and exchange of goods towards the populations living to the north (the Pacajes territory), instead of those the valleys of Potosí and Chuquisaca to the south and east (Lima 2008; Sejas Portillo 2014).

Two Inka state administrative centers have been identified for this period: Tambo de Sevaruyo (12 ha) and Tambo de Huruquilla, each with large *kallanka* buildings, circular residential units, and storage structures. These sites were located near the principal road and next to grazing land (Lima 2005; Sejas Portillo 2014). It is possible that the Tambo de Huruquilla was expanded following the Spanish Conquest, whereas the Tambo Viejo de Sevaruyo was densely populated during prehispanic times (Lima 2005; Sejas Portillo 2014). Only a few agricultural tools have been found in these settlements, and their location closer to prime areas for herding suggests Inka interest in pastoralism (Sejas Portillo 2014). In particular, the proximity of the Viejo de Sevaruyo to the Rio Sevaruyo and the large grazing land connected to it, suggest the importance of this place in the movement of people and animals going north-south. It is likely that the *kallanka* was used to store food, possible quinoa, maize, and potato, from different areas, since this tambo was one of the larger settlements located next to the main Inka road. These tambo had a total of 48

residential structures (quadrangular and circular) with an average density of 7 sherds/m^2. The circular houses have a diameter of 5 meters and the quadrangular houses have a size of 9 x 4 meters. Quadrangular houses were clustered in sector displaying higher proportions of imported Inka ceramics. Those living in the circular houses were using more locally manufactured pottery.

2.2 The Quillacas-Azanaques Confederation

The Quillacas-Azanaques Confederation sprawled over the modern Department of Oruro and part of the Department of Potosi in southwestern Bolivia (Bouysse-Cassagne 1987; Espinoza 1981) (Figure 2.3).

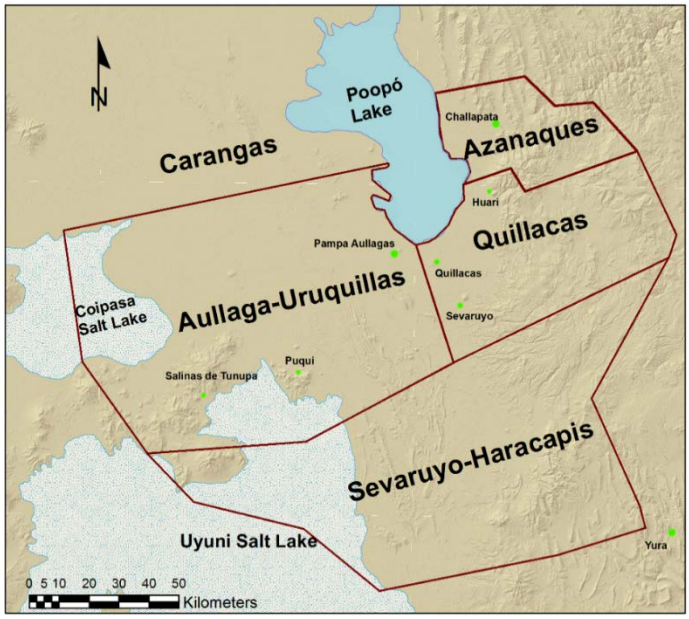


Figure 2.3. Political division of the Quillacas-Azanaques Confederation, based on Lecoq 1999, and Abercrombie 1998

According to some of the earliest historical documents, the Confederation included three important *señoríos*: the Aullagas-Uruquillas, the Quillacas, and the Azanaques. Later accounts add to these the Sevaroyo-Haracapi, and a reduced ethnic group of Uros. This confederation was named after its two most important *señoríos* (The Quillacas and the Azanaques) and ended up as one largest of the southern *altiplano* (Espinoza 1981). According to the *visita general de* Toledo (a systematic indigenous population census, which took place during 1570 and was reported to the Spanish Crown, there were a total of nearly 10.000 people living in the territory of this Confederation (Cook 1975). The Quillacas-Azanaques had a population of nearly 6.000 people (2550 tributary), and the Aullaga-Uruquillas' population was 4.750 (1371 tributary) people during that *visita*. The total population of the Confederation was nearly half of the people living at the *señoríos* to the north (*señoríos* such as the Pacajes had close to 20.000 people and the Soras in Paria had 17.400 people). The people from the Quillacas-Azanaques Confederation were known for having a pastoral-focused economy, in opposition to *señoríos* from the oriental Andes valleys who were routinely characterized as agricultural groups (Espinoza 2003; Platt et al. 2006). Early chronicles, such as the *Memorial de Charcas* (1582) in describing the Quillacas-Azanaques Confederation repeatedly note that its territory was not adequate for extensive agricultural production, and that it needed to obtain agricultural products from the valleys of Potosí and Sucre (Espinoza 2003; Platt et al. 2006).

Members of Colque Guarache family were principal authorities over the Quillacas-Azanaques Confederation for several generations following Inka conquest. The Inka emperor Túpac Yupanqui, arrived in Confederation territory with a large army and "negotiated" with Juan Colque the affiliation of the Confederation with the Inca Empire. After Inca Colque died, his son Juan Guarache took over his father's position and was invited by the Inca emperor Hayna Capac

to Cuzco where he was given gifts and treated as part of the nobility in order to formalize the alliance with the Inka Empire and to cooperate with its expansionist designs to the south (Espinoza Soriano 2003). Both Juan Guarache and his son Juan Colque Guarache subsequently collaborated with the Spanish for many years, and were formally recognized as the chiefs of the Quillacas and the Aullagas-Uruquillas (Cajias de la Vega 2004; Espinoza 1981). The Quillacas had a line of patrilineal succession restricted those of royal blood. The principles of political succession were apparently similar to the Inka royal genealogy, and also to some extent European royalty, which could explain the persistence in time of indigenous nobility rights through both Inka and Spanish annexation.

The structure of the Aymara or "ethnic" *señorío* is known principally from ethnohistoric and ethnographic accounts rather than archaeological research. These accounts depict the *señorío* as a distinct, territorially based, sociopolitical group, whose members differentiated themselves from the members of other *señoríos* through distinct customs, beliefs, and clothing styles (Platt 1987). Drawing from ethnohistoric accounts, most researchers describe the sociopolitical structure of the Aymara confederations and *señoríos* as segmentary in nature, organized around moieties (Anansaya and Urinsaya) in which the basic social unit was the *ayllu*, a kin-collective group (Bouysse-Cassagne 1987; Izko 1992; Platt 1987; Rivera Cusicanqui 1992). *Señoríos* were not necessarily simple, nested segmentary polities however. Confederations or *señoríos* belonging to particular moieties, such as the *Urcosuyo* moiety (or Anasaya in quechua) had more prestige than ones belonging to the *Umasuyo* moiety (or *Urinnsaya* in quechua) (Bouysse-Cassagne 1987; Platt 1987).The principal authority of the *señoríos* was the *Capac Mallku* from the *Urcosuyo* moiety, and he had power to influence lower level *Mallkus* and *Jilaqat'as* (Figure 2.4).

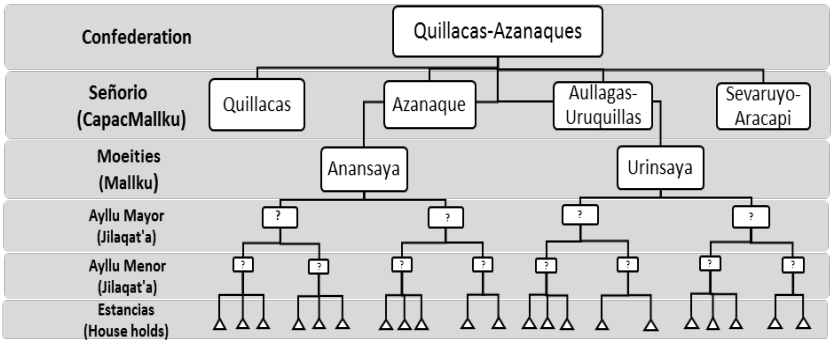


Figure 2.4. Segmentary sociopolitical organization of the Quillacas-Azanaques Confederation (based on Espinoza 1981; Abercrombie 1997)

In general terms, the principal role of the *mallku* was to mediate conflicts about land tenure and major disputes between *ayllus* (Izko 1992). The *ayllus* were integrated at the regional level through centers (*markas*) where periodic ceremonies brought all of the segments together (Izko 1992; Rivière 1983).

2.2.1 The Aullagas Uruquilla *señorío*

At European contact, my research zone of the Yaretani Basin was occupied by the Aullagas-Uruquillas *señorío* of the Quillacas-Azanaques Confederation. Ethnohistoric information on this *señorío* is predictably scanty even by southern Bolivian standards, lying mostly in some accounts on the *encomienda* and *repartimiento* of Salinas de Garci Mendoza. The Yaretani area sometimes merited mention because its silver, copper, and salt mines exploited during Inka and Colonial times (Espinoza 2003). This *señorío* differed from neighboring ones of the Confederation in speaking a different language (Uruquilla) and in material practices such as distinctive headdresses and clothing (Espinoza 2003). For the first half of the 16th-century, the Aullagas-Uruquillas *señorío* loosely corresponded to an *encomienda* belonged to Alonso de Hinojosa, who reported a total of 1350 tributary individuals, and around total 4750 persons. The

neighboring Quillacas-Azanaques and Sevaruyos-Haracapis *señorío* formed another encomienda administrated by Lorenzo de Aldana, who reported in 1548 a total of 1200 tributary individuals and a total of 6000 people living there (Rojas 1958 [1548]). Among tributary individuals, most were working under the *mit'a* system (forced labor) in the silver mines in Potosí, with others sent to work in the agricultural fields of the La Plata valleys (Espinoza Soriano 1981). During this period, local chiefs continued to have authority over their people, and were not removed by Spaniards; for example, Juan Guarache remained as the chief of the Confederation (Espinoza Soriano 1981). In the 1550's the *encomiendas* were replaced by the *repartimientos*. The Aullagas-Uruquillas population was split between two mayor repartimientos of the *Provincia de Paria*: San Miguel Pampa de Aullagas and Salinas de Garci Mendoza (Cajias de la Vega 2004; Espinoza Soriano 2003).

The Salinas de Garci Mendoza silver mines continued to be worked, together with salt mines producing salt for the refining process. This *repartimiento* was given to Pedro Hinojosa, and included three named *ayllus* - - Culle; Guatare; and the Anejo-*ayllu* of Challacota - - each with relatively large memberships (Cajias de la Vega 2014, Espinoza 1981). The *repartimiento* had 1598 registered habitants, of which 652 were from the Culle (Kulle Yaretani) *ayllu*, 710 from the Guatari *ayllu*; and 236 from the Anejo *ayllu* of Challacata (Cajias de la Vega 2004). Historic documents also note that the Culle *ayllu* was the place where the native *caciques* lived (Cajias de la Vega 2014). After the rebellion of Tomas Katari (1780-1781), Spanish colonial authorities moved to reduce the power of indigenous hereditary chiefs, promoting the implementation of mestizo chiefs or Spanish-descent chiefs, who engaged in abusive and excessive tribute collections, and appropriations of indigenous land (Cajias de la Vega 2004; Platt 2015; Soux 2010).

During the early Republican era, land was not returned to indigenous communities, although that was part of Bolivar's plan in the creation of a free state (Platt 1982; Soux 2010). Indigenous communities still had to choose legal representatives (*apoderado*), and tribute collecting (*recaudadores*) *mallku*s (Platt 2015). These *apoderados* and *recaudadores* often robbed or otherwise took advantages of communities, which sometimes triggered the indigenous revolution movements (Platt 1982; Medinacelli 2010). Chieftainships in Oruro went into a period of crisis during which many high ranked chiefs (*mallku*s) squabbled over legitimacy and legacy rights. During this period it was generally the lower rank chief (Jilacatas) who took over governance of the communities (Cajias de la Vega 2004; Soux 2010).

Today, the current town of Puqui is the largest settlement of the Yaretani Basin but it was only founded in 1901. According to oral history, Puqui was founded when people living in three *estancias* nearby (at walking distance of less than an hour) decided to make this location their new home. The descendants of three Guarache (today Huarachi) brothers were living at these *estancias*, who after a major problem decided to each move to a different *estancia*. Few families not related by blood to the Huarachi were living in these *estancias* and in the vicinity of Puqui before its foundation, and most people welcomed the idea for reconciliation and integration to form one large community as there used to be in the past. According to historical records Cajias de la Vega (2014) the lands of the *ayllu* Culle (now Kulle-Yaretani) was the last known residency of the Guarache family near modern day Puqui, where the greatest number of families in the Basin having Huarachi (formerly Guarache) reside. Thus adding up oral history, archaeological evidence and historic records, we can recognize the vicinity of modern Puqui as the small *marka* for the Guarache led *ayllu*. It is this vicinity, a cluster of prehispanic sites, some multicomponent, which I refer to as

the “Puqui Complex.” The evidence points strongly to the Guarache (Huarachi) *marka* being one componet of this complex.

Local indigenous communities did not recover political autonomy until late in Republican times (1900’s) in Oruro, when they were able to re-organize their political basis of power, although some retained colonial era imports such as the cargo-system (Soux 2010). The city of Oruro became a national-level central place during Colonial and Republican times (Cajias de la Vega 2004; Soux 2010). The town of Salinas de Garci Mendoza became the municipal capital of the canton province, and the recognized *marka* for four *ayllus*: Kulle-Yaretani, Coracora, Thunupa, and Huatari (Izko 1992). The first two are from the Aransaya moiety and the latter two from the Urinsaya moiety.

2.3 Modern Cultural Context

2.3.1 The Kulle Yaretani *Ayllu*

Here I will present a description of contemporary *ayllu* organization and dynamics in my survey area. The extent to which these features resemble prehispanic patterns is arguable, and ultimately worthy of investigation, but they do represent a legacy (or native reinvention) of what are seen to be “indigenous” principles. My survey area included part of the territory of the *ayllu* Culle, now called Kulle-Yaretani. It is likely that much of the political structure of the *ayllu* Kulle Yaretani has its basis in the sociopolitical organization that emerged during colonial times. The *ayllu* Culle Yaratani totals 17 communities (among them Puqui, Catuyo, Quitamalla, Challuma-Orcoma, Chite and Sunturo) (Figure 2.5) near the Yaretani Mountain and the Yaretani Salt Lake

(the local section of what is more widely known as the Uyuni salt lake). This *ayllu* is one of the four "micro *ayllus*" of the macro *ayllu* that has its *marka* in the town of Salinas de Garci Mendoza.

The most important authority of the macro *ayllu* is the *Mallku*, followed by the Jilaqatas of the micro *ayllus*. Each year, the *Mallku* is elected from one of the four micro *ayllus*, on a rotating base. The Jilaqata for each micro *ayllu* is elected every year as well, in a *cabildo* (a large meeting to which all the members of the communities are welcomed to vote). The elected *Mallku* and Jilaqata leaders must have already served in each of the minor authority offices for his community (*Corregidor*, *Alcalde*, OTB, *agente* and *capillero*). The concept of *thaki* (the road that we are going to walk together) is very important for Aymara communities, and is manifested in the *cargo* system. The *cargo* (roles and services) can be divided into the political and ceremonial. Political cargos are positions to be (or to serve as) authorities of the community, *ayllu* or *marka*, and rotate every year. The ceremonial *cargo* consists of sponsoring patron feasts, mainly for saints, under the assumption under the usual principle in that the bigger the feast the bigger the returns from them (mainly in health and good fortune, but also in material things) (Quispe et al., 2002).

Figure 2.5. View of the modern Puqui town during the dry month of July

The Jilaqata is the highest rank authority of the *ayllu*, he and his wife are in charge of taking care of the problems that the minor authorities are not able to solve, of the general aspects of health, education, economy and development of all the communities in the *ayllu*, of intra *ayllu* litigation, and collecting property taxes from all the communities (Abercrombie 1998; Rasnake 1988). The Tata and Mama Jilaqata also have to organize rituals and ceremonies on behalf of the *ayllus,* for example the rain ceremony, which takes place if the rainy season has been delayed, and is performed on top the Yaretani Mountain. At the community level the highest authority is the Corregidor, followed by the *Alcalde*, OTB, *Capillero* and Agente. The local authorities are mostly responsible for the individual community in matters of health, education, and economy. They also need to participate in all ceremonies and ritual.

The two highest ranking authorities, essential leaders for the *ayllu*, can only be married men. However; it is very important for the members of the community to have a complementary and balanced (*lo masculino y lo femenino*) socio-political ambiance (Bouysse-Cassagne 1982; Platt 997; Quispe et al. 2002). Women who are authorities participate in meetings and give their opinion on a variety of topics. Female authorities (referred to as *Mama talla*) have the responsibility of preparing and serving food for the attendees of communal gatherings and ceremonies. Success in such commensal events is a basis for reputation and future vote-getting (Dietler and Hayden 2001). The reciprocity concept also applies very strongly in such events in the form of the *ayni*, people will come to give a hand with preparing food, to dance or to buy beer for their friends and family. Even though, the new left wing government (MAS political party, with Evo Morales as the head of the State) in Bolivia has promoted the resurgence, empowerment, and autonomy of indigenous sociopolitical organizations, the State still has a say in the politics of rural communities.

The *Mallku*, and Jilaqata will wear distinctive clothes on mostly everyday bases while they are authorities, a special poncho (most of the time red or brown), along with their cane of command (*baston de mando*) and whip (*chicote or kimsacharani*). Women who are authorities wear as their distinctive clothes a red skirt and a *manta* (wrap) with specific motifs denoting the place where they were born. They also carry a *tari* (piece of cloth used to put coca leaves for sharing); they and have matching *ch'uspas* (small bags for carrying coca leaves, woven locally with the symbol of the *ayllu* - - a flower similar to the Chinchircuma *(Bot. Mutisia hirsuta Meyem*). The *Corregidor* and *Corregidora* (amen and women authorities) only wear special clothes on special occasions, along with the symbols of authority. In the *marka* of Salinas, members of each of the four *ayllus* wear distinct colors of ponchos (men) and *polleras* (skirts, women); the *ayllu* Cuye-Yaretani wears green. Authorities usually wear red *polleras* or *ponchos*.

The cane of command is considered an animate object that will help the authority to overcome difficulties and successfully guide the community. The cane will give clarity and wisdom to the authorities when needed, and why it has to be treated well with its own ceremonial altar. During intercommunal meetings, the canes of command from different authorities are tied together so that unity will prevail over division with inthe *ayllu* (Figure 2). The Jilaqata and the *Mallku* have the biggest canes of command. These are made of wood and silver, and most have a colonial stamp of a crown on the silver upper part. The cane is passed from one authority to the next one and belongs to the community.

2.4 Environmental Context

2.4.1 Area of study

The Yaretani Basin covers an area of around 500 km^2, incorporating the Yaretani peak and slopes, arid flatlands, and a section of the Uyuni Salt Lake (known as the Yaretani Salt Lake). Elevations in the Yaretani basin range from 3.650 to 4.300 m.a.s.l. The environment of the Basin is mostly arid, with more characteristics of the southern than central *altiplano*. To the south is the Uyuni Salt Lake, one of the largest arid salt flats in the world, and winds off this lake create dusty, salty deposits in the southern section of the Basin. The landscape is characterized by sandy plateaus and scrub vegetation. Several rivers cross these plateaus, the most substantial being the Rio the Siliza.

In the Basin water is scarce, with small water courses and streams carrying water only during the rainy season. Year-round water is provided only by groundwater aquifers (Montes de Oca 1997:245), and larger rivers such as the Siliza and the Caja which usually have water year round are the source of the largest vegetative islands called larger bofedales that are critical locales for llama pasturage (Figures 2.6 and 2.7). These two rivers may carry water even during the driest years (historically), although the Siliza carries a large volume of water only during the wet season. Ground water springs are used mostly for drinking, but also as a source of agricultural irrigation. Springs are located throughout hills of sedimentary bedrocks emerging in ravines and in some cases, caves.

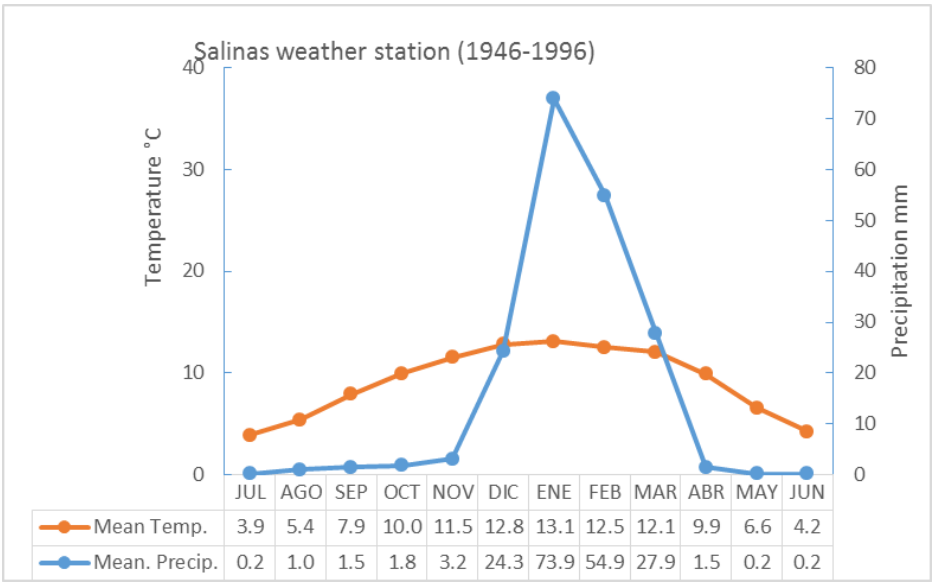
The soil of the region is mostly alluvial and was formed after the large Lauca Lake (or Pocoyu Lake) the biggest lake in southern *altiplano* (17 -15 ka) became extinct (Martin et al. 2018).

Mountains are of volcanic origins and hills are of sedimentary rock, such as sandstone. Soils are mainly sandy and with a high degree of salinity.

Figure 2.6. The Northwest limit of Yaretani Basin, with the larger Siliza bofedal in the middle

Figure 2.7. The Siliza bofedal during June, one of the drier months of the year.

The environment is arid, with typical precipitation under 250 mm annually, although inter-annual variation can range from no more than 60 m to more than 300 mm (Montes de Oca 2005). During the rainy season in more humid years, the salt flatlands may flood, but only for a couple of weeks. When this happens today, it severely impacts the quinoa plantations located there. The minimum average temperature during the coldest months could be -18 ºC, and during the warmest months 22 ºC, with an annual average of 9 ºC (Figure 2.8).



	JUL	AGO	SEP	OCT	NOV	DIC	ENE	FEB	MAR	ABR	MAY	JUN
Mean Temp.	3.9	5.4	7.9	10.0	11.5	12.8	13.1	12.5	12.1	9.9	6.6	4.2
Mean. Precip.	0.2	1.0	1.5	1.8	3.2	24.3	73.9	54.9	27.9	1.5	0.2	0.2

Figure 2.8. Monthly temperature and precipitation average between the 1946-1996 years recorded by the weather station in Salinas de Garci Mendoza (Data source SENAMHI Bolivia)

This area is today and historically considered marginal for agriculture because of the aridity. Historically, significant agriculture was limited to the rain fed terraces with potato and quinoa cultivated once a year. With the introduction of the tractor, metal plows, and mechanized irrigation with pumps, cultivation in flatland areas has become possible (Winkel 2011) (Figure 2.9).

Figure 2.9. Quinoa cultivation in terraces at Puqui, during the month of October.

During rainy months the landscape of the region changes with vegetative growth, providing expanded pasturage zones for camelids (Figure 2.10).

Figure 2.10. Jawasuyo terraces at Puqui, during the rainy month of February

The southern side of the Yaretani Basin is more arid than the northern side, and today occupation concentrates near the natural water springs (Figure 2.11). Pastoralism is also an important way of subsistence in this area. Over 20 families are still herders, but also practice agriculture. Quinoa and potato are the main crops cultivated in the Basin, with the modern commercial demand for quinoa making it the preferred crop. Both crops are planted during the months of September and October, so they germinate in time for the rainy season of December-February, when plants can fully grow. The importance of quinoa (*chenopodium quinoa wild*) lies in the capacity of this plant to adapt to high saline and arid soils. The quinoa only needs a small amount of water to sprout.

Figure 2.11. A view of the community of Chite, and the Salt Lake

During drier years, the overall production of quinoa declines, but because people spread their quinoa production in fields of different microclimate and moisture characteristics (flatland, hills, pie de Monte, even close to the bofedales) they are never left without a crop. In this sense, extensive cultivation of quinoa is a risk management strategy, a way for farmers to cope with interannual variability in rainfall in this arid environment. Another risk factor is frost, which can occur as frequently as roughly 200 days a year (Beck 1988; Montes de Oca 2005).

This region has a wide variety of native flora, among which *tholares (Baccharis incarum, Parastrephia lepidophylla and Fabiana densa)* are the most common. Other species include Lampaya *(Lampaya castellani),* Muña *(Minthostachys mollis),* Chinchircoma (*Mutisia lanigera Wedd),* Ayrampo (*Tunilla soehrensii*). There are several species of *paja brava (Stipa ichu, S. leptostachya, S. plumosa, Festuca orthophylla)* and *junquillos* (*Nassella asplundii Hitchc).* Several kinds of cactus produce edible fruits during January and February, among which *Echinopsis atacamensis* is one of the most common specie; the tall branches of this cactus be used as fuel and as building material. Among the wild animals in the region are vicunas (*Vicugna vicugna*), cougars (*puma concolor*), andean fox (*Lycalopex culpaeus*), rheas (*Rhea pennata*), chinchilla (*chinchilla chinchilla*), vizcacha (*Lagidium viscacia*) and a wide variety of birds (Montes de Oca 2005).

In order to have a better idea of the relationship between humans, their domesticated animals and crops in the past we can look at paleoclimatic proxies. Unfortunately, for this part of the *altiplano,* there are Holocene paleoclimatic reconstructions with the level of detail needed for easy archaeological comparison. In general, we can posit that shifts in the prehistoric settlement locations and subsistence patterns in the region could have been influenced by variations in climatic conditions (Binford et al. 1997; Chepstow-Lusty 2011). In this way, the Titicaca Lake

core records of fine-scale sediments associated with water levels through different periods of time, can offer a general picture of climate fluctuation over the last 5,000 years. Linking this with settlement shifts and political development (Abbott et al. 1997; Binford et al. 1997), even in the Lake Titicaca Basin where this data is most applicable, is problematic. Higher precipitation generally favors increased agriculture, while drier conditions contract vegetation to springs around which pastoral occupation might concentrate, while drier conditions also affect grazing lands size and distribution (Yager 2009). Recent archaeological research in the southern *altiplano* has shown that extensive agriculture was possible during the Late Intermediate Period (Cruz et al. 2017). If wetter conditions were possible after the 1300 AD this could have favored agricultural expansion during the Late Intermediate Period in the Yaretani Basin (Table 2.1).

Note that the Middle Horizon to Late Intermediate Period shift from dry to wet conditions in Table 2.1 does not take into account the severe drought (AD 100 – 1100) documented in the Lake Titicaca Basin. This drought is presumed to be southern Andean side, but whether or how this drought impacted the Yaretani Basin remains an important subject for future research.

Table 2.1. Chronology of archaeological periods and climate reconstruction, taken from Capriles 2011:110

BP	AD/BC	South Central Andes	La Joya	Iroco	Climate	Environment
0	1950	Republican	Republican	Republican	Wet	Lacustrine
125	1825	Colonial	Colonial	Colonial	Wet	Riverine
418	1532				Wet	Lacustrine
450	1500	Late Horizon	Late Horizon	Inca	Wet	Riverine
500	1450	Late Intermediate Period	Late Intermediate Period	Sora, Carangas	Wet	Lacustrine
650	1300				Wet	Riverine
850	1100	Middle Horizon	Jachakala	Tiwanaku	Dry	Dryland
1100	850		Isahuara		Wet	Riverine
1450	500		Niñalupita		Wet	Lacustrine
2000	50	Late Formative 2	*Hiatus*	Formative	Dry	Riverine
2350	400	Late Formative 1	Late Wankarani		Wet	Lacustrine
2950	1000	Middle Formative	Middle Wankarani		Dry	Riverine
3450	1500	Early Formative	Early Wankarani		Wet	Lacustrine
3750	1800	Terminal Archaic	?	Archaic	Dry	Riverine
4500	2550	Late Archaic			Wet	Lacustrine
5800	3850	Middle Archaic			Very Dry	Dryland
7900	5950				Very Dry	Dryland
10000	8050	Early Archaic			Wet	Riverine
12000	10050				Dry	Riverine

2.5 Assessing Agricultural and Pastoral Potential

From the Spanish Conquest until roughly a decade ago, this region as a whole was considered marginal for agriculture because of the aridity, frost threat, and poor, sandy soils. In historic times (until tractors and modern irrigation became more common in the 1970s), agriculture was limited to rain fed hill slope terraces, where quinoa (*Chenopodium quinoa*) and potato (*Solanum brevicaule*) were the principal crops. (Gasselin et al. 2010; Jaldin 2010; Medrano Echalar et al. 2011; Winkel 2011).

The extensive flatlands would have supported wild camelids and llama and alpaca grazing. Some herders in the area today have over 200 llamas, and llama flocks were even larger earlier in the 20th century. Today, with mechanized extensive quinoa cultivation in the flatlands, herding activities have been marginalized and pushed out of much of the flatland of the Basin floor. Previously, llamas were used also as a mean of transportation of products for exchange, such as wool, textiles, llama charqui, leather, *chuño* (dehydrated potato) and salt, in the valleys where these products were exchanged for maize, coca leaves, wood, chili paper, among other products (Lecoq 1986; Nielsen 2000; West 1986).

Investigations related to risk in subsistence activities in the highlands of Bolivia have shown that moist grass lands and wet meadows (bofedales) are not very susceptible to drying out during periods of droughts. This resiliency makes herding important to coping with rainfall fluctuation not only periods of drier conditions, but also during annual dry seasons (Washington-Allen et al. 1998).

The introduction of tractors made it easy to cultivate quinoa in the flatlands, because it made it possible to lower planting beds so that the roots of the plants could get to clay soils and seasonal water table beneath 50 cm of sand. But during drier years it is necessary to irrigate quinoa.

Although quinoa cultivation practically ceased in the region in the 20th century, it is currently the most important economic activity among local communities in the region. A rise of the price of quinoa in the global market has triggered the growth of its production. This production has changed the landscape drastically over the past few years, and is also promoting significant erosion (Barrientos et al. 2017; Winkel 2011). Over the past 40 years, the water supply for the region has decreased in general, with less rain and less reliable abundant water springs.

It is extremely challenging, even in a general way, to assess from settlement data the relative emphasis on agriculture vs pastoral activity in an agropastoral population in the Andes. In the southern Andes, few prehispanic populations were solely specialized camelid herders, and no *altiplano* agricultural populations did not also manage camelid flocks. Highland staples (potato, quinoa) were hardy crops adapted to high-altitude, arid conditions. And throughout most of the south-central Andes, a mosaic-like habitat meant that adequate pasturage for camelids was not more than a day's walk from desirable agricultural locals. Native populations worked out a variety of agropastoral strategies such that individual communities and households were able to simultaneously pursue agriculture and camelid herding through such institutions as communal herding, division of labor, and *doble domicilio*.

A goal of this research was to determine if at any point in the Yaretani sequence there was an increased emphasis on agriculture, and if so, how this shift corresponded to political centralization as seen in the formation and location of *marka* sites. This goal was aimed at helping to answer the question of whether staple (agricultural) finance may have been an important part of the wealth of a *mallku* ruling segment.

For this purpose, I divide the research zone into five zones (see Table 2.2), based on traditional land use patterns. Each unit has distinct soil, topographic, and vegetative patterns that relate directly to relative potential for agricultural and pastoral usage.

Table 2.2. Ecozones present in the research area

Zone	Pastoral potential	Agricultural potential	Area km^2	%	Characteristics
Bofedales	++	–	3.3	3.6	Areas of wetland native vegetation above peat-bog layers. These high altitude grassland areas are productive all the year round, even during dryer months (FAUTAPO 2008; Montes de Oca 1997).
Flatland	+	+	23.3	25.6	Plains of alluvial soils, with a composition of clay and sand. These have bad drainage, and low porosity preventing good water infiltration. Some segments of the plains have deep and shallow ravines, and are crossed by small rivers (FAUTAPO 2008).Vegetation is abundant mainly a wide variety of tholas (*Parastrephia sp*.).
Slope	–	++	29.42	32.3	Mountain slopes (<30º inclination) present moderate superficial soils, with good soil drainage. Rocks are also present in some areas. These areas are the most suitable to build rain fed terraces. These areas are also more humid than the flatlands. Vegetation corresponds to *paja brava*, and a variety of tholas (FAUTAPO 2008). These areas are usually green with year around vegetation.
Mountain Top	–	–	9.4	10.3	These are mountain peaks located above the 4.000 m. a.s.l. These areas are windy, with little vegetation. Vegetation mostly correspond to *paja brava* (*Stipa frígida*), and yareta (*Azorella compacta*).The *topo*graphy is irregular, steep, and with several boulders (FAUTAPO 2008).
Salty Flatland	+	–	25.51	28.1	Alluvial soil with a high percentage of salt. This area is mostly flat with very bad drainage so it can be flooded very easily. This area is located next to the Uyuni Salt Lake. There are several rock outcrops along the land scape. This area is colder and windier than the others. Vegetation correspond mostly to tholas, and *paja brava* (Montes de Oca 1997).

In addition, the slope and the bofedal areas were registered and mapped during fieldwork using satellite maps. The slope area corresponds to the area where terraces were registered. For the bofedales the same strategy was used, this in order to have a more precise ideas for these ecozones.

In looking at intensity of settlement in these units as a way of gauging the relative importance of agricultural and pastoralism in the agropastoral strategy at any one time, I simply make the following assumptions.

(1) More pastoral activity should lead to more evidence for occupation in those zones best suited to pastoral activity. Or, to turn it around, evidence for increased occupation in zones of pastoral potential reflects increased emphasis on camelid herding in the agropastoral mix.

(2) A greater relative emphasis on agriculture should lead to evidence of more activity in those zones best suited to agriculture. For example, we would expect an increased emphasis on agriculture in the agropastoral mix should result in proportionally more occupation in Slope zones. An increased emphasis on agriculture in the agropastoral mix should result in proportionally less occupation in Bofedales zones and flatlands.

Several caveats should be made. Agropastoral adaptations are highly flexible, and can vary considerably, even annually, as agropastoralists deal with fluctuations in harvests and pasturage. Unfortunately, my methodology only allows me to compare settlement in broad time periods, so I cannot currently specify the timing or acuteness of agropastoral shifts within these periods. Too, other factors may drive settlement distribution, including conflict and longer term environmental change. A concern with safety could lead the population to prefer locating settlements on higher elevations such as the slopes of the mountains peak. These locations also happen to be the best areas for agriculture in terms of soil and ability to construct terracing. Finally, for the purposes of this study, I am assuming that vegetation and growing regimes were not significantly changed

over the period under study. We know this assumption to be false. As noted earlier, significant droughts, for example, are recorded for the *altiplano* as a whole in the 11-12th centuries AD.

However, it is difficult to model how such decades of long phenomena might have impacted subsistence patterns characterized in periods of many centuries, nor do we know exactly how such drought would have affected water availability, rainfall, and vegetative communities in the Yaretani Basin. It is possible, for example, that the onset of drier conditions could limit pastoral potential by drying up bofedales (springs) and natural pasturage, forcing a greater emphasis on agriculture, and more activity in prime agricultural zones. Again, a more complex examination of environmental change and settlement will be the subject of future research.

3.0 REGIONAL SURVEY AND COLLECTION

A full coverage regional survey was needed to have a better understanding of the settlement patterns from the Archaic Period through Colonial times. Most of the prior research conducted in this region has focused only on the Late Intermediate Period and their largest and pukara sites. There has been little investigation of small and medium size settlements or scattered occupation, and their relationship with the landscape. Documenting such sites is vital when working with agropastoral populations. Nor has this region previously seen systematic full coverage survey.

Dissertation fieldwork consisted on a full coverage pedestrian survey of 91 km^2, a program of surface collection, and limited excavation at several components or sites in the Puqui complex. While the perimeter of the survey area was defined using mainly natural *topo*graphic limits such as unoccupied mountain ridges, the margin of the salt lake, and the Yaretani Basin margins, it should be recognized that the limits of the survey were somewhat arbitrary. The survey covered altitudes which ranged from 3750 m.a.s.l. (edge of lake) to 4300 m.a.s.l. - - the crest of Yaretani Mountain and included the territories of six current indigenous communities (Puqui, Catuyo, Quitamalla, Challuma-Orcoma, Chite and Sunturo, of the Cuye-Yaretani *Ayllu*). The pedestrian survey was completed in 10 months. On flatland we were able to cover 0.25 km^2 a day, whereas on the slopes and mountain sides we were able to cover 0.15 km^2 a day. This slower pace in the latter *topo*graphy was mainly due to the difficulty of walking in these places, and the absence of vehicle roads. In the flatlands (alluvial and lacustrine), the survey teams were composed of three people walking transects 30 meters apart. Slopes and hills sometimes contained impassable sections and were surveyed by the most experienced team members. Hill tops initially were also surveyed by a specialized team (of two people). If a large settlement was found, then additional

team members would be called in to record the occupation. Additional systematic surface collections were carried out in each larger occupation in order to make possible intra site surface artifact comparisons. Two individuals were in charge of drawing a sketch of settlement houses, storage units, mortuary spaces, terraces corrals, etc., while the rest of the team made the surface collections. The analysis of all types of materials was completed following the fieldwork season.

3.1 Recording and Collecting Methodology

The goal of the regional survey was to identify any surface evidence of human occupation including artifacts, architecture, and human made landscape features such as terraces, canals, petroglyphs, etc. Survey recorded site location, size, visibility, *topo*graphic features, type of vegetation present, association with natural resources, supposed site function, sites components (such as plaza spaces, hill forts, corrals and terraces), and type of architecture. All standing architecture was photographed and mapped. All terraces present in slopes and hills were drawn as polygons on the satellite images.

When at least two archaeological objects (artifact, features) were encountered by the survey team a collection unit/lot was established and a collection was conducted. A GPS unit was used to record the center of each collection unit as well as strategic points of the lot borders, in order to have more precise spatial references. The boundaries of dispersion of these materials were drawn in on 1:5.000 prints of high resolution satellite image, and each collection unit was identified with a number. Satellite images were provided by Digital Globe Foundation.

The underlying objective was to discern archaeological occupation fully, including low-density, dispersed homestead-type settlement, and herding camps, in addition to the easier to

recognize nucleated and higher density "village" settlements. Thus, collections from the sampling units had to be adequate to assess temporality (using the ceramic chronology already established based on stylistic differences), functional variability (as seen in pottery and lithic types), and status/wealth differences (as measured in the proportion of high value pottery and other objects) within and among sites. Therefore, we aimed to collect at least 40 sherds in each collection unit so that with the proportions of sherds of different types in the unit's ceramic assemblage could be estimated with error ranges no bigger than ±10 at an 80% confidence level (sensu Drennan 2009). Demographic figures were worked out using a density-area index shown to be useful for these survey goals (Drennan at al. 2015:111).

In the case of surface scatters larger than 1 ha (100 by 100 meters), the area was subdivided into two or more collection units, none larger than 1 ha. In the same way, if sherd densities appeared to be more that 0.5 sherds/m^2, a systematic collection was made of all artifacts within a dog-leash circle with radius from 0.60 m ($1m^2$) - 2.5 m ($20\ m^2$) (Drennan and Peterson 2011). The radius was chosen based on the density and dispersion of materials allowing us to obtain the 40 sherds needed without gathering enormous samples (over 100 sherds) that would not have any effect on our statistical analysis. If the initial systematic surface collection did not provide the minimum of 40 sherds, then another collection unit was done until the minimum was obtained. Collections made in this way are termed "systematic collections." In low density settings, when we estimated that the sherd density was less than 0.5/square meter, a "general collection" was made with the aim of collecting 40 sherds. Achieving this was sometimes difficult. In most cases, the team would need only 10 minutes collecting artifacts. However, if this 10 minutes yielded less than 20 sherds, collection was ended as spending more time looking would not greatly increase the amount of sherds.

During survey, we observed and noted some common and expected relationships between density, drainage and modern land use. For example, materials were more likely to be scarce in drainage areas where prehispanic occupation would be under alluvial deposition, and densities tended to be higher in areas of modern agricultural activity. The former situation could lead to problems of chronic small samples and underrepresentation of occupation (particularly older occupations) in these settings. One result would be insufficient samples of the ceramic types, and thus proportions with high error ranges in this kind of collection units. To deal with this problem, we carefully raked the uppermost "active zone" layer soil (trying not to move artifacts far from their initial location) in each of these systematic collection units, in order to uncover materials barely buried or under vegetation in the sandy soils of the drainages. This methodology has proven to be useful in exposing material not visible on surface or hidden by vegetation in eastern Mongolia (Peterson 2006). This activity did not take much time due to the looseness of the soil and gave us the opportunity to have a more representative sample in low density surface collection units.

3.1.1 Architectural and landscape features

During my 2013 and 2014 pilot projects I noted prehispanic architectural features were often visible on the surface, and in some cases well preserved. It was decided to devote some time to the drawing and recording of all the features found during the survey. A metric tape was used to register the size, and a GPS unit was used to record the location of each corner of the structures, walls, corrals plazas, *chullpa*s, patios, and storage units. The characteristics of the architectural features were also recorded on a dedicated field form. This form included categories such as: size measurements; type and form of the structure; wall type; simple or double foundation; construction material and finish (wall facing and use of cut stone); types of building material; disposition of

rocks with in a wall; presence of mortar; wall minimum and maximum heights; size and orientation of the door (if present); and associated features such as furniture (benches), petroglyphs, and so on. All standing architecture was photographed and a sketch was drawn in a form or in the satellite image.

Buildings with standing walls were sometimes repurposed as modern corrals. Local people still build and modifying corrals; and will reduce or enlarge the size of corrals according to the size of the herd. Besides pastoral windbreaks, herding camps, and farmsteads, we also documented villages and potential centers (*markas*) with extent architecture. When such architecture was present, specific collection units might be placed to take advantage of the architectural contexts, with such individual architectural features as plazas, public architecture, domestic rooms, and patios forming the area of the collection unit. However, collection units were usually placed outside of the structures (houses, storage units, and *chullpa*s) because the interior of these structures consisted of collapsed rubble, making it difficult to surface collect. Patios form one of the better places to look for domestic garbage. People usually sweep refuse out of their homes to the patios, and a variety of extramural activities are likely to be performed there. Patios could clearly be delimited outside the houses, in the form of low platforms or terraces.

Not surprisingly few materials were found on non-residential terraces. Andean agricultural terraces are notoriously hard to date ceramically, and in some cases chronological assignment had to rest on association with residential occupations. All the terraces were mapped. The shape and the width of all of them were also recorded. The presence of canals, walls, and stone piles (which provide stability to the terrain and terraces and are also a good source to obtain material for terrace repair) and roads associated with terraces were also recorded. Storage units were also present on some terraces. These were registered with a GPS unit, and their dimensions recorded. Most of

these structures displayed similar sizes, and a common U-shaped form. Local people pointed out that these structures were from the "*Chullpa*s' time", because they have never built one of those, and most of them have double walls just like the walls of late prehispanic houses.

Several well-beaten paths were registered during the survey. Most of them have associated features such as walls, terraces, canals, stairs, and platforms. We defined "ancient roads" as prehispanic or early colonial routes using three criteria: association with prehispanic features; the presence of archaeological material, such as ceramics or lithics; and association with archaeological settlements. Most of the identified paths or roads of this type connect archaeological settlements, and some can be seen as belonging to an Inca road system or Qhapaq Ñan. All identified archaeological roads were photographed and mapped with a GPS unit.

Aceramic occupations are common in the Archaic Period, and also in pastoral societies. Aceramic herding camps have been identified in nearby regions (Capriles 2011). The methodology for collecting lithic artifacts was the same as described before, and collection units were also delineated according to the concentrations of materials, and a sample was collected with the dog-leash circles. However, with lithics we did not set a minimum number to be collected, mainly because these materials cannot be meaningfully used to assign temporality to the occupations and are less useful in determining the population density of an occupation.

Lithic materials represent a challenge when it comes to assigning them to a specific period. This is not only true of aceramic sites, but also of multicomponent sites While archaeologists have addressed this problem in various ways, I decided on the simple path of only comparing lithic assemblages coming from mono-component collection units. In other words, the lithic samples I used in my analysis were all "chronology positive" as to period, and not from samples containing pottery of multiple periods, such as Middle Horizon and Late Intermediate.

This "erring on the side of caution" approach reduced the number of samples I could use in analysis to some extent, but still made it possible to draw interpretations about subsistence activities, long-distance exchange, and specialization by period. Lithic materials were divided into tools and debitage. Hoes and gridding stones were considered as agriculture related, projectile points, spears and *boleadoras* were considered as hunting related tools, and different kinds of scrapers, drills, knives and cutters related to animal processing/herding activities.

3.2 Excavation

The results of excavation are not presented in this dissertation. However, I will describe here the excavation methodology and extent of excavation as this excavation was part of the overall project as funded. These results were useful for the ceramic analysis and chronological of sequence of domestic non decorated pottery.

In order to have a better understanding of the evolution of the central places in the Yaretani Basin, nine excavation units (each 1.50 x 0.5 m) were spread among four sites (Middle Horizon and the Late Intermediate Period) of the Puqui Complex. These units were not intended to expose entire dwellings (house floors themselves are typically not likely to hold many artifacts). Instead, test pits were judgmentally placed in midden areas, recognizable in the loose sandy soils in the area and in patios, to provide robust samples of domestic refuse, and to expose stratigraphic sequences. Excavation followed standard procedures of excavating in natural levels. The datum point was always the highest corner of the unit. Most units were oriented north-south and a GPS point was usually taken in the northeast corner. The thickness, color, texture, and composition of the soil of each stratum was recorded in excavation forms. Colors were taken using a Munsell soil

color table, and texture and composition were differentiated using geological tables. Features such as hearths, were identified and their characteristics were recorded on a separate feature or "*rasgo*" forms noting type, association with other layers, size, depth, and including a brief description. We gathered carbon samples from some units to keep for further analysis. A photographic record was taken of each stratum, and feature of each unit. Excavation ceased when we encountered sterile soil, and two baulks were profiled, usually the ones that best illustrated the changes in soil, or occupational layers. All materials recovered were kept for analysis.

The excavation proved to be useful determining in a general relative way when sites were founded. However, they were more useful in providing stratigraphically defined assemblages to monitor diachronic change within these sites. Based on the mapping of house sizes and surface collection, I identified potential leadership-segment houses, and placed units in or around these structures, as well as in or around non-leadership houses for comparative purposes. Some excavation units were placed in open plaza spaces (or buildings spatially associated with them) likely to have been used for public feasting or ceremonial activities.

The distribution of excavation units was as follows: Middle Horizon sites Cica Catuyo (3 units) and Jawasuyo (1 unit); Late Intermediate Period sites Taypi Circa (3 units) and Pirwani (hillfort, 2 units). These are all sites of the Puqui complex or site cluster. We were able to place three excavation units at Cica Catuyo, because the occupational deposits there are shallow. This site is located next to an extensive bofedal, on top of bedrock which naturally elevates the site. One unit was placed inside a plaza, one was outside a possible leadership house and the other one outside a non-leadership house. Jawasuyo is a mound located very close to the terraces currently used as small family orchards in Puqui. We were able to excavate only one unit here, because of the dense occupation that this mound presents to almost a meter in depth. At Taypi Circa we

excavated two units. Here again, occupational deposits were shallow; units were placed in patios of leader and non-leader houses. At the hillfort site, Pirwani, we excavated another two units, mainly because this site was constructed over bedrock, so the deposits are very shallow and most of them were already disturbed and heavily eroded by the historic and modern herding of domestic animals. We placed excavation units in spaces that seemed to be not much disturbed. The two units were placed in the patios outside extent houses at the bottom of the hill. Although some plazas were identified at the top of the hill, the erosion and instability of the terrain persuaded us not to place a unit there.

3.3 Analysis of Materials

Aridity and saline soils of the region favor archaeological preservation. In both survey and excavation we were able to collect a variety of more perishable archaeological materials including objects of metal, bone, and wood, and charred botanical remains such as seeds. However, surface faunal remains were rare and were mostly collected during excavation.

Human mummies, bones (human and animal) and textiles were recorded during survey in the caves around Puqui, and Sunturo.

Ceramic, lithic and metal artifacts were fully analyzed over a period of 5 months. All materials were recorded and photographed. Characteristics of wooden artifacts and textiles were such as color, size, and possible function recorded. These perishable remains were photographed and adequately stored for future research.

3.3.1 Ceramic analysis

There is minimal existing literature on the ceramic assemblages of the different prehispanic periods for this region. The major ceramic analysis (based on recording paste, surface treatment, decoration, form and vessel size) was oriented towards: (1) refining the chronological sequence for this zone north of the Salar de Uyuni with reference to my previous investigation (Sejas Portillo 2014) and the work of Ibarra-Grasso (1983), Lecoq (1999), Céspedes and Lecoq 1998, and Michel (2008); (2) functional analysis of domestic and non-domestic pottery, in order to discern differences in assemblages related to cooking, serving, and storing food; (3) provenance analysis of the vessels, including macroscopic analysis of all the fragments analyzed, separating local from non-local pottery, to assess ceramic exchange networks.

A sample of 40 sherds were analyzed from each collection unit. In the majority of cases, this was around the total number of sherds collected for the unit, but collections from locales of denser material could have 200+ sherds. In this case a semi-random sample (choosing sherds with eyes-closed) of 40 sherds was chosen for analysis. Based on my previous experience working with ceramics in the region, I decided to base part of the ceramic analysis on the paste. The sherds were first separated into paste families and groups (Falabella 2000; Sanhueza 1997). Families and groups were distinguished by looking at the paste using a binocular magnifier (30x-60x). Temper was classified accordingly to color, size, shape, and density. Porosity, and color of the clay was also recorded. The classification was made using a geological table and recorded on a special form. Changes in patterns of use of different groups and families of paste can be traced through the different periods of prehistory and history. The method can also provide clues as to the provenance of the different ceramics types, alongside previous petrographic analysis. Sherds from a sample unit were first separated by paste, then by surface treatment and function, and lately by decoration.

The result of this analysis was the identification of several local ceramic styles, as well as intra-regional and long-distance (from another region) styles. Ceramic styles present in the region were also previously analyzed in museum collections (Sejas Portillo 2010), mainly from the Museo Antropológico de la Universidad Mayor de San Simón de Cochabamba. The analysis of these collections was focused mainly on technological attributes and decorative styles.

In order to refine the chronological sequence, excavation results were contrasted with prior chronological sequences. Ceramic styles (decorative and technological) were used to estimate the chronological occupation of the sites. Although, several of the sites were mono-component, many had multiple occupations. For these latter cases, chronological occupation was estimated according to the percentages of different ceramic styles known to be used in different periods of the regional prehistory. If more than 75% of the chronologically diagnostic sherds in a sample were from the same period, the occupation represented to that sample would be assigned to that period. For the few samples where a chronological association could not be made due to the lack of chronologically diagnostic pottery, then the total of these sherds was split between three periods (Middle Horizon, Late Intermediate, Late Horizon). Chronological variation in many of ceramic assemblages had to be based on technological analysis of the sherds or vessel forms, as there were relatively few decorated pieces present in the sample. Some pottery, mainly undecorated utilitarian domestic wares, were made using the same temper from the Middle Horizon through the Late Periods.

3.3.2 Lithic analysis

Lithic artifacts were classified according to raw material type, tool type and stages in the tool production sequence (debitage types). In this region, it has been established that raw material

variability is related to chronological changes with more variability in raw materials occurring in earlier sites. (Michel 2008) had reported some aceramic preceramic sites from the Archaic Period. Archaic Period projectile points are also diagnostic. I did record some sites as belonging to the Archaic Period, these being single point finds or small scatters. These sites do not figure in the analysis presented in this dissertation.

Debitage analysis was chosen because it considers the entire lithic assemblage and allows characterization of stage of tool making represented in a sample. Such information enables us to characterize areas of primary lithic manufacture (whether at the site or household level) versus consumption, and to determine whether other activities co-occurred with an emphasis on tool manufacture. We were also able to identify a few stone bead workshops. These were collected using small dog leash units.

Quarries were recorded using a GPS unit and samples were collected for further analysis. Most of the local stone tool material consists of rhyolites whose nodules or cobbles are found in abundance alongside riverbanks. During survey the occurrence of such raw material (nodules or blanks, or large preforms) was recorded, along with information on the stone type, a photograph was taken, and the location was recorded with a GPS unit. The same field procedure was done with large grinding stones, including ones too heavy to be collected.

Stone tools were important in several comparisons among occupations. Lithic analysis aimed at providing information on variability in participation in exchange, in involvement in stone tool production, and in subsistence emphases in the agropastoral mix. For assessing exchange, I classified raw lithic material as local, regional, or long-distance.

Different kinds of raw materials were brought into Yaretani Basin settlements from distant regions and not-so distant areas. I categorized obsidian and sodalite as long-distance materials,

basalt, andesite, and slate as regional materials, and quartz, quartzite, rhyolite, malachite, silex (flint), and sandstone as local. Raw materials, as well as manufactured tools were brought to the Yaretani settlements from different areas. In the late prehispanic epoch, it is known that llama caravans transported these materials and objects from one region to another. This is particularly documented for "exotics" or valuable materials such as obsidian, and copper ore and copper beads (Lopez and Scola 2007; Tripcevich 2010). Among the finished, or near finished, tools imported to the Yaretani Basin were complete basalt hoes. These probably were obtained from the Queremita quarry (close to the Poopó Lake, 120 km from the study area); known to be the largest prehispanic quarry in the southern *altiplano*. Queremita basalt appears at Tiwanaku, and even today, people from the surrounding areas still go to this quarry to obtain basalt to make traditional hoes. Basalt chunks, preforms, or blanks are taken back home and finished there. Basalt from this query is fine grained, and prehispanic hoes were made through a combination of flaking and grinding. Hoes were also made out from slate and andesite, two other non-local materials. According to geological maps of the area, these two raw materials could have sourced from the vicinity of the Tunupa volcano. Small cores (less than 10 cm in length) were also brought to Yaretani settlements to manufacture projectile point or scrapers. Obsidian was likely obtained from a source to the south near the Uyuni Salt Lake, in Potosi. Obsidian queries have been reported near Lipez, Potosi (Arellano 1992; Capriles et al. 2014; Nielsen 2012). Survey revealed local rhyolite and copper ore quarries. Local rhyolite is fine grained, and some of these have a texture similar to silex. Fine tools such as projectile points, scrapers, and knives, tended to be made from rhyolite or silex.

Lithic raw materials were divided into local, regional, and long-distance according to the source distance (Table 5.5). In assigning materials to these categories, I incorporated local people's testimonies about caravans and walking distances, as well as ethnographies related to raw

materials procurement (Nielsen 2000; Stark 1999) Local raw materials are from sources no more than a day's walk distance, regional materials are from sources one - three days' walk away, and long-distance materials are from sources beyond a three day walk.

Table 3.1. Raw material provenance and tools

Raw material	Provenance	Tools
Obsidian	Long Distance	Projectile points, scrapers, drills, micro scrapers
Andesite	Regional	Hoes, sling projectiles
Basalt	Regional	Hoes, projectile points, scrapers, knifes, cutters
Slate	Regional	Hoes
Limestone	Local	Grinding stones
Sandstone	Local	Grinding stones
Quartzite	Local	Hoes, projectile points, scrapers
Quartz	Local	Projectile points, scrapers, drills, micro scrapers
Copper mineral possible Malachite	Local	Beads, pendants
Rhyolite	Local	Projectile points, spear points, scrapers, cutters
Silex	Local	Projectile points, scrapers, drills

3.3.3 Metal artifacts analysis

The importance of ancient metallurgy for Andean societies was symbolic as well as economic. As Lechtman (1993) noted metal objects often specially communicated social status, political power and religious authority. Metal working was present from the Formative Period and techniques were improved through time through the Inka Empire (Letchman 1991). In the South Central Andes, metal workers exploited the plasticity of metal by working with very high temperatures to melt and combine into alloys and then casting them into different kind of molds, producing a wide variety of objects (Lechtman 2015). In my survey zone were several known late

prehispanic/historic mines and metalworking centers, such as Tunupa and Pulacayo. This last was one of the biggest silver mines in the southern Andes after Cerro Rico de Potosi and Porco. Archaeological research carried out in Pulacayo suggests that it was a metal production center that started to be important during the Middle Horizon Period (Letchman et al. 2010).

Metal objects were found during survey, along with *huayras* (furnaces), slag, and a small copper mine. Metal objects were classified into type of artifact, such as *topo*, needle, etc., and were also weighed. Most of the metal objects I encountered were of silver or a copper-bronze alloy. Detail analysis of the metals awaits future research.

3.4 Generating Densities from Survey Data

A total of 1680 collections units were made in the 91 km^2 survey. Of these, 1008 collection lots correspond to systematic collections and a 672 correspond to general collection units. The average of size of the collection units was 0.26 ha. Visibility of archaeological materials in the survey area was usually good, since the environment is essentially desert in nature, vegetation does not cover all the terrain, and deposition due to the rain is basically non-existent in much of the landscape. Only a few slopes exhibited poor surface visibility because of vegetation.

3.4.1 Demographic reconstruction

Sherds densities and the area of their dispersion were used as the proxy to determine the size and distribution of the regional population at the Yaretani Basin. The calculation was straight forward for systematic collection units. In the case of general collection units a different approach

was needed. As Drennan and Peterson (2011:62) note, while a general collection, "is not a direct reflection of the surface densities in the same way that a systematic collection is ... a rough equivalency can nonetheless be established between the number of sherds in a general collection and the density value a systematic collection would have yielded." In determining the density value of general collection units, I used as a base the procedure detailed in Drennan and Peterson (2011). The frequency distribution of the total sherd count in general collection was expressed in the following histogram (Figure 3.1). In this histogram we can observe that the distribution of sherd counts can be divided into four categories >36 sherds, 20-35 sherds, 19-6 sherds, and <5 sherds. Since a general collection was made in lower density units (below 0.5 sherds per m^2), we can observe that the category with more than 36 sherds, could have corresponded to a systematic collection so the assigned density values will be 1 sherds/m^2. In the case of the second category, 20-35 sherds, which corresponds to numbers that people assimilate to general collection will be interpret as reflecting the maximum theoretical density for this kind of collection units 0.5 sherds/m^2 so that value was assigned to it. In the case of the following category 19-6 sherds a value half of the maximum was assigned 0.25 sherds/m^2. This category of fragments are the most are the most frequent and thus correspond to an average at which people are more comfortable making general collections. The last value <5 sherds correspond to the minimum density of sherds found in the survey, and thus was assigned a density of 0.05 sherds/m^2.

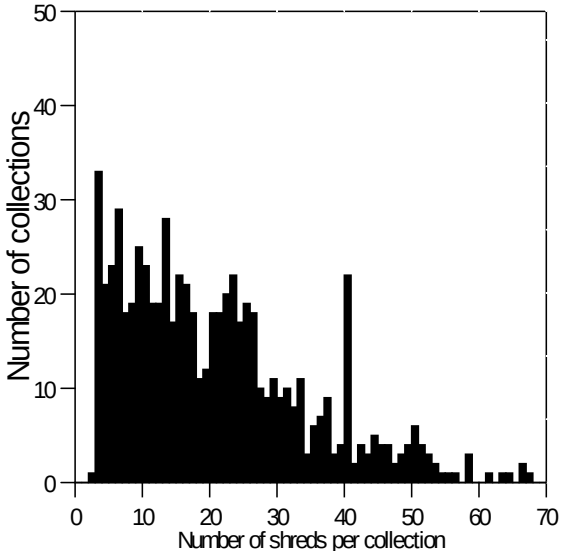


Figure 3.1. Histogram of the number of sherds from general collections

Sherds collected in burial areas were not considered for population estimations. After calculating densities for collection lots, I assigned densities to chronological periods based on proportions. This made it possible to generate a sherd density by period value, by multiplying these proportions by the surface sherd density values. Sherd densities by period were then multiplied by the area of each collection unit in order to obtain the Density Area Index (see Drennan and Peterson 2011:61-65; Drennan, Peterson et al. 2003). This Index presents the density of sherds per hectare of occupation. In order to standardize this numbers - - to compensate for the different lengths of each period - - I divided the index by centuries of occupation. In this way, a Density Area Index/Century of 1.0 represents 100 years of occupation over 1 ha at an average density of 1 sherd per m^2.

Absolute population estimates were obtained by multiplying the Area Density Index/Century with my own population index which approximated how many people were producing a certain amount of garbage. Through an ethnographic study in the area of Puqui and

thru talking mainly with the elderly, my team learned that co-residential families usually represented a couple and their 4 children, and sometimes children of the children. Old people don't live alone; they usually live with one relative who takes care of them and helps them in the field (the youngest child, a nephew, a grandchild, etc). Based on these figures, I estimate that minimum of 3 and a maximum of 6 people would be living at the same time in a house. Considering that the size and shape of houses has been similar since prehispanic times, it is possible to use these estimates to try to calculate the population living in the past. The four best preserved historic settlements with still standing residential units were chosen for estimating population, and house counts and the amount of garbage that could have produced by century calculated (Area Density Index/Century). There were some settlements with more houses and proportionally less trash and vice versa, for which we can assume that not all houses in a settlement were being occupied at the same time. In order to have a more certain population estimate, I have calculated the mean of the amount of garbage produced by century by people living at these four settlements. This mean is used as an index for absolute population estimate. The index used to calculate absolute population using all collection units was as follows:

Minimum Population= 6.4 x (Area Density Index/Century)

Maximum Population= 12.7 x (Area Density Index/Century)

Most of the population estimates in the next chapter present raw number obtained using this index. This estimates are only proxies and we cannot expect this numbers to be as exact as they seems. Archaeologically we cannot be able to reconstruct population demographics at a detail level as modern census do (Drennan et al. 2015). Thus the numbers presented in the next chapter are only referential and must be considered as general terms (in 100 or 1000 of people) instead of

precise (instead of 1972 persons, is better to estimate the population between 1500 and 2000 thousand people).

3.4.2 Delineating local and supralocal communities

Communities can be conceptualized as patterned interaction between households (Peterson and Drennan 2005). At the local level, this community membership may entail daily, interaction but other forms of interaction (particularly economic, religious, and political) may generate supra-local communities. Sometimes households' interactions need to be at a greater scale to accomplish larger collaborative work such as public works, regional ritual, or political entities, and thus supralocal communities are formed. In either case, from this distance-interaction perspective, I argue that households will locate themselves, or come to be situated, to reflect and facilitate such interactions. Or, to describe the process somewhat differently, clustering in settlement distribution is likely to reflect the existence of such communities and tell us something of the spatial scale of the "community" and the intensity of interactions (Drennan 1988; Peterson and Drennan 2005). Drennan and Peterson (2018:53) observe that:

> ... such supra-local communities or districts consist of centrally focused networks of interaction that exert centripetal forces drawing regional population towards the central focus, whether an actual 'central place' exists or not (Drennan and Peterson 2008). Such centrally focused interaction can potentially consist of a variety of activities or combination of activities, including the production and exchange of goods, coordination of subsistence production, religious ritual, political administration, and any of the numerous other sources of interaction in which human social communities are constituted.

With the methodology used here, the clustering in settlement is based on occupational density, rather than on dots on a map or on delineations of settlement hierarchies as in traditional regional settlement studies. Instead of simply plotting archaeological sites, delineating interacting communities can tell us more about different scales and types of interaction without making assumptions about particular sites being regional centers, villages, hamlets, etc. While this approach can be viewed as a version of "site-less" archaeology, in practice, large, densely occupied sites will manifest as locales of high density or concentration. That individual settlements may or may not be at the center of regional demographic concentrations opens the door to new ways to research variability in regionally integrative processes among prehistoric societies.

The method used here to recognize communities and supralocal communities follows from Peterson and Drennan (2005) and uses densities of surface artifacts and their distribution to discern supralocal communities. For presentation in Chapters 4 and 5, the survey units with their respective surface densities by period were rasterized into a grid of z-values at an initial resolution of 10x10 cells using the program IDRISI, and then contracting them, so that the actual resolution was (50x50m). Areas with no archaeological remain were giving a value of 0 indicating the absence of occupation.

Tridimensional surfaces maps based on sherd density were created using the program SURFER, in the same way that other 3D *topo*logical maps are created. Several maps were produced using these steps, involving applying data transformations in which the distance was modified. After doing this a mathematical smoothing of the grid was carried out using the inverse distance to power method. Each period grid was systematically analyzed with the powers of 4, 2, 1, 0.5, 0.25 and 0.0001, in order to determine at what scale the patterns are most discernable (see Drennan and Peterson 2005 for a fuller explanation of the methodology).

The basic surface map iterations produced using this methodology by chronological period are presented in Figures 3.2 - 3.5 below. These maps show the density of occupation (represented by spikes or bumps) in the Basin through time. More detailed surface maps are used in subsequent chapters.

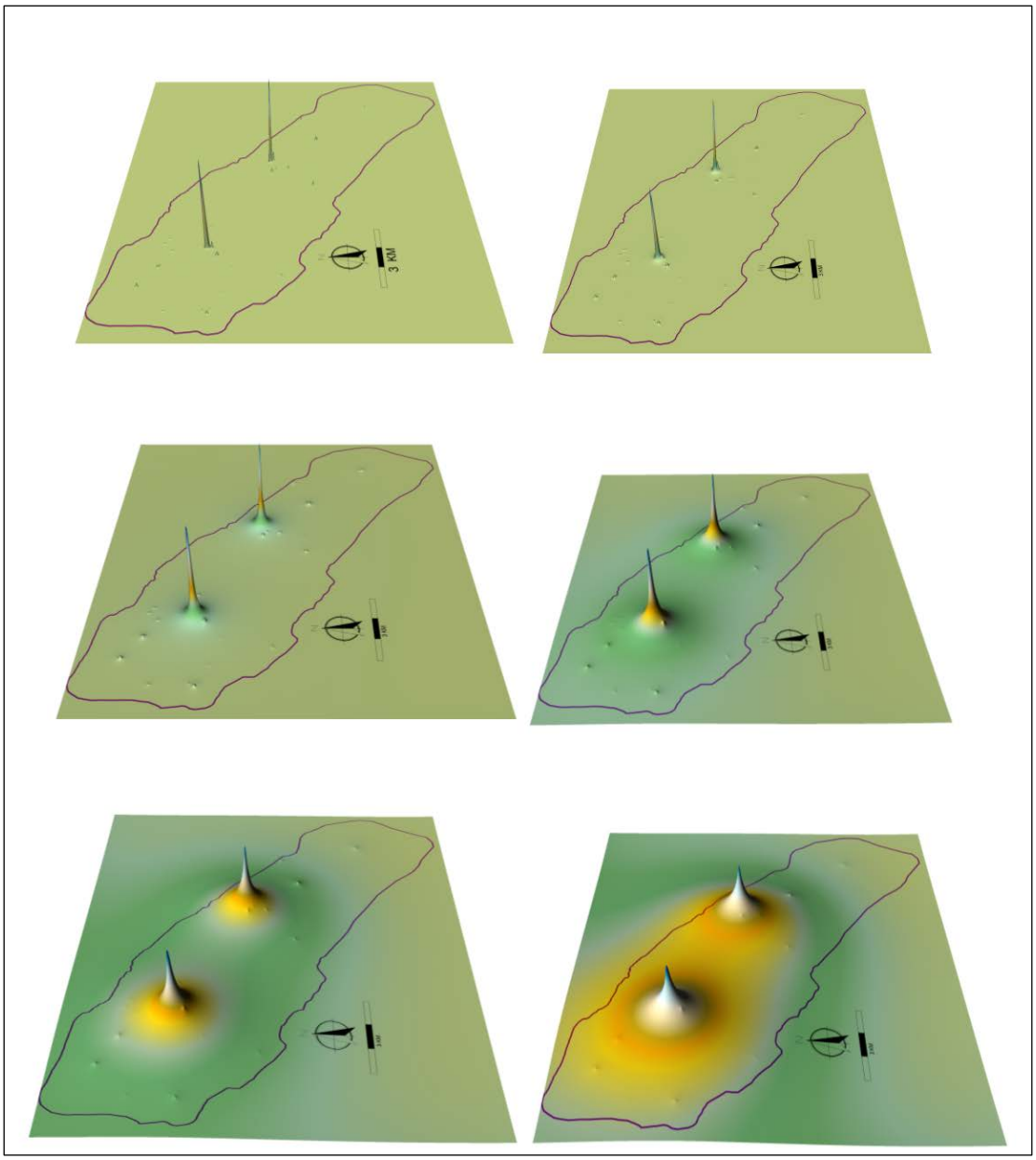


Figure 3.2. Surfaces representing Formative Period occupation. With the smoothing method of inverse distance powers of 4, 2, 1, 0.5, 0.25, and 0.001 respectively

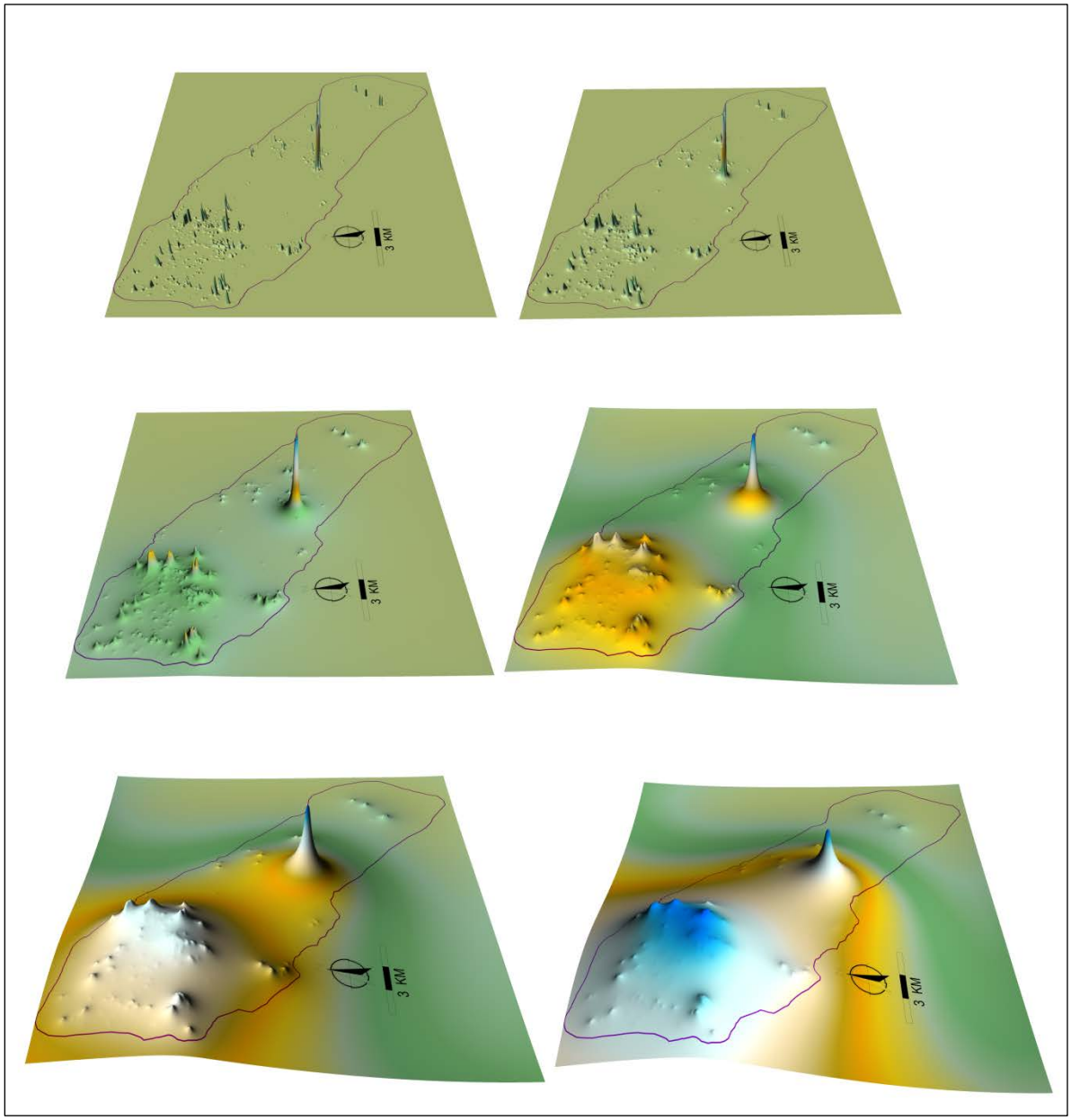


Figure 3.3. Surfaces representing Middle Horizon Period occupation. With the smoothing method of inverse distance powers of 4, 2, 1, 0.5, 0.25, and 0.001 respectively

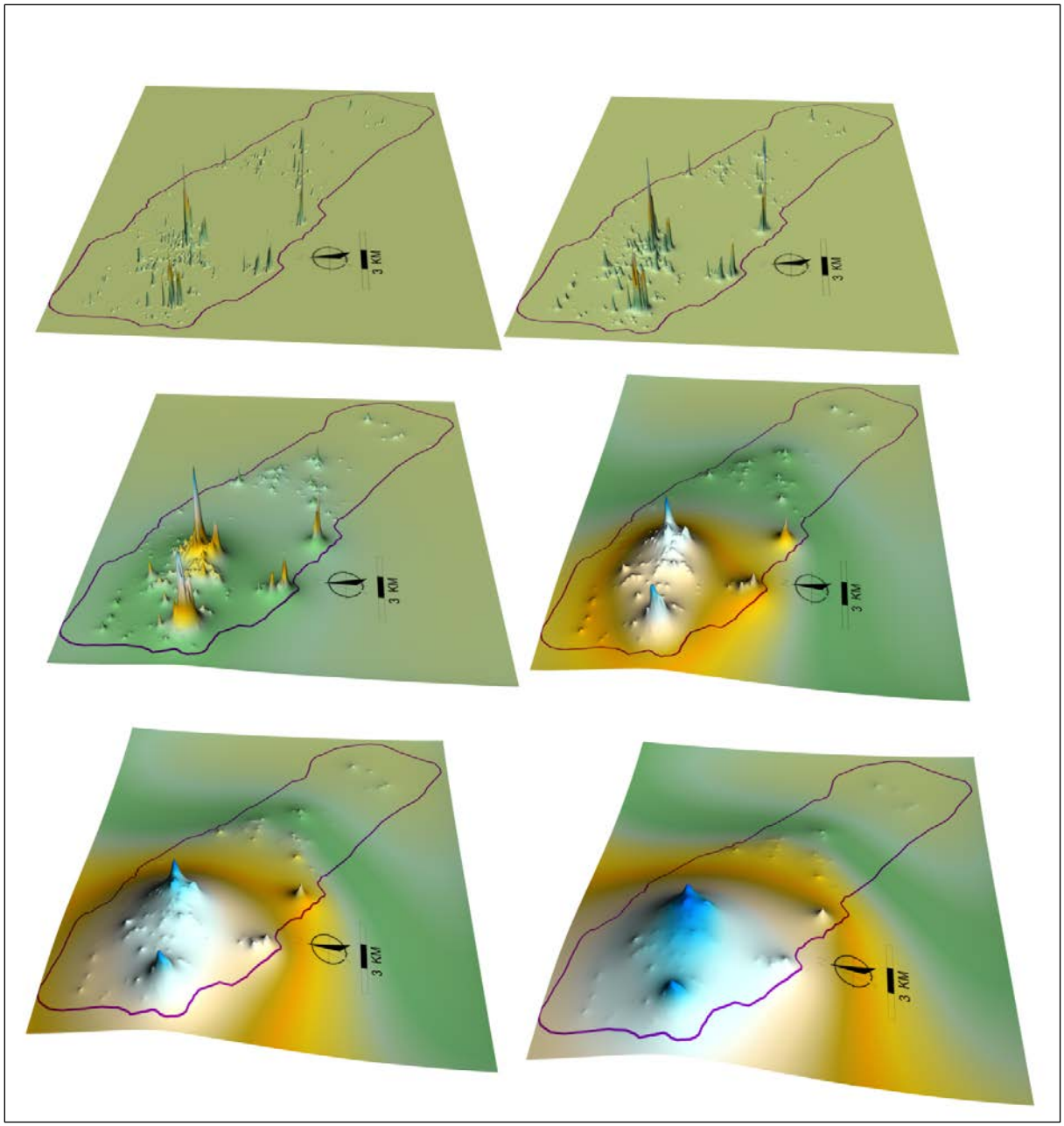


Figure 3.4. Surfaces representing Late Intermediate Period occupation. With the smoothing method of inverse distance powers of 4, 2, 1, 0.5, 0.25, and 0.001 respectively

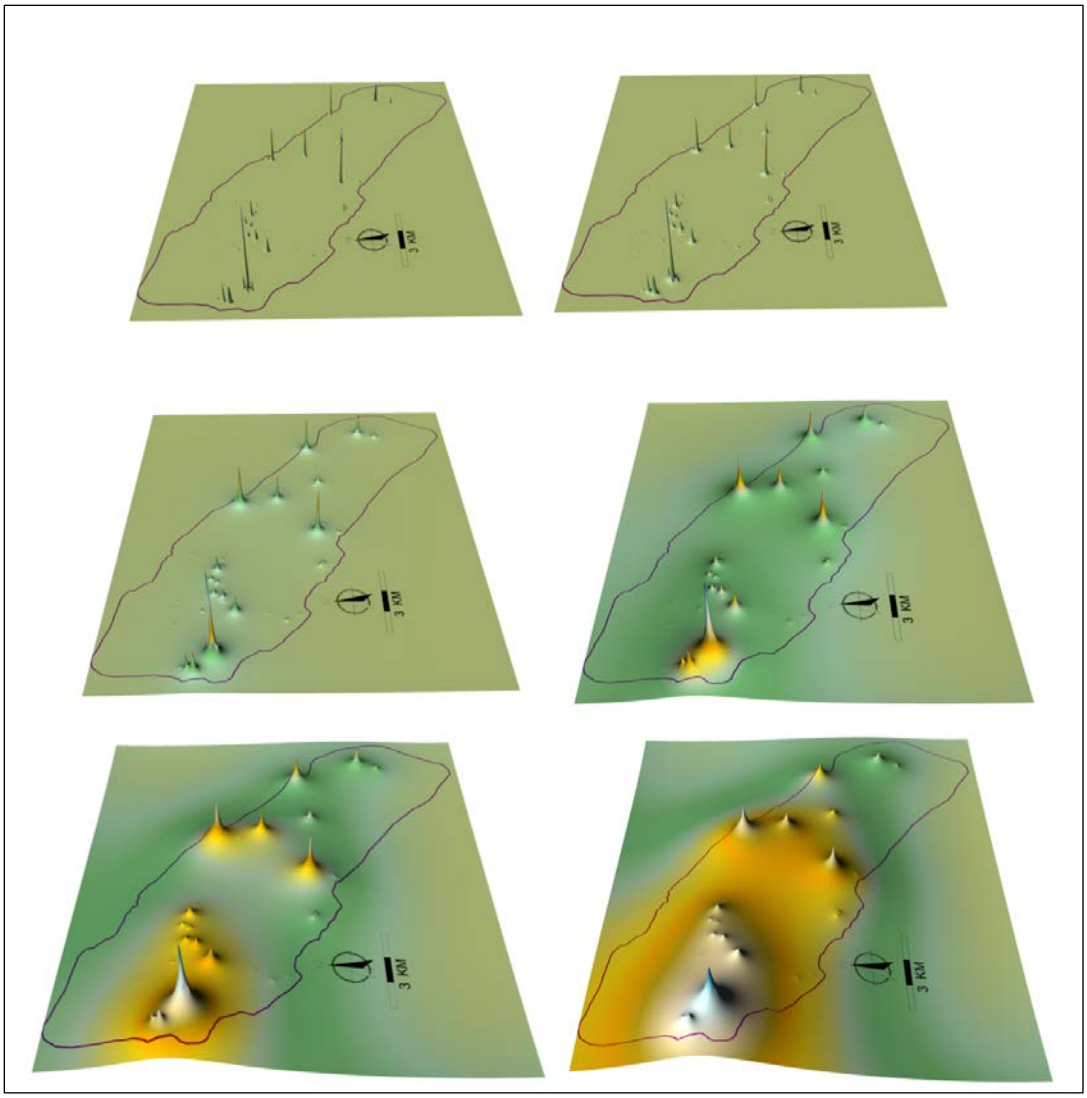


Figure 3.5. Surfaces representing Late Horizon Period occupation. With the smoothing method of inverse distance powers of 4, 2, 1, 0.5, 0.25, and 0.001 respectively

In the next chapter I have chosen to use the surfaces that best represent the patterns of interactions. I also combined those with the five ecozones already defined (bofedal, flatland, slope, mountain top and salty flatland) to show where these interactions were more intense. The goal is to reconstruct settlement preferences for particular ecozones, as a way of measuring relative changes in the agricultural and pastoral activities in the agropastoral mix.

4.0 REGIONAL PATTERNS

One research objective was to determine whether settlement shifts in the Middle Horizon (MH) – Late Horizon (LH) Periods were associated with the formation of *marka* centers and polities, with the spread of Tiwanaku-style materials in the area, or with the later onset of Inca hegemony. Further, I sought to identify any processes of population nucleation, centralization, or spatial association between leadership and particular resource loci. Doing so is critical for addressing hypotheses about the nature of the *marka* polity, as discussed in Chapter 1. A second broad objective, as discussed in Chapter 2, was to assess shifts in the agropastoral adaptation by documenting changes through time in the occupation of herding favorable vs agricultural favorable zones.

4.1 Population Changes through Time

Five Archaic Period sites were recorded in the survey, located on hill tops, the base of hills, and in flatlands. Each was represented only by lithic material, and some are single tool (projectile point) find spots. No architecture was seen at these sites. Two of these sites represent loci of stone tool manufacture. Each of these is atop a very distinctive, iron-rich, geological formation (Miocene Volcanic Rocks) of a vivid red color; locally known as Willa Khollu ("Bloody Hills"). At these two locations the production sequence from primary flaking through preforms was identified. Local large reddish rhyolite cores were also collected these locations. Two rhyolite projectile points were recovered in collection lots near Puqui and one basalt projectile point, with

a fishtail-like base was recovered at Cajajalsuri. The Archaic Period occupation represents the activities of mobile hunter-foragers.

As seen in Table 4.1 and Figure 4.1, there was little Formative Period occupation in the research zone (index 4.3). Using this measure, the Basin may have had a resident population of as low as 50 persons at any given time. Occupation increased tremendously in the MH - - the index is 202. This figure translates to something near a 50xfold increase, with an estimated population of between 1200 – 2600 persons.

There are two issues that prevent interpreting differences in amount of occupation simply (or exclusively) as shifts in the size of the population *living* in the research zone. First, the nature of *altiplano* Andean agropastoral systems is such that it is unlikely that there were exclusively pastoral and exclusively agricultural groups of any size living in the research zone. This is particularly the case given the small distances involved. A couple of hours walk could take one from the best agricultural zone to the best pastoral one. Artifact scatters in a "pastoral zone" such as the Bofedal or Salty Flatland may represent the residue of a full-time, year-round herding family residence. However, it is just as possible that these materials represent a herding campsite, probably seasonal, left by a segment of an agropastoral family. Therefore, the settlement distribution maps indicate the spatial distribution of *activity* of all kinds rather than residential occupation in the traditional sense. Second, as pastoral occupations are likely to involve less use of pottery, they will be systematically under-represented when compared to more agriculturally-oriented occupations that involve greater use of pottery. Theoretically, a diachronic increase in surface ceramics could reflect more sedentism and farming rather than an increase in the number of people living in that unit of space. It should also be kept in mind that the population estimates are most useful as a relative measure of population level changes rather than as a presentation of

the actual number of people living in the research zone. Ultimately, that the interzonal distribution of occupation did not change much from the Formative Period indicates that the MH saw a true dramatic population increase rather than "sedentarization," or more pottery use by the Basin inhabitants.

Occupation increases with the LIP (index 255.7) and the corresponding population estimates suggest a population increase of 22%. Population drops sharply in the LH (the Late Period under Inka hegemony), with an index of 79.4, and an estimated population in the research area of 500 – 1000.

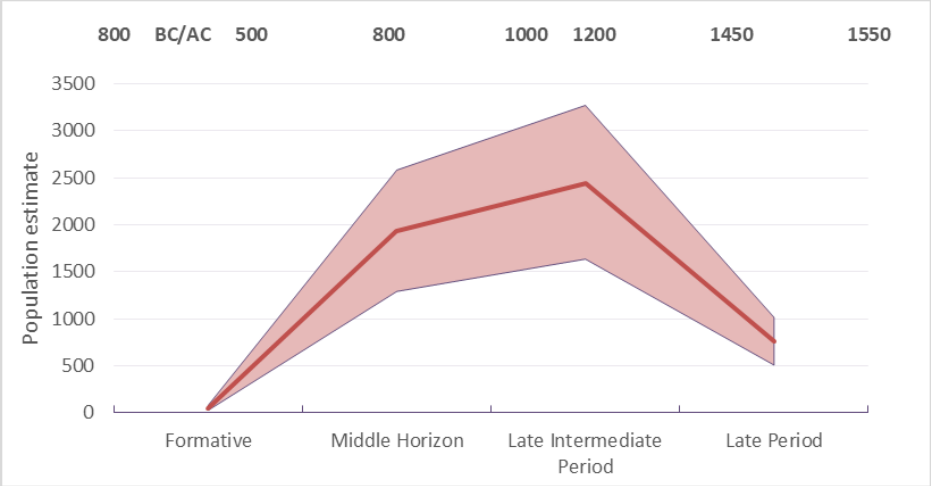


Figure 4.1. Maximum, average, minimum population estimates (absolute) by period

4.2 Subsistence Characterizations

A primary objective of the research was to use occupation distribution to characterize any rough changes through time in the balance of pastoral and agricultural activities. In particular, I hoped to discern whether the growth of leadership communities (*markas*) was associated with a relatively greater emphasis on agriculture. In the next sections I specifically discuss settlement changes in the context of the agropastoral mix. Following this, later in the chapter, I will examine the potential relationships between these changes and sociopolitical factors including political centralization and conflict.

Table 4.1. Population estimates by period and ecozones

	Formative				Middle Horizon				Late Intermediate Period				Late Horizon			
	Area density index/ century	Min pop	Max pop	Avg pop	Area density index/ century	Min pop	Max pop	Avg pop	Area density index/ century	Min pop	Max pop	Avg pop	Area density index/ century	Min pop	Max pop	Avg pop
Bofedal	0.06	0	1	1	13.01	83	165	124	0.23	1	3	2	0	0	0	0
Flatland	3.96	25	50	38	87.69	561	1114	838	72.25	462	918	690	20.34	130	258	194
Slope	0.24	2	3	3	92.96	595	1181	888	164.33	1052	2087	1569	54.71	350	695	523
Mount. top	0	0	0	0	0.41	3	5	4	13.02	83	165	124	0.06	0	1	1
Salty flatland	0.03	0	0	0	7.88	50	100	75	5.88	38	75	57	4.32	28	55	41
Total	**4.29**	**27**	**54**	**41**	**201.95**	**1292**	**2565**	**1929**	**255.71**	**1636**	**3248**	**2442**	**79.43**	**508**	**1009**	**759**

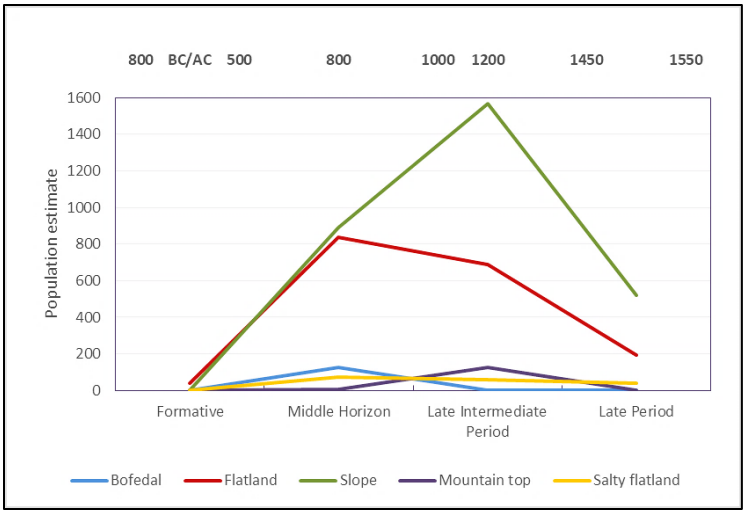


Figure 4.2. Estimated Distribution of population in different geographic zone by period

4.2.1 Formative Period

As noted above, Formative Period occupation in the research zone was both scanty and highly concentrated. Survey recorded 68 Formative Period sites. As shown in Figure 4.2, the bulk of this occupation was in the Flat Zone and pasturage settings (river banks, local bofedales). Two loci of higher density were recorded. The Puqui 1 concentration (seen as a "spike") was located at the border of the Flatland/Slope zone to the northwest of the Yaretani Mountain. A second density spike - - Challuma 1 - - was located to the southeast of Yaretani Mountain in the Flatland Zone (Figure 4.3). Each concentration is associated with small bofedales.

Only two sites with Formative Period ceramics displayed surface architecture in the form of stone windbreaks, although these may represent modern constructions. Most of the non-mound sites are located close to rivers. Formative Period style projectile points (*puntas de base cóncava con aletas laterales*) were also found close to pasture lands. Several caves presented evidence of Formative period occupation. The location of these near rivers and pastures land suggests that

these could also have been hunting camps. On the Northern side of the Yaretani Mountain, only one occupation other than Puqui 1 appears to have potentially been something other than a camp. Ichay Vinto 1 yielded storage, cooking and serving ware from this period. This site was also re-occupied during the Middle Horizon; it is also located very close to one of the largest expanses of pasture land.

On the other side of the Yaretani Mountain there are only three sites that have a range of ceramic forms (storage, cooking and serving vessels) and so may represent something more than a temporary camp. These are, in addition to the mound village of Challuma1 and Chita1.

Table 4.2. Formative community population estimates

	Formative			
Local community	**Area Index Density/ century**	**Min pop**	**Max pop**	**Avg pop**
Challuma1	1.21	8	15	12
Puqui1	2.78	18	35	27
Outside	0.35	2	5	3
Total	**4.3**	**28**	**55**	**42**

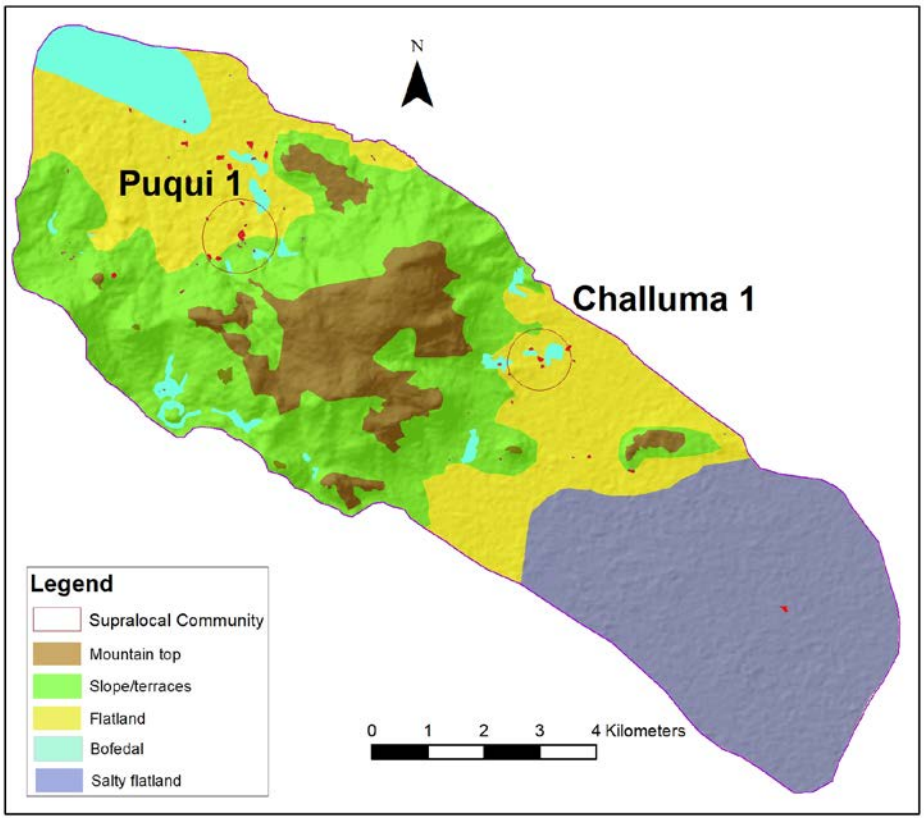


Figure 4.3. Formative occupation distribution based on collection units

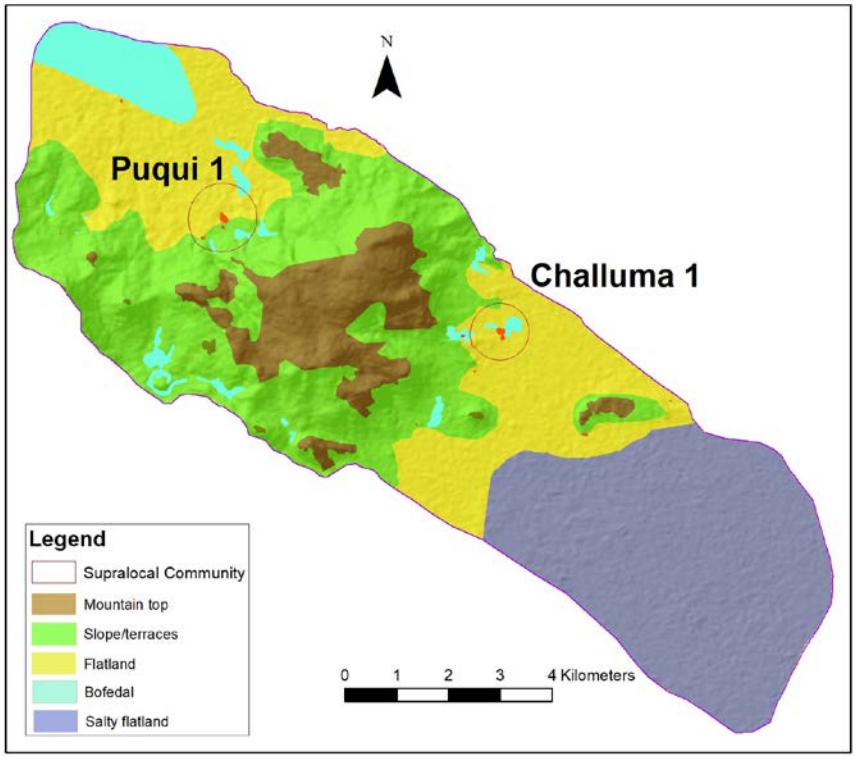


Figure 4.4. Formative occupation and villages delineated using power 4 (surfer) showing areas of daily interaction among people in red

If the subsistence pattern was one highly emphasizing herding, we would expect settlements to concentrate in the Bofedal area (Figures 4.3, 4.4) and Salty Flatland zones, the former in particular. We would expect a highly agriculturally oriented population to exhibit more occupation in the Slope zone. Therefore, the Formative Period distribution is consistent with a strongly mixed or flexible agropastoral subsistence, focused on localized bofedales while also well suited to facilitate non-terrace farming in the Flatland zones. The "ecozone" location of the two major occupation nucleation indicates that each community had easy access to three zones within a two km radius catchment. If there had been a significant pastoral occupation outside of the mounds even that of mobile herders, I would still expect to see much more material in the flatlands, similar to what Capriles (2011, 2014) encountered between mound sites in his regional survey in the Formative Period Wankarani Complex region in Iroco, to the north of my research area.

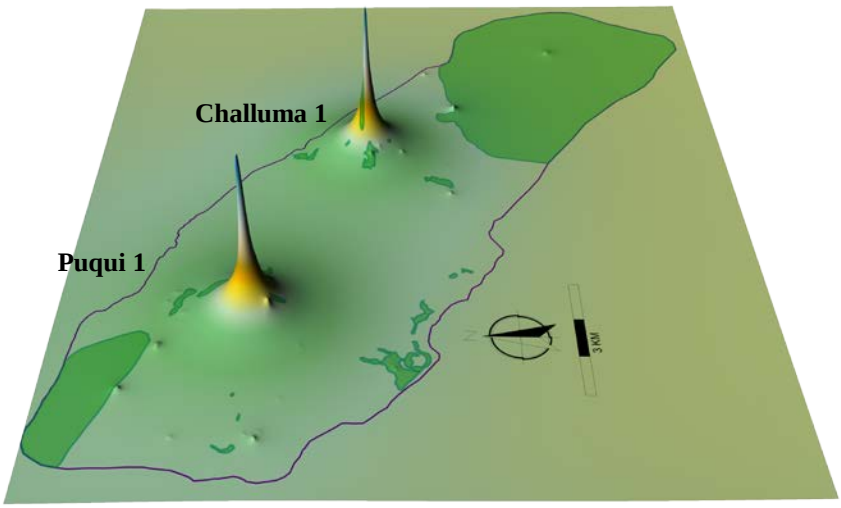


Figure 4.5. Formative density contour showing small bofedales (outlined in green)

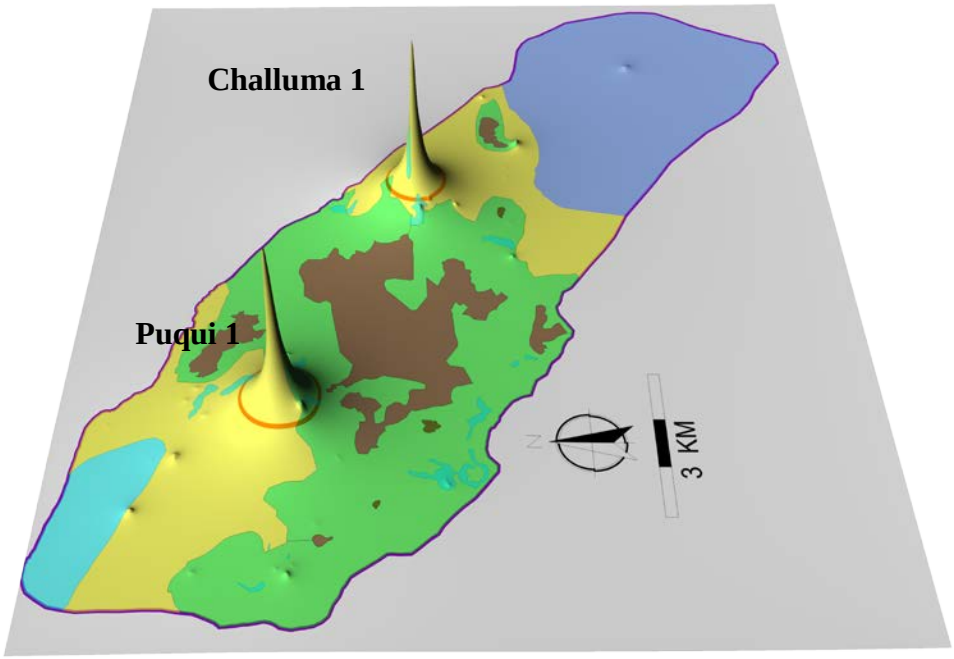


Figure 4.6. Surface representing Formative period community interaction by ecozones. Using inverse distance power of 0.5

Each of these occupation peaks or spikes in Figure 4.6 corresponds to a nucleated mound village (the individual sites are described in Chapter 5). These were the only mound settlements recorded for the Formative Period. Formative material near the Bofedal Zone and in the Salty Flatland Zones was negligible, represented by 2-4 sherds or a single diagnostic projectile point. Outside of the mound settlements, occupation likely corresponds to seasonal pastoral or hunting campsites or homesteads, rather than small villages. No architecture or midden deposit was found at these non-mound sites. Many of these on-mound occupations were near stream beds or bofedales. Diagnostic Formative Period basalt projectile points (*puntas de base concava con aletas laterales*) were recorded at several of these locations (Figure 4.7).

Figure 4.7. Black basalt and rhyolite (in the middle) Formative projectile points.

Several mountain rock shelters have evidence of Formative Period occupation and were possibly used as hunting observation points (*avistaderos*).

4.2.2 Middle Horizon Period (MH)

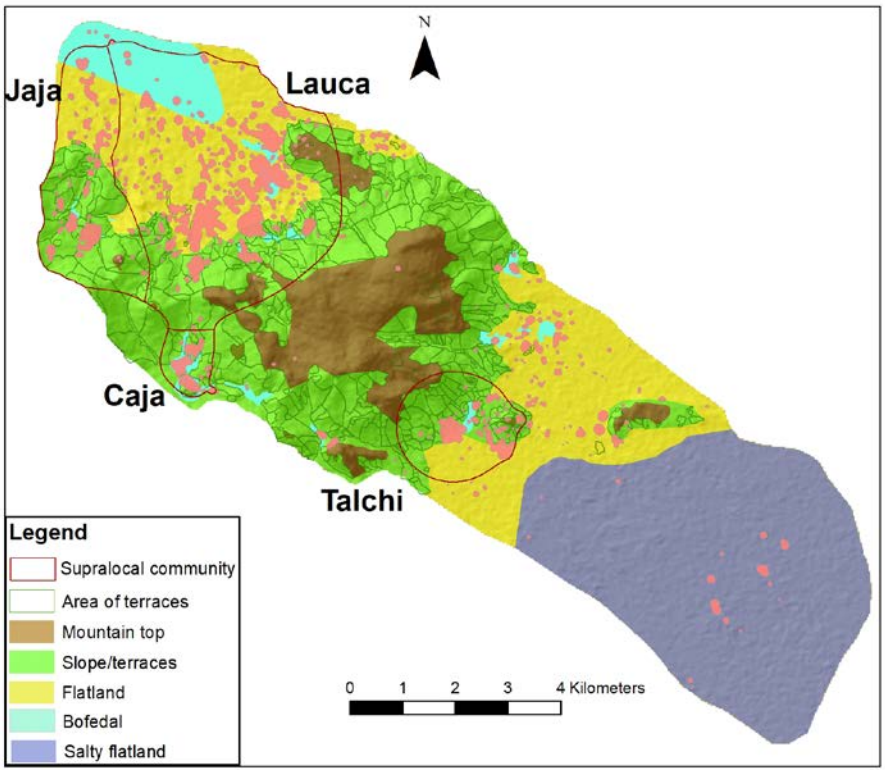


Figure 4.8. Middle Horizon occupation showing daily interaction areas, delineated using interpolation of inverse distance to power 4 in Surfer

Occupation increased dramatically in all zones in the MH Period (Figure 4.8, Table 4.3). The area of most concentrated settlement remained in the same general "ecotone" setting as in the Formative Period. I distinguish four demographic/interaction districts (see Figure 4.9), each featuring one or more occupation "spikes" or concentrations: Talchi, Lauca, Jaja, and Caja.

Table 4.3. MH Supralocal community population estimates

	Middle Horizon			
Supralocal community	**Area Index Density/ century**	**Min pop**	**Max pop**	**Avg pop**
Talchi	51.81	330	660	500
Caja	11.53	74	146	110
Jaja	26.41	170	335	250
Lauca	87.45	560	1110	834
Outside	24.75	158	314	235
Total	**201.95**	**1292**	**2565**	**1929**

Survey recorded at least six potential centers or *markas*: Chita, Pu07 (Cica Catuyo), Jankoma-Jajapata, Cajajalsuri, Puqui, and Huascacar Pampa (Figure 4.9). These sites will be analyzed individually in the following chapter.

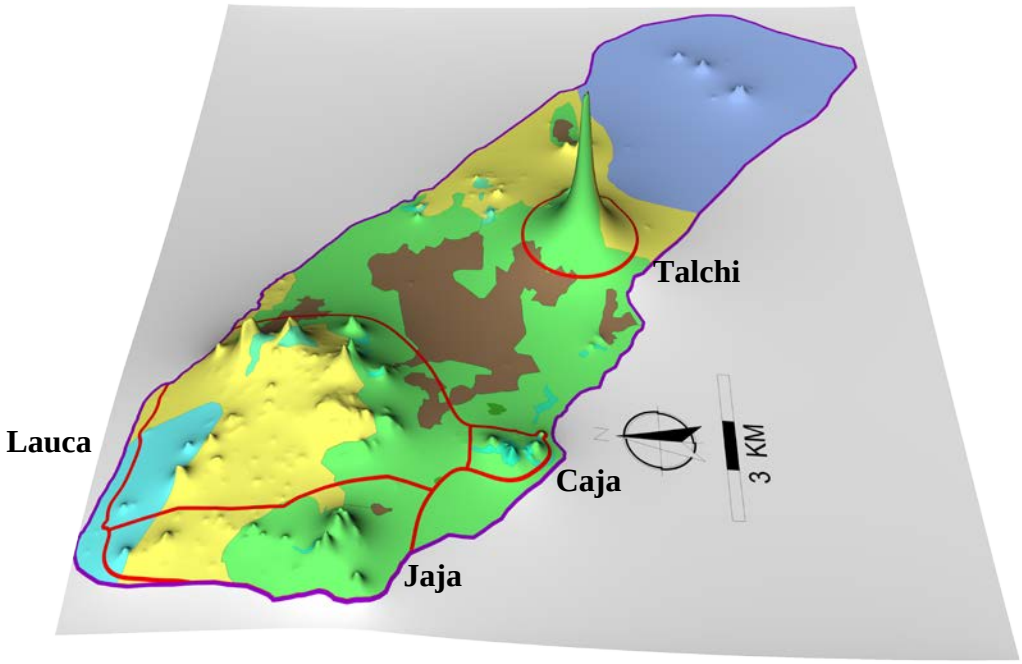


Figure 4.9. Surface representing Middle Horizon Period community interaction by ecozones. Using inverse distance power of 0.5

To the southeast, the Formative Period Challuma 1 mound was abandoned and occupation declined dramatically at that locale. To the northwest, the Puqui 1 mound was also abandoned, but the area remained one of high density occupation in the MH and a nearby MH site is part of the concentration of occupation in the Lauca district.

4.2.3 The nature of MH non-concentration occupation

In the Formative Period, artifacts outside of the population concentrations likely represented temporary, perhaps seasonal, camps. In contrast, the occupation outside of the MH concentrations in many cases represent small settlements - - hamlets or homesteads - - particularly in the northeastern Flatland zone. Larger settlements in these zones, with four to six residential structures likely represent *estancias*, consisting of one or two extended families. The higher artifact densities here are often associated with low house or village mounds, rather than simply consisting of one or two artifacts as in the Formative Period (Figure 4.10).

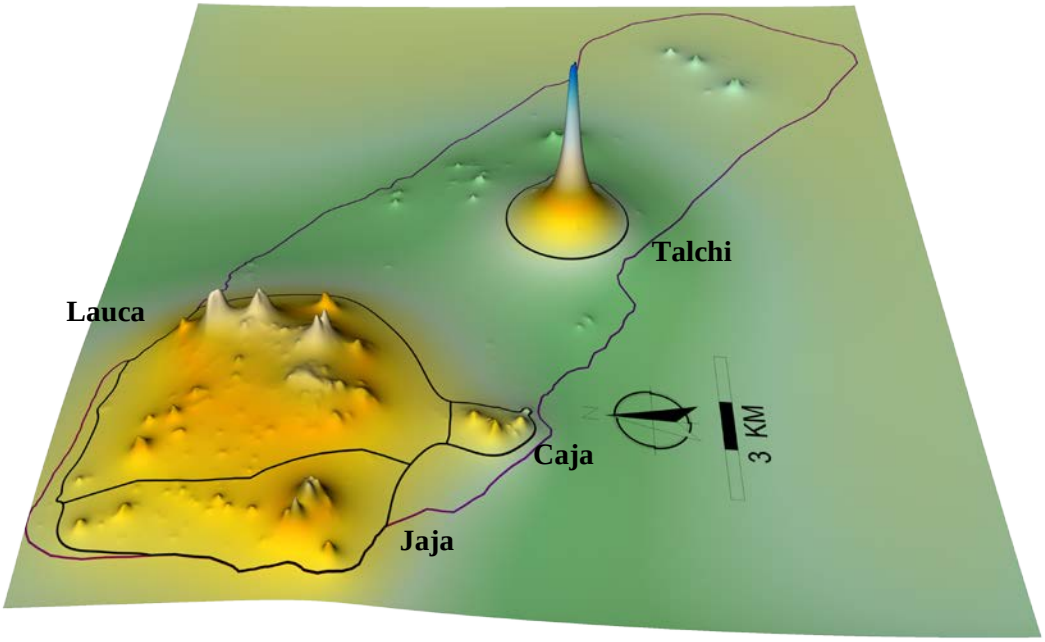


Figure 4.10. Surface representing Middle Horizon Period community interaction with Supralocal communities delineation. Using inverse distance power of 0.5

4.2.4 MH differences between north and south

For the first time, the Basin occupational sequence shows markedly different settlement processes between the area to the north and to the south of Yaretani Mountain. As seen in Figure 4.10, occupation distribution differs on either side of the Mountain. There is an increase from the Formative Period in occupation in the Flatlands both to the north and south of the Yaretani Mountain, but the increase in the northern Flatland Zone is disproportionately large. The high density occupation north of the Mountain exhibits moderate nucleation resulting in three supralocal communities – Lauca, Caja, and Jaja). The area of highest density is along the Flat – Slope ecotone in the Lauca demographic district, where occupation is represented by seven adjacent concentrations (seen small spikes within the larger dome) with six km of one another. All

concentrations lie along one side or the other of the Flatland – Slope ecotone. There is significant occupation outside of these concentrations, extending over much of the southern half of the Flatland zone, becoming less dense closer to the Bofedal Zone.

In contrast, there was less occupation to the southeast of Yaretani Mountain, and this was more dispersed overall, save for the very strong nucleation represented in a single spike (Talchi, concentration containing the site of Chita). This is the most concentrated occupation of the MH. With the exception of Talchi, and occupation on a hill group from the Slope Zone projecting southeast into the Flatland, occupation southeast of Yaretani Mountain avoids the Slope Zone. There is relatively little occupation outside of the Talchi concentration, and less use of the flatland than north of the Yaretani Mountain.

4.2.5 Increased MH occupation of the Slope Zone and agropastoral shift

Much of the increase in occupation took place in the Slope Zone. In addition to Talchi, there are the Jaja and Caja concentrations, in areas previously showing no Formative Period occupation. In the Formative Period there was only one small site in the western and southwestern Slope Zone areas. In the MH these are heavily occupied (Jaja and Caja). There is also new MH occupation directly to the south of Yaretani Mountain, and in the small Slope area to the north of the Salty Flatlands.

The dramatic increases in Slope occupation and in the sections of Flatland closest to the slopes argues for a significant increase in agricultural focus in the population generally (Figure 4.11). One component of this subsistence shift may have been the introduction or increase of terrace agriculture in the Slope Zone.

Figure 4.11. Terraces next to the Cajajalsuri settlement

The largest occupation concentrations were all just inside the Slope Zone (for example Talchi) or on the interface. For each MH concentrations, agricultural terraces were easily within at least 1 km.

The Flat/Slope ecotone can be argued to represent the prime location for agricultural settlement. Prehispanic settlement was commonly located at the base of hill groups in the *altiplano* so as not to take up land that could be terraced.

Against this clear occupation trend towards Slope Zone must be set the increased MH occupation in the Bofedal and Salty Zones. The former change in particular, while not on the scale of occupational increase in the Flatland and Slop Zones, can be interpreted as showing increased herding activity, at least in one area of the survey zone. One possibility is that with the population increasing as a whole in the survey area, the MH occupation is showing more spatial variability in the agropastoral mixture than existed in the Formative Period. In this interpretation, the population in the northwest may be relatively more pastorally-oriented than the population elsewhere in the

survey area. Examination at the local scale does not particularly bring clarity to assessing of the pastoral vs agricultural mix. Some of the MH occupation concentrations such as Caja and Chita, and a couple of the Lauca spikes, are directly associated with significant local bofedales, while other Lauca and Jaja concentrations are not. To the southeast of Yaretani Mountain, a good portion of the non-Talchi occupation is associated with bofedales. However, some bofedales southwest of Yaretani Mountain show no MH occupation.

While settlement dynamics appear to have differed between populations to the north and the south of the Yaretani Mountain, the subsistence orientation between the two populations remained roughly similar.

4.2.6 Late Intermediate Period (LIP)

I identify four population districts or supralocal communities for the LIP, the largest and densest of these being Lauca. Occupation remained concentrated in the traditionally preferred Flatland/Slope Zone ecotone, although with more such occupation now in the Slope Zone then previously in the MH. This is a high density area both in the MH and LIP, but the LIP sees a short (in terms of spatial distance) but strong settlement shift within the concentrations to Slope Zone occupation.

Table 4.4. LIP Supralocal community population estimates

	Late Intermediate Period			
Supralocal community	**Area Index Density/ century**	**Min pop**	**Max pop**	**Avg pop**
Kalchi	18.24	115	230	175
Caja	25.04	160	318	240
Jaja	46.66	300	600	445
Lauca	121.3	776	1540	1155
Outside	44.47	285	560	427
Total	**255.71**	**1636**	**3248**	**2442**

Occupation density increases dramatically in the Lauca supra local community, and even more so in the Jaja supralocal community (Table 4.4). Occupational density remains the same in the Caja supralocal community. Most strikingly, the MH Talchi concentration disappears as Chita is abandoned, and is not replaced by any occupational concentrations on the flatlands or slopes southeast of Yaretani Mountain. The southernmost of the occupational concentrations in the LIP is the smaller Kalchi one in a Mountain Zone directly to the south of Yaretani Mountain (Figures 4.12 and 4.13).

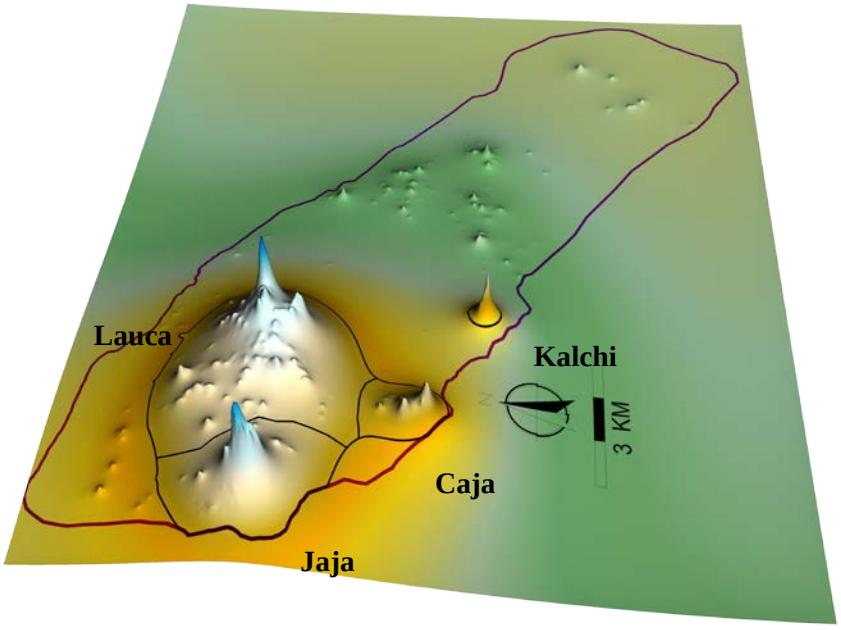


Figure 4.12. Surface representing Late Intermediate Period community interaction with Supralocal communities delineation. Using inverse distance power of 0.5

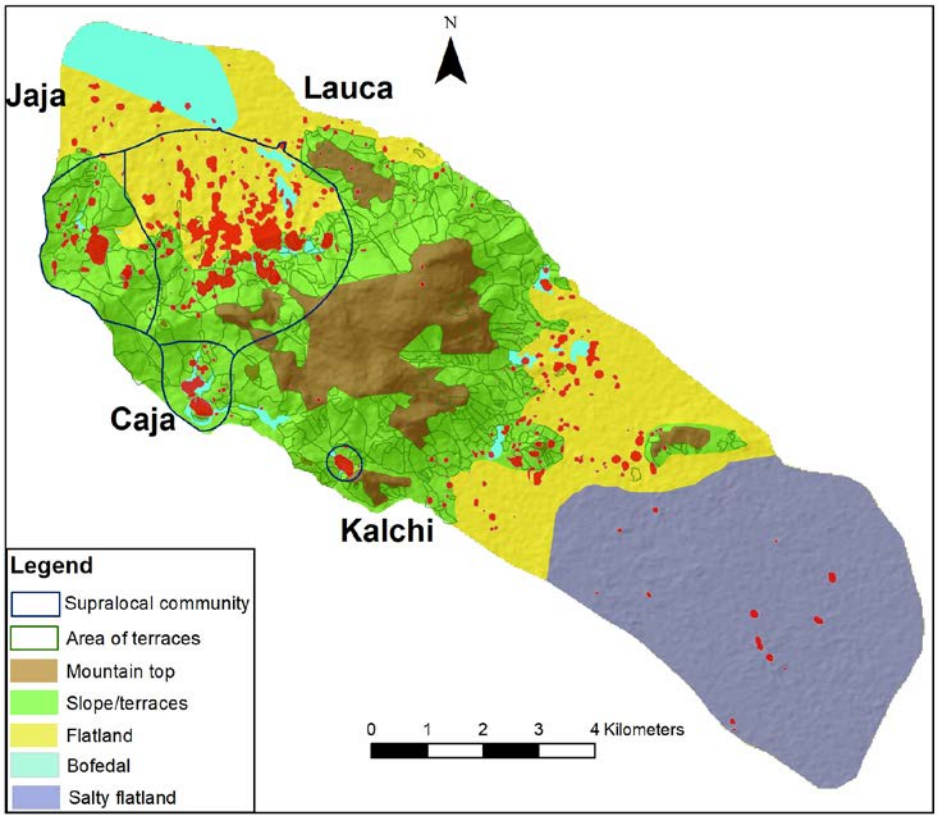


Figure 4.13. Late Intermediate Period occupation showing daily interaction areas, delineated using interpolation of inverse distance to power 4 in Surfer

The principal MH sites of Chiti Talchi, Chita, Cajajalsuri, Jankoma, Laucapata, Cica Catuyo, and Ichay Winto, were all abandoned. Only two of the larger MH concentrations (Jajapata and the Huascacar Pampa-Illahuata) saw occupation continue into the LIP. Each of these sites, associated with agricultural terraces, grew during the LIP. All the possible space for suitable for building agricultural terraces was used for that propose. Other significant MH sites such as Puqui, Huascacar Pampa, and Willa Khollu remained inhabited but with lower densities.

Residential occupation increased at the Pirwani and Jajapata settlements, and even more markedly at Kalchi, Illahuata, Pukara, Phichi Khollu, and Taypi Circa. Each of these settlements had exhibited minimal settlement in the MH in the form of probable seasonal camps or one or two

homesteads in nature. Survey revealed seven potential centers or *marka* sites: Pu14 (Taypi Circa), Pu05 (Pirwani), (Pukara), (Jajapata), (Kalchi), Illahuata and Pu03 (Puqui). These will be analyzed as such in the next chapter.

As noted earlier, overall population in the Basin grew significantly from the MH to the LIP. The distribution of occupation changed even more significantly with the increased occupation of Slope Zone (Figure 4.14). The differences in settlement processes between the populations to the north and the south become much more pronounced.

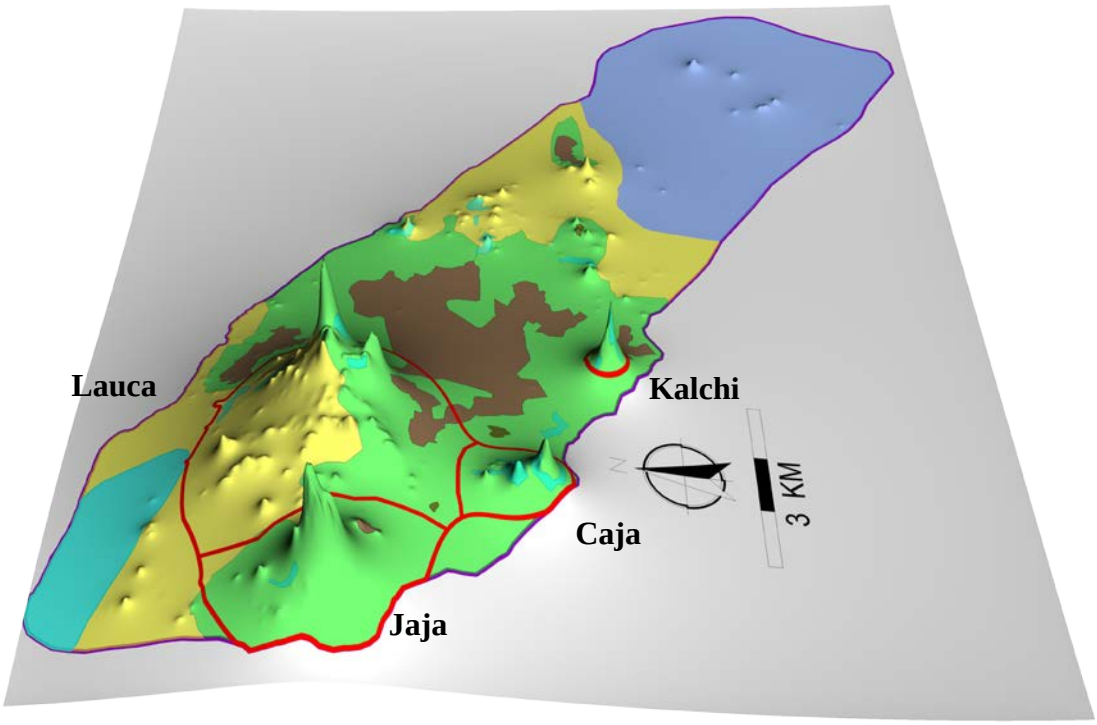


Figure 4.14. Surface representing Late Intermediate Period community interaction by ecozones. Using inverse distance power of 0.5

The distribution of material overall shows heavy concentration in the western Slope Zone, with a significant peak in the Jaja district. Here, and in the Puqui "interface" area to the north (Lauca district), some of the LIP shifts are associated with the emergence of pukara (hill fort) sites.

Two of the peaks represent pukara settlements: Pukara (located in the Jaja district) and Pirwani (Lauca district). The Pukara and the Pirwani sites are the only true hillforts in the survey area. Other large LIP settlements - - Jajapata (Jaja district) and Taypi Circa (Lauca district) present medium sized encircling walls based on a single course of foundation stones. All of these sites are described in the next chapter. Each of these larger settlements is closer to agricultural terraces than to pasture land. In comparing these districts, we can note the most nucleation in Jaja and Caja, and the highest concentration, but less overall nucleation, in Lauca, where there remains significant occupation outside of the concentrations. In each of these districts or supralocal communities, people are living in fairly close proximity to one another, and much of the population is in essentially nucleated or compact village settlements of significant size. Outside of these concentrations, there is less "hinterland" occupation than there was in the MH. To the north of Yaretani Mountain, non-concentration settlement reflects a combination of small hamlets and homesteads, sometimes in the form of low residential mounds, and campsites. If we were to treat the light and scattered occupation that is left southeast of the Yaretani Mountain as a supralocal "community," we could characterize it as a dispersed population of homesteads and camp sites, lacking nucleated village settlements.

4.2.7 LIP differences between north and south

One of the major shifts in LIP occupation, as detailed elsewhere in this chapter, was more occupation in the Slope Zone. This shift was limited to the northern part of the research zone. In comparison to the south, the north saw continuing, even intensifying nucleation processes resulting in the occupational peaks in the Puqui area of the Lauca supralocal community, and in the concentration in the Jaja district. There is proportionally less occupation outside of these

concentrations. The occupation in the Flatland Zone declines, particularly away from the border with the Slope Zone, and there is virtually no occupation in the Bofedal zone. These changes suggest increased emphasis on agricultural in the agropastoral mix.

In contrast, to the southeast of Yaretani Mountain, there is a decline in overall settlement, to the point that we can talk about near abandonment of this area (some of the population may have moved to the north, although the landscape may have been already been pretty "filled in" in the north by the end of the MH). The MH Talchi concentration disappears as Chita is abandoned, leaving no significant local population concentration. What remains is low density, dispersed occupation. The zonal distribution of this remaining occupation is similar to that of the MH non-concentration occupation, suggesting a segment of the population whose lives were not changed much by the abandonment of Chita. There is slightly less of this settlement, and it is more nucleated than in the MH. The occupation represents three loose dispersed clusters of homesteads, separated from one another by 1.5 – 2 km. Occupation has also contracted, with no occupation in the northwestern part of this Flatland. The LIP occupation southeast of Yaretani Mountain is even more closely associated with local bofedales than in the MH. As in the MH, there is very little occupation on slopes, except for the central low hill group. There is continuity in occupation from the MH, in the form of multicomponent sites, in the Salty Zone. These may represent seasonal camps. This continuity shows that use of the Salty Zone did not change from the MH to the LIP, in contrast to the significant changes in occupation in the rest of the survey area. Overall, what is visible in the south suggests a strong tilt to emphasize herding. In fact, the pattern is consistent with what we might expect from a primarily pastoral group.

In sum, in the LIP the north and south now differ markedly in resident population size, land use and agropastoral mix, and presumably in social interaction. There are no indicators of centralization (in settlement or sociopolitically) in the south.

4.2.8 Increased LIP occupation of the Slope Zone

The LIP saw a trend of increased occupation in and near the Slope Zone. Three of the four demographic districts have their demographic centers squarely in Slope Zone. All of the significant occupational peaks in the survey are area are in the Slope Zone in the LIP. To the north of Yaretani Mountain, this process can be viewed as a contraction of occupation into the Slope Zone or closer to it. In comparison with the MH, there is less occupation in the northwestern-most part of the research zone. The northwestern portion of the Flat Zone here sees a marked decline in occupation, while occupational density increases in the southeastern portion of the Zone, in the Puqui area. There is still significant occupation in this Flat Zone, but the bulk of this occupation is near (within 1 km) of Slope.

4.2.9 Indications of agropastoral shift

The Slope Zone, the preferred occupation setting in the LIP, is also the zone with the highest agricultural potential, in terms of both soils and the possibilities of terracing. The increased occupation of the Slope Zone is consistent with an increased role of agriculture in the agropastoral mix in area north of Yaretani Mountain. Consistent with this interpretation is the virtual disappearance of occupation from the Bofedal Zone, the zone of highest herding potential. In sum, the area north of Yaretani Mountain exhibits the occupational pattern we would expect to see

in a strongly or mostly agriculture adaptation. It is unlikely that this is purely agricultural adaptation. Several of the peaks of occupation (Caja, Jaja, in Lauca) are directly associated with local bofedales, although several major occupation concentrations are not.

Nearly the opposite pattern is observed south of Yaretani Mountain, with a smaller population dispersed in the Flatland Zones. This is the pattern we would expect from a strongly pastoral adaptation. In sum therefore, the LIP sees two diverging agropastoral stances, much more agricultural to the north, more pastoral to the south.

4.2.10 Late Horizon Period (LH)

The LH saw a massive depopulation of the research zone as noted at the beginning of the chapter. This is starkly apparent in comparing the occupation maps of the LIP and the LH (Fig. 4.15).

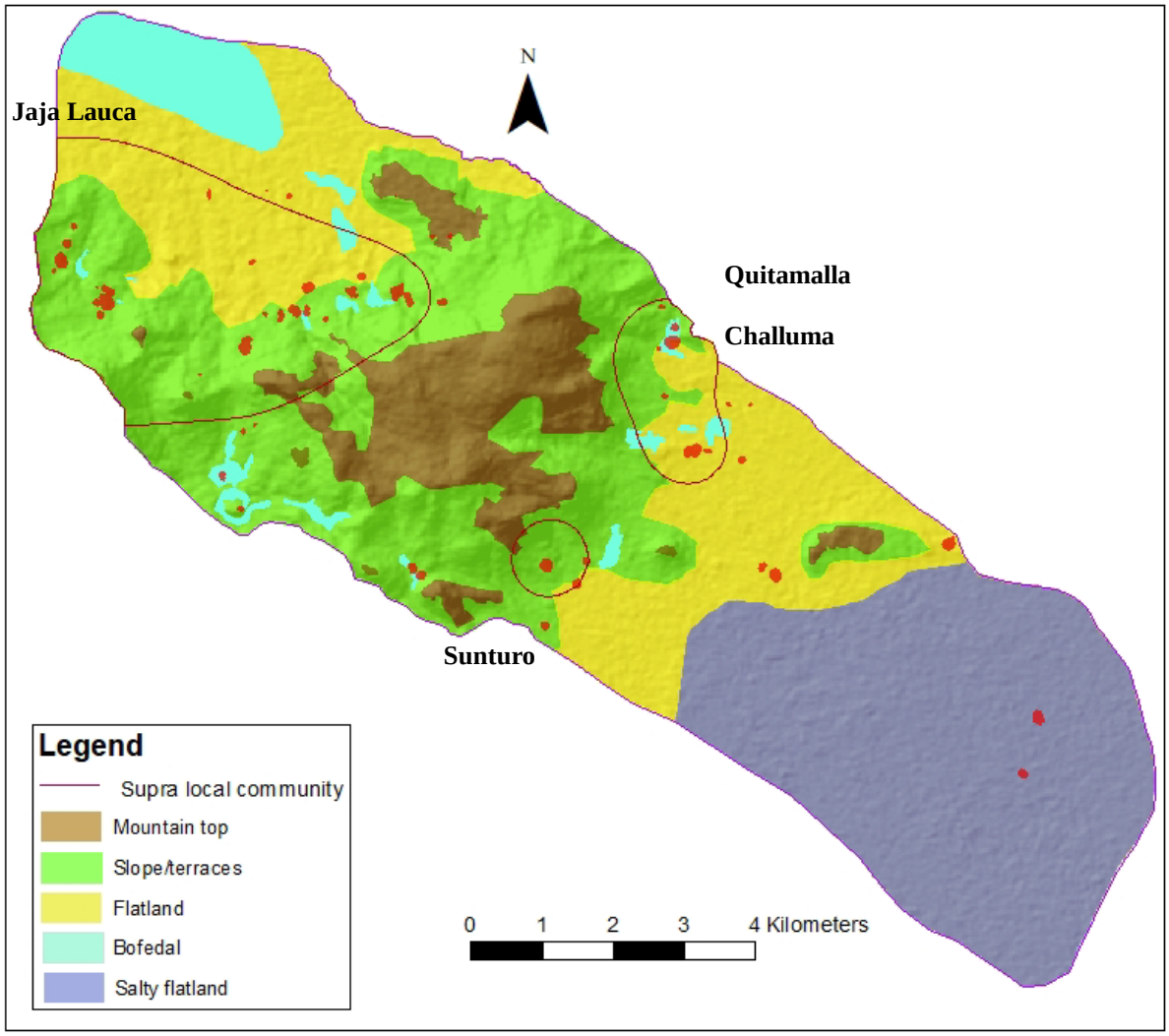


Figure 4.15. Late Horizon occupation showing daily interaction areas, delineated using interpolation of inverse distance to power 4 in Surfer

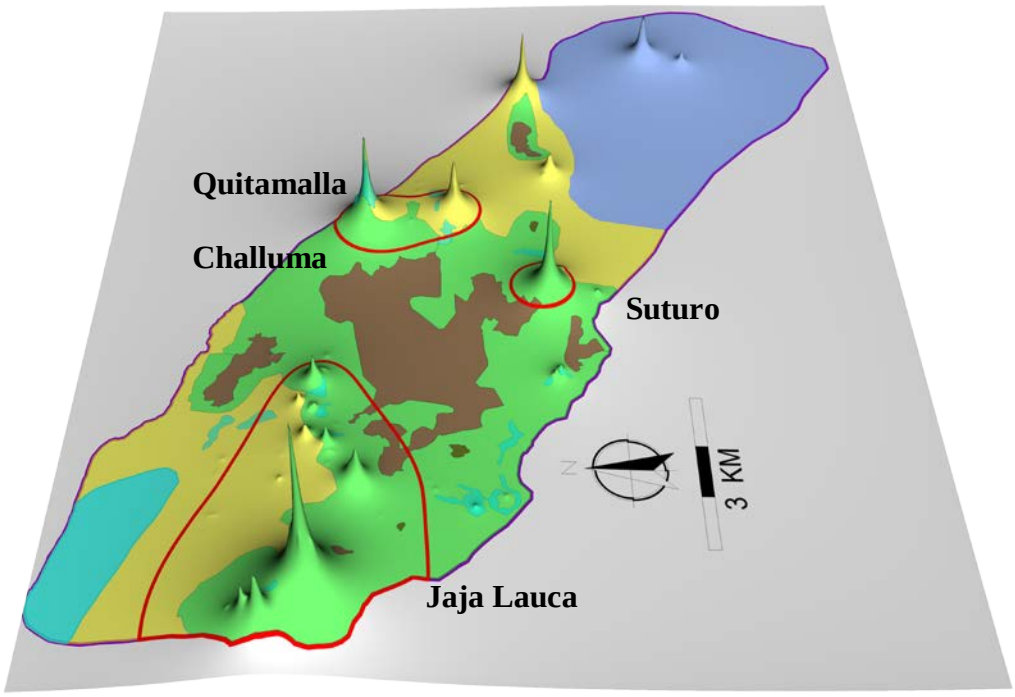


Figure 4.16. Surface representing Late Horizon community interaction by ecozones. Using inverse distance power of 0.001

De-nucleation accompanied this depopulation. Most of the remaining population (77%) was distributed three supralocal communities, the largest being that of Jaja Lauca. This areally large district contained one significant occupation peak, and numerous smaller constituent concentrations. The concentration of Suturo may have represented a village of only 20 – 25 families, and the supralocal community of Quitamalla and Challuma consisted of two distinct concentrations of near equal size. Other small "spikes" in Figure 4.16 likely represent hamlets or homesteads. In comparison to earlier, much of the LH population was living in smaller villages or homesteads, with a 1-3 km separating the largest of these settlements from their neighbors.

Table 4.5. LH supralocal community population estimates

	Late Period			
Supralocal community	**Area Index Density/ century**	**Min pop**	**Max pop**	**Avg pop**
Suturo	10.37	68	130	100
Quitamalla - Challa	18.31	120	230	174
Jaja_Lauca	32.96	210	420	315
Outside	17.78	110	229	170
Total	**79.43**	**508**	**1009**	**759**

The LH also saw shifts in occupational locations suggestive of marked sociopolitical disruption. There is little continuity in settlement from the LIP to the LH, and few multicomponent sites. The large LIP occupational concentration on the ecotone area (Puqui) to the northwest of Yaretani mountain dissolves. This had been an area of concentrated, high density settlement going back to the MH. The LIP Caja concentration disappears entirely, and that vicinity is abandoned. The LIP Kalchi concentration nearly disappears. Of the three occupational spikes in the LH, only one (Jaja Luaca) is in the vicinity of a former LIP concentration. This location becomes the locus of densest settlement in the survey area in the LH. The modest occupational spikes at Challuma-Quitamalla and Suturo are in locales that had not been occupied in the LIP.

Yet while the overall population in the survey zone may have dropped to a level not seen since the Formative Period, the LH is not a return to Formative Period subsistence or settlement pattern.

4.2.11 Increased LH occupation of the Slope Zones, agropastoral shift and LH differences between north and south

The longstanding preference for Flat/Slope ecotone locations remains in both the northwestern and southeastern parts of the survey area, but is less strong in the latter. As in previous periods, LH settlement is greater in the northwest than the southeast. The only major concentration of occupation is in the northwest. As shown in Table 4.5 and Figure 4.16, the LH Flat vs Slope zone preference (54.38:19:6) is not significantly stronger than it was in the LIP (153.19:70.43). However, there is evidence to suggest that the LH occupation was the least pastorally oriented period in the entire sequence. There is scant activity in the flat zone north of the Yaretani Mountain. In contrast to the LIP, there is no occupation in or near the Bofedal Zone. Nor is there strong association between occupation and small bofedales. The contraction of occupation to the Slope here indicates even less emphasis on pastoral zones than in the LIP.

The area south of Yaretani Mountain has proportionally more of its occupation on flatland than to the north, but even so, the two largest occupational peaks (Quitamalla and Suturo) are in the Slope Zone. Nonetheless, the pattern to the south suggests more pastoral emphasis than to the north, continuing, although in a diminished way, the north vs south differences in agropastoral mix noted for the LIP.

Some of the occupations in the south are associated with the late prehispanic/historic "Silver Road" (Camino de la Plata). This road served as a route linking interior highlands to the sierra and coast in the Inka Period (Figure 4.17). Subsequently it became one of the principal roads along which silver extracted in the region was taken to Arica during the Colonial Period. Occupations in the Salty Zone are associated with another prehispanic/historic road that goes to Salinas de Garci Mendoza, where there was a silver mine.

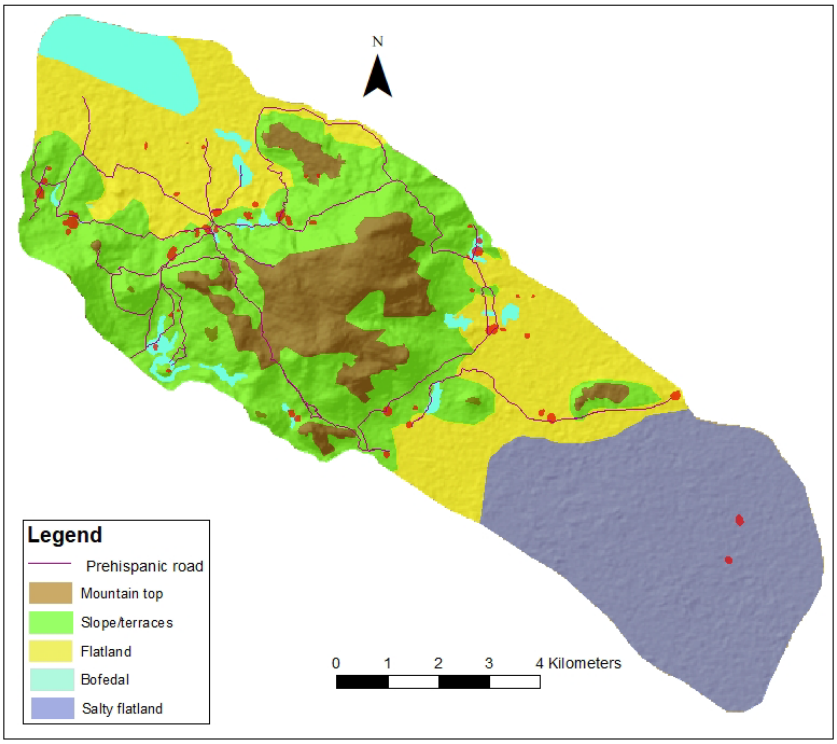


Figure 4.17. Late Horizon occupations and the association with the prehispanic roads

4.3 Regional Patterns Summary

From an initial small sedentary population in the Formative Period, population increased dramatically through the MH and then at a reduced pace, peaking in the LIP. Population declined sharply with the LH. After the Formative Period, population was always greater in the northern part of research zone (north of Yaretani Mountain). The MH and LIP show numerous supralocal communities (average estimated population 150 – 300) each formed around an occupational concentration. If there was political centralization at any point, this process would have been occurring in the northern supralocal communities, save for the highly nucleated MH one of Talchi. If there was a single regionally dominant center, it may have been represented in the LIP Lauca

supralocal community, but aside from the largest population size, and the presence in it of the largest single LIP site (Taypi Circa) there is no evidence that this was the case. Settlement shifted locally from the MH to the LIP, but there was significant continuity regionally in the Lauca, Caja, and Jaja areas of concentration of occupation in the research area. Six of 12 of the potential MH *marka* sites continue to be occupied into the LIP, and six of the potential LIP *marka* sites had MH components.

Occupation tended to clump around the Flat/Slope Zone ecotone in every period after the Formative. There was an increasing emphasis on agricultural throughout the sequence, based on comparing the interzonal distributions of occupation period by period. Strong differences in agropastoral mix developed in the LIP between the populations to the north and to the south of Yaretani Mountain, with a greater emphasis on herding to the south. This difference persisted even with the much reduced LH population.

An increased emphasis on agriculture is one explanation for the occupational trends. Another factor to consider is conflict, with the LIP occupational shifts indicating a population aggregation and a preference for defensible locations. The LIP saw construction of several fortified hilltop sites (pukaras), and walls around other major settlements. However, not all LIP occupation concentrations were walled or in defensible locations. And much occupation remained in vulnerable villages, hamlets, homesteads on flatlands. While defense may have been a concern it was not an overriding factor in structuring settlement distribution. Perhaps conflict was infrequent, or largely leadership segments of the two pukara concentrations. Of course, a concern with warfare and increased emphasis on agriculture are not mutually exclusive, as the Slope Zone of higher agricultural potential also offered the better *topo*graphy for defense.

The LH saw a dramatic change in settlement, yet it is difficult to ascribe this directly to strategies of the Inka Empire. The Inka created a highly visible infrastructure through much of the Quillacas Confederation, but this infrastructure was not evidenced in the Yaretani Basin. Survey did not reveal the characteristic administrative centers or structures that embody a strong Inka imperial presence. I found no examples of Inka facilities such as *tambos*, other than several large Inka style towers (1.7 m high by 2 m wide). One of these was placed at the edge of the Jajapata settlement where it can be easily seen from different parts of the Yaretani Basin. The structure may have had a funerary purpose (*chullpa*) as it was surrounded by slab tombs, as was a similar structure at LH Pukara, Another tower was recorded at the LH Huarakalluni site. There were few other examples of Inka style architecture, and these were scattered among the larger sites, showing that interaction with the Inka state was not centralized. Several of these sites were directly associated with the roads in the southern part of the research zone. Most of the Inka style pottery recovered was found along these roads.

It is likely that the Yaretani Basin population was dominated indirectly, through local leaders such as those of Jaja. This supralocal community was the only pre-Inka population concentration to survive into the Late Horizon.

Was the Inka Empire responsible for the LH depopulation? It was not unusual for the Inka state to reorganize the economy of subject territories, to undercut local status orders, and to pull local leadership out of defensible locations. The Inka often moved to increase agricultural production in conquered areas, but that clearly was not what happened in my research area, with the exception of LH terraces constructed around the small settlement of Quitamalla. Instead, the Inka Empire may have been interested in the Yaretani population as a labor force and moved much

of it to other areas. There are vague ethnohistoric references to the Inka Empire sending "tens of thousands of Quillacas natives" to other regions of Bolivia.

Finally, I am beholden to mention climatic fluctuations as potential factors in the settlement shifts. Certainly droughts could have affected agropastoral activities in this area as water is a very important resource for herding and agriculture is rainfall dependent. As noted, above, there is some association of occupation concentrations with small bofedales in each period, and the prehispanic high density "Puqui area" today is notable for its enduring hillside springs. However, it is hard to reconcile my evidence for an increasing emphasis on agriculture at the end of the MH with the onset of drought conditions. This issue need await future research.

Comparing the survey results to settlement patterns in other areas of señorío populations shows two significant differences from señorío settlement documented elsewhere. First, while there are indications of conflict in the Yaretani Basin LIP, warfare does not seem to be nearly as important as it was in the Titicaca Basin LIP populations. There, many LIP sites were pukaras, with little settlement in the buffer zones between them. Second, the Yaretani Basin LIP differs sharply from the settlement hierarchy documented in the Cinti Valley to the south. There, a very clear (log normal) distribution of sites developed in a regionally-integrated Upper Cinti Valley. My survey did not reveal evidence for such hierarchy in the Yaretani Basin. On the basin of house counts of surface architecture, the LIP Taypi Circa site might be identified as the most likely apex center (with 70 houses, as opposed to the next largest site with 40 houses). Whether Taypicirca was a regional center, and indeed whether any of the other occupation concentrations can be considered political centers or *marka* sites, will be addressed in the next chapter.

One objective of this research was identifying when political centralization in the form of central places or *marka* sites first developed. The survey results suggest that this process

developed in the MH, rather than being the very late prehispanic development that some scholars have proposed.

Another objective of this research was determining whether potential leadership centers or *marka* sites were differentially associated with agricultural potential. If so, this would support the idea that domination of staple production was an economic basis for *señorío* leadership. This relationship was not apparent at the regional settlement level. Most potential *marka* centers of the MH and LIP were in the Slope Zone, but so was the bulk of occupation in those periods anyway. In the next chapter, I will use artifact lines-of-evidence to assess whether *marka* center populations were differently involved in agriculture or other economic activities.

5.0 ANALYZING POTENTIAL CENTERS

Survey revealed potential leadership sites (centers or *marka*s) for the MH, LIP, and LH Periods. These sites were among the largest in each period, and generally at the center of a supralocal community. In this chapter, each site will be examined in the context of its supralocal community by comparing features of the potential *marka* occupation to other occupation in the supralocal community. I also investigate whether the site has architectural or artifactual features indicative of a resident leadership segment or of central place functions.

Among the expectations for such sites are: (a) assemblages with higher proportions of high value goods than other occupations in the supralocal community; (b) differential involvement in ceremony as seen in public architecture (plazas, mortuary facilities), and higher proportions of serving vessels or ceremonial items (*challadores*); (c) differential involvement in staple production activities as seen in storage structures, corrals, storage vessels, and agricultural hoes; and (d) differential involvement in exchange (both regional and long-distance).

5.1 Formative Period

None of the Formative Period sites recorded had the characteristics of a potential supralocal center. The two largest sites were both village mounds.

5.1.1 Puqui 1

This mound was located on the Flat/Slope ecotone in the Puqui complex area and has been heavily damaged by modern agriculture. It covered roughly 10 ha and was 4 m tall at its peak, with an estimated population of 18 - 35. Mound deposits included thick layers of ash. Surface material was very dense, including grinding stones, adobe fragments, some animal bone (mainly camelid, but also rodent), ceramics, and lithics. There were small scatters (campsites) in the vicinity of the mound that were used in comparing the mound to its "supralocal" community covering roughly 75 ha.

5.1.2 Challuma 1

This mound south of Yaretani Mountain was similar to Puqui 1 in composition, but roughly half the size (5 ha in area and 2 m high) with an estimated population of 8 - 15. It was situated near the bank of a small river. Again, there were small scatters (campsites) in the vicinity of the mound that were used in comparing the mound to its "supralocal" community that covered 30.1 ha.

5.1.3 Formative Period intersite lithic comparisons

Surface collection allows for the comparison of artifact assemblages from these two villages. The have nearly identical area index densities (1.98, 1.94) compared to non-mound Formative occupation (0.37). The Puqui 1 surface collection sample totaled 889 sherds, 603

flakes, and 304 stone tools. Challuma 1 provided 132 sherds, 31 flakes, and 19. Percentages of lithic tools by suprahousehold communities.

With our total lithic sample (N=328) we are able to compare stone tools at the two sites and several non-mound occupations near Puqui 1 (Fig 5.1). As other Formative Period occupations were not clearly mono-component, I did not assign a period to their lithics. In other words, the lithic assemblages used in analysis are all "chronologically positive," thus they come from mono-component contexts (units with more than 95% of sherds from a single known period).

Table 5.1. Percentages of lithic tools by suprahousehold.

Lithic tool assemblages	Puqui 1 N	Puqui 1 %	Challuma 1 N	Challuma 1 %
Subsistence related activities				
Preform	8	2.63%	3	15.79%
Projectile point	22	7.24%	0	0.00%
Hoe	24	7.89%	8	42.11%
Scraper	237	77.96%	1	5.26%
Grinding stone	8	2.63%	5	26.32%
Borer/Drill	5	1.65%	0	0.00%
Hammer stone	0	0.00%	2	10.53%
Total	**304**	**100%**	**19**	**100%**
Adornments and ritual				
Bead preform	1	25.0%	0	0.00%
Bead	1	25.0%	0	0.00%
Pendant	2	50.0%	0	0.00%
Spatula	0	0.00%	1	100%
Total	**4**	**100%**	**1**	**100%**
Hoe debris	37		14	

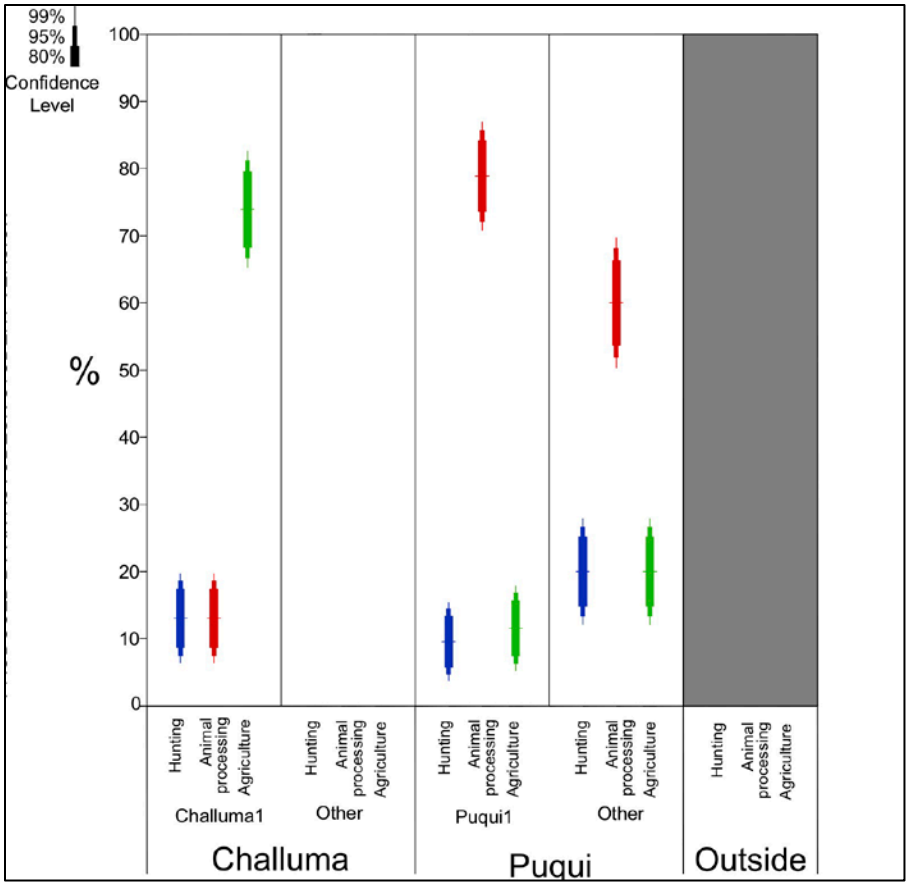


Figure 5.1. Proportions of lithic tools by subsistence activity, by settlements within supralocal communities.

Comparison reveals a somewhat unexpected lithic differences between the mounds, with a significantly higher proportion of agricultural tools (grinding stones, hoes) at Challuma 1. In contrast, there were proportionally more household tasks/animal processing tools (scrapers, drills, knives and blades) at Puqui 1. Scrapers are multifunctional of course, but are essential for processing of animal hides and animal butchery, which is why I use them as a proxy for animal processing, both wild and domestic. The sharp contrast between the two mounds in scraper proportions (nearly 78% vs 5%) points to much greater involvement in animal processing at Puqui 1. This would be consistent with a greater emphasis on herding than at Challuma 1. The proportion of hunting tools (projectile points, *boleadoras*) was the same for each mound, and not very

different in the non-mound occupation outside Puqui 1. It is worth reiterating that grinding stones would also have been important in processing wild plant foods, so that the comparison may show greater involvement in agriculture, greater consumption of wild plants, or both, on the part of Challuma 1 residents.

Table 5.2. Tools and debitage/ sherds ratios

	Ratio tools/sherds			Ratio debitage/sherds		
	N tools	$\overline{X}$ Ratio	Std	N debitage	$\overline{X}$ Ratio	Std
Puqui 1	304	0.47	0.22	603	0.85	0.21
Challuma 1	19	0.15	0.09	31	0.17	0.08

Lithic reduction activities were conducted at both villages (Table 5.3), but to a markedly higher degree at Puqui 1 (Table 5.2). We can be very confident that the Puqui residents were much more involved in stone tool production than the residents of Challuma 1. The fact that there are no large basalt blanks within the sample may suggest that hoes where not being manufacture locally, but that the tools themselves was being brought finished to the site. The only non-local raw material core identified with in the sample is obsidian. Most of the complete flakes at Puqui are of local raw materials such as rhyolite, which also suggests that these flakes where being chipped from stone obtained directly from nearby river banks. At Challuma 1 most of the complete flakes were of obsidian, a long-distance exchange material.

Table 5.3. Lithic debitage categories for the Formative period

	Puqui 1 N	Puqui 1 %	Challuma 1 N	Challuma 1 %
Core	32	5.31%	3	10.53%
Complete flakes	284	47.1%	8	21.05%
Broken flakes	194	32.17%	6	21.05%
Flake fragments	74	12.27%	12	42.11%
Micro flakes	19	3.15%	2	0%
Total	**603**	**100%**	**31**	**100**

Puqui1 presents a higher diversity of raw material than Challuma 1 (Table 5.4).

Table 5.4. Reduction sequence categories

	Core		Complete flakes		Broken flakes		Flake fragments	
Raw material	**Challuma 1**	**Puqui 1**	**Challuma 1**	**Puqui 1**	**Challuma 1**	**Puqui 1**	**Challuma 1**	**Puqui 1**
Andesite	0.00%	0.00%	0.00%	2.48%	0.00%	0.00%	0.00%	0.00%
Basalt	0.00%	0.00%	0.00%	9.22%	50.00%	32.98%	75.00%	17.39%
Quartzite	0.00%	0.00%	0.00%	0.00%	0.00%	3.09%	0.00%	2.90%
Quartz	50.00%	47.00%	0.00%	10.28%	0.00%	12.37%	0.00%	8.70%
Obsidian	0.00%	17.67%	75.00%	11.35%	25.00%	13.40%	8.33%	20.29%
Slate	0.00%	0.00%	0.00%	14.18%	0.00%	9.28%	0.00%	10.14%
Rhyolite	0.00%	25.33%	25.00%	50.71%	25.00%	26.80%	16.67%	40.58%
Silex	50.00%	10.00%	0.00%	1.77%	0.00%	3.09%	0.00%	0.00%
Total	100%	100%	100%	100%	100%	100%	100%	100%

To evaluate participation in regional exchange we can compare the occupations in terms of local, regional, and long-distance sourced materials. Long-distance exchange, perhaps via caravans, took place in the Formative Period. Among the non-local ceramics found at Formative Period occupations were tripod bowls and a fragment of a smoking pipe found at Challuma 1

(Figure 5.2). The tripod bowls were manufactured in the lowland valleys[2]. A small few beads (N=4) were found at Puqui 1, but these were local in origin, made of local copper or white quartz.

Figure 5.2. Fragment of Formative Period ceramic smoking pipe.

Not surprisingly, residents of both villages were using mostly local material for stone tools. Agricultural hoes were made of quartzite, and also slate and basalt (Figure 5.3). The main difference between the two sites is that roughly 15% of the Puqui 1 assemblage was non-local material; in this case basalt or slate hoes. (Figure 5.3) The non-local stone material in the occupations outside of Puqui took the form of projectile points. It is possible that people living at Puqui1 were travelling to distant regions or more connection to long-distance exchange networks (Figures 5.4 and 5.5).

[2] Macroscopic comparison provenance analysis show that foreign vessels have different kind of inclusions. Red lutita inclusions were noted in these fragments, which according to geologists could have their provenance in sedimentary bed rock formations of the Potosi low valleys.

Figure 5.3. Basalt and slate hoes

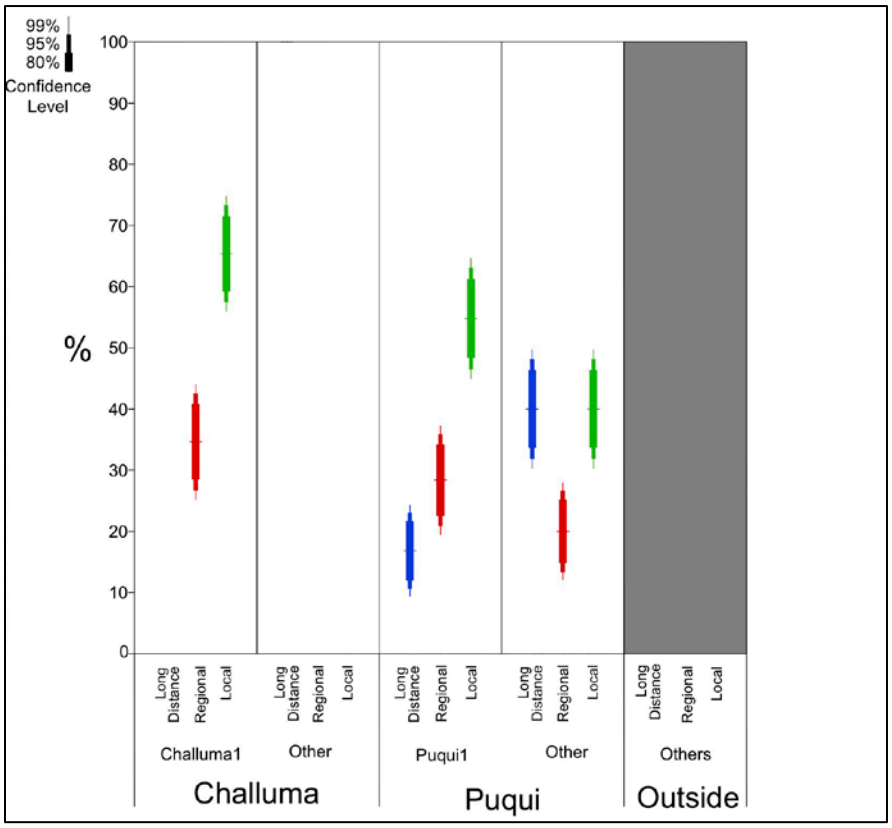


Figure 5.4. Proportions of lithic tools provenance, by settlement, within supralocal communities.

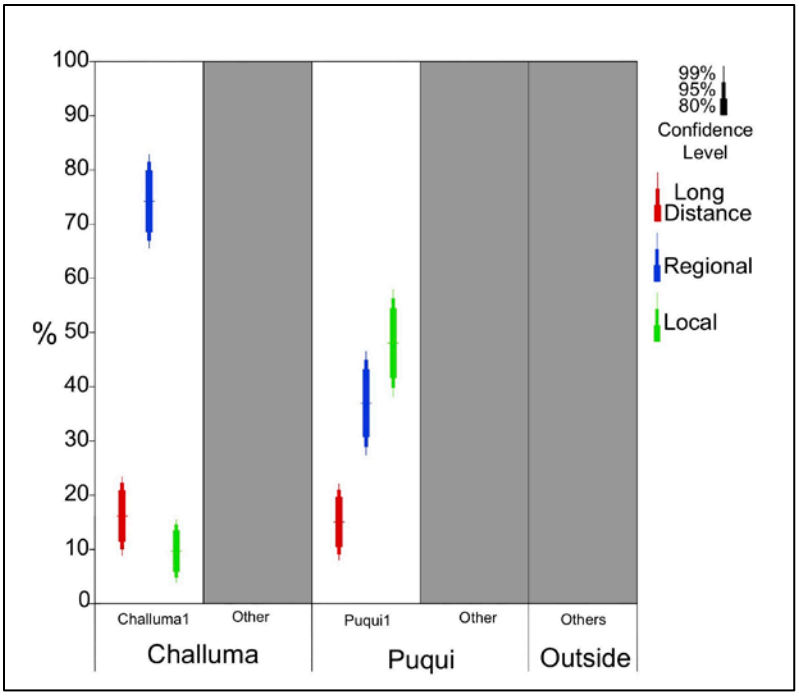


Figure 5.5. Proportions of lithic debitage provenance, by settlement, within supralocal communities.

It seems that people were obtaining basalt and slate hoes as already manufactured tools or at least as preforms. Only one basalt core was found at the Puqui 1settlement. With a diameter of 50 mm, it is most likely that this core was going to be use for manufacturing projectile points. The length of the Formative Period stone hoes has a median of 105 mm, and most of these were made of slate (Figure 5.3). It is probable that hoes in use were extensively re-sharpened and reshaped, and that broken hoes became cores for making flake tools. Thus the high proportion of regional source lithic debitage.

5.1.4 Formative Period ceramic comparisons

A number of distinct Formative Period ceramic wares were recognized in the surface collections. In addition to Yaretani or "Local," these are called: Redware, Wankarani, and Wankarani Red. The designation of one category as pottery as "local" does not mean that the

others were necessarily non-local. There was a major difference in ceramic style preferences between the two mounds with Puqui 1 displaying proportionally more Redware (Figures 5.6, 5.7, and 5.8) and Challuma 1 proportionally more Wankarani. The greater differences are between mound and non-mound occupations at the supralocal community level. Redware made up nearly 40% of the assemblage in non-mound occupations in the Challuma supralocal community. In contrast, there was very little Redware at all north of Yaretani Mountain (at Puqui 1 or in the occupations around it). Correspondingly, there was very little Wankarani style south of Yaretani Mountain; just a handful of sherds at Challuma 1. Overall, these patterns suggests local pottery manufacture within each village.

It is also possible that the Redware proportions represent a diachronic variation. For instance, if the red slip started in use just before the beginning of the Middle Horizon Period, and that could explain its lower proportion in Formative Period occupations, and higher proportion in at Middle Horizon Period sites. Additional research will be needed to have a better understanding of the chronology of this pottery.

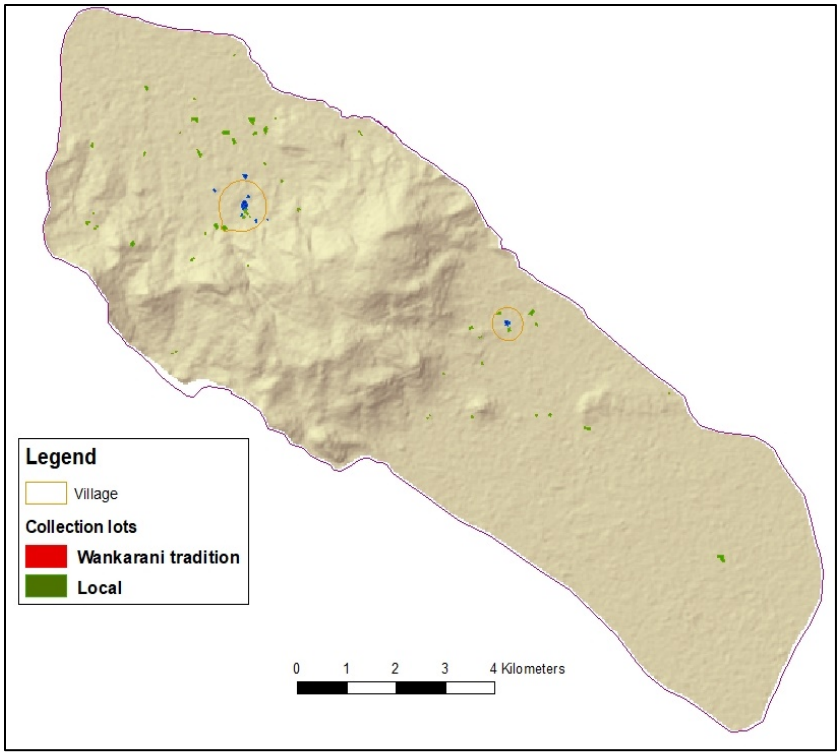


Figure 5.6. Wankarani Tradition Redware distribution.

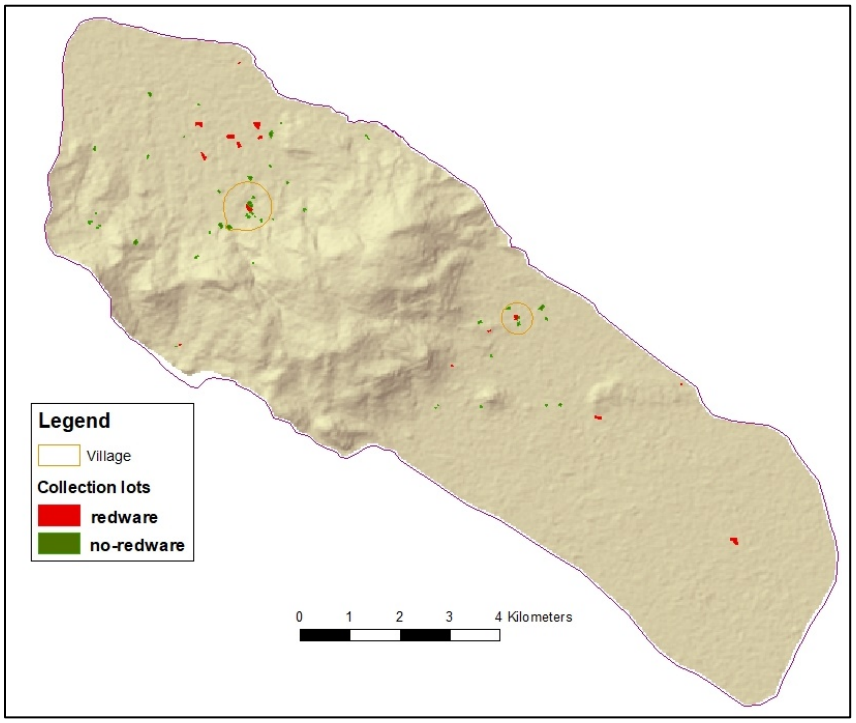


Figure 5.7. Formative Redware distribution

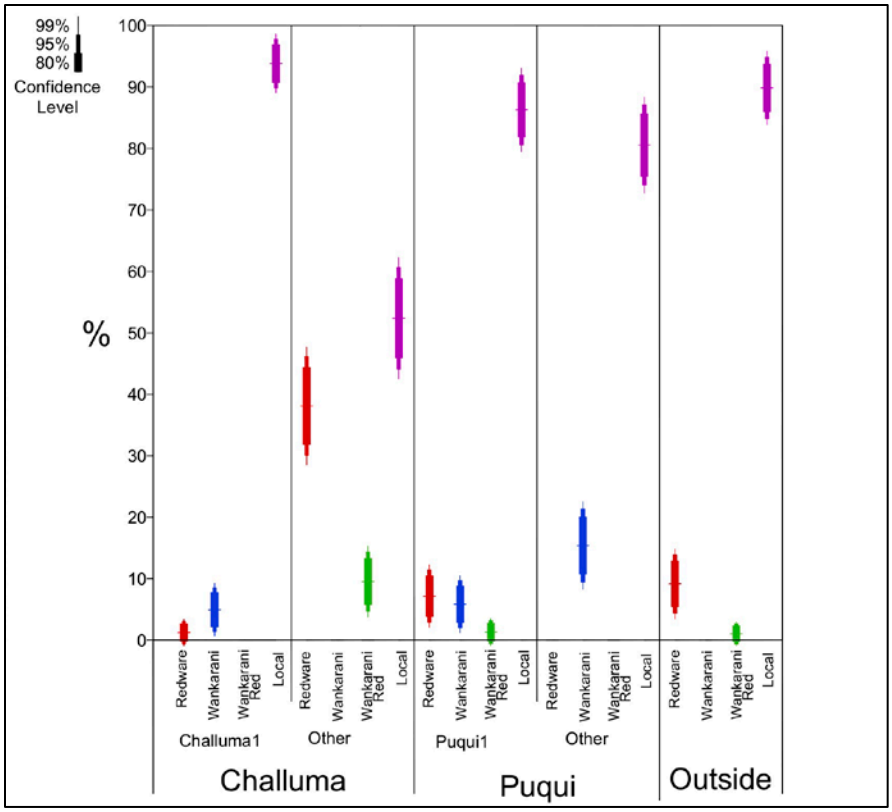


Figure 5.8. Proportions of Formative ceramic styles by settlement within supralocal communities.

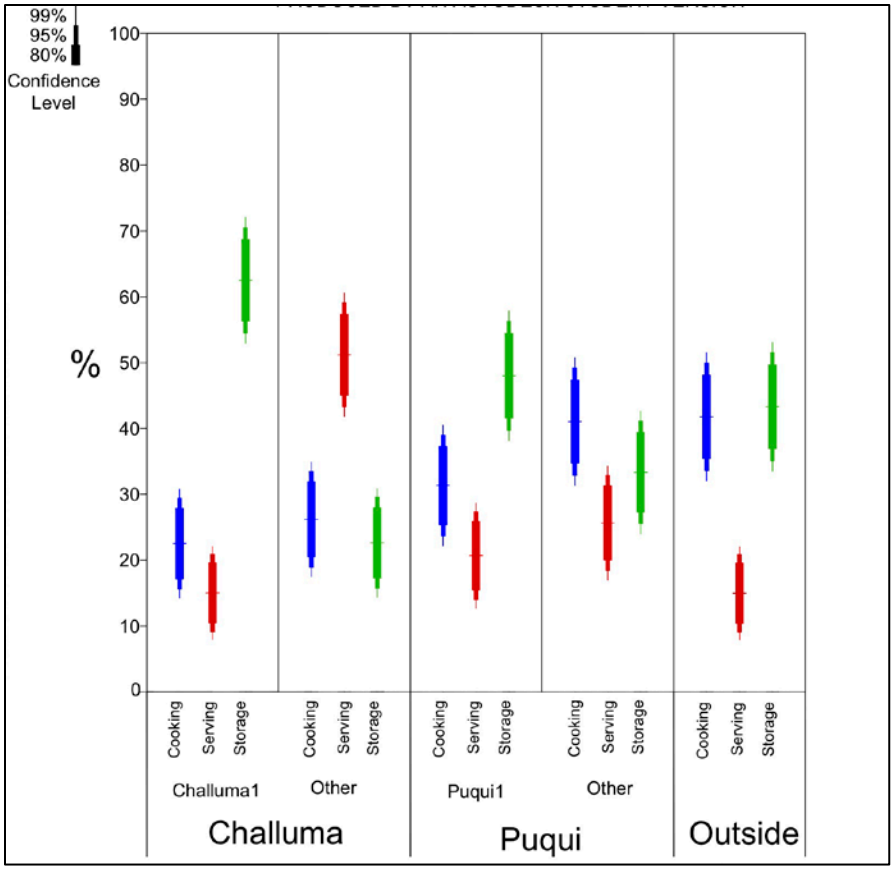


Figure 5.9. Proportions of vessel types settlement within supralocal communities

Figure 5.9 compares proportion of vessel types between the two villages and with non-mound assemblages. Again, there are notable differences between the mounds. Challuma 1 village has a higher proportion of storage vessels[3] than other settlements, including Puqui 1. Oddly, the assemblages with the highest relative proportion of serving vessels derive from the small camps around Challuma 1. These serving vessels were mostly large flat bowls (*fuentes*), and some small flat bowls. The latter were most common at camp sites.

[3] Storage vessels for this period were mostly recognized by paste group, and also by surface treatment, and rim diameter.

5.2 Middle Horizon Period

The results of survey argue for four MH supralocal communities (Lauca, Jaja, Caja, and Talchi) and 12 potential centers or *marka* sites. In this section, I will first review the comparing of Middle Horizon Period assemblages. Next, I move from one supralocal community to another, describing the potential *marka* sites. To determine if residents at these locations were living differently or doing different things than people at other sites *within* the supralocal community, I contrast potential *marka* site artifact assemblages with assemblages from the other (non-potential *marka*) occupations in the supralocal community. This should reveal whether, and in what ways, these larger sites functioned as central places. Finally, the section will conclude by comparing the potential *marka*s to one another to illuminate potential functional differences or settlement hierarchy.

The potential *marka* sites vary in size from 3 to 25 ha. Taking into account size and density index, we would expect the largest resident populations at Chita, Cica Catuyo, and Willa Khollu. On this basis we can propose these three sites as the leading candidates for regional central place or *marka* status.

5.2.1 Comparing MH assemblages

The purpose of comparing assemblages is distinguishing variability in wealth, status/prestige, and activities (social, ritual, exchange, subsistence focus) among occupations. For wealth differentiation I examine proportions of high value pottery - - fineware pottery and non-local pottery. Fineware ceramics are those that require extra time and/or skill to be produced, and generally have a different external aspect than other pottery. In this category I placed locally

manufactured pottery that exhibited higher levels of finishing (polish, slip) and decoration. Not surprisingly, such vessels tend to be serving or higher visibility vessels such as bowls and drinking vessels. Non-local pottery should be considered in most cases to be high value pottery by virtue of its: (a) relative scarcity and cost of movement; and (b) craftsmanship (finishing and decoration), and, in the case of Tiwanaku style pottery, perhaps by its valued and distinctive iconography as well - - the Tiwanaku *keru* being a good example (Janusek 2001).

Among the non-local pottery, Tiwanaku style should be considered to have had the highest value. In terms of production, it required the most technological skill, and the polychrome pieces were likely produced in major workshops at the site of Tiwanaku itself. Such pottery may have carried strong associations with the Tiwanaku polity and its religious institutions. Tiwanaku pottery was most likely to bear distinctive iconography directly relating to the Tiwanaku metropole and the ceremonial practices and mythology associated with it.

Tiwanaku-style pottery (both from Tiwanaku itself and imitated elsewhere) was widely distributed throughout the southern Andes during the MH, and was a "prestige" trade item highly valued by local elites. Therefore, we might expect that if external ties and wealth accumulation (or Tiwanaku style ritual practices) were important elements of elite status in the Yaretani Basin, the leadership stratum would seek out Tiwanaku style pottery.

Distinguishing differential involvement in non-local exchange entails analysis of ceramics, lithics, and in those loci of exceptional preservation such as caves, textiles, wooden objects such as *kerus* and spoons, and even exotic feathers. For ceramics and lithic material, the region of provenance was determined first by the identification of rock types in ceramic pastes and lithic raw material through macroscopic analysis based on previous petrographic studies from nearby settlements (Sejas Portillo 2010). This previous study had been done with the aid of a local

geologist. Additionally, I was able to locate local lithic sources and quarries during my survey, sometimes with the aid of geological maps. Petrographic study confirmed that a significant number of the non-local pottery styles - - Yura, Huruquilla, Cinti, Chicha, Ticatica, and Tiwanaku - - were indeed imported from the lowland valleys of Potosi and Sucre, or from the circum-Lake Titicaca region. These valleys and the Titicaca region are more than three days travel from my research area, and these materials were thus classified as "long-distance" exchange items. Some ceramics were not in the styles listed above and differed markedly from local pottery in paste, temper, and decoration (particularly use of modelling). These were classified as long-distance "foreign valleys." For the MH, the non-local pottery styles do not include any pottery that would fall into the "regional" exchange (1-3 days travel) category. As might be expected, the pottery made and used within a three day walk radius from the Yaretani Basin was very much the kind of pottery used by the Yaretani Basin residents.

The distribution of non-local pottery must be interpreted with some caution. Not all of these non-local sherds truly represent "fineware" in terms of finish, decoration, and cost of manufacture. In addition, while some of this pottery was non-local in origin and imported (particularly the Tiwanaku, Yura, Huruquilla, Cinti, Chicha, and Titicaca styles), we cannot entirely rule out that some pottery may have been local imitations of non-local styles. Finally, the regional distribution networks of pottery in this part of the *altiplano* are very poorly understood, and sometimes even identifying an "area of origin" for a pottery style is difficult.

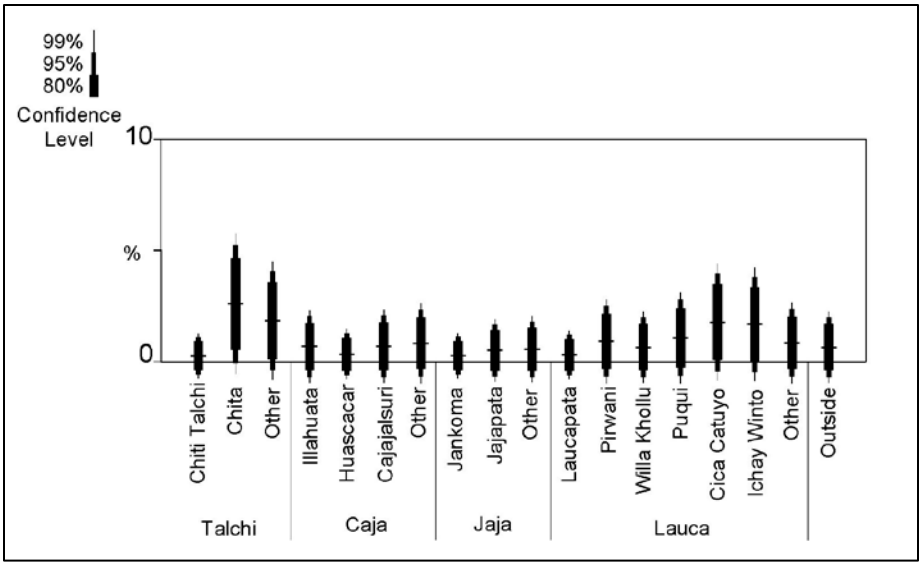


Figure 5.10. Proportions of fineware over coarse ware, among settlements within supralocal communities

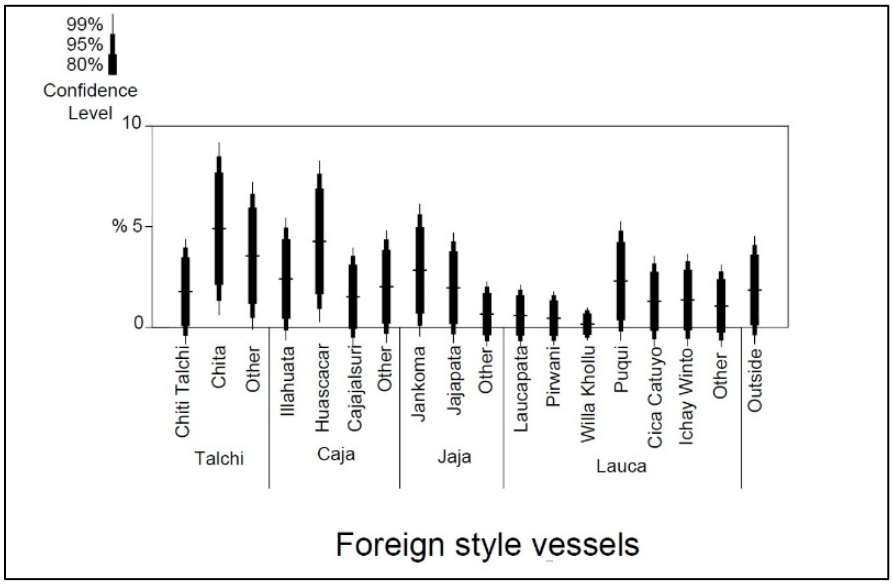


Figure 5.11. Proportions of non-local style vs local vessels by settlement within supralocal communities.

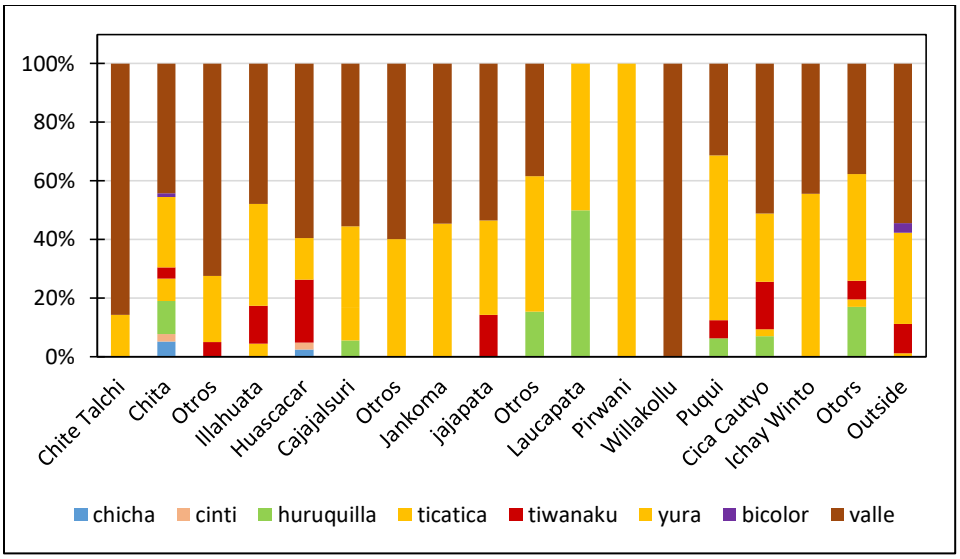


Figure 5.12. Accumulative percentages of only non-local ceramic styles by settlement

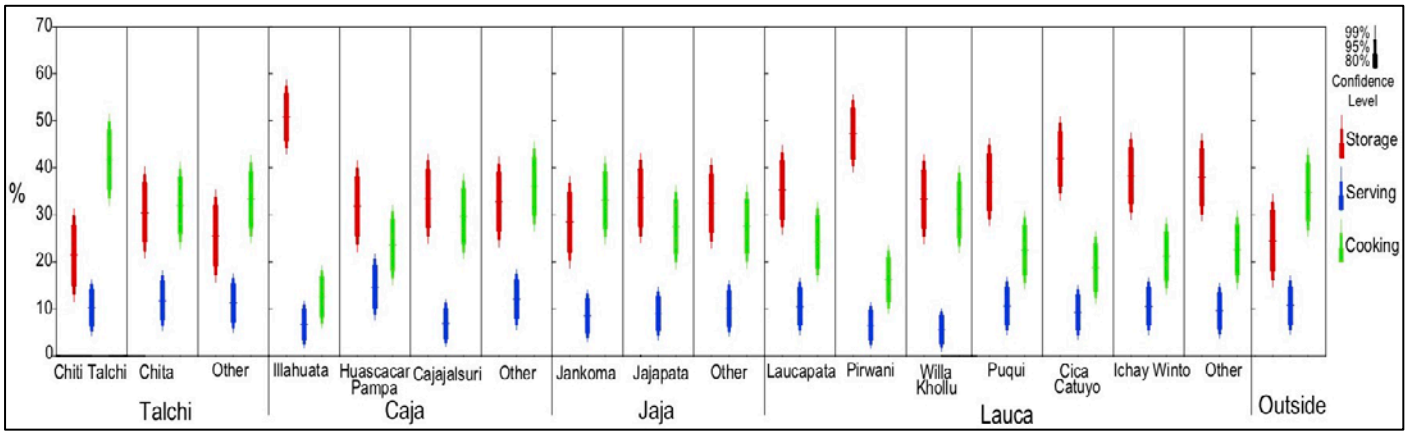


Figure 5.13. Proportion of pottery vessel function by settlements within districts

Figure 5.14 shows the breakdown of lithic sources for the potential *marka*s and supralocal communities by tools, while Figure 5.15 shows the same using just debitage. Non-local lithic raw materials were being brought to the site as cores or preforms, but also brought in as tools. Basalt hoes were probably brought to the as or nearly as finished products, and the high percentages of regional source flakes reflects the last stages of tool reduction and refurbishing to these hoes.

To take one example, that of the Lauca supralocal community, an examination of Figure 5.14 for the Lauca supralocal community reveals that five of the six *marka*s differed from non-*marka* occupation (labelled as "Other" on the far right for each supralocal community) in source of stone tool material. Only Willa Khollu has similar proportions to non-*marka* occupations. The other potential markers have disproportionally more long-distance, regional, or both, stone tool material than the non-*marka* occupations. This pattern would indicate differential involvement by *marka* residents in trade networks. However, this pattern is not duplicated if we look at the provenance of lithic tools. In tools, only Puqui really differs dramatically from the other *marka*s and non-*marka* occupation. I am not able to explain fully why debitage and finished tools should tell such a different story, but there are obviously a number of factors at work here. One may simply be the smaller sample sizes of finished tools as opposed to debitage, and that finished tools such as hoes were likely to be made of regional exchange material such as basalt. Thus, these figures may be confounded by the relative emphasis on agriculture at these sites. Yet scrapers, knifes, cutters, and drills were also made out of basalt, as broken basalt hoes could be used as cores to make smaller tools. Then there is the possibility that the figures are confounded by differences in the location of different stages of tool production. There may have been more tool production at particular *marka*. Nor am I easily able to explain the differences in proportions of local vs non-local material for, say, broken flakes vs flake fragments (Table 5.5) other than to suggest that stone from different sources may have been valued and worked differently, as well as having different fracture properties. In any event, I am inclined to place more weight on the provenance breakdown of the debitage (as opposed to finished tools) as reflecting the sources of materials used by the various settlements.

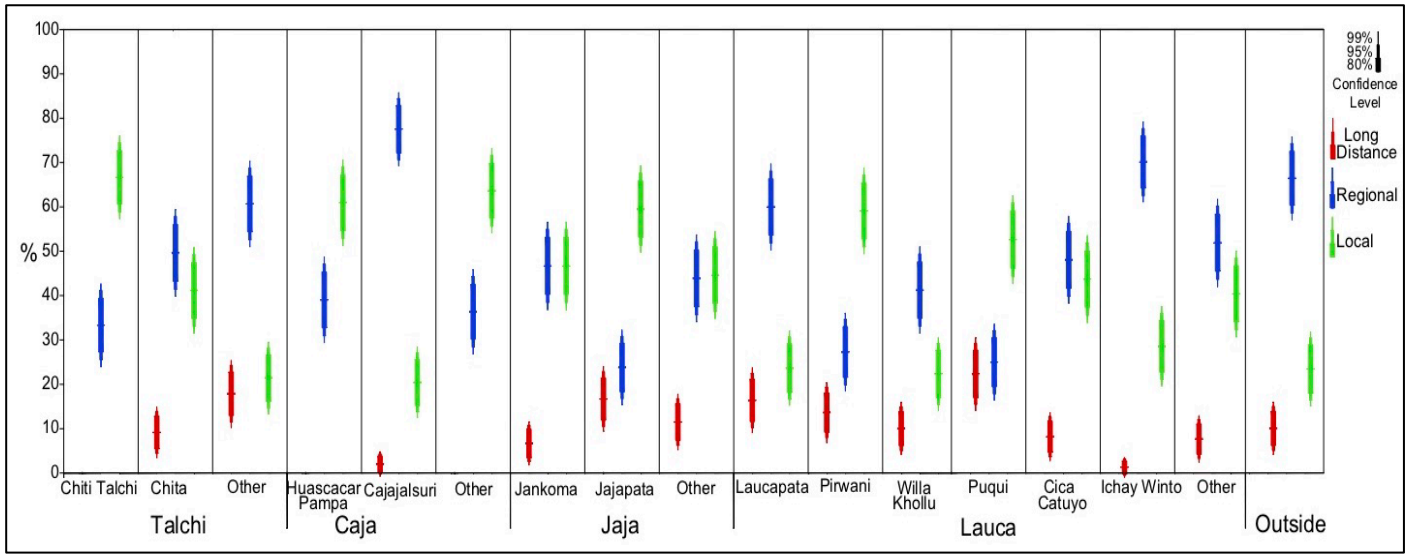


Figure 5.14. Proportion of lithic tools provenance by settlement.

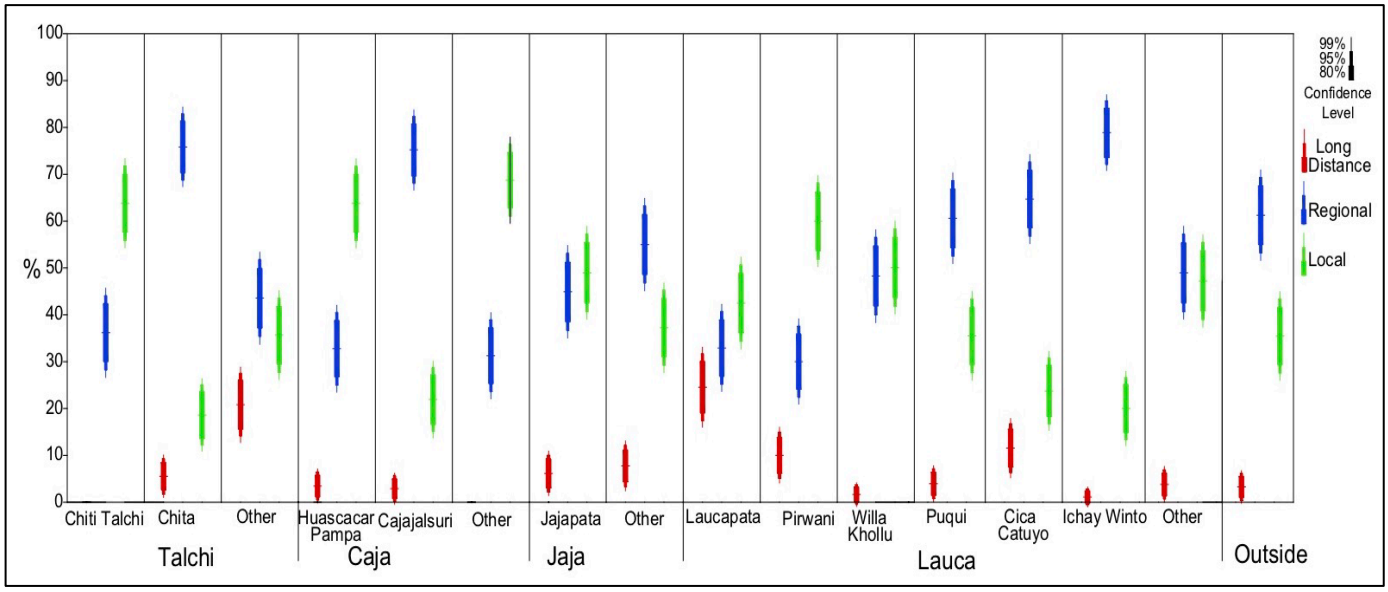


Figure 5.15. Proportion of lithic debitage reduction provenance by settlement.

Table 5.5. Percentages of lithic tool reduction stages by provenance of raw material by settlement

	Core		Complete flakes		Broken flakes		Flake fragments	
	foreign	local	foreign	local	foreign	Local	foreign	local
Chiti Talchi	20.0%	80.0%	0.0%	100.0%	62.5%	37.5%	46.2%	53.8%
Chita	39.5%	60.5%	52.2%	47.8%	80.4%	19.6%	96.2%	3.8%
Other	42.9%	57.1%	55.2%	44.8%	57.9%	42.1%	83.3%	16.7%
Huascacar	0.0%	100%	20.0%	80.0%	20.7%	79.3%	93.3%	6.7%
Cajajalsuri	42.9%	57.1%	12.5%	87.5%	80.3%	19.7%	100%	0.0%
Other	0.0%	100%	0.0%	0.0%	16.7%	83.3%	100%	0.0%
Jajapata	23.1%	76.9%	41.7%	58.3%	40.7%	59.3%	68.2%	31.8%
Other	6.5%	93.5%	40.5%	59.5%	36.9%	63.1%	82.2%	17.8%
Laucapata	60.0%	40.0%	22.2%	77.8%	25.0%	75.0%	72.2%	27.8%
Pirwani	0.0%	0.0%	33.3%	66.7%	33.3%	66.7%	100%	0.0%
Willa Khollu	6.9%	93.1%	5.6%	94.4%	40.7%	59.3%	69.3%	30.7%
Puqui	37.5%	62.5%	47.2%	52.8%	33.8%	66.2%	92.9%	7.1%
Cica Catuyo	41.9%	58.1%	55.9%	44.1%	74.3%	25.7%	98.9%	1.1%
Ichay Winto	25.0%	75.0%	0.0%	100.0%	81.4%	18.6%	95.8%	4.2%
Other	11.1%	88.9%	20.9%	79.1%	45.1%	54.9%	76.5%	23.5%
Outside	16.7%	83.3%	37.0%	63.0%	59.6%	40.4%	91.3%	8.7%

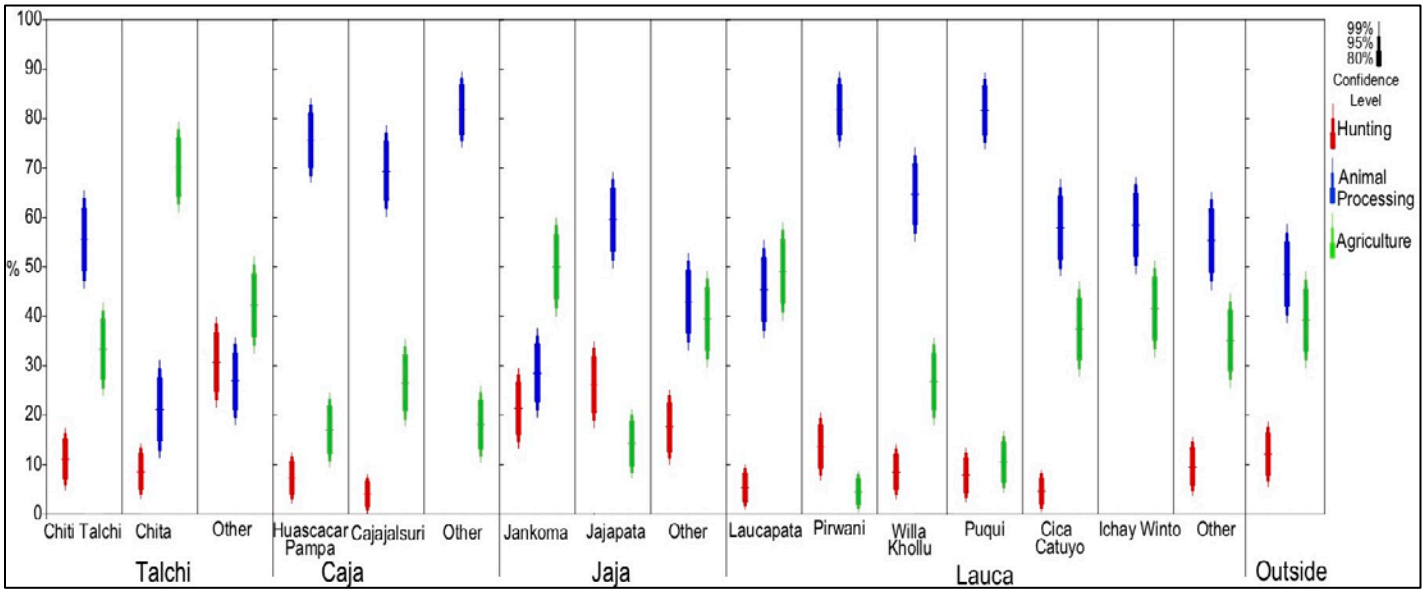


Figure 5.16. Proportions of lithics by function for large settlements within supralocal communities

Ritual activities often serve to integrate people within communities and to define communities. Public ceremonies are also commonly used by leaders to attract and control followers. Leaders may use ritual practices to legitimize their authority and celebrate the principles underlying authority structures. If not directly leading ceremonies, leaders can act as enabling agents or sponsors of ritual, instead of being the ones who officiate directly the ceremonies. For example, such leaders may organize all the logistics for ritual, such as preparing the space, the food, and hosting of people. The relatively rarity of ritual function items (including ceremonial pottery vessels) make it difficult to examine artifactual differences in ritual practices at the inter-site level. During the MH, artifacts most likely to have been of ritual significance take the form of *challadores* (which were periodically broken during ceremonies (Janusek 2008), smoking pipes, and oversized drinking vessels, *vasos*[4] (with diameters larger than 250 mm). Normal size cups were not included in this category in this study, because they are more likely to be everyday rather ritual usage items.

Figure 5.17. Wood carved *keru*s (Puqui collection at Museo Antropológico de la Universidad Mayor de San Simón de Cochabamba).

[4] Oversized *vasos* have not been reportedly found in graves in this area.

Figure 5.18. Basketry with geometric Tiwanaku motifs, Puqui archaeological Museum

Figure 5.19. Jar and ritual cup Yaretani Bicolor style (formerly known as Puqui Bicolor) (Puqui collection at Museo Antropológico de la Universidad Mayor de San Simón de Cochabamba).

Figure 5.20. Ritual cup, bowls, tazon Yura (Puqui collection at Museo Antropológico de la Universidad Mayor de San Simón de Cochabamba).

Figure 5.21. Huruquila style ritual cup fragments recovered at Chita.

Figure 5.22. Local hat with geometric decoration, textile over basketry technique (Puqui collection at Museo Antropológico de la Universidad Mayor de San Simón de Cochabamba).

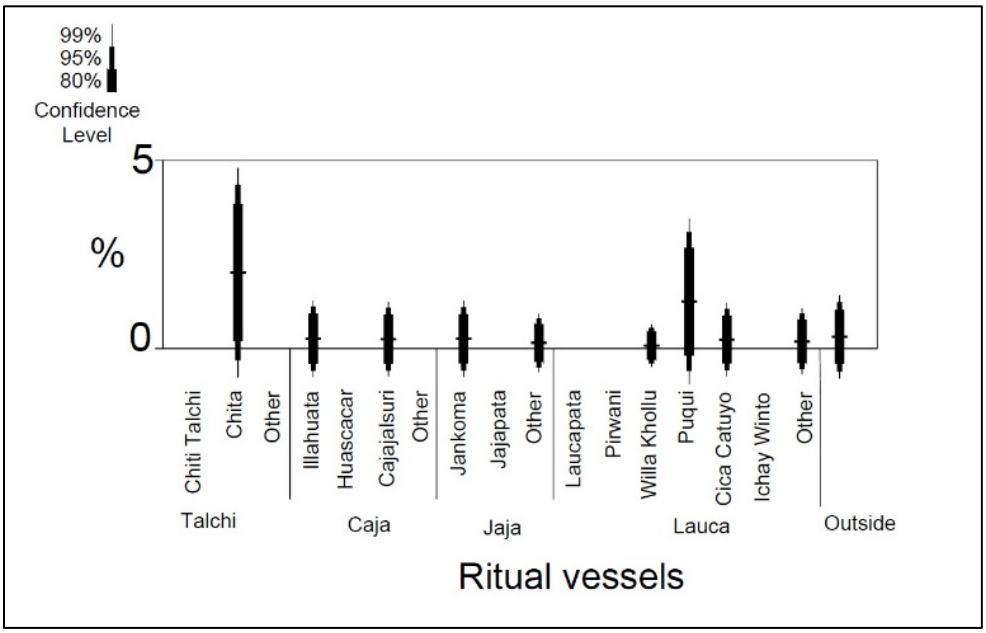


Figure 5.23. Proportion of ritual vessels in assemblages by settlement with n districts and outside

More robust lines of evidence for inter-site comparison of public ritual lie in architectural components such as plazas (venues of public ceremony) and mortuary features. Plazas during this

period are circular in shape, with an average diameter of 10 to 12 meters (Figure 5.24). They were built by piling large rocks around the margin of the plaza. Ceramics were found inside and outside of these spaces. The density of ceramics allows us to rule out the use of this spaces as corrals; in such circular space recorded, vasos and ritual vessels were found inside or outside, although only some have *challadores* around them.. This attribute allowed us to identify them as plazas.

Figure 5.24. Circular plaza at a Lauca supralocal community site.

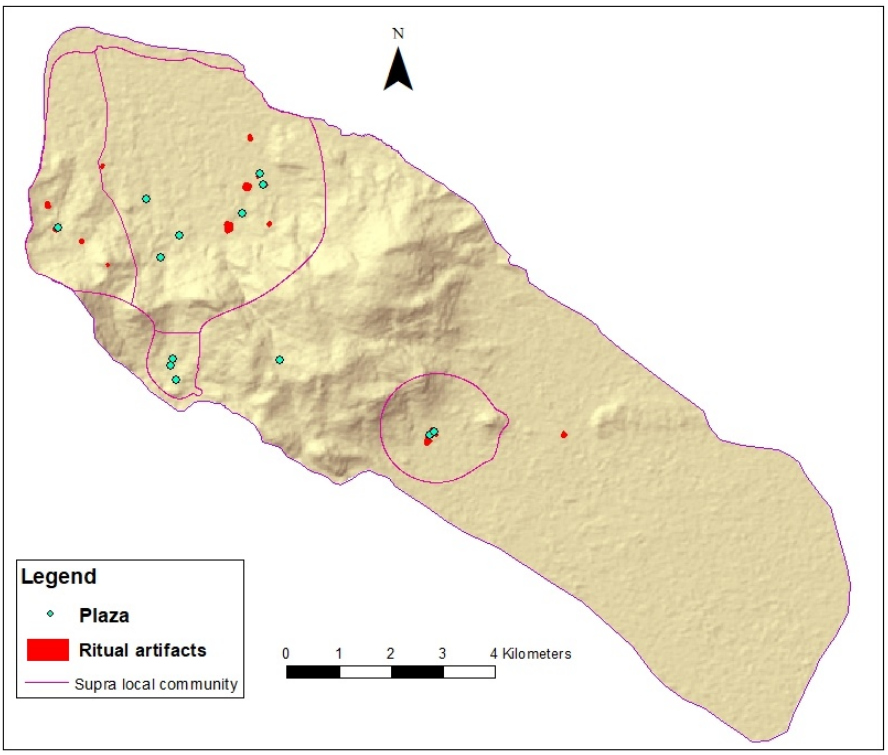


Figure 5.25. Ritual material distribution within population districts.

Tombs are also the product of ritual and were strongly linked to political authority and community integration and identity throughout much of the prehispanic Andes. While survey obviously could not record tombs that left no surface manifestation, we were able to document aboveground mortuary treatments. Forming part of a mortuary landscape, these treatments - - including *chullpa* mortuary monuments - - were more likely than burials to have been highly visible, politically charged ritual venues subject to local and supralocal integrative ceremony. Therefore, it is worth examining their spatial relationship to potential central places.

I distinguished two categories of such tombs for the MH: (1) aboveground, inside rock shelter tombs (N=25); and (2) semi-underground slab tombs and beneath boulder tombs (N=60). Most of the individuals found in rock shelters wore Tiwanaku-style textiles, wraps (*mantas*), four corner hats, ponchos, and *unkus* (dresses). *Keru*s carved in wood were also found at these sites,

along with Yura and Huruquilla vasos, and basketry *tazones* with geometrical decoration, resembling common Tiwanaku motifs. Exotic feathers were also found at some of these venues, along with *taris* (textiles to place coca leaves on) and *chuspas* (to carry coca leaves).

Figure 5.26. Tari (on the left) in situ Puqui caves; chuspas (on the right) (Puqui collection at Museo Antropológico de la Universidad Mayor de San Simón de Cochabamba).

Figure 5.27. Tiwanaku four corner hats, on the left at Puqui collection at Museo Antropológico de la Universidad Mayor de San Simón de Cochabamba, on the right at Museo Arqueológico de Puqui).

Figure 5.28. Red Poncho faund in situ at Puqui caves, on the left; Geometric poncho at Puqui collection at Museo Antropológico de la Universidad Mayor de San Simón de Cochabamba, on the right.

Table 5.6. Characteristics of potential MH *marka* sites

Name	Period	Supra	Zone	Size ha	Visible house #	Pop index	Plazas	Non-dom Struct #	Mort Features
Chiti Talchi	HM	Talchi	Flat	9	3	1.7	0	0	5+ 1 rock shelter
Chita	HM	Talchi	Slope	11	50	47	2	60 storage 23 patios	20+
Illahuata	HM	Caja	Slope	2.5	6	4.4	1	10 storage 5 patios	4+ Rock shelter
Huascacar Pampa	HM	Caja	Slope	3	9	3	2	8 storage 5 patios	13+
Cajajalsuri	HM	Caja	Slope	7	21	3.4	1 shared with Huascacar	16 storage 11 patios	15+
Jankoma	HM	Jaja	Slope	3	11	6	1	6 storage 5 patios	7+
Jajapata	HM	Jaja	Slope	7	20	8	0	9 storage 8 patios	12+
Laucapata	HM	Lauca	Slope	6.5	0	4	0	25+ storage	0
Pirwani	HM-LIP	Lauca	Slope	1.7	5	2.7	0	3 storage 5 patios	4+ rock shelter
Willa Kollu	HM-LIP	Lauca	Flat	24	17	12.1	0	6 storage 7 patios	5+
Puqui	HM-LIP	Lauca	Slope	12	2	12.6	1	3 storage	10+
Cica Catuyo	HM	Lauca	Flat	25	24	14	2	6+ storage? 11 patios	8+
Ichay Winto	HM	Lauca	Flat	12.6	7	13.7	0		10+

Table 5.6 (above) lists the potential MH marca sites or central places. The column labeled "Supra" refers to the name of the supralocal community to which each site belonged (see Chapter

4 for the discussion of these supralocal communities). In the section below, I describe each site, and then compare the potential *marka* sites to the non-*marka* occupations for each supralocal community, beginning with that of Lauca.

5.2.2 Lauca supralocal community

This supralocal community centered on an extended, dense occupational concentration on the Flat/Slope ecotone north of Yaretani Mountain. Within this concentration were six larger sites representing potential central place or *marka* (leadership) places. The estimated population for the supralocal community is 560-1110 people.

5.2.2.1 Cica Catuyo

The 25 ha non-mound Cica Catuyo site has been disturbed by modern usage as herding families in contemporary Puqui maintained corrals here until recently. The Middle Horizon settlement exhibited 24 houses (grouped around at least 11 patios), 2 plazas, some graves, and at least one corral. Other features included two smelting furnaces, with some pieces of slag, and small fragments of copper ore. However, these furnaces could also have been used to produce lime from the chalky rock common to this area. The walls of the houses are made from this chalky stone, and some show traces of mortar. Excavation revealed archaeological deposits no more than 0.50 meters deep. We were able to identify two episodes of occupation, separated by a thin layer of ash.

This site is bordered by grazing lands, the Puqui River, and a small stream which delivers drinkable water from springs. These natural features make this location appealing for people

engaging in herding. The settlement per se is slightly elevated because of its location over elevated bedrock.

5.2.2.2 Ichay Winto

The 12.6 ha Ichay Winto occupation is separated from Cica Catuyo by 500 m of alluvial flatland. This settlement was reoccupied in some sectors during historical times, especially in the areas close to a current road. We were not able to discern more than 7 residential structures because of poor preservation. At this site we were also able to record 3 small smelting furnaces (*huayracinas*) located on a hill, some distance from the residential structures. Heavy and light *scoria*, as well as stones splashed with copper residues were recorded on the surface. Lower density occupation was recorded along the adjacent Jacha Loma foothill.

5.2.2.3 Puqui (Jawasuyu)

This site consists of a low, 12 ha mound adjacent to artificial terraces. This mound is located close to the Puqui 1 Formative mound, but closer to the terraced hill side and to one of the widest rivers in the area. Excavation revealed at least 7 layers of occupation, divided by thin layers of ash. Formative Period pottery in the lower levels indicate a sequence of occupation through the Middle Horizon Period. Observable features included some solitary, stone slab tombs, as well as some wall foundations of houses. This settlement is close to one of the most important water springs in the Puqui Complex area.

5.2.2.4 Willa Khollu

This settlement is located to the west of the modern town of Puqui. This site is located on the flatland and still has some evidence of a road that connects with the Puqui settlement. It

extends over 24 ha and presents some still standing architectural features, but it has been very much destroyed by modern agriculture and herding. Notable was finding at this site an anthropomorphic carved monolith one meter in height.

5.2.2.5 Laucapata

Laucapata lies in an optimal agricultural zone on the slope of Lauca Mountain. Only a few houses are still visible, most of them have been destroyed due to historic and modern transformations of the agricultural landscape. Still extant are more than 25 storage structures which are mostly located between terraces. There is also a road, perhaps dating to the prehispanic, which connects all of the terraces with the Puqui and the Willa Khollu settlements.

5.2.2.6 Pirwani

Pirwani is also in an optimal agricultural setting, situated next to the most important river for Puqui residents and several springs. Some houses were recorded, but much of the site is artifact scatter and terraces on the slope of Pirwani Mountain. Behind the site are the region's largest funerary rock shelters. The funerary rocks shelters are mostly located within agricultural areas, close to water sources (rivers or springs).

5.2.2.7 Assemblage differences within the MH Lauca supralocal community: ceramics

Our expectation is that if the leadership stratum in the Yaretani Basin population was relatively wealthier compared to the population as a whole, then potential *marka* sites should display higher proportions of high value pottery (fineware and imported pottery) than other occupations. As shown in Fig. 5.10, this is not the case in terms of proportion of fineware in the largest Lauca sites. All of the Lauca supralocal community sites, whether large nucleated villages

like Cica Catuyo (and the other sites named in Fig 5.10) or the occupations of hamlets and dispersed homesteads elsewhere in the supralocal community (the Other in Fig. 5.10), had a similar proportion of fineware, roughly 1-2%. The distribution of non-local pottery presents a slightly different pattern. As shown in Fig. 5.11, there are some significant differences among the Lauca suprahousehold communities in the distribution of non-local style pottery. We can be fairly confident that Puqui has proportionally more of such material than Pirwani, Laucapata, or Willa Khollu. However, there is not a significant difference between Puqui and non-*marka* settlement (Other).

Figure 5.12. breaks down the non-local styles for each potential *marka* site. We can see from this that there is variability among the potential *marka* sites in the variety of non-local styles represented at each site. Cica Catuyo has five different non-local styles, among the more diverse of the *marka* sites. However, the Other sites (non-*marka*) are equally diverse in non-local styles. This suggests that access to such pottery is not being channeled through the *marka* sites and that preferences for these styles were not concentrated in, or greater at, the *marka* sites.

In sum, none of the potential *marka*s can be considered a central place in terms of the production/consumption of higher value pottery. None of the potential *marka*s show proportionally greater access to non-local pottery than other occupations in the supralocal community. Production of and access to fineware was not restricted to *marka*-like settlements. It is possible that we will see some differentiation in access to fineware at an intra-site level. For example, there may have been several households at each site that used proportionally more fineware. But if so, this difference did not produce a pattern sufficient to cause the home communities of these households to stand out at in comparison to other sites. However, we can confidentially state that there are not major differences at the inter-site level.

Similarly, none of the potential *marka*s can be considered a central place in terms of regional exchange, at least as seen in pottery. Therefore, if these sites contained a leadership stratum, it was not differentially involved in regional exchange, at least not to a scale to make a visible difference at the inter-site level.

Functional analysis of the ceramic assemblages allows us to assess if any sites within the supralocal community were differentially involved in serving activities. As shown in Fig. 5.13, this was not the case. Each of the potential *marka*s shows the same proportion (8-10%) of serving vessels as one another and of the non-*marka* population as well. If there was a leadership stratum at any of the potential *marka* sites, it was not distinguished by differential involvement in serving activities, at least not to a scale to make a visible difference at the inter-site level.

5.2.2.8 Assemblage differences within the MH Lauca supralocal community: lithics

In the Lauca case, there is marked variability among the potential *marka* sites in lithic assemblages. If we treat the Other (again, this is the aggregate non-*marka* occupation in the Lauca supralocal community) as a non-*marka* point of reference, we can see that four of the six potential *marka*s share a significantly higher proportion of regional stone, mainly basalt, in their debitage assemblages (Figure 5.15). One interpretation of this observation is that basalt exchange/production tended to be channeled through the larger settlements in the Lauca supralocal community. This channeling may have been an integrating economic feature of the Lauca supralocal community. The Outside (rural settlement outside of all of the supralocal communities) breakdown closely resembles those of these four potential *marka*s. To turn it around then, non-*marka* residents in the Lauca supralocal community may have had less access to non-local stone than those living outside of supralocal communities.

Another feature of note in Figure 5.14 is the significantly higher proportion of long-distance material at Cita Catuyo and Pirwani. Residents of those potential *marka*s, possibly a leadership stratum, were differentially involved in acquisition/use of this material.

As explained above in the Formative Period section, stone tools were classified as to function and used as rough proxies of intensity of involvement in herding (animal processing) and agriculture (Figure 5.16). For the Lauca supracommunity, we can observe that some potential *marka*s have a more herding-connected assemblage, while others, such as Laucapata, Cica Catuyo, and Ichay Winto, have higher relative proportions of agricultural implements (hoes and grinding stones). However, these last three sites had similar patterns to the Other (non-*marka*) settlement, suggesting that their residents were not more involved in intensive agriculture than those living in small communities or dispersed homesteads. Instead, Puqui, Pirwani, and Willa Khollu stand out for a much heavier emphasis on herding relative to agriculture. Puqui and Pirwani had few agricultural implements at all. Does this relate to location in the landscape? Not in an expected way. The three potential *marka*s with higher relative proportions of animal processing tools are in the higher agricultural potential Slope Zone, while the three potential *marka*s with more agricultural implements are in the Flat Zone. This correlation is the opposite of our predictions, and at the least raises some questions about what the differences in stone tool type proportions is really indicating.

5.2.2.9 Distribution of ritual: Lauca supralocal community

As shown in Figure 5.23, there were not significant differences among the potential *marka* sites in relative proportions of ritual items. If any of these sites served as a ceremonial central place for the Lauca supralocal community, Cica Catuyo with its two plazas, might be the leading candidate. However Puqui and Willa Khollu each have a plaza. Cica Catuyo may have had two

plazas as a result of having a larger residential population. If plazas are taken as indicators of public ceremony, than such ceremony was not restricted to a single site in the Lauca supralocal community.

5.2.2.10 Summary: potential *marka* sites in the Lauca supralocal community

The six potential *marka* sites were roughly similar in artifact assemblages. None stood out from the others - - nor from the non-*marka* occupation - - in wealth indicators or in non-local pottery. Puqui and Laucapata had higher proportions of long-distance lithic material than other occupation. Three sites had tool proportions suggesting a pronounced animal processing (herding) and lesser agricultural focus. However, these sites were in the Slope, not the Flat Zone. No site showed a pronounced agricultural focus suggestive of disproportionally intensive agriculture. There was no evidence for any one site being differentially involved in ritual activities save Cica Catuyo with its two plazas. There is nothing that points to the Lauca supralocal community having possessed a single central place, a capital, or a *marka*-type regional center.

5.2.3 Jaja supralocal community

This was one of the smaller supralocal communities in the MH, with an estimated population of only 200 – 350 persons.

5.2.3.1 Jajapata

This was a 7 ha site. Surface architecture and the distribution of MH ceramics suggest a rather spread out village of household compounds (with constiutent storage units), and underground slab graves, although the population area index is about twice that of the other

potential *marka* sites. At least 20 structures could be mapped around 8 patios. There is a spring at the settlement, and a prehispanic copper mine in a ravine to the east of the occupation.

5.2.3.2 Jankoma

This settlement is difficult to reconstruct because it is located within the modern community of Catuyo. It is also close to a small spring. Terraces cover the nearby slopes. The site has 11 visible residential structures and 5 storage units. Together these form 3-4 clusters; each cluster probably representing a single family. The cluster layout consists of rectangular houses, (average size 4 by 5 m) grouped around a central 7 x 8 m patio. Several patios yielded cylindrical grinding stones for peeling quinoa (today people still use this kind of grinding stone for removing the bitter outer layer of quinoa grain instead of washing it). Next to the settlement are large boulders that were used as funerary spaces. Graves were placed underneath these boulders and sealed with smaller rocks and mortar.

5.2.3.3 Assemblage differences within the MH Jaja supralocal community: ceramics

There were no differences between these two sites or the non-*marka* occupation in terms of fineware proportions. Ceramic samples from the two larger sites show higher proportions of non-local pottery but we cannot be confident that this is beyond the vagaries of sampling. Unlike the Lauca potential *marka*s, there was little variability in the non-local assemblage from these sites. This difference suggests that these sites, and the Jaja supracommunity as a whole, participated differently in long-distance exchange than did the Lauca supralocal community. The proportions of vessels by function are identical for these two potential *marka* sites and the non-*marka* occupation.

5.2.3.4 Assemblage differences within the MH Jaja supralocal community: lithics

There are no differences between the proportion of non-local material between Jajapata and non-*marka* (Other) settlement. In looking at tools provenance, all occupations had equal access to long-distance stone material. Jankoma and Other (non-potential *marka* occupation) had similar proportions to stone tools by type, but Jajapata had a significantly higher proportion of animal-related and significantly lower proportion of agriculture related tools. This pattern is unexpected as Jajapata is in the Slope Zone.

5.2.3.5 Distribution of ritual: Jaja supralocal community

There are no differences among the occupations in terms of proportion of ritual vessels. No ritual vessel fragments were found at Jajapata. There are burials associated with both potential *marka* sites, but no indicators that the number of burials is disproportionate to their size. Each of the larger villages has a plaza.

5.2.3.6 Summary: potential *marka* sites in the Jaja supralocal community

There is nothing to suggest that either of these sites should be identified as a central place or *marka* site. Aside from the plazas, they exhibit no material difference from the outlying, homestead, non-*marka* occupation. They can be interpreted simply as representing more nucleated settlement in the Jaja supralocal community.

5.2.4 Caja supralocal community

This was one of the smaller supralocal communities in the MH, with an estimated population for 150 - 350 persons. Survey identified three larger settlements, potential-*marka* communities. One of these (Huascacar) had 33 household compounds visible on the surface. If all of these dated to the MH, this site alone could have been resident to upwards of half the supralocal community's total population.

5.2.4.1 Huascacar (Pampa)

This 3 ha residential mound is located on a flat hill at 3980 m.a.s.l., adjacent to a large bofedal, where even today vicuna herds graze during the winter. The settlement consists of residential platforms surrounded by groups of slab cist graves. We recorded 9 extant houses and 5 patios. In the northwest area of the site is a walled open space, similar to a very large domestic patio, but with taller walls and with storage units on the side. There is another plaza at the site as well. Surface artifacts included non-local style ceramics (Yura, Huruquilla, Cinti, Tica-Tica, and Omereque styles) associated with the valleys of Potosi and Sucre.

5.2.4.2 Cajajalsuri

This settlement is located across a large ravine from the modern town of Puqui. It is situated on a flat hill, at 3900 m.a.s.l., and close to the Cajajalsuri River. This settlement was the most densely occupied on the western side of this hill during the MH. The area is no longer occupied, but modern people herd llamas there from spring through fall. Despite the low winter temperatures, most of the hill slopes had been terraced for agriculture. Local people still remember that these area was mainly used for potato growing and the making of *chuño* (freeze-dried potato)

during colder seasons. The settlement is not well preserved, but 21 house structures and 16 storage structures grouped around 11 patios could be mapped. The site held a corral. Graves are also located underneath big boulders. Although not all the boulders were used as graves, we were able to identify at least 15 such looted mortuary spaces, and an additional 5 that remain untouched. Down the hill from the site near the river were tombs associated with an open plaza. These tomb features are different in form and construction than the ones created closer to the settlement. It is possible that this mortuary component dates to the Late Intermediate Period. There is a plaza located midway between this site and Huascacar Pampa.

5.2.4.3 Assemblage differences within the MH Caja supralocal community: ceramics

There are no fineware proportion differences among the occupations. Huascacar Pampa assemblages contain a somewhat higher proportion of non-local pottery than other occupations, but we can only be moderately confident that this reflects a real difference and not the vagaries of sampling. Huascacar does stand out in the diversity of its non-local pottery (five styles) and relatively high proportion of Tiwanaku-style ceramics. There is proportionally more Tiwanaku-style pottery here (at nearly 20%) making up the non-local component of the pottery assemblage than at other potential *marka*s in the survey area (Figure 5.11). The larger sites are not significantly different from the non-*marka* (Other) occupations in terms of vessel functions.

5.2.4.4 Assemblage differences within the MH Caja supralocal community: lithics

The similar proportions of stone tool provenance among the occupations indicates that no occupation was differentially involved in procuring regional and long-distance stone tool material. There were no differences in tool type proportions to indicate the potential *marka*s were differentially involved in either herding or agriculture.

5.2.4.5 Distribution of ritual: Caja supralocal community

Few sherds from ritual vessels were found for this supralocal community. There is no indication that use of such vessels was greater at any of the occupations. Huascacar Pampa had one plaza with a wall and associated storage structures, and shared another plaza with Cajajalsuri**.**

5.2.4.6 Summary: potential *marka* sites in the Caja supralocal community

There is nothing to suggest that either of these sites should be identified as a regional central place or *marka* site. Aside from the plazas, they exhibited no material difference from the outlying, homestead, non-*marka* (Other) occupation. Artifactually, the sites thus can be interpreted simply as representing more nucleated versions of the general occupation in the Caja supralocal community.

5.2.5 Talchi supralocal community

This supralocal community to the southeast of Yaretani Mountain was the most highly nucleated and the second most populous of the MH at an estimated population of 330 – 660.

5.2.5.1 Chita

The central settlement of the supralocal community is the only true concentrated occupation southeast of Yaretani Mountain. Chita is near grazing land on the lacustrine flatlands of the Salar, but is itself located on a very gentle hill slope full of terraces (Slope Zone). The settlement was constructed over several platforms, and there is a halo of slab cist graves around the site's outskirts. Survey recorded 50 structures making up at least 23 patio groups. In the center of the settlement was a circular structure much larger than any houses (d=9 m), but with short

walls suggesting it may not have been roofed. This was identified as a plaza or temple locus. There were two relatively large storage structures at Chita, both at the center of the settlement, with one next to the aforementioned walled, circular plaza. This structure may have been used for storing food or items for ceremonial activities and feasting. A second, larger plaza (d=11 m) was mapped in the northwest margin of the site.

We were also able to identify a bead workshop space at Chita in the form of a locus yielding a small obsidian drill, micro scrapers, pre formed beads, broken beads and complete beads. Some other settlements also have some finished beads, but not as many as found here. It is possible that during this period bead working was a limited activity, from the evidence that we have now, the only beadwork shop found in the survey was here at Chita.

5.2.5.2 Chiti Talchi

This small settlement was located at the bottom of the small hill group of the same name. Terraces were recorded in these hills as well as 3 houses. Burials were located on top of the hill and on one side of the hill was a rock shelter burial (however no skeletal material was observed). This hill is the last before the survey area gives way to the Salty Flatland running down to the Salar.

5.2.5.3 Assemblage differences within the MH Talchi supralocal community: ceramics

Chita did not differ from non-*marka* (Other) settlement in proportion of fineware or proportion of non-local pottery. It displayed more diverse styles of non-local pottery (Figure 5.11), but this could be an artifact of sample size. The proportions of vessel by function at Chita was identical to those of non-*marka* occupation.

5.2.5.4 Assemblage differences within the MH Talchi supralocal community: lithics

The lithic sample from Chita exhibited significantly higher proportions of regionally sourced material and significantly lower proportions of long-distance and local material than the samples from the outlying occupations. In terms of stone tool function, Chita had a significantly higher proportion of agricultural tools (at 72%) than other occupation in the supralocal community (Figure 5.16). In fact, Chita had the highest proportion of such tools among all the MH potential *marka* sites.

5.2.5.5 Distribution of ritual: Talchi supralocal community

Chita was the only location at which sherds from ritual vessels were found. As noted, above, Chita featured a walled plaza area, with adjacent storage structures.

5.2.5.6 Summary: potential *marka* sites in the Talchi supralocal community

Chita is the only one of all the potential *marka* sites of the MH that can be said to provide indications of being functionally distinct within its supralocal community. The residents may have been more involved in agriculture than other supralocal community residents. The walled plaza is unique to Chita, and potentially could have represented as a central-place function a "supralocal public ceremony" locus. Against this interpretation, however, must be weighed the scale of the supralocal community, and the likely nature of land-use in the settlement zone. The edges of the supralocal community are roughly 2 km radius from Chita. Therefore, the non-*marka* (Other) settlement could represent the off-site or out-field activities of Chita residents themselves. As this Other settlement was, by definition, more dispersed, what we are seeing at Chita, as in the other supralocal communities, could well be essentially a difference between village and dispersed occupation, rather than political centralization.

5.2.6 Distribution of MH mortuary features

Given the prevalence of ancestor veneration as a basis for political power in the Andes, it makes sense to examine the spatial distribution of mortuary facilities and attempt to identify whether any particular practices were limited to potential *marka* sites.

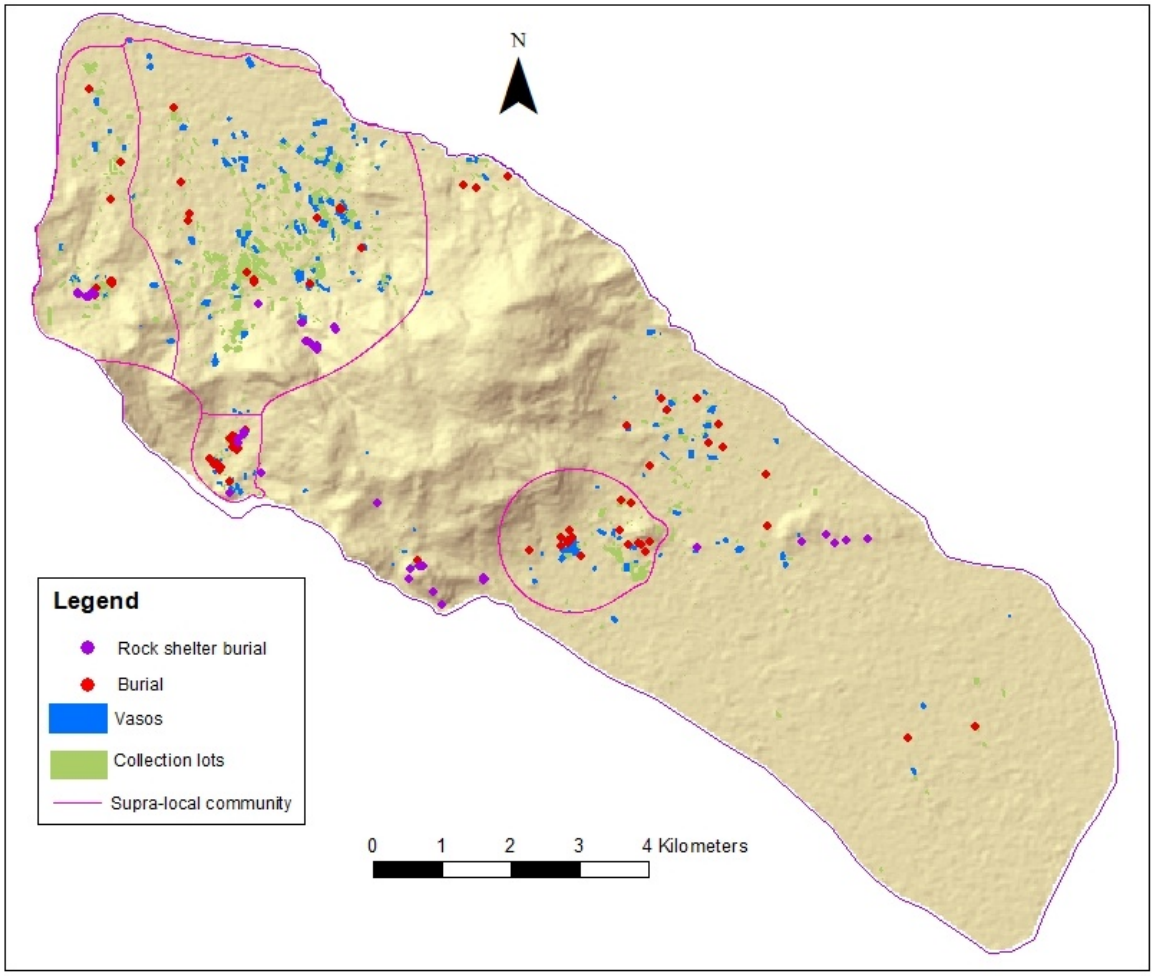


Figure 5.29. Distribution of *vasos* and burial within MH supralocal communities.

As seen in the above Figure 5.29, the distribution of mortuary features (tombs) not surprisingly closely tracks with the distribution of occupation. Rock shelter burials provide the

same potential for the types of death ways associated with later *chullpa*s (mortuary towers). Mummified bodies, perhaps of leadership figures, can be preserved at these locations and be the subject of ancestor veneration ceremonies. Rock shelters only occur where they can exist (hillsides not flat plains) so naturally their distribution is in the Slope Zone. Beyond that, the association of rock shelter burials with potential *marka* sites is weak. In Caja and Jaja, there are such burials near the largest sites. In the Lauca supralocal community, most of the occupation concentrations are not associated with recorded cave burial loci. Chita does not have associated rock shelter tombs.

Some of the caves were enlarged, and some have mummies on several levels of natural shelves within the cave. Subadults were among the mummies, unlike the *chullpa* occupants of the late prehispanic period. Notably, the mummies found at these cave burial sites tended to be dressed in Tiwanaku style textiles from head to foot, including the distinctive four-corner hats. Grave goods included carved wooden *keru*s and spoons, some with geometric adornment. Pottery included vasos of several styles such as Cinti, Huruquilla, Yura and some Tiwanaku, and local (imitation) Tiwanaku.

Burials underneath rocks and in slabs tombs usually do not have the preservation of cave burials, but typically some organic material still preserves. Based on my observations, these tombs did not have individuals dressed in Tiwanaku-style textiles. I noted that these tombs also incorporated a variety of non-local pottery. Taking all this into consideration, I hypothesize that the differences between these cave and non-cave burials suggests the former were for individuals of a higher level of status or prestige. Cave burials, although sealed with a wall of rocks, could have been accessed during special times. On the other hand, individuals buried below boulders or below ground were more difficult to access. But until more research is done on burials in this area

we have to limit our interpretations about social differentiation and mortuary practices to the limited data currently available.

5.2.7 Comparisons among the MH supralocal communities and *marka* sites

If we conceptualize the *marka* as a regional central place, a political center or capital, and the resident site of *señorío* leadership, can we identify such a site in the MH? Comparing the potential *marka*s to their supralocal communities suggests not. There are no artifactual indicators of a wealthy stratum in any of the potential-*marka* sites. This finding does not mean that they were not there. One or two wealthy households might have been insufficient to show up at the site-level analysis used in this chapter. In addition, leadership in the *señoríos*, as argued in most ethnohistoric models, may not have been wealthy. In some supralocal communities some of the larger sites showed slightly more involvement in long-distance lithic material exchange. But other potential *marka* sites did not. In any event, there is nothing to suggest a pattern of a single site in each supralocal community being differentially involved in or dominating exchange.

One of my research questions is concerned with whether there was an economic basis (pastoral or agricultural) to leadership. If so, we would expect to see potential *marka* sites disproportionally involved in herding or agriculture. Chita represents the only possible example of this, with its very high relative proportions of agriculturally related tools. In the Lauca supralocal community, there were three large sites showing disproportionate involvement in animal processing, yet confoundingly, these sites were in the prime agriculture (Slope) zone, not the herding zone. In most cases, the potential *marka* tool breakdown was not different from that of the non-*marka* occupation, nor even from the occupation outside ("Outside) of any supralocal

communities. In sum, there is not strong evidence to argue for any economic focus as being linked to leadership, with the possible exception of Chita.

The ethnohistoric *señorío* models stress the ritual role of leaders, but the distribution of ritual pottery in the survey area did not show an association between this pottery and the potential-*marka* sites. The only possible exception to this is Chita, the only site in the supralocal community to yield fragments of ritual pottery. Each of the supralocal communities contained a site with one (or two) plazas. However, some supralocal communities had more than one such plaza site, suggesting that the plazas were not functioning as regional central places. Plazas were also built at locations not associated with dense occupation. For example, there are three such plazas in the southwestern section of the Luaca supralocal community.

It is possible that the plazas at some sites hosted gatherings that integrated the supralocal community but this seems unlikely. The plazas show little labor input, and with the exception of the storage structures at Huascacar and Chita, no ancillary structures. Nor are they of a size to hold 100s of people for a public ceremony. The potential *marka* sites, by definition, represent aggregated settlement, and community-level interaction may have resulted in architecturally distinguished public space being created in these communities. In contrast, in the occupations of more dispersed or lower density, such public spaces could have existed between relatively widely spaced out households, as in the Lauca example.

I argued earlier in this chapter that Chita, Cica Catuyo, and Willa Khollu were the most likely candidates for central place or *marka* status on the basis of size. Among these three sites, Chita does standout for its more elaborate plaza, but there is a second such plaza at the smaller Huascacar Pampa. Overall, there is nothing to suggest that Chita was a regional central place.

5.2.8 Alternative Interpretation of MH Settlement

There is an alternative to attempting to force an interpretation of one or more of these sites as central places or *marka*s. Recognizing the lack of evidence for settlement hierarchy (between and within supralocal communities), for central places functions, and for wealth differences, the MH may be showing a landscape in which there was no supralocal integration of the *señorío* type. Each supralocal community contained one or more villages, but in some cases, there was little to the supralocal community *other* than these large villages. The alternative explanation, in alignment with the survey findings, is that the MH occupation consisted of largely autonomous villages, made up of residents doing roughly the same things as in other villages. Some of these larger villages had plazas, but this may have simply been an attribute of village life, rather than an indicator of regionally centralized public ritual. While there are clear supralocal communities, we cannot specify what structures or activities integrated such communities.

Another issue to consider is the possibility of hierarchy among the supralocal communities themselves, particularly given the differences among them in population. The Lauca community is estimated at 560 - 1110, while the next most populous is Talchi (330 - 660). Strikingly, if you rank the populations for the four supralocal communities (averages 834, 500, 250, 110) the result appears quite close to a log-normal distribution, suggestive of an “integrated” single system.

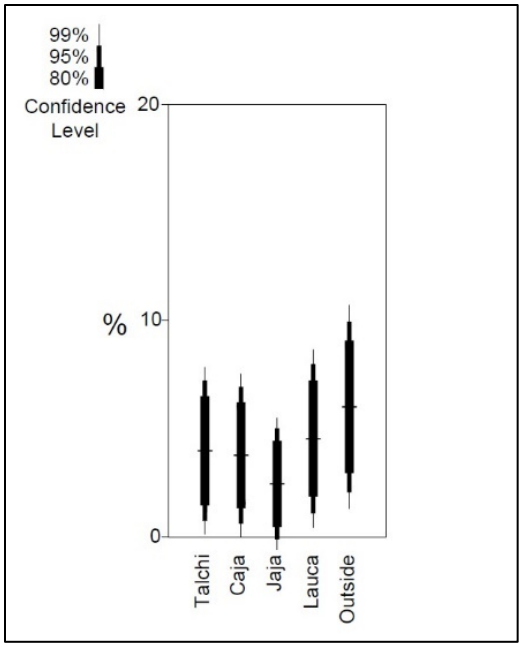


Figure 5.30. Proportions of decorated pottery by supralocal community

The artifact distributions do not suggest that Lauca supralocal community was dominant in the Yaretani Basin, or at the apex of an integrated regional system. As shown in Figure 5.30, Lauca did not stand out for having a "wealthier" population. All of the supralocal communities were similar in proportion of decorated (fineware and non-local) pottery.

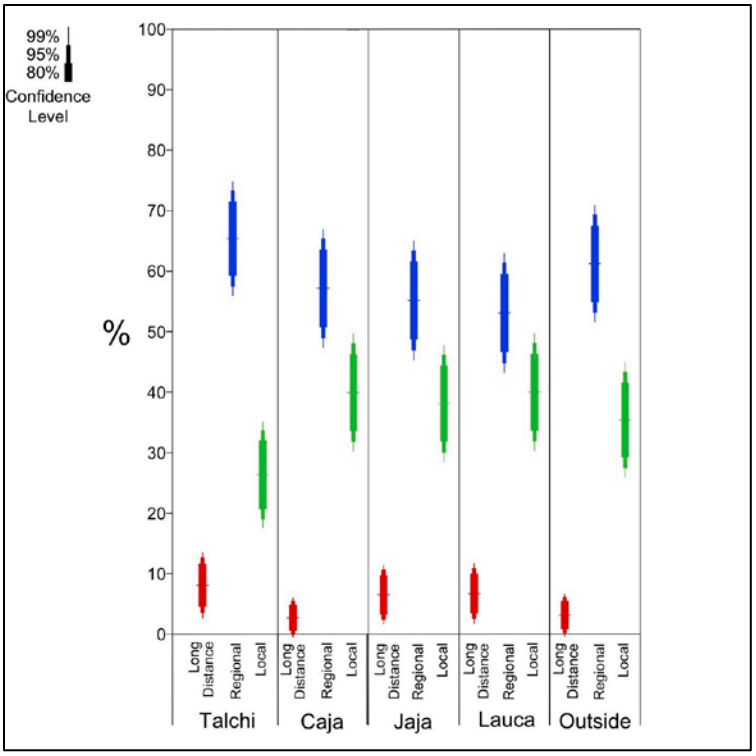


Figure 5.31. Proportions of lithic debitage provenance by supralocal community

Nor were the supralocal communities greatly different in terms of use of long-distance lithic material, save Caja occupations displaying somewhat less of such material (Figure 5.31).

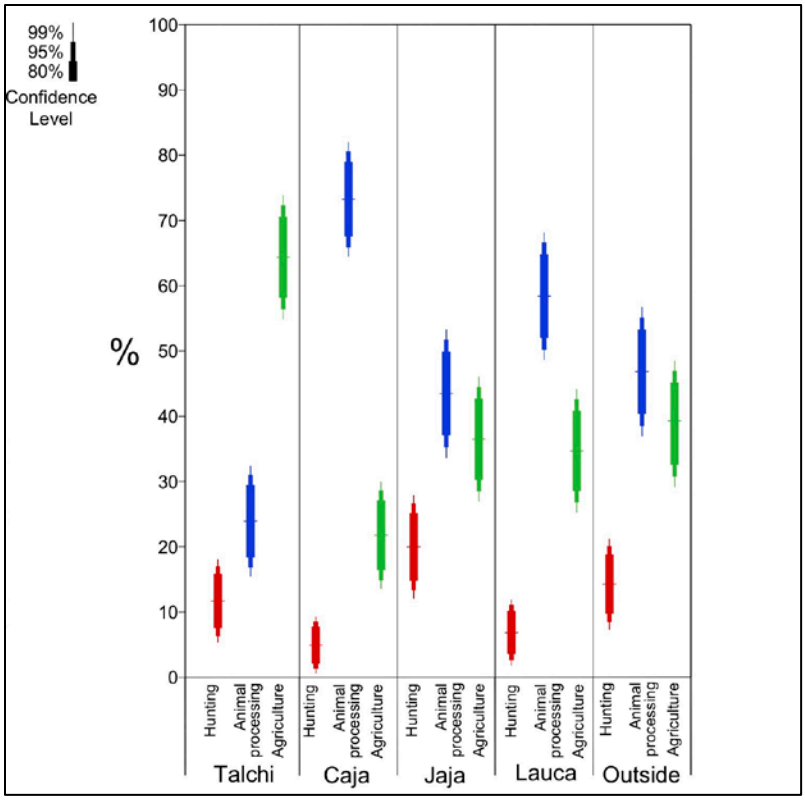


Figure 5.32. Proportions of lithic tools by subsistence activity by supralocal community

The largest artifactual differences among supralocal communities was in stone tool types, with Talchi having a significantly higher proportion of agriculture implements and lower proportion of animal processing tools. Figure 5.32 may seem to support an argument that the Talchi occupation was the most agricultural of the supralocal communities, but this is somewhat misleading. Most of the Talchi occupation consisted of the Chita site. Chita is in the Slope Zone and itself exhibits, as discussed above, a relatively high proportion of agricultural implements as compared to other occupation in the Talchi supralocal community.

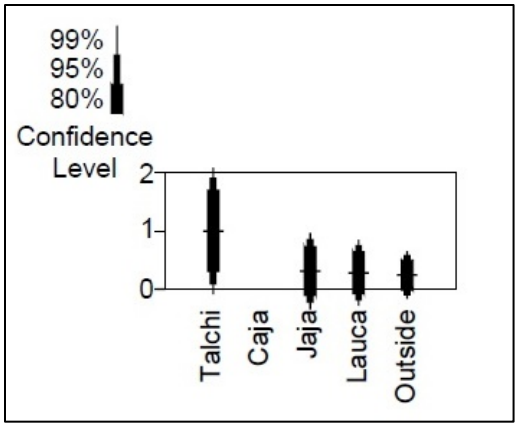


Figure 5.33. Proportions of ritual pottery by supralocal community

Ritually, as discussed above, all supralocal communities had plazas in one or more settlements, and those in the Lauca potential *marka*s were not larger than others. No supralocal community had a disproportionate number of plazas. As seen in Figure 5.33, the proportion of ritual pottery was very low generally in all occupations, and there were no significant differences in proportions among the supralocal communities.

In sum, the lines of evidence used in this study shed no light on the factors that produced a log-normal appearing distribution among the MH supralocal communities.

5.3 Late Intermediate Period (LIP)

The results of survey argue for four LIP supralocal communities (Lauca, Jaja, Caja, and Kalchi) and 10 potential centers or *marka* sites (see Chapter 4) In this section, I will review some of the lines of evidence for comparing sites, and then, going from one supralocal community to the next, I will describe each potential *marka* sites within the community. To determine if center residents were living differently or doing different things people at other sites *within* the supralocal

community, I will contrast potential center or *marka* artifact assemblages with assemblages from the other occupations in the supralocal community. This should reveal whether, and in what ways, these larger sites functioned as central places. Finally, the section will end by comparing the potential *marka*s to one another to reveal any functional differences or settlement hierarchy.

Potential LIP *marka* sites varied in size from 2.8 to 16 ha. Taking into account our density index, we can identify Jajapta and Willa Khollu, on the basis of population size, as the mostly likely candidates to have been central places or *marka*s.

5.3.1 Storage in the LIP

During this period storage units were constructed on terraces and as part of house compounds. Rectangular storage units often exhibited the same double-course wall construction as residential units. One change in the LIP is the creation of more "public" storage areas. One of the larger areas of storage units is that located in Phichi Khollu settlement, with 41 visible quadrangular storage units (2 x 2 m) (Figure 5.34). At the Pukara site there is a total of 15 visible collective quadrangular storage units. Quadrangular units do not seem to be associated with domestic units. Quadrangular storage structures were usually not near houses but were to one side of the settlement, or in nearby terraces (Figure 5.35). Probably, these units were of communal use.

Figure 5.34. Group of 41 quadrangular storage units at Phichi Kollu.

Figure 5.35. Quadrangular storage unit at the middle of the settlement at Khalchi.

Residential compounds for the LIP Period are located more closely to one another than in the previous period, and the average size of the patio was reduced. Domestic storage units were mostly oval tended to be oval, averaging 3 x 2 m (Figure 5.36).

Figure 5.36. Residential unit with oval storage unit at Pukara

It is possible that the sets of quadrangular storage units enabled communities to ride out bad years in agriculture. Quinoa can be stored for up to 2 or 3 years under good conditions. In the area of study, rain is fundamental to agriculture, during driest years, water springs could dry out, and without rivers there is no other method for cultivation of quinoa and potato. Since rain is not abundant in this area (<350 mm), a poor rainy season could curtail or ruin an agricultural harvest. Considering this, large scale collective storage may have been essential to the community to cope with bad agricultural years.

5.3.2 Comparing LIP Assemblages

Proportions of fineware and non-local pottery are used to assess potential wealth differences. That there was an LIP decline in the long-distance exchange of pottery is evidenced by the lower proportion of non-local ceramics in the LIP assemblages. Some material is still

coming into the area from the lowland valleys, but Yura and Huruquilla styles ceramics are not as popular as previously. One explanation is the disappearance of previously flourishing trade routes centered on the Tiwanaku metropole in the Lake Titicaca Basin. These routes would have included the intensive exchange network linking regions such as the southern *altiplano* with eastern Andean valleys of Cochabamba, Yura, and Huruquilla, as well as any more direct north-south trade routes from the Yaretani region to the Lake Titicaca Basin.

The collapse of the Tiwanaku trade network could thus have had great indirect effect on the external ties of Yaretani Basin residents. The Tiwanaku collapse would have also meant the cessation of manufacture and movement of trade goods that had been socially, ritually, and symbolically linked to the Tiwanaku polity. These items would have included Tiwanaku-style pottery, textiles and drug paraphernalia, as well as certain vessel forms (particularly the large drinking goblets and *keru*s) that were part of Tiwanaku-style domestic and communal ritual. Thus the end of Tiwanaku as a ceremonial/pilgrimage center would remove one of the incentives for local elites or leaders to be involved in long-distance exchange. It is very difficult to say that MH elites had direct access to Tiwanaku goods, but they had access to long-distance networks that had access to these goods. After Tiwanaku collapse, these goods were no longer available and related ritual practices may have become less important in bolstering local authority. More broadly, as has been suggested by researchers in the northern part of the *Altiplano*, political instability accompanying the collapse of the MH empires (Wari and Tiwanaku) may have led local leaders to pursue alternative strategies to gain power and access to resources, perhaps at a corporate rather than individual level (Arkush 2011; Nielsen 2006a; Stanish 2002). I will revisit this theory at the conclusion of this LIP section.

Non-local pottery in the LIP is mostly regional in the form of the Quillacas style (73% of the total of the non-local pottery overall). The proportion coming from the Circum-titicaca region (6%) is diminished, and the remainder hails from the lowland valleys (21%). Thus ceramic exchange networks changed markedly in the LIP, becoming more regional and less long-distance. Based on petrographic information, roughly a quarter of the Quillacas style is being produced locally (24%) but most of it is being brought from a Quillacas "core" area to the north (76%). For the purposes of analysis I am treating all Quillacas ceramics as non-local. The Tunupa[5] and the Quillacas-Tunupa are local ceramic styles that appear during this period. The Quillacas-Tunupa style corresponds to bowls with Quillacas decoration inside and Tunupa decoration outside. All of the Tunupa style vessels (bowls, jars and cups) have a white, yellow, cream, or green slip (Figure 5.37).

[5] The Tunupa style is the formerly known Taltape style (Dauelsberg 1980), and the Tunupa-Quillacas style is same as the Taltape-Quillacas (named by Lecoq 1999). Since this style has been reported as a local style by researchers, being also present at the Inter-Salar Zone (Cruz et al. 2017; Lecoq 1999), it would be more appropriate to re named after the area in which has mayor representation. Tunupa is the name of the mayor mountain/volcano in the region and could easily be related with people living in this area during prehispanic times. Dauelsenberg named these ceramics as Taltape style because these were recovered from a burial in a town named Taltape in Chile, but they are always referred as non local. This new and wider denomination will help giving a more accurate geographic location.

Figure 5.37. Tunupa style jar and ritual cup.

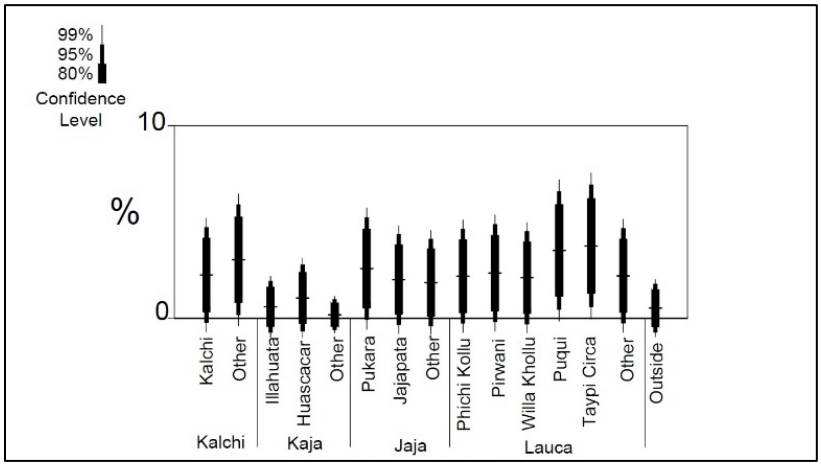


Figure 5.38. Proportions of fineware by settlements, within supralocal communities.

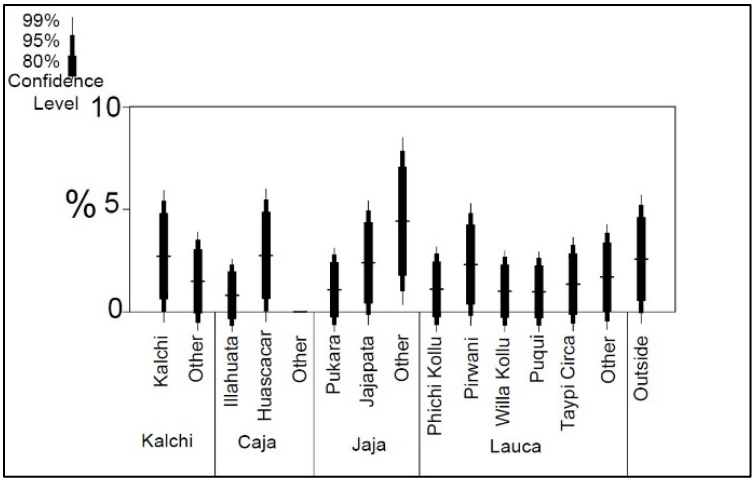


Figure 5.39. Proportion of LIP nonlocal pottery by settlement, within supralocal communities.

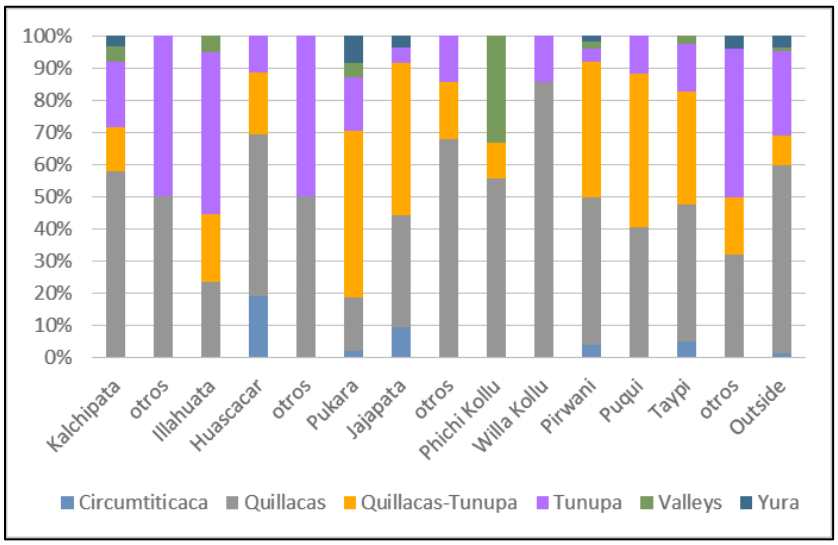


Figure 5.40. Cumulative percentages of LIP ceramic styles by settlement.

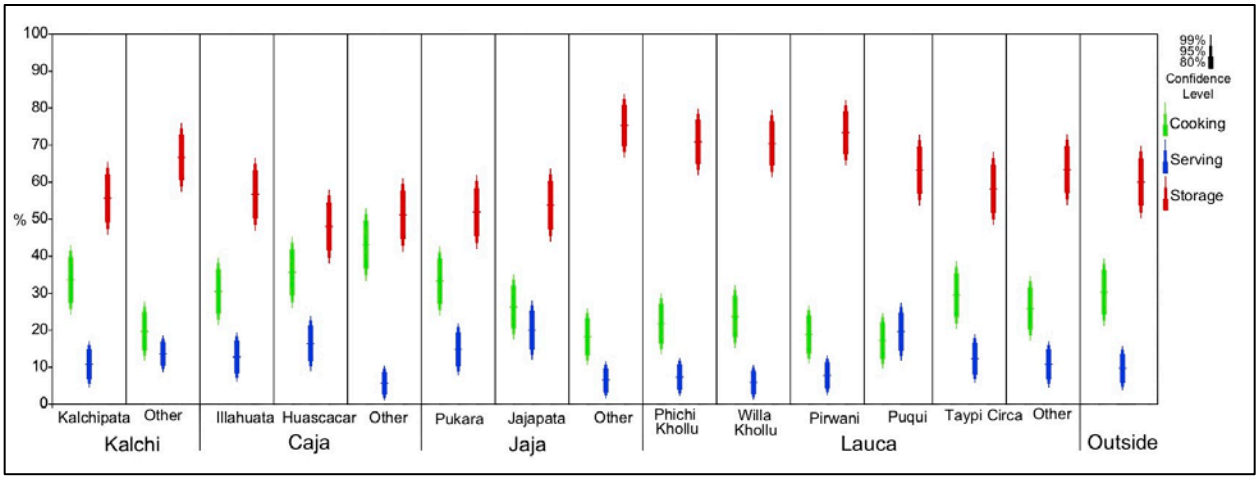


Figure 5.41. Proportions of storage vessels by settlements within supralocal communities and outside.

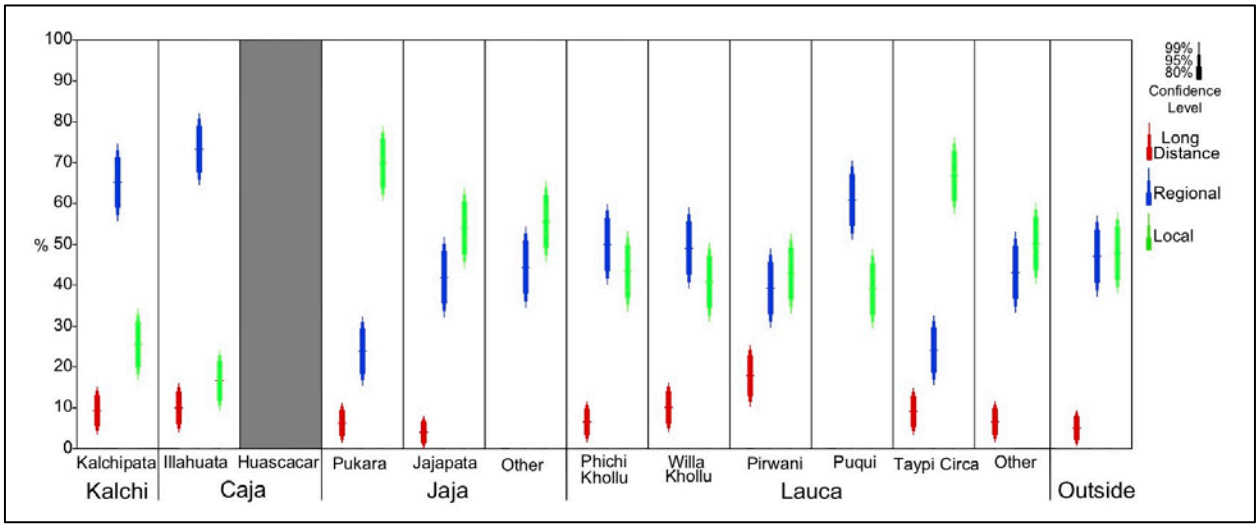


Figure 5.42. Proportions of lithic debris by provenance and settlement.

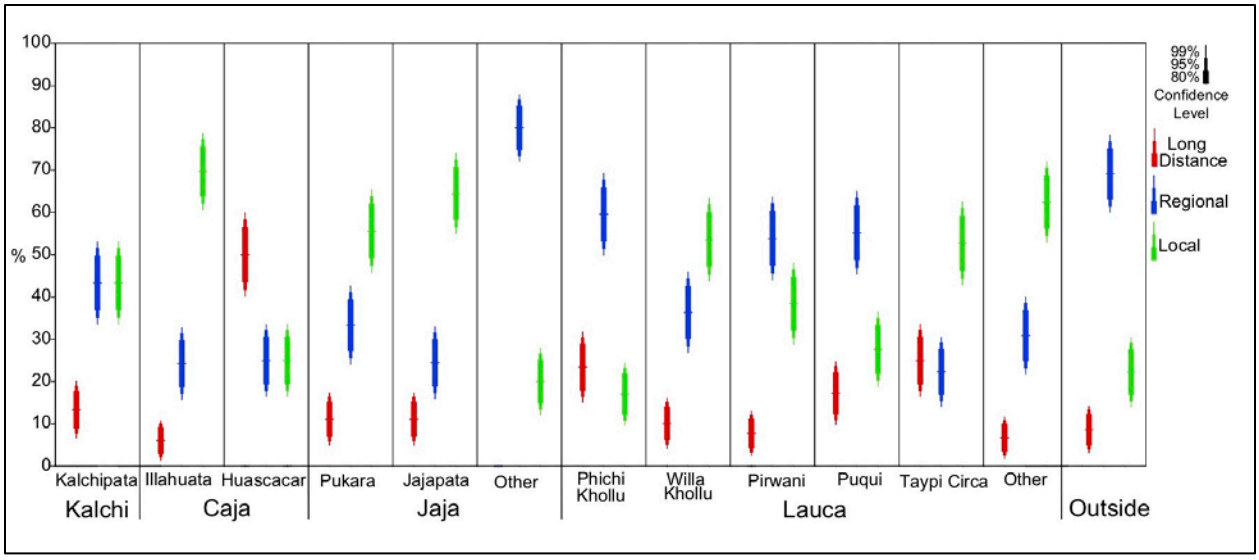


Figure 5.43. Proportions of lithic tool provenance area by settlement within supralocal communities

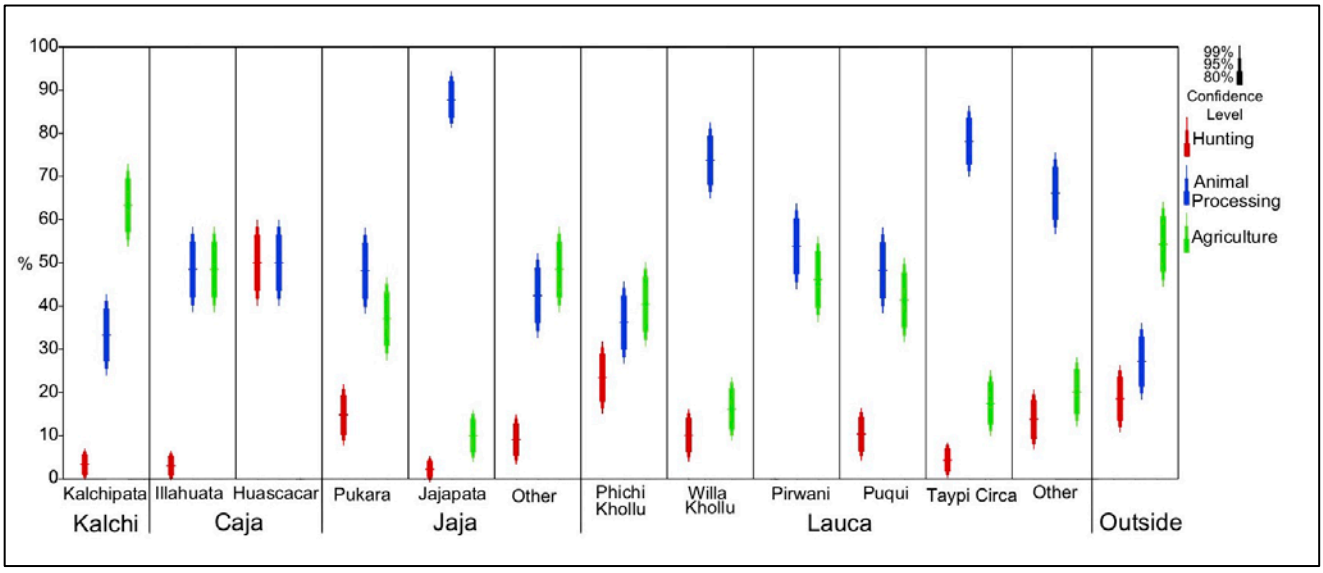


Figure 5.44. Proportion of lithic tools by subsistence activities by settlement.

Table 5.7. Characteristics of the potential LIP *marka* sites.

Name	Period	Supra	Zone	Size ha	Visible house #	Pop index	Plazas	Non-dom Struct #	Mort Features
Kalchipata	LIP	Kalchi	Slope	2.8	40	18.2	1	23 storage 20 patios	22+ group slab tomb
Huascacar Pampa	LIP-HM	Caja	Slope	4	15	8.5	1	20 storage 8 patios	10+ Indiv. slab tombs 13+ in a rectangular plaza slab tombs
Illahuata	LIP-HM	Caja	Slope	4.5	30	14.4	2	50 storage 15 patios	20+ Indiv. slab tombs 16+ in a rectangular plaza slab tombs
Pukara	LIP	Jaja	Slope	3	35	2.5	2	40 storage 14 patios	15+ indiv. 17+ group slab tombs
Jajapata	LIP-HM	Jaja	Slope	6.5	37	39.2	1	46 storage 20 patios	16+ indiv. 2 groups of slab tombs 13+ tombs in each
Phichi Khollu	LIP-LP	Lauca	Slope	12	10	6.7	0	41 storage	0
Willa Khollu	HM-LIP	Lauca	Flat-Slope	16	10	20.2	0		0
Pu05 Pirwani Puqui complex	HM-LIP	Lauca	Slope	5	20	19.9	0	31 storage 25 patios	5 cave mummies no bones but walls 1 group slab tomb
Pu14 (Taypicirca) Puqui complex	LIP	Lauca	Slope	3	70	25.8	2	130 storage 50 patios	2 group slab tombs:12+ indv. and 5+indv.
Pu03(Puqui) Puqui complex	MH-LIP	Lauca	Slope-Flatland	8	8	10	0	6 patios	1 group slab tomb 5+indiv 16+slab tombs

5.3.3 LIP Lauca supralocal community

This remained the largest of the supralocal communities in both areal extent and estimated population (aprox. 780 – 1540). Occupation continues at three of the MH potential *marka* sites,

but there are new occupational concentrations within this supralocal community with the LIP founding of Taypi Circa and Phichi Khollu,

5.3.3.1 Taypi Circa

This compact site covering 3 ha was established in the LIP. It lies on a flat hill at 4030 m.a.s.l. The site features a single course, perimeter wall. Other walls divide the site into three sectors. The foundations of 70 houses, together with 130 smaller storage structures, were visible on the surface. Houses and storage structures were arranged to form a typical house compound consisting of approximately 3 residential structures grouped a central patio, with 3-4 storage units behind the houses. We could distinguish approximately 28 such compounds. The number of structures per compound and size of patios were very uniform, giving no architectural indicators of status or wealth differences. The largest house in the settlement, however, was associated with a bead workshop. There were two plazas at the site. Slab tombs were located outside the settlement in circular mound features. Some tombs were placed close to a stream, and others at the entrance of the settlement.

5.3.3.2 LIP Pirwani

This hill fort settlement is located at 4030 m.a.s.l only about 250 m south of Taypi Circa. The density of materials (index 19.9) indicates a permanent residential occupation rather than a locus only occupied during episodes of conflict. It is not easily accessible, and traces of walls remain around the perimeter. A part of this site was built directly on bedrock, while the rest was built on terraces on the other side of the hill. This site is not very well preserved and most architecture has tumbled. Surface remains included foundations for at least 20 houses with small patios and 31 storage units. We could distinguish roughly 10 such residential compounds. No

plazas were recorded. Funerary areas were placed down the settlement on a slope of the hill, including five cave burial loci. A relatively tall *chullpa* still stands in this settlement.

5.3.3.3 Phichi Khollu

This settlement is in a prime agricultural setting being located adjacent to the terraces at the Phichi Khollu Mountain. This settlement presents the largest concentration of storage units related to terraces. These storage units were not spatially associated with houses. Because of the steep terracing, only one pathway was built to access this storage units, and it also connects the few houses located here with the Pukara settlement. The group of storage units are also located in front of the Pukara, so they can be clearly observed from there. Only a few extant houses were visible at Phichi Khollu. It is possible that more houses were destroyed by the historic use of these terraces, given the density of material in this area.

5.3.3.4 LIP Willa Khollu

Occupation continued here from the MH, but the resident occupation seems to have declined as indicated by the distribution of LIP materials and concentration of LIP houses. This site is the most disturbed settlement in the whole survey because of modern activities, so little can be said about the spatial layout of the settlement.

5.3.3.5 Puqui Pu03

Population may also have declined from the MH at this site. An LIP addition are the mortuary features located close to main spring. This spring is one of the most important in the Puqui Complex area. Terraces located along this area are very fertile, (lettuce and tomato are

currently cultivated here, despite the altitude). Because of the continued occupation of this area into today, only a few LIP features (houses and burials) could be mapped.

5.3.3.6 Assemblage differences within the LIP Lauca supralocal community: ceramics

The proportion of fineware within the supralocal community is roughly equivalent for all of the potential *marka* sites at around 2-4% of the ceramic total (Figure 5.38). This is true of the non-local pottery as well (Figure 5.39). As these are the measures for wealth, their proportions indicate no wealth differences among potential *marka* sites. The comparisons do not allow us to identify a wealthy stratum at any of the sites (or at least of a stratum of the size to be visible at the inter-site level). There is some variability among potential *marka* sites in terms of variety of non-local styles, but none show marked differences from one another, or the non-*marka* (Other) population in this regard. The proportion of non-local ceramics is the same for occupation outside of the LIP supralocal communities, suggesting that the demand for or the distribution of non-local pottery was not centered on the larger sites.

None of the potential *marka*s can be considered a central place in terms of regional exchange, at least as seen in pottery. Therefore, if these sites contained a leadership stratum, it was not differentially involved in regional exchange, at least not to a scale to make a visible difference at the inter-site level.

In terms of vessel function and pottery related activities, Puqui stands out for a significantly higher proportion of serving vessels (Figure 5.41).

5.3.3.7 Assemblage differences within the LIP Lauca supralocal community: lithics

The analysis of lithic sourcing presents us, as in the MH, with the discrepancy between tools and debitage. If we examine debitage, we can be very confident that there are higher

proportions of long-distance lithic material at Pirwani (Figure 5.42). If we examine tools, it is Puqui and Taypi Circa that stand out (Figure 5.42). Treating Other (occupation in the supralocal community outside of the potential *marka* sites) as our comparative baseline, it is clear that there was proportionally greater access to long-distance stone at the potential *marka* sites. Unlike with pottery, the residents of the larger settlements were differently involved in long-distance exchange of lithic material, or this exchange was channeled through the larger settlements.

Using tool types to estimate subsistence focus also reveals variability within the Lauca supralocal community (Figure 5.43). There are three notably agricultural focus potential *marka* sites in Phichi Khollu, Pirwani and Puqui, and two notably animal processing (herding) sites in Taypi Circa and Willa Khollu. The association of assemblage with Zone is stronger than in the MH. The supposedly more agricultural sites are all in the Slope Zone, but only one of the more animal processing sites (Willa Khollu) is in the Flat Zone. The high proportion of animal processing tools site of Taypi Circa is in the Slope Zone.

5.3.3.8 Comparing MH and LIP Lauca

Population increased in the LIP, and nucleated as well, going from six potential MH *marka* sites to five in the LIP. One of the largest MH concentrations (Cica Catuyo) was abandoned, and replaced by Taypi Circa. Occupation at three of the MH potential *marka* sites continued into the LIP. In both the MH and LIP there were differences among potential *marka* sites in terms of participation in exchange networks, as see in the provenance of debitage. Cica Catuyo and Pirwani had higher proportions of long-distance lithic material in the MH. Pirwani continued to have a higher proportion through the LIP as well. There were no corresponding differences in use of non-local pottery. The potential *marka*s were not all doing the same thing in terms of subsistence. For both the MH and LIP we can distinguish different agropastoral mix postures among potential

*marka*s. In the MH, Puqui and Pirwani exhibited a proportionally low agricultural orientation in comparison to the four other sites. In the LIP, these two sites increased agricultural orientation, and along with the new Phichi Khollu, display a higher relative proportion of agricultural tools than the other sites and the Other occupation.

5.3.4 LIP Jaja Supralocal Community

This was the second most populous of the LIP supralocal communities and displayed a more concentrated occupation than the Lauca supralocal community. It contains two potential *marka* sites.

5.3.4.1 Pukara

At the highest elevation 4150 m.a.s.l. and on the summit of the Pukara Hill, this settlement has a central plaza, a second plaza, and roughly 14 visible residential units incorporating about 40 dwellings and 35 storage structures. Slightly downslope are several corrals on natural hill terraces. Outside one of the entrances to the site is a circular slab tomb mound. There are 15 *chullpa*s associated with the site, including a set of 4 just outside of the site's entrances. This settlement is difficult to access, and is considered a pukara or fortress site.

5.3.4.2 LIP Jajapata

Occupation continued at this site from the MH. New residential units were built near the MH residential area. We recorded roughly 12 house compounds made up 37 residences and 50 storage structures. Also added to the settlement were several tall *chullpa*s and a plaza. The LIP domestic area appears to be more compact than that of the MH, with less space between domestic

units. The area index is the highest of the potential LIP *marka*s at 39.2. In comparison, Pukara's index is only 2.5.

5.3.4.3 Assemblage differences within the LIP Jaja supralocal community: ceramics

There were no differences in proportion of fineware between these two sites or the non-large site (Other) occupation in the Jaja supralocal community. Jajapata does not stand out as having the higher proportion of non-local pottery one would expect if its residents were differentially involved in exchange. We can be confident that Pukara residents used less non-local pottery than residents of the Other occupation. The potential centers display somewhat more variety in non-local styles than seen in the Other population. In sum, the ceramics provide no evidence for a wealthy stratum at either potential center.

The proportion of serving vessels was significantly higher at the two potential *marka*s than in the Other (smaller site) occupations suggesting differential involvement in serving or feasting activities.

5.3.4.4 Assemblage differences within the LIP Jaja supralocal community: lithics

Jajapata displays a significantly higher proportion of regionally-sourced lithic material than Pukara, but the proportions of long-distance material are comparable (Figure 5.40). This observation contributes to the conclusion that differential access to long-distance exchange material does not distinguish the potential *marka* sites.

Jajapata and Pukara differ strongly in proportions of lithic tools related to subsistence. Unexpectedly, the former site has the least agricultural focus implements of all the potential MH *marka* sites (save Huascacar), despite its location in the Slope Zone (Figure 5.42). Pukara, which is over 1000 m above Jajapata in elevation, on a hilltop, has a the more expected "mix" of animal

processing and agricultural tools, consistent with the occupation elsewhere ("Other") in the supralocal community. On face value, these differences could suggest that residents of Jajapata were differentially involved in butchering activities, either through more involvement in herding or greater access to animals or both.

5.3.4.5 Comparing MH and LIP Jaja

Population roughly doubled, although the MH potential *marka* of Jajapata decreased slightly in size from the MH. A significant settlement change was the establishment of the fortified hilltop site (Pukara). Proportions of non-local pottery and long-distance change show no differences among occupations in the MH, and this lack of differentiation continued into the LIP. In the MH, Jajapata stood out for its relatively high proportions of animal processing tools. This difference increased in the LIP, suggesting that for both periods, Jajapata residents were differentially interacting with animals.

5.3.5 LIP Caja supralocal community

A small supralocal community of 160 – 320 estimated residents with occupation centered around a set of local bofedales.

5.3.5.1 LIP Huascacar

Residential occupation expanded here during the LIP to about 4 ha with a new residential zone of more closely packed houses. We could identify approximately 5 household compounds with patios, and 20 storage units, and numerous slab tomb and *chullpa*s around the settlement. The single plaza was associated with slab tombs.

5.3.5.2 Illahuata

Located only 1 km from Huascacar. this site also saw an LIP increase in residential area to roughly 4.5 ha, although this is hard to assess because of modern animal herding on the hill slopes. Surface architecture indicates at least 10 distinct household patio groups, and we counted 30 dwellings and 50 storage structures. This site also had two plazas, one of which was associated with slab tombs. Above the settlement are two preserved *chullpa*s built inside caves.

5.3.5.3 Assemblage differences within the LIP Caja supralocal community: ceramics

There were not significant differences between these two settlements in proportions of fineware, nor between the settlements and other occupation in the supralocal community (Figure 5.38). Almost no non-local pottery was found in occupation outside of these two settlements; access to or preferences for non-local ceramics was concentrated within them. All of the decorated pottery in the Other occupation was locally produced (Figure 5.39). This distinguishes Caja from other supralocal communities in which people living outside of the potential *marka*s had roughly the same access to non-local pottery as those within the potential *marka*s.

5.3.5.4 Assemblage differences within the LIP Caja supralocal community: lithics

I cannot effectively make comparisons of lithic material sourcing, because I did not have any monocomponent (chronologically positive) assemblages with lithic debitage for Huascar or Other. The provenance of tools (figure 5.43) indicates a significantly higher proportion of long-distance lithic material at Huascacar than at Illahuata. Overall, Huasacar had a significantly higher proportion of long-distance material tools than at any other potential *marka* site.

5.3.5.5 Comparing MH and LIP Caja

The Jaja supralocal community population roughly doubled. While one potential *marka* was abandoned at the end of the MH, another one (Illahuata) was established. Proportions of non-local pottery and long-distance change show no differences among occupations in the MH, and this lack of differentiation continued into the LIP. Although there were no differences in subsistence orientation among occupations within either period, agricultural orientation increased with the LIP.

5.3.6 LIP Kalchi supralocal community

This small supralocal community was in an area essentially unoccupied during the MH. It basically consists of the site of Kalchipata and its immediate vicinity. Like Caja, the concentration of occupation is associated with a set of local bofedales.

5.3.6.1 Kalchipata

This site is located on a flat hill at 3940 m.a.s.l. It is possible that it constituted the "central place" to the dispersed, low density LIP occupation south of Yaretani Mountain as this is the nearest large settlement. This site is located very close to pasture land and to terraces. Residential occupation was quite compact. We recorded roughly 10 household compounds, each with a central patio. There is one large mound with circular slab tombs at the entrance of the settlement, with around 15 rings of tombs. The adjacent hill face has mummy chambers built into the natural caves. The site is not walled.

5.3.6.2 Assemblage differences within the LIP Kalchi supralocal community: ceramics and lithics

There were no differences in proportion of fineware or serving vessels between Kalchipata and outlying (Other) occupation (Figures 5.38, 5.41). Nor was there a significant difference between the two in proportion of non-local pottery or decorated pottery (Figures 5.39, 5.40). Because there were no monocomponent (chronologically positive) assemblages with lithics for Other, we cannot compare the occupations in terms of lithic material provenance or subsistence related tool types.

5.3.7 The distribution of LIP ritual practices

I am not able to generate inter-site proportions of ritual items for the LIP because of the rare occurrence of such artifacts in the LIP assemblages. In the MH, most of the ritual items were oversize drinking vessels, usually Tiwanaku-style, that are very distinctive in form and decoration. There are not replaced with anything comparable in LIP pottery inventories, other than examples such as the Tunupa ritual cup in the above figure. Whether the relative lack of ritual drinking vessels in the LIP is due to changes in ritual practices or a shift away from more distinctive and diagnostic forms, or a combination, is open to debate. I suggest this difference from the LIP does relate to changes in ritual practices, as it would not be difficult to create local versions of the MH large drinking vessels. Interestingly, "heirloom" MH *vasos* or cups turn up as grave goods in some LIP tombs.

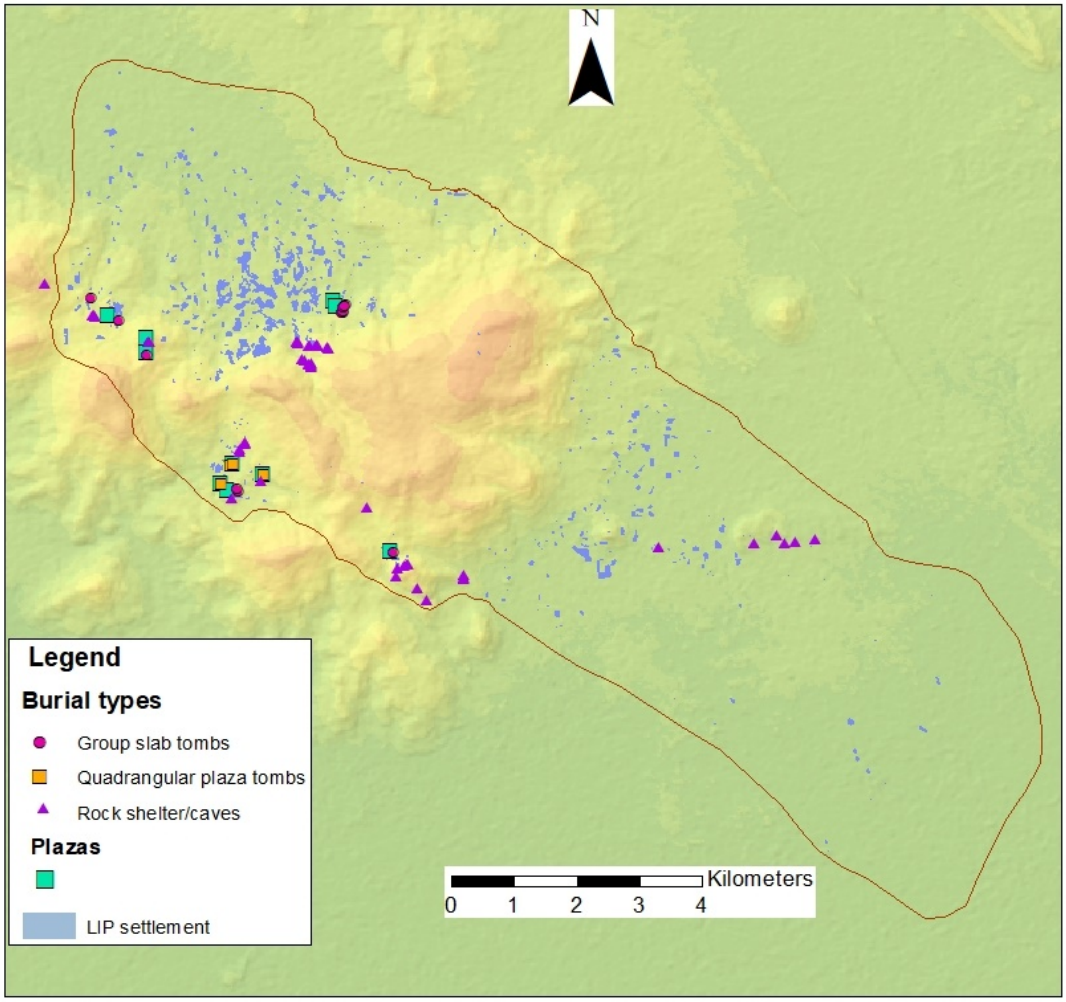


Figure 5.45. LIP Burials and plazas distribution in the area of study

Plazas were built or maintained during the LIP. Sixty percent of the potential LIP *marka* sites had one or more plazas. There was no correlation between site size and presence/absence of a plaza. In generally, unlike the MH circular plazas, LIP plazas tended to be more rectangular or ovoid. They also tended to be more associated spatially with collective burial features. These features include cave burials, but a new LIP funerary practice was collective burial features of one type or another in platforms in or close to the larger settlements. Both potential *marka* sites in the Caja supralocal community, Huascacar and Illahuata, had a quadrangular plaza surrounded by individual slab tombs (Figure 5.45).

Figure 5.46. Individual slab tomb in a wall at Taypi Circa.

Some LIP plazas were located close to collective tombs. These particular plazas were built by placing single rows of stones in a rectangular or oval shape over a low earth or stone platform (generally about 12 x 11 m). Three of the potential *marka* settlements have two plazas, one closer to the collective tombs and the other inside the settlement. These were probably used for different kind of rituals and even for different kind of audiences. On the other hand, rectangular plazas surrounded by lines of slab tombs are spaces clearly delimited by the ancestors. These plazas were located next to rivers, and not directly in or adjacent to settlements.

When in domestic areas, rectangular tombs (0. 70 x 0.90 m), were usually located next to houses, sometimes spatially separated household compounds (Figure 5.46). This patterning suggests that burials may have been used as territorial markers within settlements as well as between them.

Each of the potential *marka* settlements was associated with one collective slab tomb mound feature adjacent to a plaza located outside of the site (some have two such as Jajapata). It is possible that these features were for founding ancestors or individuals of important community identity. These tombs are constructed from the center outward with the initial tombs in the center or the mound, and other tombs added to the flank through time. When there was no space for a new tomb on top of the mound, tombs were placed on the flank of the mound.

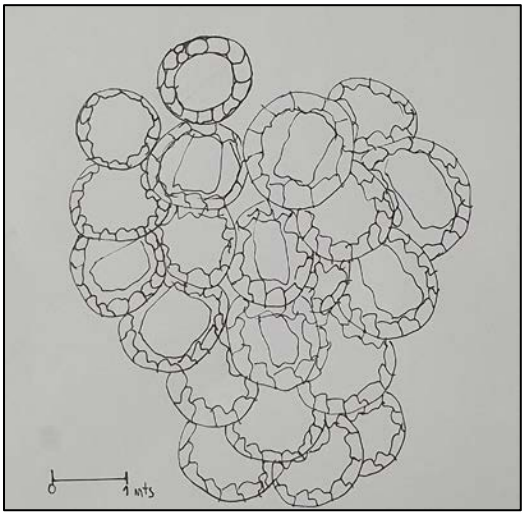


Figure 5.45. Sketch of a collective slab tomb mound feature.

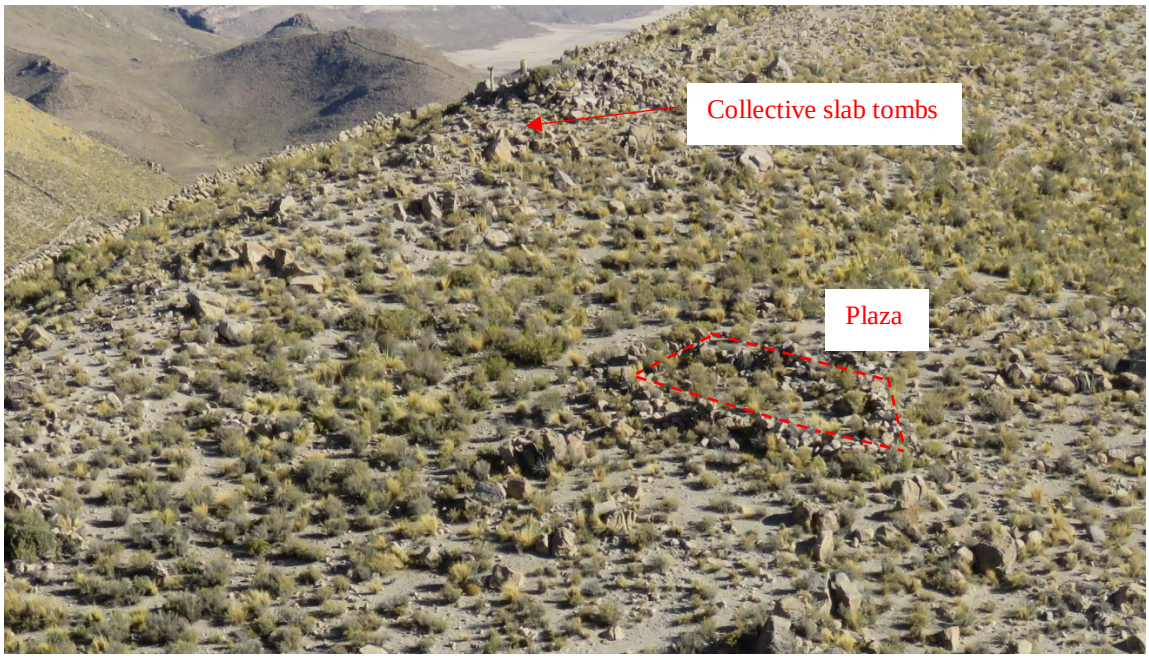


Figure 5.47. Collective slab tombs and quadrangular plaza at the Pukara settlement

LIP burial treatment shows the integration of dead people in familiar spaces but also in communal spaces (Figure 5.47). Dead were experienced as part of the daily habitus of community in ways quite different from the MH. Three general changes in LIP ritual/mortuary practices can be identified:

(1) An elaboration of plazas through the addition of platforms and funerary features (quadrangular tomb mounds).

(2) Increased publicly visible and collective mortuary features, including *chullpa*s and collective tomb mound features.

(3) A slight increase in the association of plazas and non-rockshelter public collective mortuary features with potential *marka* sites (compare Figure 5.47 with Figure 5. 29 of the MH.). While not every potential LIP *marka* had a plaza, in the LIP plazas were not found outside of potential *marka* sites. Collective tomb mound features were only found at potential *marka* sites.

Taken together, these changes suggest an increased role for large-site centered mortuary ceremony in integrating LIP supralocal communities.

Figure 5.48. Rock shelter/cave burial, at the Pirwani (hill top settlement).

5.3.8 Comparing the LIP supralocal communities

There are no differences among the supralocal communities in use of decorated pottery or non-local pottery, so none stands out for being more or less "wealthy" than the others. The occupation outside of the supralocal communities ("Outside") display the same level of wealth as the supralocal community residents (Figure 5.49). The proportions of vessel types show no differences among the supralocal communities in serving, cooking, or storage activities (Figure 5.50).

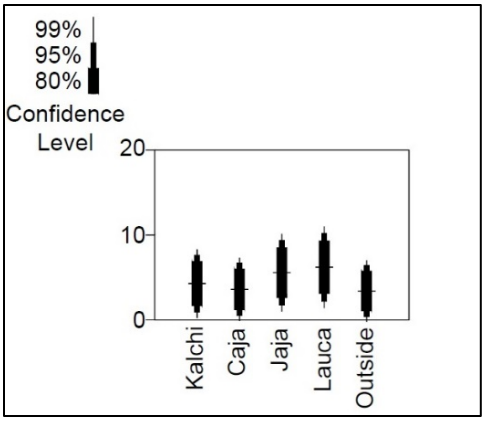


Figure 5.49. Proportions of fineware plus non-local pottery by LIP supralocal community.

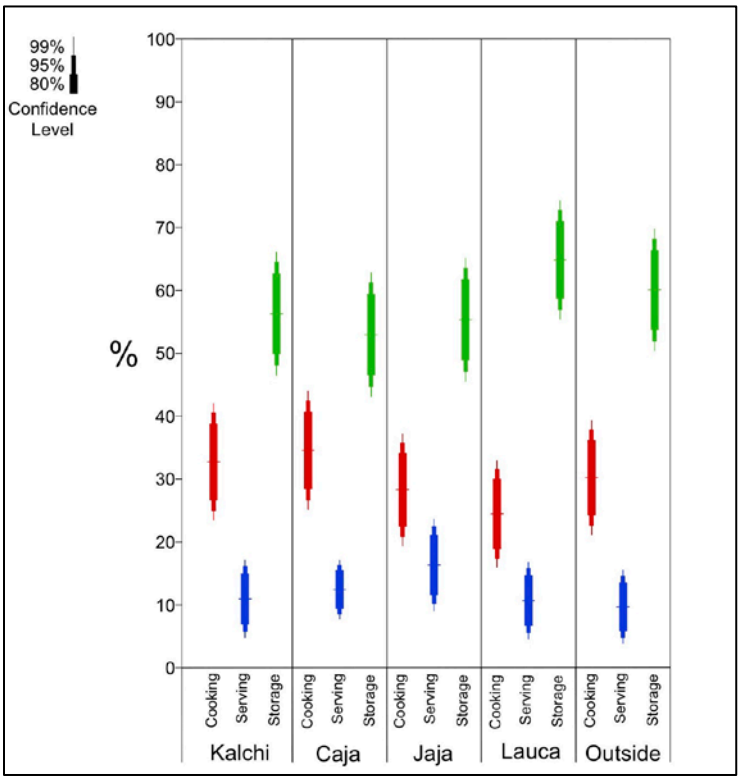


Figure 5.50. Proportions type of vessels by LIP supralocal community.

There are differences in access to non-local lithic material that suggest residents of the supralocal communities differed in procurement of local and regional material. However, there are no differences in long-distance lithic material suggesting differential involvement in long-

distance exchange networks (Figure 5.51). Overall, there is no evidence that any *one* supralocal community markedly differed from others in external ties.

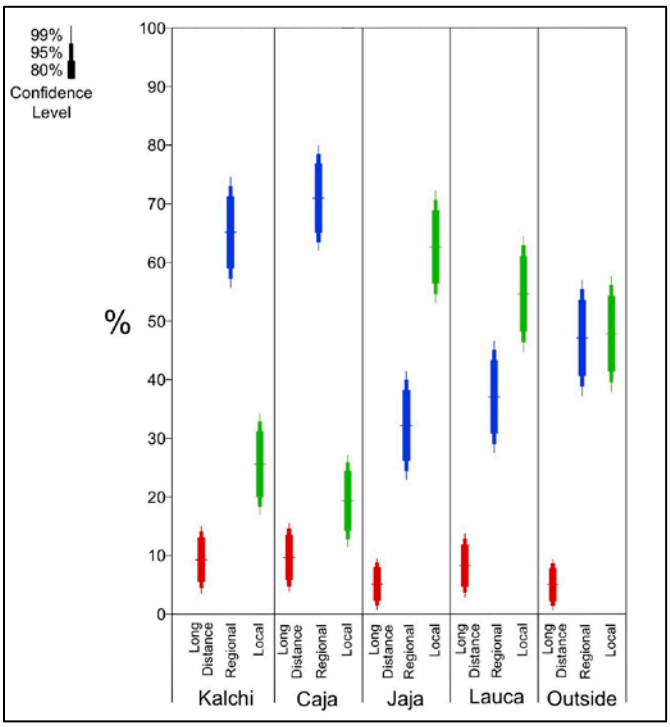


Figure 5.51. Proportions of lithic debitage provenance by LIP supralocal community.

The most pronounced difference among the supralocal communities is in proportions of subsistence related tool types where two orientations can be distinguished (Figure 5.52). Jaja and Lauca exhibit relatively high animal processing focus, while Caja and Kalchi exhibit relatively high agricultural focus (along with the outside occupation). This distinction does not correspond to ecological Zone. The Lauca supralocal community is the only one to include a significant amount of Flat Zone, so that a greater focus on herding might be expected. However, the Jaja supralocal community is almost entirely in the Slope Zone.

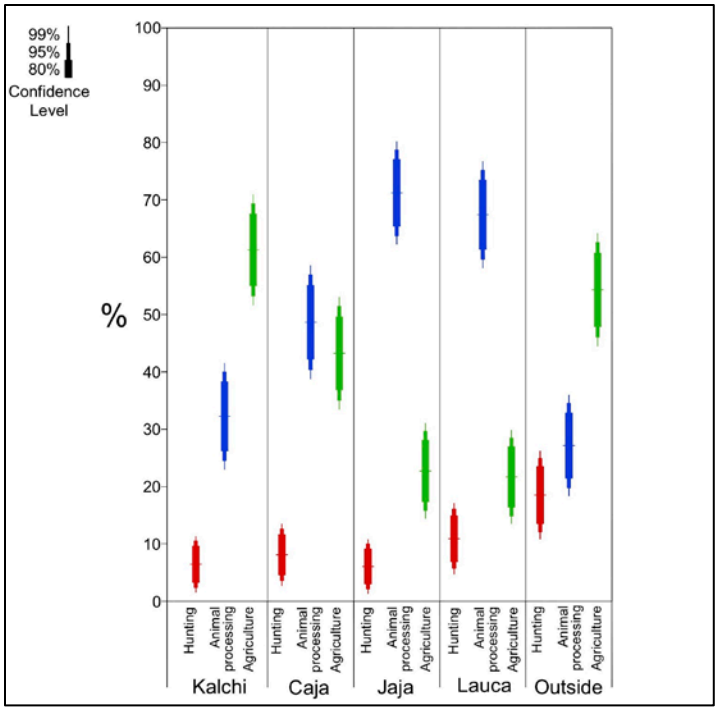


Figure 5.52. Proportions of lithic tools by subsistence activity by LIP supralocal community.

There is no evidence in artifact assemblages or ceremonial features to suggest that any one of the potential *marka*s was regionally dominant or served as a central place for the entire Yaretani Basin. The Lauca community is estimated at 780-1540, while the next most populous is Jaja (300 – 600). Plotting the populations for the four supralocal communities (averages 1155, 445, 240, 175) in rank order produces a pattern even closer to the log normal than was the case for the MH. In some ways difficult to specify, Yaretani Basin settlement had become an even more "integrated" system.

5.3.9 Staple storage differences

Nearly all of the potential *marka* sites featured specialized storage structures, some as part of domestic compounds and some (particularly quadrangular ones) in clusters on terraces or near

the settlement, such as at Phichi Khollu. That different sites had different manners of storage suggests significant variability in communal politico-economic dynamics.

Issues of architectural surface preservation make it tricky to compare residence: storage ratios. Using these figures, the ratios range from 1.7:1 to 1:3.4. If we compare houses to storage structures, Phichi Khollu has a disproportionate amount of storage. However, the proportion of storage appears differently if we compare site ha against storage units. If we use site size, the relatively small (3 ha) but compact site, Taypi Circa has a disproportionate amount of storage in the form of 130 storage structures. Pukara, a site of the same size but having more visible houses, shows 40 storage structures. The much less dense but larger Phichi Khollu at 12 ha, displays 41 storage structures.

Using any measure, it appears that certain potential *marka*s had storage capability above and beyond others. Earlier I suggested that the storage structures may have been used to allow communities to cope with lean years. Some groups (whether the community as a whole or a stratum within the community) were differentially involved in surplus staple storage.

5.3.10 LIP Summary

If we conceptualize the *marka* as a regional central place, a political center, and the resident site of *señorío* leadership, can we identify such a site in the LIP? There are few significant functional differences among potential *marka* sites and their respective supralocal communities, save for those relating to serving and ceremony and mortuary practices. Some potential *marka*s differ from non-marker (Other) and other potential *marka*s within the same supralocal community in subsistence related tool proportions. These may be indicators of differences in stable finance.

For example three of the potential *marka*s have relatively high proportions of agricultural implements (Figure 5.44). This may be evidence that residents of these sites were differentially involved in agricultural, but this is not the same as being able to say that there was a leadership stratum dominating agricultural surplus at these sites. As discussed previously, at some but not all potential *marka* sites, storage consisted of separate clusters of rectangular structures, presumably communal. The most distinct subsistence pattern is Jajapata in the Jaja supralocal community with its very high proportion of animal processing tools, particularly given its Slope Zone location. Perhaps this site did serve as a central place in the processing of camelids, or there was a residential stratum wealthier in herd ownership.

The other evidence that particular *marka* sites were differentially involved in agriculture are differences in the proportions of storage structures, particularly for Phichi Khollu and/or Taypi Circa. That these sites are both in the Lauca supralocal community indicates that storage was not "centralized" at one location. However, we do not know much about the nature of storage at smaller occupations, so this storage alone cannot be deemed a central place function.

The relative proportions of serving vessels are higher at Jaja and Caja potential *marka*s than at other occupations in that supralocal community. Puqui stands out from the other Lauca potential *marka*s and other occupation as having a higher proportion of serving vessels. Assuming proportion of serving vessels relates to serving/feasting occasions, this finding indicates that residents of these settlements (or more likely a stratum within them) were differentially involved in such activities. There is not a link between serving vessel proportions and the presence/absence of plazas in the settlement, making it impossible link these serving vessel proportions to public feasting.

The most pronounced functional differentiation in LIP settlement lies in plazas and mortuary features, as described above. Plazas distinguish some, but not all, potential *marka* sites from other occupations. Only potential *marka* sites have the new collective tomb mounds and plazas bordered by tombs. These changes point to a possible role for these centers in ceremonial integration (through mortuary ritual and ancestor veneration) of the supralocal communities. This role is fully consistent with the portrayal of political structure and *marka* function in the ethnohistoric constructs of the LIP *señorío* societies. *Marka*s are portrayed in the ethnohistoric accounts as regional centers. If the Yaretani Basin LIP had a *señorío* population as described in the ethnohistoric accounts, we would expect each supralocal community to have a single site of this type, and/or perhaps a single dominant central place for the Basin as a whole. However, most of the supralocal communities have more than one of such sites, and there is no dominant center. In short, the LIP shows no regional central places. As in the MH, the differences between potential *marka* sites and others may simply be the differences between larger settlements and small settlements. Larger, aggregated settlement was simply more likely to have central plazas and community cemeteries, and - - in some other ways as well - - have been *local* central places. Therefore, an alternative interpretation of the LIP shifts is that they reflect trends in which public ceremony, elaborate mortuary practices, and serving and feasting activities are concentrated at larger settlements generally. How these trends related to political leadership is unclear.

5.4 LATE PERIOD (LP)

As described in Chapter 4, occupation changed dramatically in the LP, with a sharp decrease in population, concentration in the Slope zone, the breakup of previous occupational

concentrations such as in the Puqui Complex ecotone area, and the abandonment of nearly all LIP potential *marka* sites. There is occupational continuity only in the northwestern margin of the survey area: home to the MH Jaja supralocal community and the LP Jaja-Puqui supralocal community.

I distinguish three supralocal communities for the LP, and eight potential *marka* sites (Table 5.8). Only one of these - - Phichi Kollu at 10 ha - - may be on the scale of the larger LIP settlements but it is difficult to separate the LIP and LP components at this site. Based on size alone, we would otherwise select this as the most likely candidate for a regional central place or *marka* site. The other LH sites tend to be small (1-3 ha) and lightly occupied (population indices of 3.0 – 14.0). All of these settlements have associated terraces, and clearly Inka style terraces were built at Quitamalla. There are indications that during this period roads were improved and widened. Inka style pottery occurs along the roadways throughout the Basin. Houses change shape to some extent in this period with more angular corners. Average house size remains roughly 5 x 3 m.

Table 5.8. Potential LH *marka* sites.

Name	Period	Supra	Zone	Size ha	Visible house #	Pop index	Plazas	Non-dom Struct #	Mort Features
Suturo	LH	Suturo	Slope	1	4	10	0		
Quitamalla	LH	Quitamalla-Challuma	Slope-flatland	3	6	11.4	0	4 patios	
Challuma	LH	Quitamalla-Challuma	Flatland	2	4	6.7	0		
Jajapata_PT	LIP-LH	Jaja-Puqui	Slope	4	11	14	0	20 storage 9 patios	*chullpa*
Huara Kalluni	MH-LH	Jaja-Puqui	Slope	3	5	3.2	0	15 storage 5 patios	
Phichi Kollu	LIP-LH	Jaja-Puqui	Slope	10	2	3.5	0	41+ storage	
Puqui - Herrero	LH	Jaja-Puqui	Slope	1.5	6	1.2	0	5 storage 4 patios	
Chite	LH	Outside	Flatland	2	4	7.1	0		

5.4.1 Suturo supralocal community

This supralocal community consists basically of the village of Suturo, and is very small with an estimated population of 70 – 130. Nearly half of that may have been in the site of Suturo itself, which began as a small occupation (hamlet) in the LIP.

5.4.1.1 Sunturo

This settlement is located close to the road and presents two corrals and four houses. Houses are double walled as in the LIP but are larger in floor area. This settlement could be interpreted as possibly representing a small tambo because of its association with the road, and limited residential occupation (in comparison to the site of Quitamalla, below).

5.4.1.2 Quitamalla-Challuma supralocal community

Located in an area that had only hamlet or homestead occupation in the LIP, this "twin peaks" supralocal community is centered on two sites of 2 and 3 ha each, about 4 km from one another.

5.4.2 Quitamalla

This settlement is one of the largest LH Period sites located in the survey area, and features large Inka style domestic architecture, with the trapezoidal doorways and distinctive roof characteristic of Inka construction (Figure 5.53). The terraces here are also distinctive in their form and construction (Figure 5.54). In all, the LH architecture represents a dramatic change from

that of the LIP occupation here. This change likely relates to the site's spatial association with the main LH road to Salinas de Garci Mendoza.

Figure 5.53. Inka style structure, with colonial reconstruction of the high wall at Quitamalla.

Figure 5.54. Inka terraces at Quitamalla.

5.4.2.1 Challuma

The Challuma settlement is smaller than Quitamalla. Here too, however, LH houses were built in an Inka architectural style. Density of material is low at this site. This settlement is located on flatland, quite close to a set of small bofedales.

5.4.3 Jaja-Puqui Supralocal Community

This was the one supralocal community that persisted from the LIP into the LP. It is the largest and most populous of the LH supralocal communities.

5.4.3.1 Jajapata_PT

This settlement present mixed architectural feature. Some LH houses still are LIP-like in shape and size, but other buildings are more Inka like, with taller walls and trapezoidal entrances, and square corners. The site contains an Inka like funerary tower, the only one recorded for the area. This quadangular tower was built on top of a collective slab tomb feature, on a very prominent setting, so that it could be seen from far down the hill. It is possible that leaders living at this settlement made an alliance with the Inka polity, as this was the only potential LIP *marka* site that was not abandoned or reduced in size in the subsequent period of Inka domination.

5.4.3.2 Huara Kalluni

This smaller settlement in associated with one of the region's main roads, and is located very close to a major spring. Visible are 5 house compounds and 15 storage structures. It is possible that this site too was a special purpose facility such as a small waystation. However, the architecture is not Inka like, and houses are similar in size, layout, and construction techniques to

those of the previous period. On the other hand, the associated terraces exhibit different construction technique, more consistent with Inka construction, such as favoring use of significantly larger rocks in building terrace faces.

5.4.3.3 Phichi Kollu

The continued occupation here is represented by only a few LH houses. No terrace building dated to the LH were observed, but LH Period modifications to the agricultural landscape did occur. These modifications took the form of construction of retaining walls and small canals, probably for the purpose of better managing water runoff, both for irrigation purposes and to content with erosion to the slope (Figure 5.55).

Figure 5.55. Irrigation canals at Phichi Kollu.

5.4.3.4 Puqui – Herrero

This settlement on the slope of Luaca Mountain is located to the west of the modern town of Puqui. The site exhibits houses with Inka architecture and associated Inka style terraces fed by canals. A portion of this site remained occupied until 20 years ago, and was home to a small smelter. Evidence of this activity is still present in the site.

5.4.3.5 Chite

This small settlement is not part of a supralocal community. This isolated site was near the Salar Flatlands alongside a major Inka road. Yet no Inka style pottery was found at the site. The location itself raises the possibility of an occupation involved in salt extraction.

5.4.3.6 Comparing LP assemblages

There were insufficient mono-component (chronology-positive) lithic assemblages of sufficient sample size to make any lithic based comparisons for the LH.

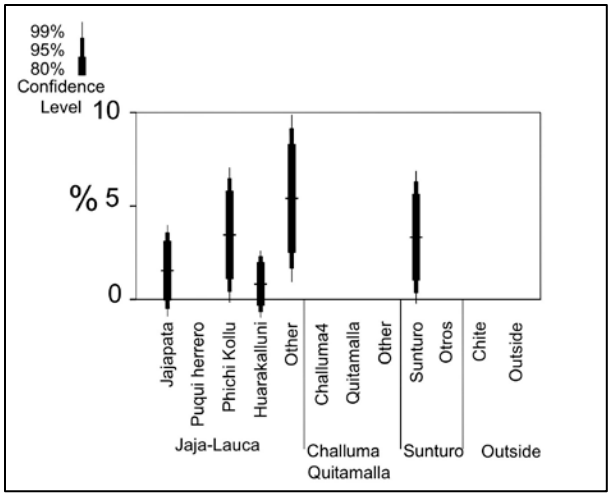


Figure 5.56. Proportion of fineware by settlement within LH supralocal community.

Fineware pottery was entirely absent from some supralocal communities (Figure 5.56). We can be confident that it occurs in significantly lower proportions at Huara Kalluni and Jajapata than at the other potential *marka* sites and in the occupation (Other) outside of potential *marka* settlement in the Jaja-Lauca supralocal community. The proportion in the Jaja-Lauca rural and dispersed occupations shows that access to fine pottery was not limited to large site residents. As in previous periods, the distribution of higher value pottery does not provide evidence for a wealthy stratum at any of the potential *marka* sites.

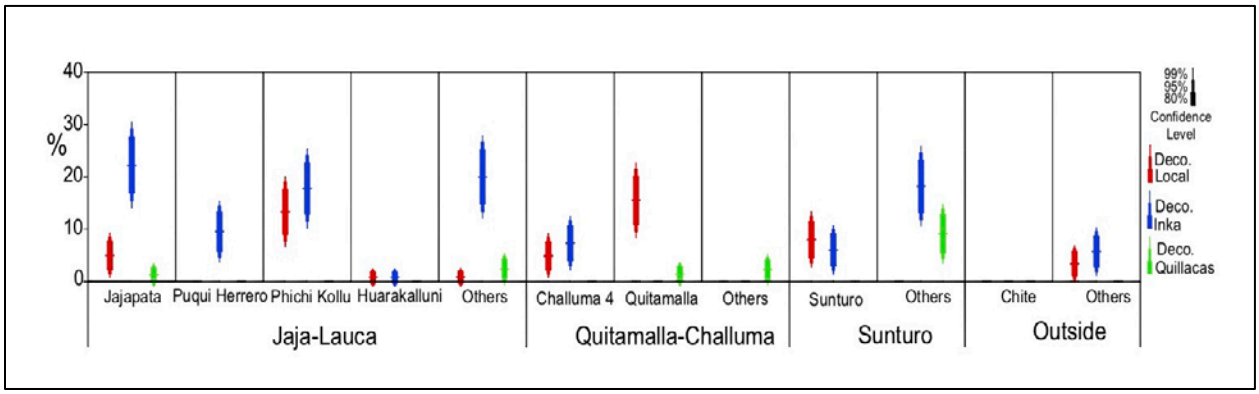


Figure 5.57. Proportions of decorative style by settlement, within supralocal communities.

The distribution of Inka style pottery is not related to site size. Inka style decorated pottery was widely distributed within the Jaja-Lauca supralocal community even to the smaller occupations (Other) (Figure 5.57). Almost no Inka, or other decorated pottery, was found at Huara Kualluni. Inka style pottery was only found at one of the two Quitamalla- Challuma potential *marka* sites, and in lower proportions at Sunturo than at smaller sites in its vicinity. Inka vessel forms were not equally common among the potential *marka*s, being most popular at Jajapata and Phichi Kollu (Figure 5.58). Again, this pottery was apparently distributed in such a way that residents of smaller occupations used as much or more of these forms than the residents of some potential *marka* sites.

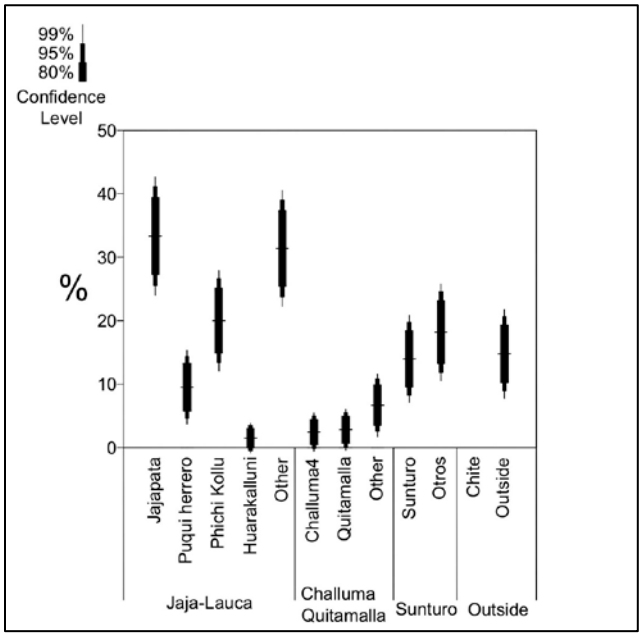


Figure 5.58.Proportion of Inka form vessels by settlement, within supralocal community.

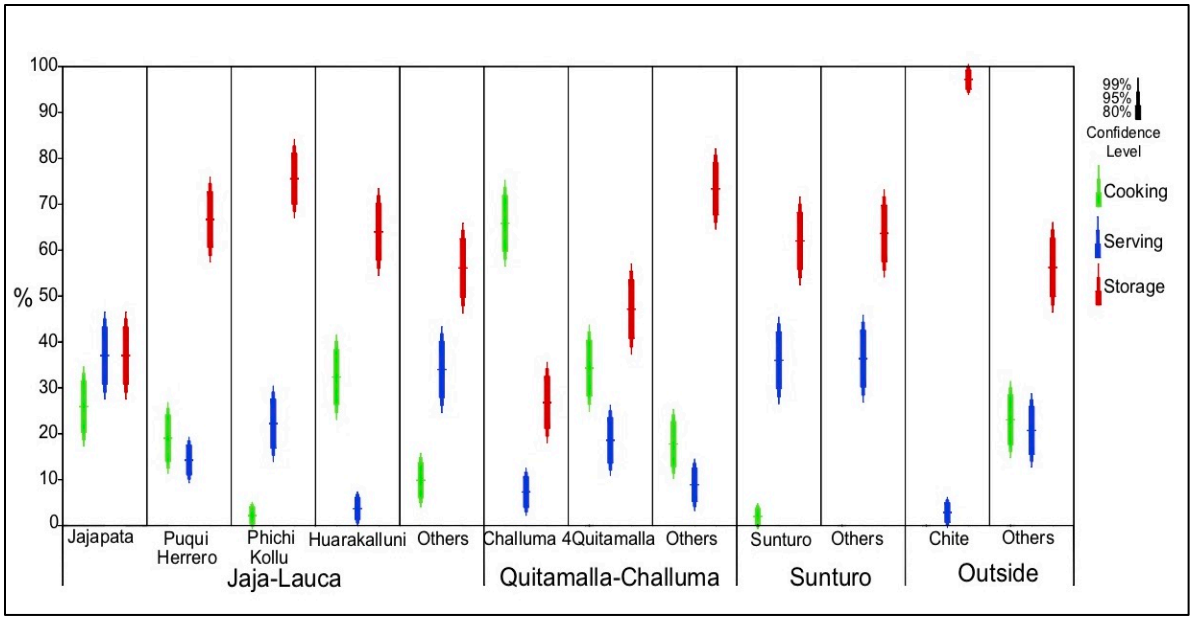


Figure 5.59. Proportions of use of vessels by settlements, within supralocal community.

Relative proportions of vessel forms do not suggest that serving/feasting activities were more common at potential *marka* sites generally. Jajapata has a significantly higher proportion of serving vessels than the other large sites, but not than the Other occupations (smaller sites) in the Jaja-Lauca supralocal community (Figure 5.59). Quitamalla has a higher proportion of serving vessels, indicating more serving activities there than at other sites. The proportions are the same for Sunturo and other smaller sites in its vicinity.

5.4.4 Distribution of Inka style architecture

There are few Inka style buildings in the Yaretani Basin. Unlike in other provincial areas in the Inka Empire, no *kallanka* like structures were found during survey. *Chullpa*-like towers were found at a number of sites: Jajapata, Pukara, Huarakalluni. At the two former sites, the towers contained no human remains, but were surrounded by slab tombs, possibly dating to the LIP.

Therefore, the dating of these towers is not secure to the LP. As Huarakalluni was established in the LH, the dating of that tower is secure. Overall, the paucity of Inka infrastructure indicates indirect rule over the Yaretani Basin. That Inka style material is not concentrated at the most likely dominant site of Phichi Kollu would suggest that leadership there was not closely connected to the Inka state, nor was it controlling interaction with the Inka polity.

5.4.5 Storage differences

Specialized storage structures were found at some of the potential LP *marka* sites, but it was not always possible to separate LH from LIP structures at multicomponent sites such as Phichi Kollu. Overall, storage capability declined in the LH, whether using the house:storage ratio or comparing site size with number of storage structures. The exception is the problematically dated 41 storage units at Phichi Kollu which likely continued in use in the LH. The reduced density index at the site (down from 6.7 to 3.5) suggests a much reduced population in the LH. Leaving that site aside, there is no potential *marka* that could be argued to have disproportionate storage capability or be interpreted as an Inka *colca* center.

5.4.6 Comparing LP supralocal communities

Compared to one another in terms of ceramic assemblage, the most significant difference among the supralocal communities is the higher proportion of Inka style pottery for Jaja Lauca (Figure 5.60). As discussed above, this high proportion rests not on differential use of this pottery at individual potential *marka* sites, but rather greater access to all residents of the supralocal

community. This supralocal community was differentially connected to Inka exchange networks or had a stronger preference for Inka style vessels.

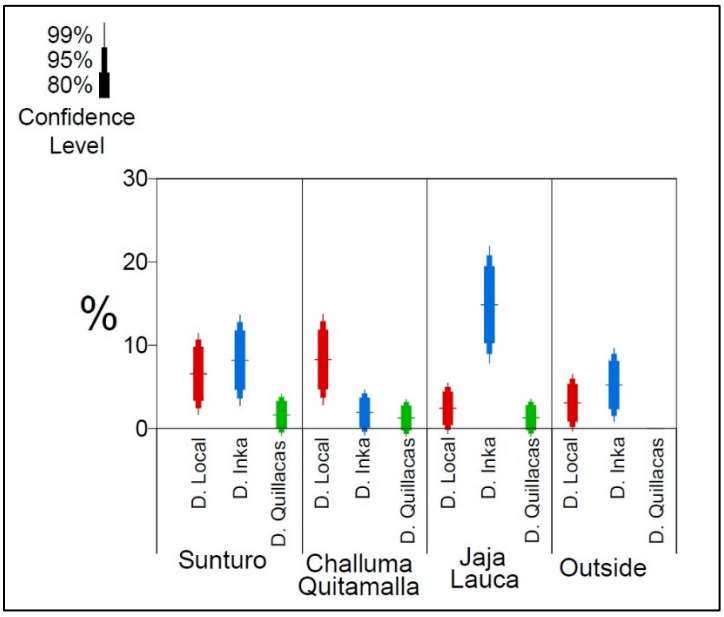


Figure 5.60. Proportions of decorative styles by supralocal community.

There is no reason to suppose that the Jaja Lauca supralocal community was dominant in the Yaretani Basin, or somehow administratively or politically "over" the Quitamalla Challuma or Sunturo supralocal communities. Nonetheless, if we rank the three supralocal communities in order of population (averages 315, 174, 100), they once again fall very close to a log normal distribution implying that the communities of the Basin were in some way integrated into a system.

5.4.7 Distribution of ritual

Notably, there are no plaza spaces in the LH potential *marka* sites (nor anywhere else) save for the possible continued use of the one at Jajapata. All sites founded in the LH lack plazas. Also absent from the LH are the public mortuary facilities such as the tomb

bordered plazas and community tomb mound features. The disappearance of these represents a marked household and communal shift in social interaction, ancestor veneration, and public ceremony.

5.4.8 LH summary

Other than size, there is little that differentiates the potential LH *marka* sites from other occupation. The elements that distinguished the largest LIP sites as potential central places are gone in the LH. There is little evidence for differential involvement in serving activities on the part of the residents. There is little evidence for disparities in staple storage capability. The LH sites lack plazas and public funerary features. Their disappearance suggests a cessation of one of the forms of interaction that potentially helped to integrate supralocal communities internally in the LIP. Nothing in LH settlement materially suggests a *marka* like settlement; that is, a regional center differentially involved in ceremonial activity.

With the information from the LH, it is possible to reject (at least for the Yaretani Basin) the theory that señorío organization emerged only in the late prehispanic, as a reaction to, or creation of, Inka imperial rule.

6.0 ECONOMIC DIFFERENCES AT THE SETTLEMENT LEVEL

6.1 Middle Horizon Period Intra-Site Differences

As has been seen, analysis of the surface collections at the regional level did not reveal any evidence for a wealthy or elite stratum living at any of the potential *marka* sites. In this chapter, I will therefore compare surface collections at the intrasite level to determine if we can identify elite households or groups of households in the form of residential loci with disproportionate amounts of wealth or ceremonial items.

Instead of intrasite analysis of each of the potential *marka* sites from each period, I have selected one site from each supralocal community of each period offering the best set of collections for this analysis. Collections carried out with in these sites were made by household group. A household group was identified as corresponding to two or three houses, storage units, and a shared patio. Where standing architecture was visible, as true for many of the sites, we could thus collect within household units with the unit's walls serving as the spatial boundaries of the collection. Collections were usually made in these shared patios, a locus spatially associated with adjoining residences and also one where domestic debris from indoor and outdoor activities were likely to be represented. In this sense, most of the collection units that are depicted in the figures below correspond to household units. In the case of collection units that are considerably bigger in size than the rest of the units within settlements, it is more likely that the collections correspond to a group of households, rather than to a single household unit.

As explained in the methodology chapter, collection lots usually had a minimum of 40 sherds which was the minimum stablished in order to have error ranges no bigger than ±10% at an

80% confidence level. Some collection lots ended up having less fragments when classified by period. Thus, units with less than 35 fragments (corresponding to the same period) have larger error ranges than units with more fragments. Associated plaza and burial locations were also noted in order to record their spatial relationship with particular households or residential zones.

In order to identify possible elite households within the settlements I use a GIS (Geographical Informational System) program (ARCGIS). This program is useful in visually displaying the spatial patterns in proportional access to different kinds of wealth indicators. The method used to classify the proportions into groups and to display them was the Natural Breaks (Jenks). In order to asset the significance degree of the differential proportions between units I have calculated error ranges based on these proportions. I have worked mainly comparing the two units with higher proportions im each case, in order to determine if there were significant differences between them or if these differences were just due to the vagaries of sampling (in which case error ranges would overlap with each other).

6.1.1 Chita

The Chita settlement is located at the Talchi supra local community and exhibits significant standing architecture (Figure 6.1).

Figure 6.1. Residential units at the Chita settlement.

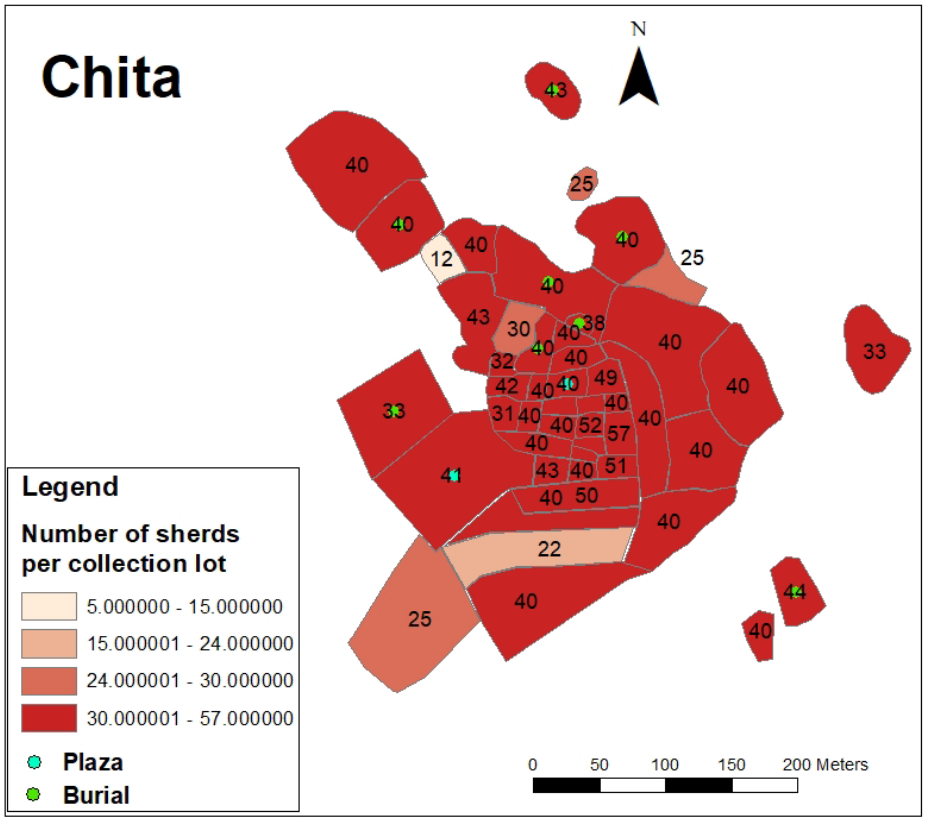


Figure 6.2. Distribution of collection lot with total number of sherds at the Chita settlement.

Most of the collection lots at the Chita settlement have more than 35 sherds, and most of them correspond to households (Figure 6.2).

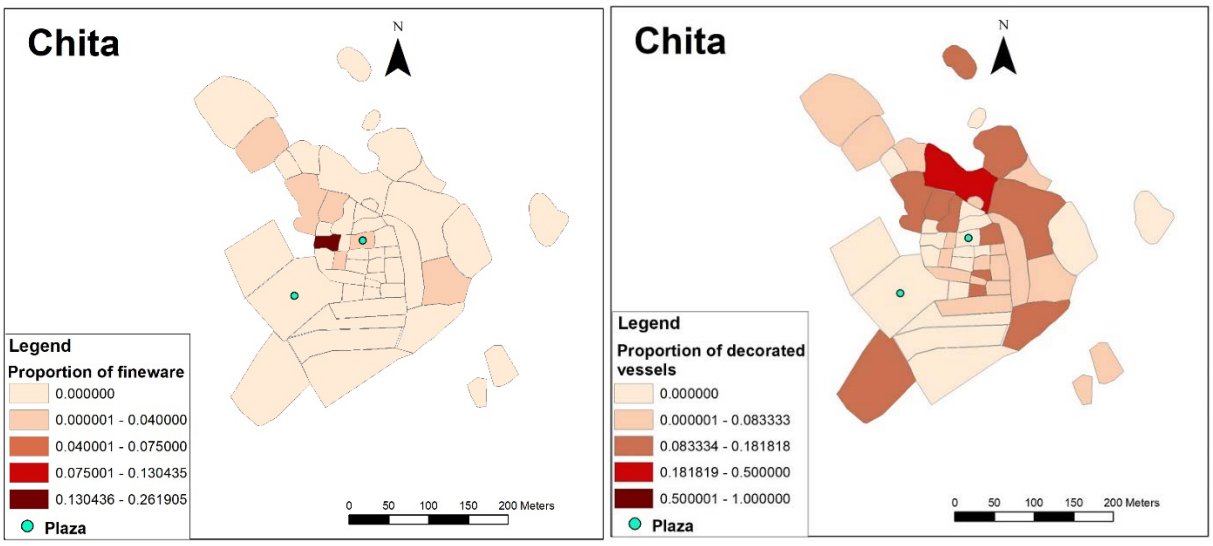


Figure 6.3. Distribution of proportions of fineware and decorated vessels at the Chita settlement.

In the case of fineware, one of the main proxies for wealth, we do not see widespread variability across the site. However, one domestic space at the center of the site, near to the small central plaza yielded a significantly higher proportion of fineware (26.2% ± 8.8%) than any other collection from the site (Figure 6.3). Comparing this to the next highest proportion collection (from a household unit to the north) the differences between the proportions of these two units (26.2% ± 8.8% and 3.3% ± 4.8%, both at an 80% confidence level) is very significant. The rest of the units with fineware have proportions lower than 3.3 (with larger error ranges), so the differences are not very significant as well. Both units correspond to households, with evidence of residential architecture and storage units. Thus, we can say with confidence that there is one household with higher consumption of fineware than the others.

Another wealth indicator is proportion of decorated pottery. People living in the western section of the settlement had lower proportions of decorated pottery than other residents (Figure 6.3). Most of these collection units had 40 fragments. The differences in proportions between the two units with highest percentages of decorated pottery is not significant (25% ± 9% and 17.1% ± 8%, at an 80% confidence level). Another 10 units also present no significant differences in the proportions of decorated pottery with the unit with the highest proportions (proportions range between 16.6% ± 9% and 10.1% ± 6.2%, at an 80% confidence level). Thus, households to the north of the settlement seem to have more consumption of decorated pottery, but we cannot clearly distinguish potential elite household units. More importantly, the lack of congruence between the proportion of fineware and of decorated pottery, does not allow for identifying a disproportionally wealthy household or set of households.

As noted elsewhere, in surface collection within sites one collection of materials was made inside plazas, and another collection was made outside of plazas, in order to have an idea of what was happening in the space closely related to the plazas. In this settlement, the central plaza is raised by a low platform and surrounded with some taller walls. Storage units (3) were located to the side of this central plaza.

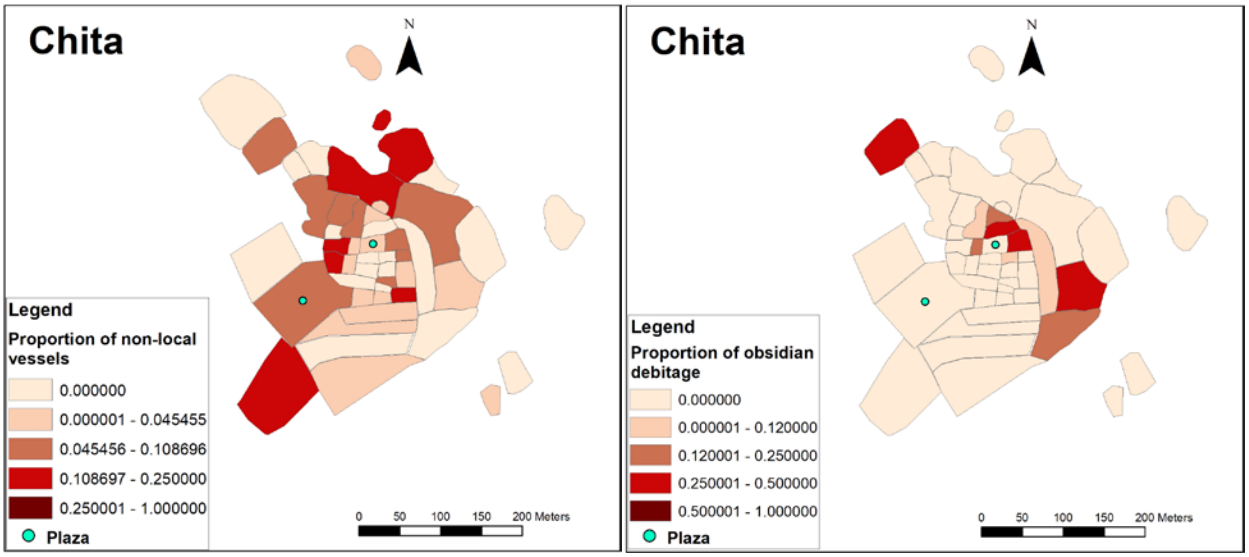


Figure 6.4. Distribution of proportions of non-local vessels and obsidian debitage at the Chita settlement.

In the case of non-local pottery, higher percentages could be found toward the northwest of the settlement, each of these units yielding more than 25 fragments per collection (Figure 6.4). The small unit further north has the highest proportions (23% ± 9.3%, at an 80% confidence level), followed by one located to the south (20% ± 8.2%, at an 80% confidence level). The differences between the two units is of low significance (error ranges are wide enough to include each other proportions). The next seven units also present wide error ranges that overlap with the unit with higher proportions. The rest of the units do not show significant differences in the proportions of non-local pottery. Overall, the variability of non-local pottery does not indicate marked household level differences in access to this pottery. Most households used some proportion of non-local vessels. Collection lots with higher proportions of non-local obsidian debitage are located at the middle of the settlement and to the East (Figure 6.4). The unit with higher proportions only has 2 lithics (50% ± 80.3%, at an 80% confidence level correspond to obsidian), and the one which follows has 13 lithics (30.7% ± 17.4%, at an 80% confidence level correspond to obsidan). Again, the differences between the proportions of these two units is of low significance (the error ranges

are wide enough to include each other percentage).The same with the rest of units. Only 10 collections give evidence of access to obsidian of which only nine correspond to household units. Each of these nine households had more or less similar access to obsidian.

The lack of overlap in the loci of highest proportions of non-local pottery and non-local obsidian argues against a stratum of elite households differentially involved in external exchange.

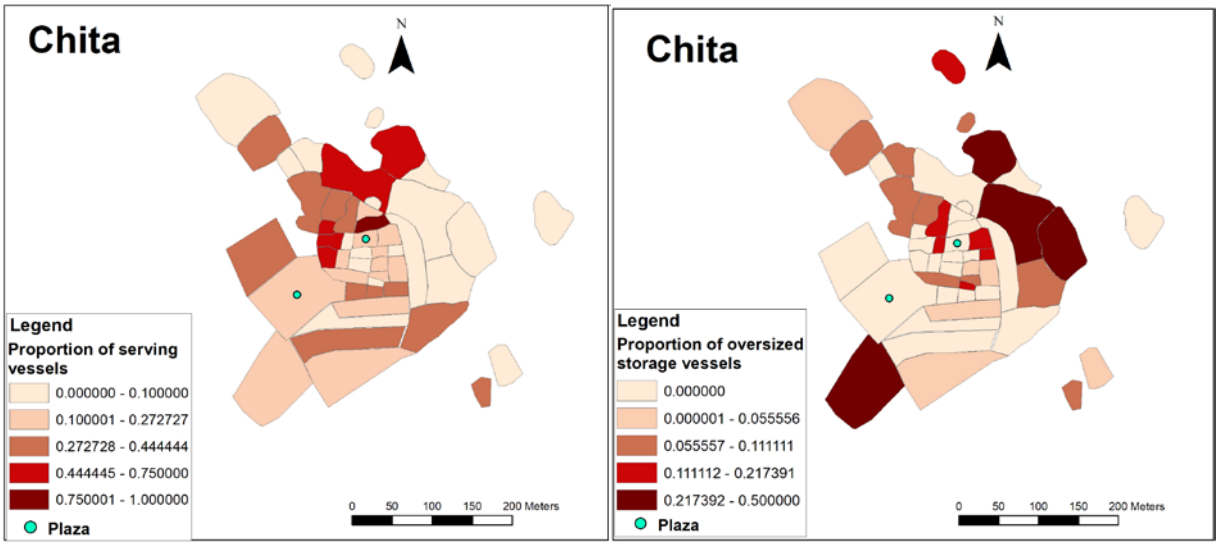


Figure 6.5. Distribution of proportions of serving and oversized vessels at the Chita settlement.

The household which has the highest proportions of serving vessels is also the one located closer to the central plaza (compare Figure 6.3 and Figure 6.5). The difference in the proportions of serving vessels between these two units is significant (80% ± 8.2% and 58.2% ± 10.1%, at an 80% confidence level) the error ranges basically do not overlap. The household with higher proportions of serving vessels, was possibly involved in serving activities during gatherings which could have taken place at the plaza next to the unit. This unit also has relatively higher proportions of obsidian debitage although not the highest of the nine units. The rest of the households present proportions that decrease from 58.2% through 10.4%, with error ranges that overlap each other.

Thus we cannot say that there were some households which consumed higher proportions of serving vessels, but one. On the other hand, units with higher proportions of oversized storage vessels are located on the edges of the settlement (Figure 6.5). All of these but the one to the southwest, have 40 fragments. Although there is some difference between the two units with higher proportions, this is not very significant with error ranges that overlap each other (12.2% ± 6.7% and 11.7% ± 6.6%, at an 80% confidence level). The rest of the units also present error ranges that overlap.

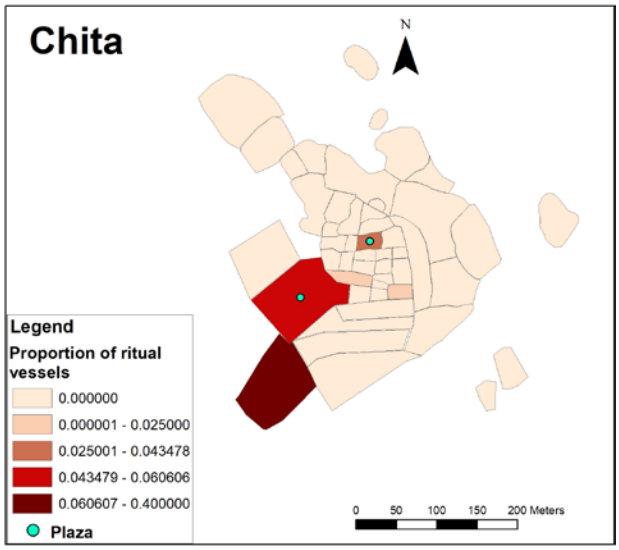


Figure 6.6. Distribution of proportions of ritual vessels at the Chita settlement

The collection unit with higher proportions of ritual vessels (40%) has a total of 25 fragments corresponding to the Middle Horizon, and it is located in the southwest section of the settlement (Figure 6.6). The unit which follows with high proportions (4.9%) of ritual vessels has a total of 40 fragments, but the proportions are much lower. The difference between the proportions of this two units in terms of ritual vessels is highly significant (40.1% ± 12.9% and 4.9% ± 4.4%, at an 80% of confidence level, and 40.1% ± 20.2% and 4.9% ± 6.9, at a 95% confidence level).

Therefore, the southwestern collection unit stands out for proportion of ritual vessel fragments. This unit is not in a residential unit, but a space holding platforms. It is possible that this space saw proportionally more ritual activity either in this space, or in the adjoining large plaza.

In summary, none of the categories of materials we looked at were sharply restricted in distribution within the community. The most restricted distribution is of obsidian, and these nine domestic units cluster in the eastern section of the site; a zone which does not provide evidence for proportionally greater consumption of other high value materials.

There is significant variability in consumption of ritual vessels, fineware, and serving vessels, suggestive of real differences in wealth and activities among the site residents. There is some evidence for differential access to exchange items. It would be tempting to identify the small household unit west of the central plaza as most likely to represent a higher wealth household based on its high proportions of fineware, non-local pottery, serving vessels and on its proximity to the plaza. Yet this household unit collection contained no decorated pottery and no obsidian.

6.1.2 Cajajalsuri

The Cajajalsuri settlement is located in the Caja supra local community. The majority of houses are located on a flat area atop a small hill (Figure 6.7). The slope of the hill is covered by platforms there are some tombs to the west of the residential occupation. There is a plaza, outside of the residential zone, roughly 90 m to the southwest.

Figure 6.7. A view of houses at the Cajajalsuri settlement.

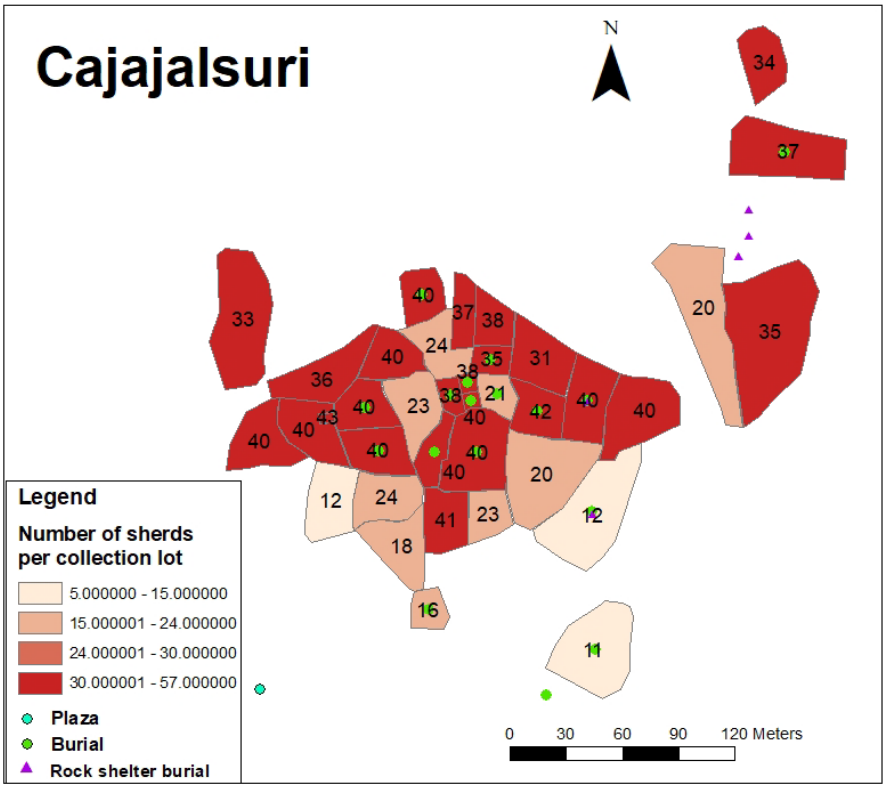


Figure 6.8. Distribution of collection lot with total number of sherds at the Cajajalsuri settlement

In this case also most of the collection units have more than 35 sherds (Figure 6.8).

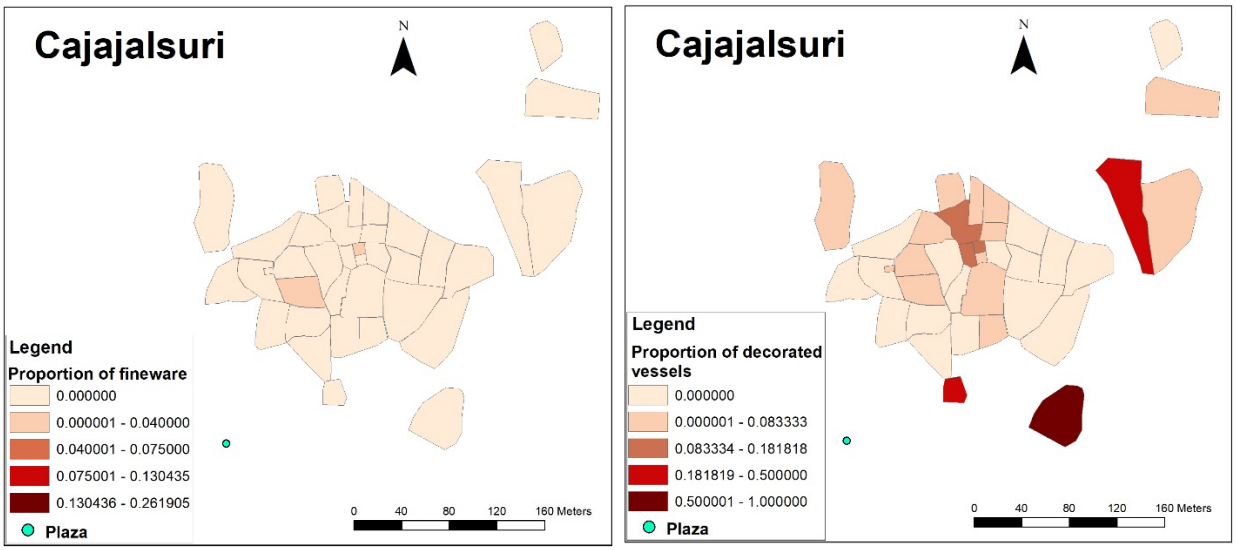


Figure 6.9. Distribution of proportions of fineware and decorated vessels at the Cajajalsuri settlement

Only two units yielded fineware and both of these are also located close to the center of the settlement (Figure 6.9). However, there is no significant statistical difference among the proportions of this material between the two units (2.6% ± 3.3% and 2.5% ± 3.2%, at an 80% confidence level). Nor is there a significative difference between these units and the units with no fineware (since error ranges include 0).

Higher proportions of decorated vessels are located closer to burial areas, to the south and east of the settlement (Figure 6.8 and 6.9). The two units with high proportions of decorated pottery have 11 and 16 fragments. The differences in proportions is mostly a consequence of the vagaries of sampling more than to real differences in access to decorated pottery (72.72% ± 18.4% and 50.1% ± 16.8%, at 80% confidence level).

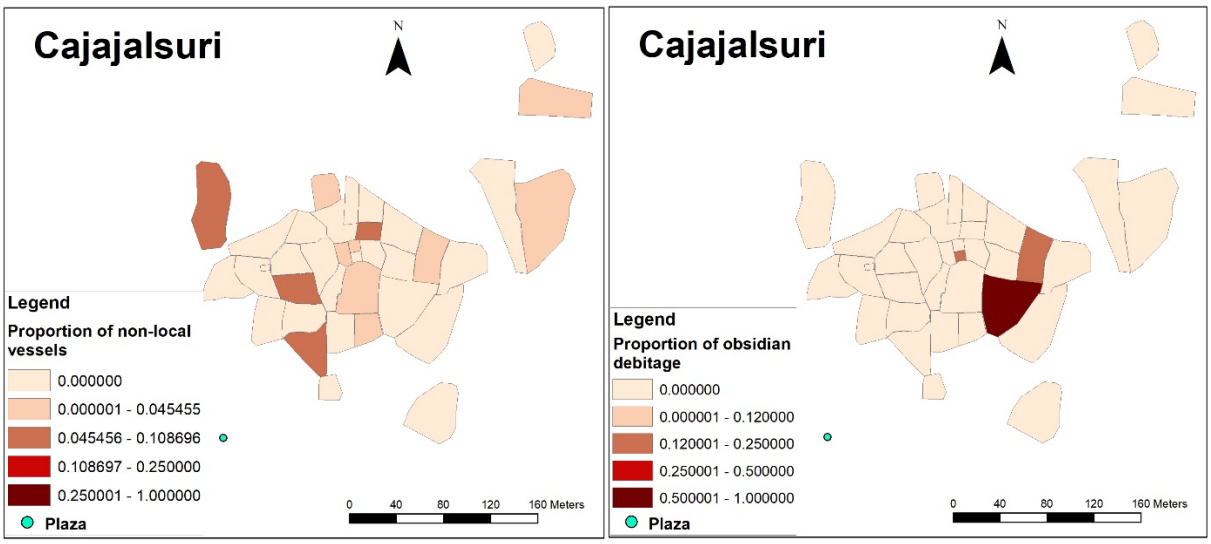


Figure 6.10. Distribution of proportions of non-local vessels and obsidian debitage at the Cajajalsuri settlement

Units with higher proportions of non-local vessels are located to the west of the settlement and also close to the center (Figure 6.10). The differences between the two units with higher proportions is not significant (6.1% ± 5.4% and 5.7% ± 5.2%, at an 80% of confidence level). Nor can we be confident that the differences among units with non-local pottery and those without are beyond the vagaries of sampling (the error ranges are very wide and include 0).

In contrast, the distribution of obsidian is highly restricted, occurring in only three collections. One of these collections also contained some of the site's only fineware fragments. The unit with the highest proportion of obsidian debitage is located in the east section (Figure 6.10). There is a strong difference between the proportion of obsidian among the two units with high proportions, and the difference is significant (83.3% ± 31.7% and 16.6% ± 22.5%, at an 80% confidence level). We can say that this one collection shows proportionally more obsidian than others from this settlement. The lack of congruence between the distribution of non-local (regional and long-distance) pottery and non-local obsidian indicates that this household was not

differentially involved in external ties generally, and suggests, not surprisingly, very different mechanisms for the distribution of pottery and stone tool material.

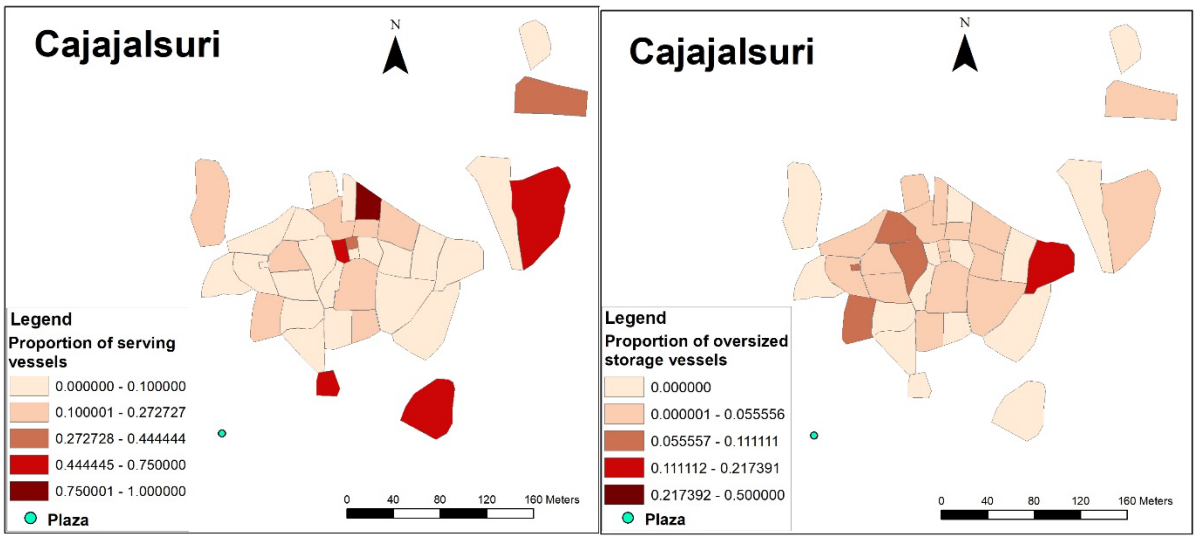


Figure 6.11. Distribution of proportions of serving vessels and oversized vessels at the Cajajalsuri settlement

The units with higher proportions of serving (Figure 6.11) do not show higher proportions of fineware or imported materials. Although there is some difference between the proportions of these two units, this is of little significance (84.2% ± 7.7% and 71.7% ± 18.6%, at an 80% confidence level). Thus, there is no evidence for any single household conserving more serving vessels at this settlement. The unit with a high proportion of oversized storage vessels is located at the east of the settlement, and the one to follow in proportion is located to the northwest (Figure 6.11). The difference in the proportions of these two units is not significant (12.5% ± 6.8% and 10% ± 6.2%, at an 80% of confidence level); we can say that the differences are just the result of the vagaries of sampling. There is no household having more access to oversized storage vessels.

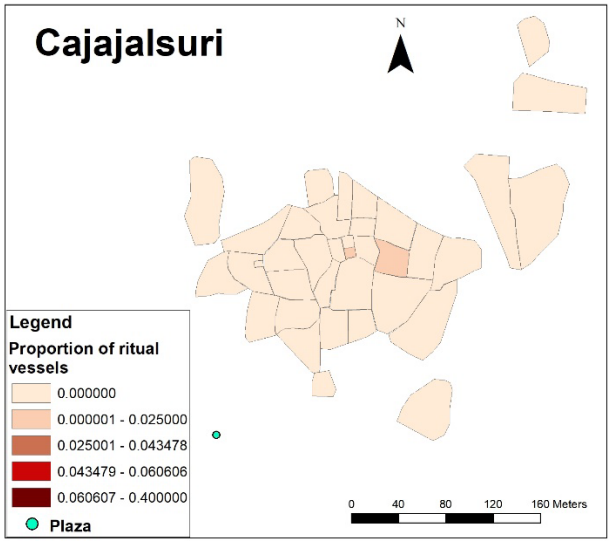


Figure 6.12. Distribution of proportions of ritual vessels at the Cajajalsuri settlement

The only two units yielding ritual materials were in the center of the settlement (Figure 6.12, and both of this units have more than 35 sherds (Figure 6.12). The proportions of ritual material at these two units is 2.5% ± 3.2% and 2.4% ± 3.1%, at an 80% of confidence level; both error ranges fall close to 0, thus the differences are not significant between these units and units with no ritual materials. In sum, there is no evidence for differential involvement in ritual activity.

In summary, it is a challenge to identify wealthy elites at this settlement. Even though, some households had more access to others than fineware and decorated vessels, these differences are not strong. There is some overlap between units with higher proportions of decorated vessels, non-local vessels, and serving vessels.

6.1.3 Jankoma

The Jankoma settlement is located in the Jaja supra local community and is one of the smallest potential *marka* sites in the Yaretani Basin (Figure 6.13). All the units at the Jankoma

settlement correspond to household units delineated by extent architecture. The plaza is of oval form outlined by a line of rocks, and built over a platform (9x10m). There were no domestic structures in the plaza collection unit. There were no graves within this site, or close to the settlement.

Figure 6.13. Residential unit at the Jankoma settlement.

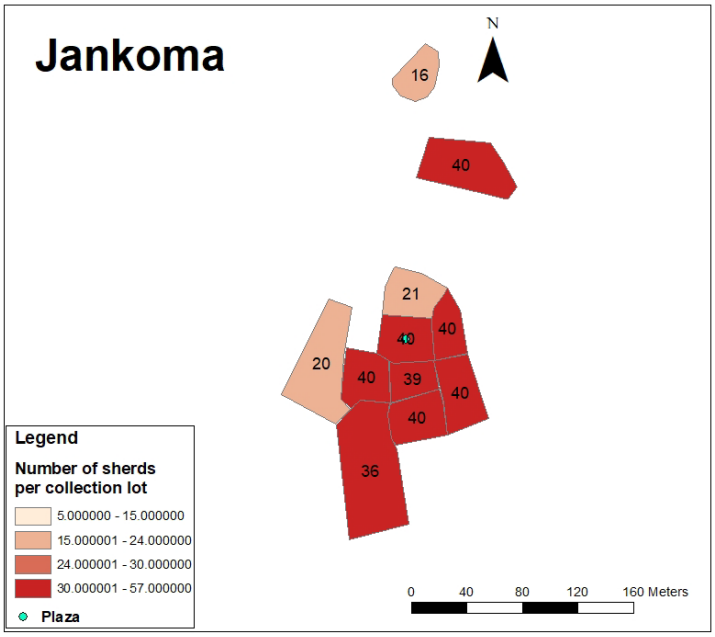


Figure 6.14. Distribution of collection lot with total number of sherds at the Jankoma settlement

Most of the units at this settlement yielded more than 35 fragments (Figure 6.14).

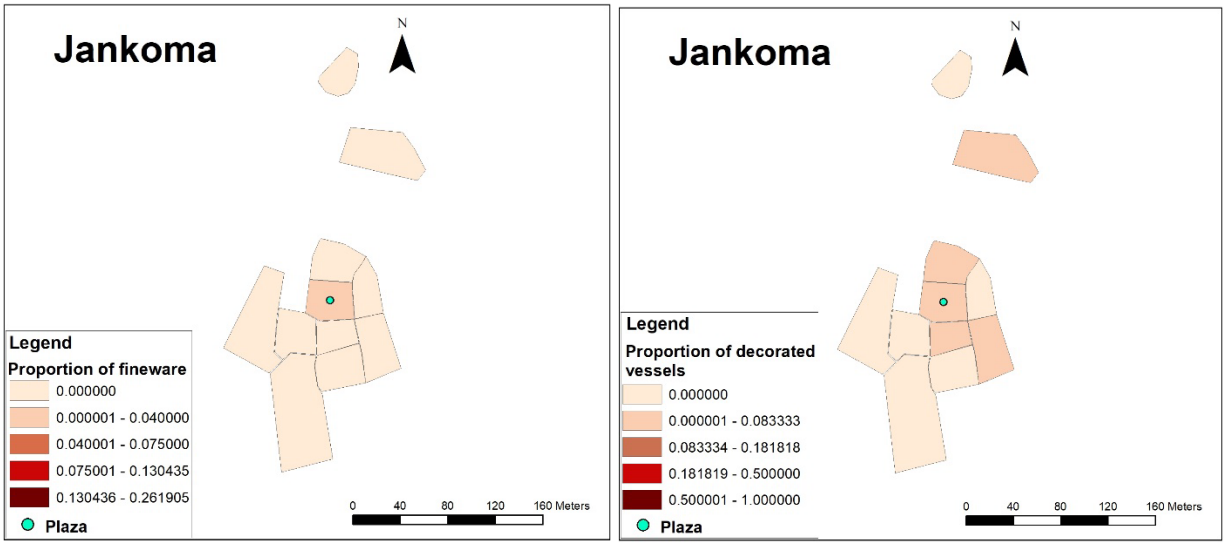


Figure 6.15. Distribution of proportions of fineware and decorated vessels at the Jankoma settlement.

Fineware was only found in only collection, a space containing the plaza (Figure 6.15). The proportion of fineware at this unit is not very high and the error range is larger than the proportion itself (2.5% ± 3.2%, at an 80% confidence level), that the difference from units without fineware is the result from the vagaries of sampling. Higher proportions of decorated vessels are present at least in two households to the north of the plaza with more than 40 fragments within each collection (Figure 6.18). The differences between the two units of higher proportion is of little significance (4.8% ± 6.2% and 2.5% ± 3.3%, at an 80% of confidence level), we can also say that no residential locus stood out for its consumption of decorated pottery, and that differences are just the result of the vagaries of sampling.

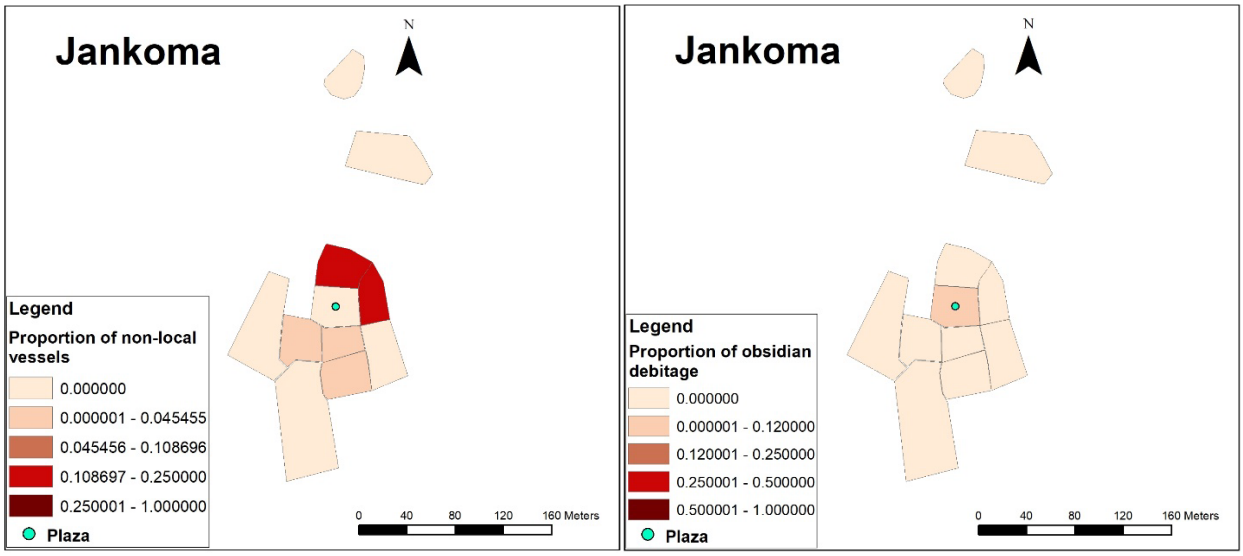


Figure 6.16. Distribution of proportions of non-local vessels and obsidian debitage at the Jankoma settlement.

The highest proportions of non-local vessels come from two collections north of the plaza (Figure 6.15). Although there is some difference in the proportions between this unit and the one that follows, this is of little significance (14.3% ± 10.1% and 2.6% ± 3.3%, at an 80% confidence level). There was very little obsidian represented at the site, only the plaza unit yielded any

obsidian debitage (Figure 6.15). The total number of lithics in this collection was 29, and the proportion is 3.5% ± 4.5%, at an 80% confidence level. Once again, we cannot be sure that this higher proportions are not just the result of the vagaries of sampling. None of the units with higher proportions of non-local material exhibit significantly higher proportions of other high value items (fineware, decorated pottery).

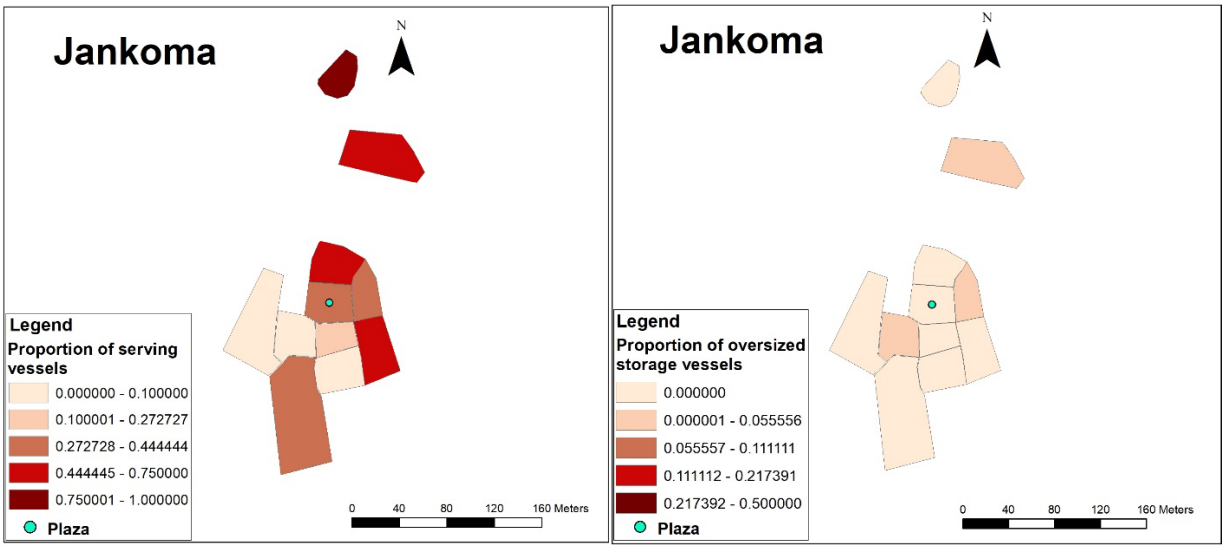


Figure 6.17. Distribution of proportions of serving and oversized storage vessels at the Jankoma settlement.

Higher proportions of serving vessels from collections in the north and east parts of the settlement (Figure 6.17). Even though, we can say that there is some difference between the proportions of the two units with higher proportions, this difference is not significant (75.1% ± 13.9% and 60.3% ± 10.1%, at an 80 % of confidence level). Only three collections contained fragments of oversized storage vessels (Figure 6.17). The difference between the two units with higher proportions is not significant (5.1% ± 4.5% and 2.5% ± 3.2, at an 80% of confidence level). We cannot be confidence that any particular households show greater use of oversized storage vessels.

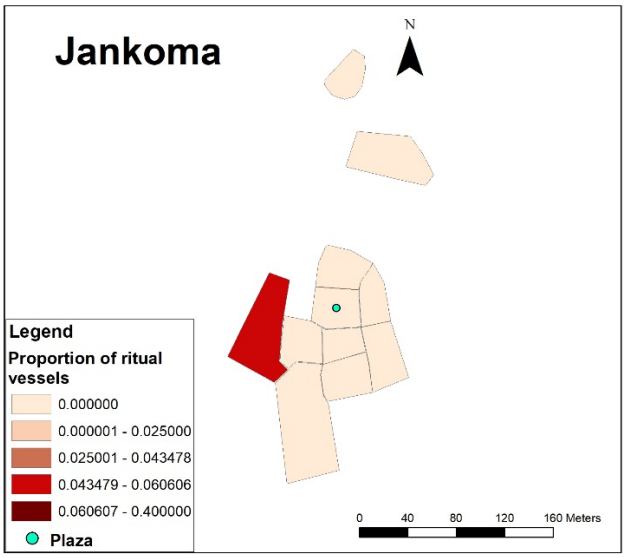


Figure 6.18. Distribution of proportions of ritual vessels at the Jankoma settlement

Only one collection yielded ritual vessel fragments (Figure 6.18). This collection only contained 20 total fragments from this period, and the proportion of ritual fragments in comparison with the rest of the units is not very significant (5% ± 6.2%, at an 80% confidence level); thus the difference could well be just the vagaries of sampling.

In summary, there is not much intrasite variability in terms of high value items, and where such variability does exist, it does not pattern to indicate that any particular household or set of households had privileged access to high status goods.

6.1.4 Puqui

The Puqui settlement, located in the Lauca supra local community, is heavily multicomponent, thus many collections did not produce more than 35 shreds from the Middle Horizon Period (Figure 6.19). The Puqui settlement has a well-preserved plaza in the northern

sector of the settlement. This plaza is oval (6x8 m) and delimited by a single row of large stones, slightly dressed on the inside (Figure 6.20). At this site, only the eastern sector had visible remains of houses, storage units, and tombs.

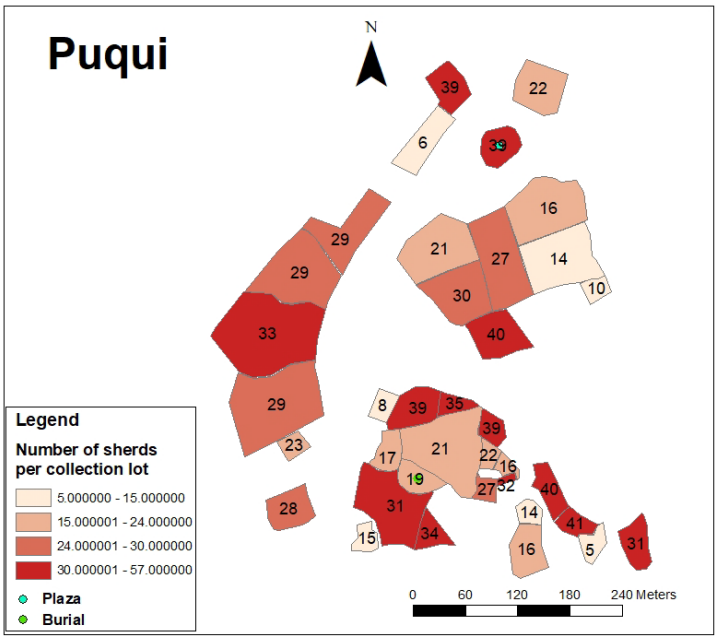


Figure 6.19. Distribution of collection lot with total number of sherds at the Puqui settlement.

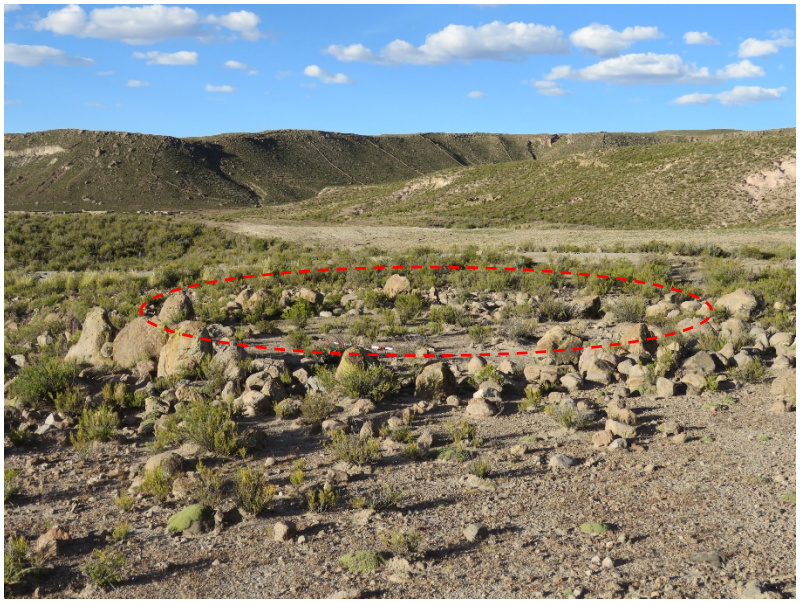


Figure 6.20. Oval shaped plaza at the Puqui settlement.

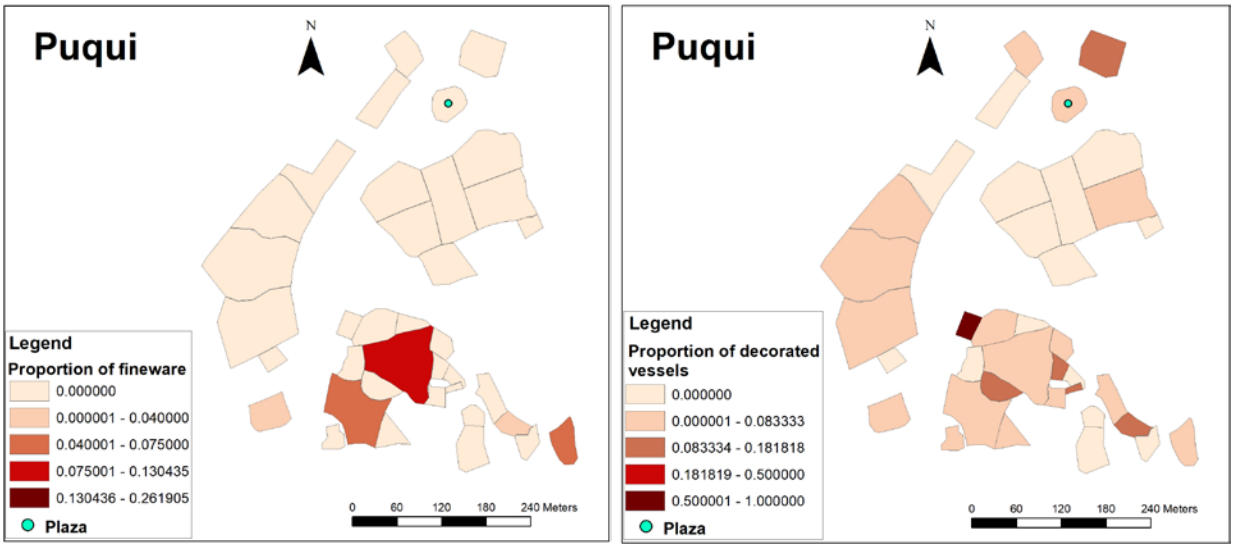


Figure 6.21. Distribution of proportions of fineware and decorated vessels at the Puqui settlement

The units with high proportions of fineware are located in the southeast sector of the settlement (Figure 6.21). The difference between the two units with highest proportions of fineware in not significant (9.5% ± 8.5% and 6.5% ± 5.7%, at an 80% confidence level). The error ranges of the units that follow in percentages also have wide error ranges, some of them larger that the percentage itself. However, this sector also yielded the highest proportions of decorated vessels (Figure 6.21). The difference in proportion between the two units (corresponding to households) with the highest percentage is significant (87.5% ± 15% and 18.2% ± 10.9%, at an 80% confidence level). The rest of the units have similar proportions of decorated pottery as the second unit. Thus, we might identify this area of the site as one with relatively wealthier households, consuming more decorated pottery.

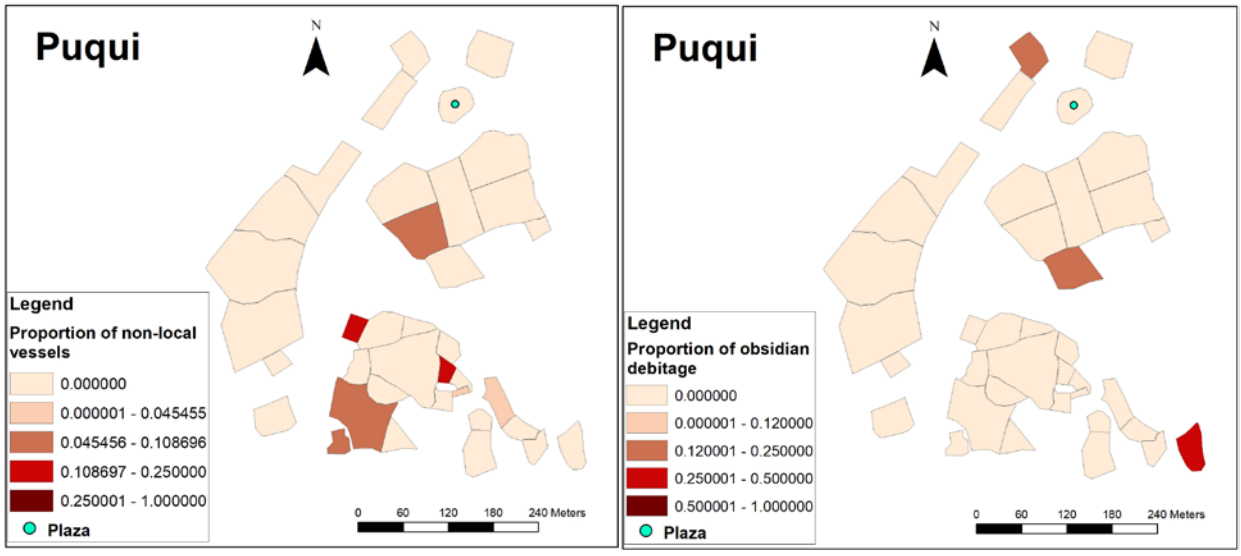


Figure 6.22. Distribution of proportions of non local vessels and obsidian debitage at Puqui settlement

The two units with larger proportions of non-local vessels are small in size and each produced less than 22 total sherds. Both are located in the southeastern sector (Figure 6.22). The differences in proportion of these two units are not significant (25% ± 15.7% and 18.2% ± 10.9%, at an 80% of confidence level), but the differences are significant when compared to the collections with no non local pottery. This pattern also points to the residents of the southeastern sector has consuming more high value pottery. The unit with the most obsidian debitage produced a very small sample, only one piece, and thus it won't be considered. The next two units with higher proportions have a difference from one another that is not significant (50% ± 41.1% and 16.7% ± 11.8%, at an 80% confidence level). Again there is some difference with units that do not have any obsidian. This could also suggest some specialization in the production of obsidian tools.

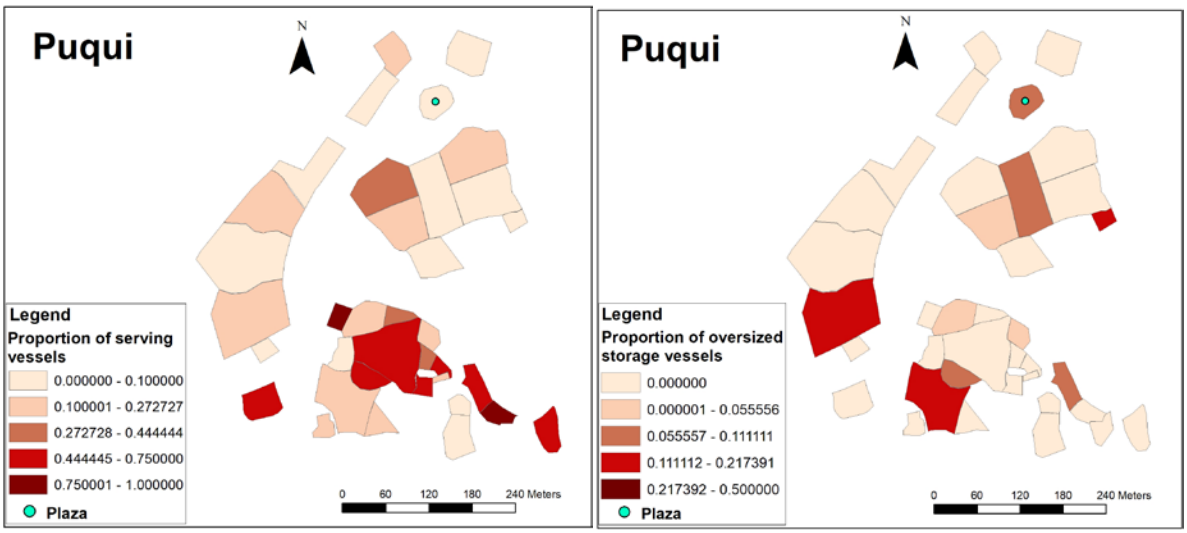


Figure 6.23. Distribution of proportions of serving and oversized storage vessels at Puqui settlement

High proportions of serving vessels come from the collections made in the southeast quadrant (Figure 6.23). The two units with high proportions of serving vessels correspond to residential units. These units do not show significant differences between the proportions of serving vessels between these two units (87.5% ± 15% and 78% ± 8.4%, at an 80% confidence level), and we cannot say that the units with higher proportions differed in their consumption of serving ware. Units with high proportions of oversized storage vessels are located to the south of the settlement (Figure 6.23). Only the one further south has still standing residential units. The differences in proportions of these two units is not significative (20.6% ± 9.8% and 16.12% and 8.6%, at an 80% confidence level). Thus based on the differences in proportions, we cannot single out a household or domestic loci as consuming more storage vessels.

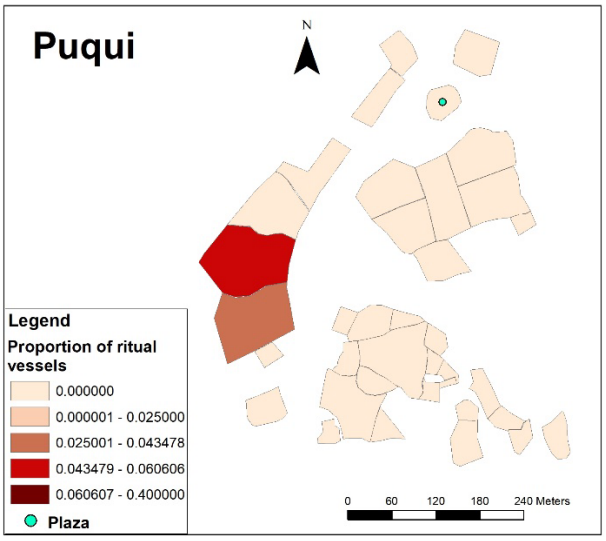


Figure 6.24. Distribution of proportions of ritual vessels at the Puqui settlement

Ritual vessels were present in only two collections (Figure 6.24). The one with the highest proportions has 33 fragments, and the other one has 29 fragments from the Middle Horizon (Figure 6.20). The differences between these units in proportions of ritual vessels are not significant (6.1% ± 5.4% and 3.4% ± 4.3%, at an 80% of confidence level). It is unlikely that this difference reflects anything but the vagaries of sampling.

In summary, the Puqui offers some evidence for an elite, or at least, relatively wealthy residential zone in the southeast quadrant. Here is where the collections produced the highest proportions of fineware, decorated, and non-local pottery. This area is also the one with the highest proportion of serving vessels, perhaps indicative of this sector's differential involvement in feasting activities. This sector is not near the plaza and its collections have low proportions of ritual vessels, suggesting the residents were not differentially involved in at least some ceremonial practices. And there is no evidence that they were dominating obsidian acquisition. As at other sites, the distribution of obsidian is more restricted than other high value materials. And, as at other sites, the distribution of obsidian does not overlap with that of the other high value materials.

The factors governing the distribution of obsidian (economically, socially, or even discard processes) are not the same as those governing the other high value items.

6.1.5 Cica Catuyo

The Cica Catuyo settlement is located within the Lauca supra local community. Prehispanic architecture here is not well preserved because of modern construction of corrals all over the settlement (Figure 6.25). Standing architecture is visible in only some areas of the settlement.

Figure 6.25. Panoramic view of the Cica Catuyo settlement

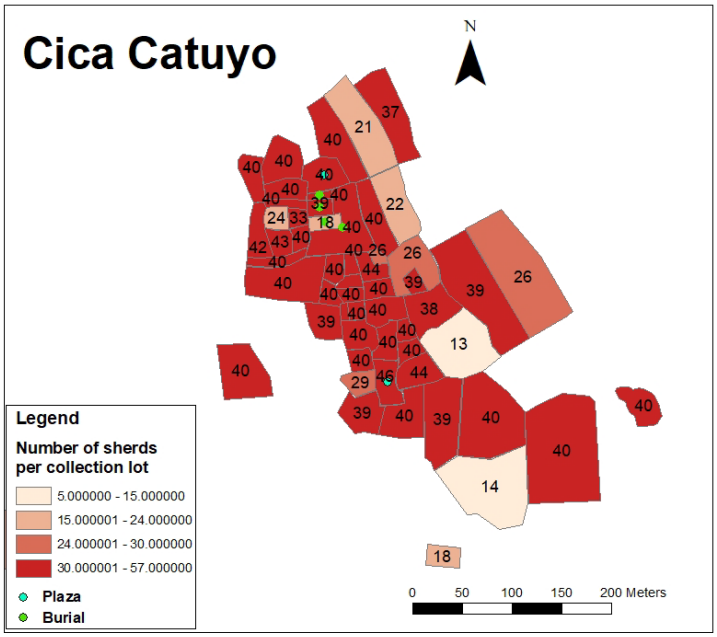


Figure 6.26. Distribution of collection lot with total number of sherds at the Cica Catuyo settlement

Most of the collection units at the Cica Catuyo settlement produced more than 35 sherds (Figure 6.26). This settlement is almost mono-component and most of its occupation dates to the Middle Horizon Period.

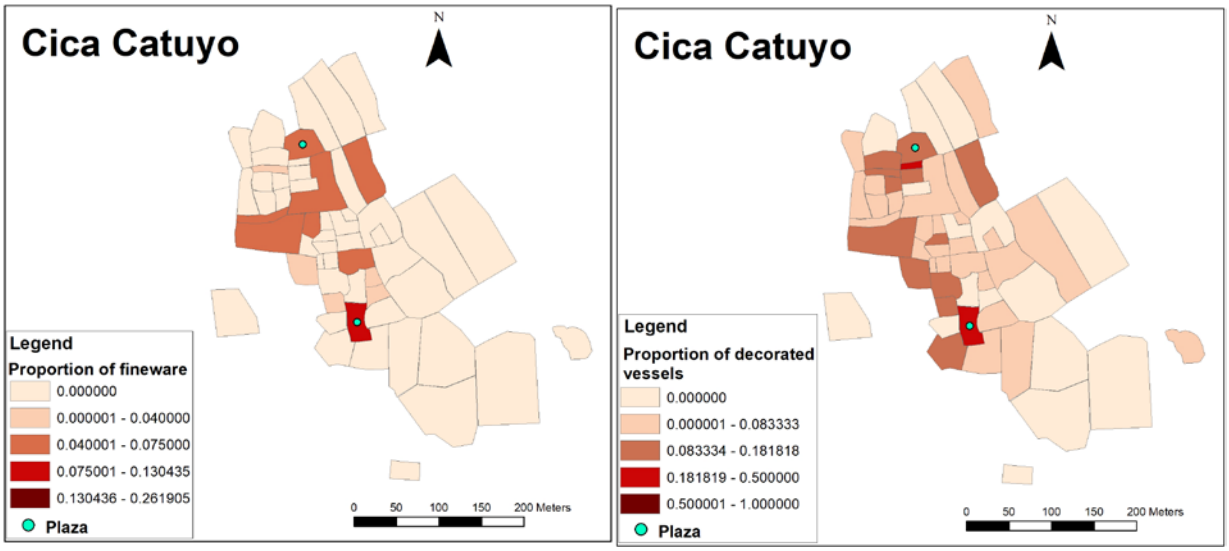


Figure 6.27. Distribution of proportions of fineware and decorated vessels at the Cica Catuyo settlement

The highest proportions of fineware are from a collection locus that included the southern plaza. The differences in the proportion this collection and the next highest ones to the north (including around the north plaza) is significant (22.1% ± 8% and 7.5% ± 5.4%, at an 80% of confidence level). The units that follow in proportions present error ranges that are similar to the number of the percentage. Thus, we can be confident there was one unit (household or set of households, with evidence of residential structures) differentially consuming more fineware. The distribution of decorated pottery is somewhat similar (Figure 6.27). The highest proportion of decorated pottery is from the collection locus that included the southern plaza. The difference between the proportions of the two units with the highest proportions is of little significance (42.5% ± 10.2% and 26.1% ± 8.4%, at an 80% of confidence level). Error ranges overlap each other. Overall, while many households had access to fineware and most households consumed decorated pottery, the southern plaza locus stood out in both categories.

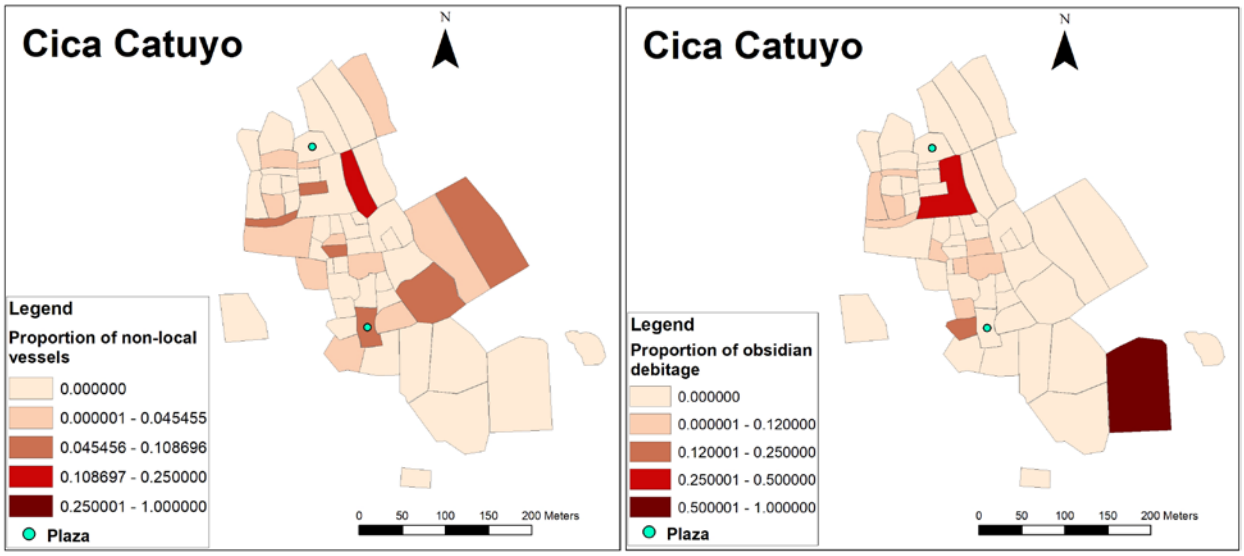


Figure 6.28. Distribution of proportions of non-local vessels and obsidian debitage at the Cica Catuyo settlement

The collections with higher proportions of non-local vessels are scattered throughout all but the southern section of the settlement (Figure 6.28). The differences in proportions among the two units with highest proportions is not significant (15% ± 7.4% and 11.2% ± 6.1%, at an 80% of confidence level). Although, not all households had access to this kind of pottery, the ones that did had similar access. The southern plaza unit is in this latter group.

Obsidian had a slightly less restricted but much more concentrated distribution than at other Middle Horizon potential *marka* sites (Figure 6.28). The locus with highest proportions (N=84) at the southeast margin of the site was in an area lacking extent residential architecture. It is possible that this area was a lithic dump. The units with next highest proportions have small samples (N=3 and N=4) and very therefore large error ranges (33% ± 51%, and 25% ± 50%, at an 80% confidence level) so we cannot say that they are really different from one another or the collections without lithics. Nonetheless, we can be confident that the southeastern collection is significantly different from any other collection at the site. Again, the lack of congruence between the distribution of non-local pottery and non-local suggest different processes at work in their relative distribution. There are no indications that any particular households were differentially tied into regional exchange networks as a whole.

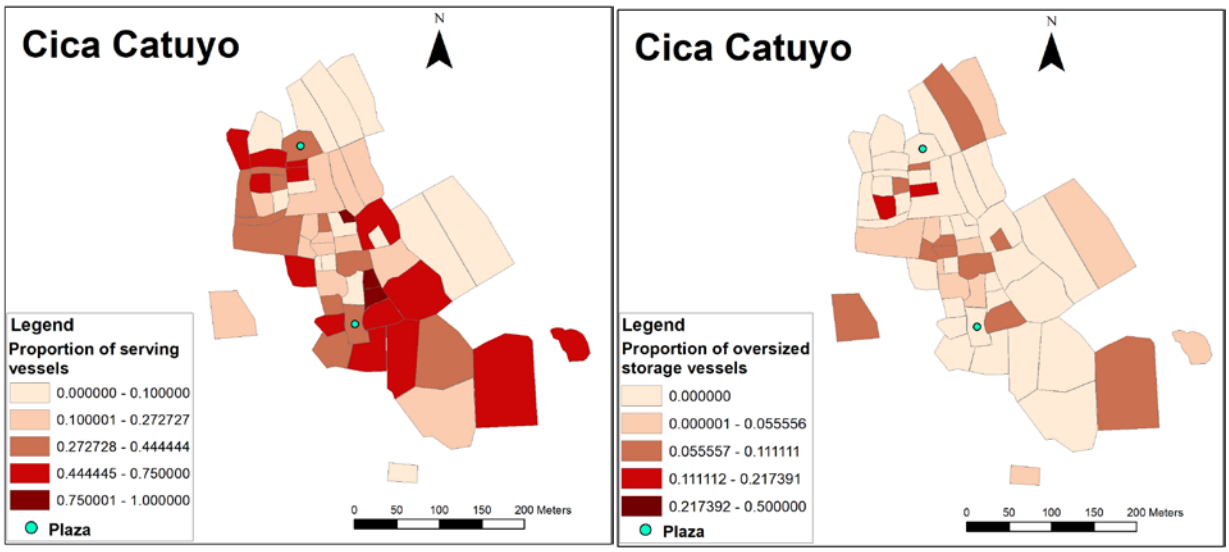


Figure 6.29. Distribution of proportions of serving and oversized storage vessels at the Cica Catuyo settlement

Most collections present relatively high proportions of serving vessels, particularly in the center and southeastern margin of the site (Figure 6.29). The difference in the proportions of the two units with higher number is not significant (77.15% ± 8.7% and 75.2% ± 16.3%, at an 80% confidence level). The rest of the households have decreasing percentages with similar error ranges. No single household dominated use of serving vessels. In terms of oversized vessels, collections of higher proportions are grouped in the northern section of the settlement (Figure 6.29). The difference between the proportions of oversized vessels among the first two units with higher proportions is not very significant (21.7% ± 8.2% and 12.5% ± 10.4%, at an 80% confidence level). Again, it is not very likely that any one household had more oversized storage vessels.

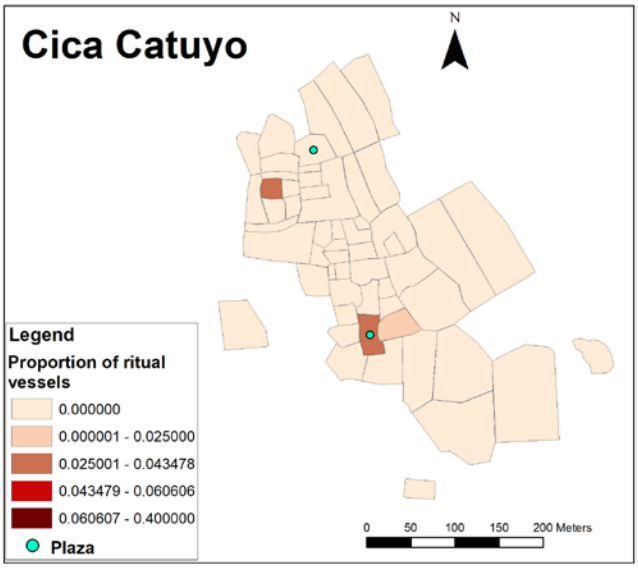


Figure 6.30. Distribution of proportions of decorated vessels at the Cica Catuyo settlement

At this settlement only the units with ritual vessels located to the south have 40 fragments corresponding to the Middle Horizon period (Figure 6.30). One unit is related to one of the plazas and the other is located close to it. The two units with higher proportions of ritual vessels show no significant difference (4.3% ± 3.9% and 4.2% ± 5.4%, at an 80% confidence level) between them. However, only one other unit has any ritual vessels, and we can conclude that the collections with the higher proportions show disproportionate representation of ritual vessel fragments.

In summary, this site presents credible evidence for a wealthy elite living adjacent to the southern plaza. In addition to the plaza itself, this unit contained three residential structures just to the north of it. The collection from this unit had the highest proportions of fineware and decorated pottery, and among the higher proportions in non-local pottery. The association with the plaza is suggestive, as is the fact that this unit had the collection highest in ritual vessel fragments. Together, these lines of evidence suggest a set of wealthy households differentially involved in ceremonial activity. In contrast, the southeastern section of the site provided

collections nearly devoid of high value pottery. This section could be described as one of lower wealth residents, yet it was in one collection from this section that nearly all the obsidian at the site was found.

6.2 Late Intermediate Period Intra-Site Differences

The Late Intermediate Period pottery inventory did not include the distinctive ritual forms (such as *keru*s or ceremonial cups and *challador*es) of the Middle Horizon Period. Ceremonial cups were used in the LIP and occur mainly in burial contexts, but their overall rarity precluded using them in this analysis. There were insufficient chronologically positive collection units with obsidian to allow for using obsidian in analysis.

6.2.1 Kalchipata

The Kalchipata settlement is located in the Kalchi supra local community. This settlement contains a central plaza and a collective slab tomb feature, with graves grouped in an artificial mound atop a platform (Figure 6.31). Three (looted) tombs are visible next to the quadrangular plaza. There was no extent domestic architecture seen in the plaza collection unit

Figure 6.31. Collective slab tombs and road at the Kalchipata settlement

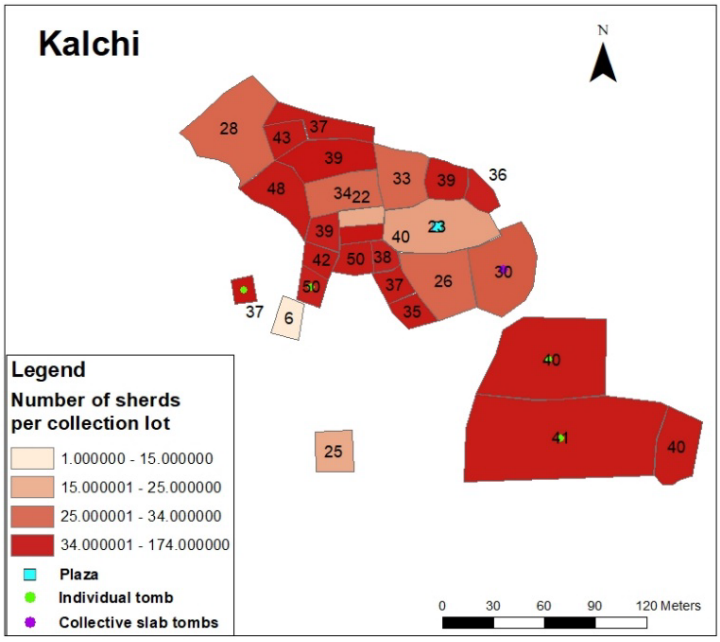


Figure 6.32. Distribution of collection lot with total number of sherds at the Kalchipata settlement

The Kalchipata settlement is mostly mono-component, with most occupation dating to the Late Intermediate Period (Figure 6.32). Most of the collection units derive from purely residential contexts, but one was made from the plaza area.

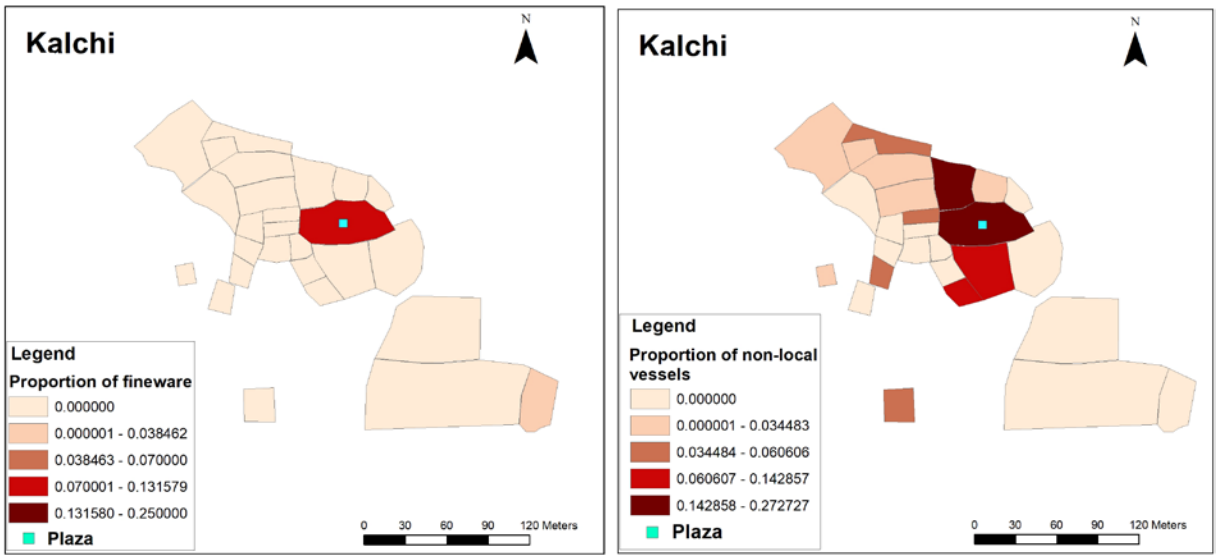


Figure 6.33. Distribution of proportions of fineware and non local vessels at the Kalchipata settlement

Only two collections at Kalchi yielded fineware, one of these being the plaza collection unit (Figure 6.33). The difference in proportions between these units is not very significant (11% ± 8.6%, and 2.5% ± 3.2%, at an 80% confidence level). This it is likely that the differences in proportions are the results of the vagaries of sampling.

The highest decorated ceramic units also included the plaza unit (Figure 6.34), but these were small samples (less than 20 sherds). Again, the difference between these two units is of little significance (20.1% ± 9.6% and 15.2% ± 9.8%, at an 80% confidence level). This same plaza unit also yielded the highest proportion of non-local vessels (Figure 6.33), although again, the difference between this unit and other units of high proportions is not significant (19.5% ± 9% and 16.5% ± 10.2%, at an 80% confidence level).

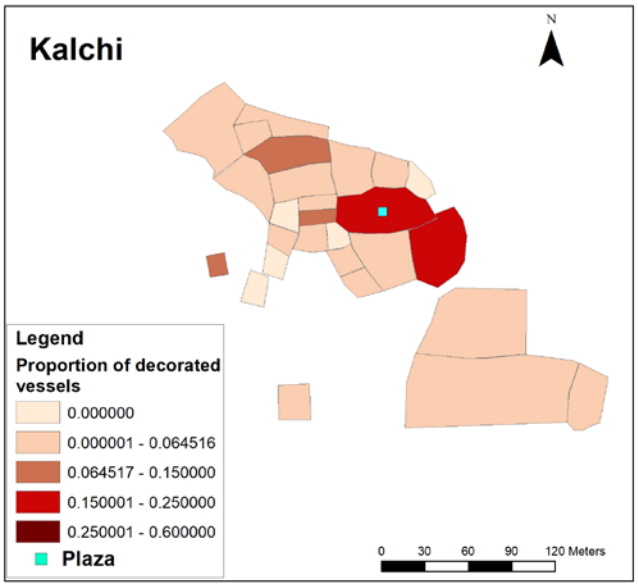


Figure 6.34. Distribution of proportions of decorated vessels at the Kalchipata settlement

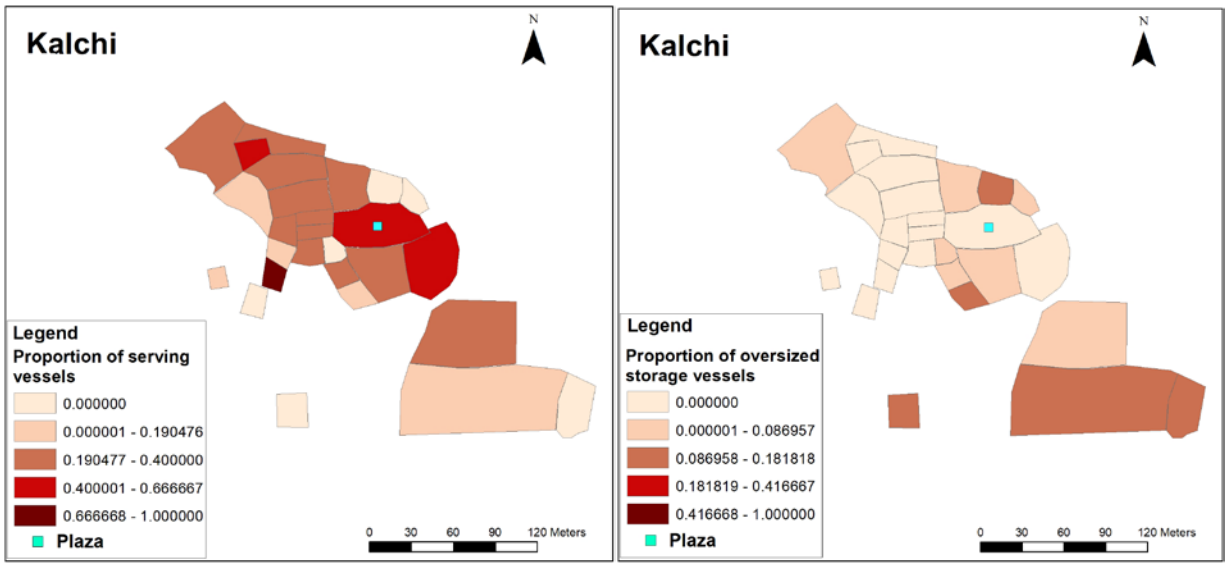


Figure 6.35. Distribution of proportions of serving and oversized vessels vessels at the Kalchipata settlement

The units with higher proportions of serving vessels are located in the center of the settlement (Figure 6.35). The difference in proportions of the units with higher numbers is of little significance (66.7% ± 8.7% and 57.2% ± 11.8%, at an 80% of confidence level). These is also the case of the oversized storage vessels, the difference between the proportions of the two units with greater number is not significant at all (13.6% ± 7.2% and 12.9% ± 6.8%, at an 80% confidence level). Thus, no household unit shows evidence of being differentially involved in serving or storage in ceramic vessels.

Given the lack of visible domestic architecture in the plaza collection unit, we cannot confidently argue that the distributions are evidence of a wealthy (elite) residential household at this locus. Most of the materials were collected from a scatter in this unit to the west of the plaza and burials, but it is possible that the fineware, decorated pottery, and non-local vessels from this unit correspond to the residue from plaza activities and/or looting of the tombs.

6.2.2 Illahuata

The Illahuata settlement was part of the Caja supra local community (Figure 6.36). Many houses here were built on low platforms. Some residential units are adjacent to burial structures. This site was occupied from the Middle Horizon through the Late Horizon Periods, so that some areas of the site had archaeologically continual occupation. Coupled with the fact that most of the collection units yielded less than 35 fragments (Figure 6.37), this long occupation makes analysis challenging.

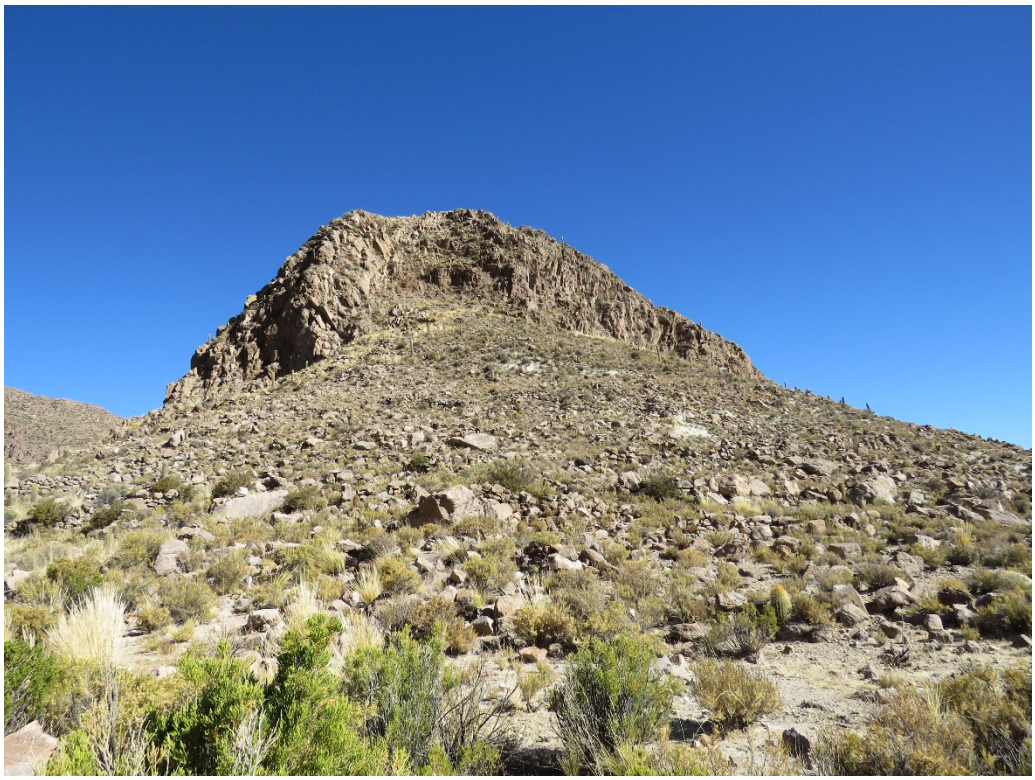


Figure 6.36. The Illahuata hill and settlement

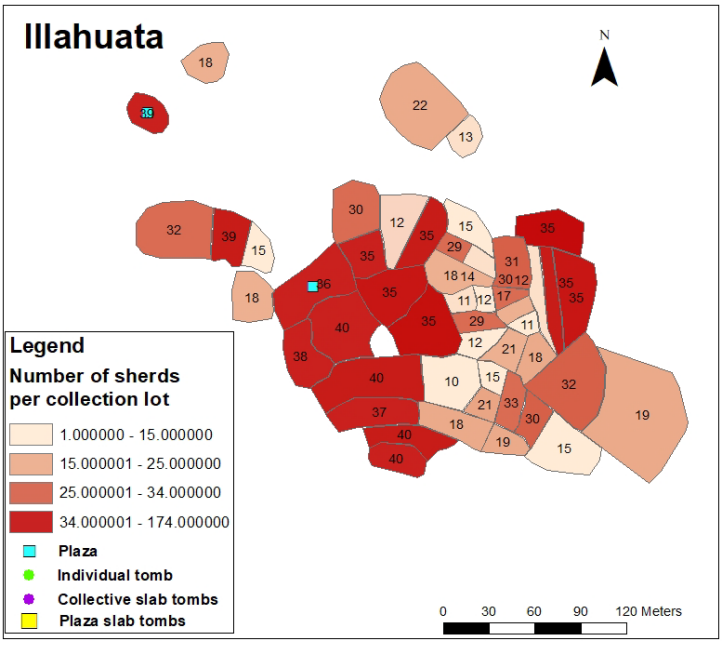


Figure 6.37. Distribution of collection lot with total number of sherds at the Illahuata settlement

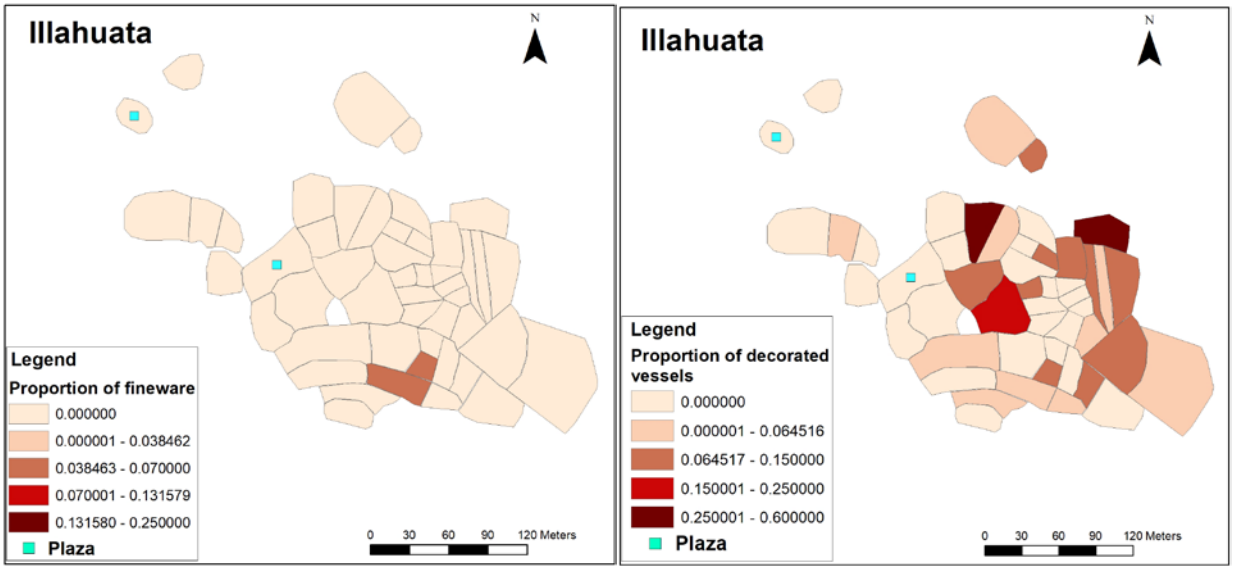


Figure 6.38. Distribution of proportions of fineware vessels and decorated vessels at the Illahuata settlement

Only two collection units, adjacent to one another close to the hilltop at the southern margin of the settlement provided fineware (Figure 6.38). The difference between the proportions of these two units is not significant (5% ± 6.1% and 7% ± 8%, at an 80% confidence level). The error ranges which accompany these proportions are larger than the proportions themselves, which indicated that the differences between these two units and the rest of the units (with no fineware) is not significant. Therefore, there is no evidence for differential consumption of fineware.

Three units have relatively higher proportions of decorated sherds (Figure 6.38). The difference between the proportions of the units with high percentages is of negligible significance (50.1% ± 44.4%, 41.9% ± 10.9%, 18.5% ± 7.6%, at an 80% confidence level). The unit that follows these has a percentage of 4.3% ± 5.2%, at an 80% confidence level, which means that the first three units show a significant difference from the ones that follow. Thus we can say that there was a group of households with more access to decorated pottery than the rest.

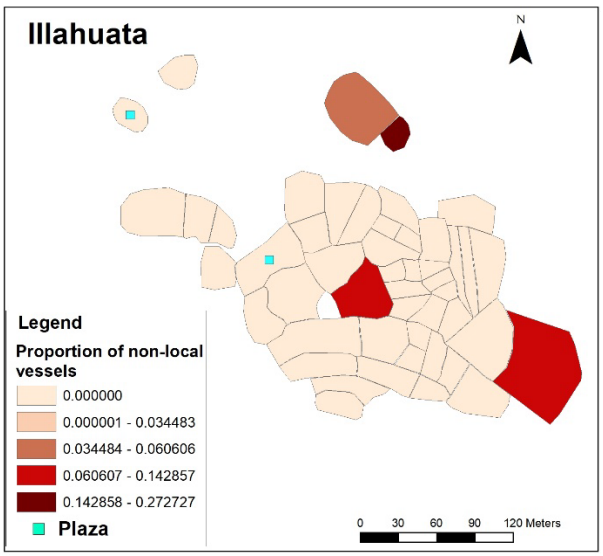


Figure 6.39. Distribution of proportions of non-local vessels at the Illahuata settlement

Non local pottery is present in four units (Figure 6.39). The difference of proportions between the two units with the highest percentages is not significant (23.5% ± 16% and 9.5% ± 6.3%, at an 80% confidence level) so we cannot specify a single household unit as having the most non local pottery. Nonetheless, the variability indicates that some households consumed more non- local pottery than others. Among those household units was the central one at the site which also had a relatively high consumption of decorated pottery. There was little congruence between decorated and non-local pottery for other collections.

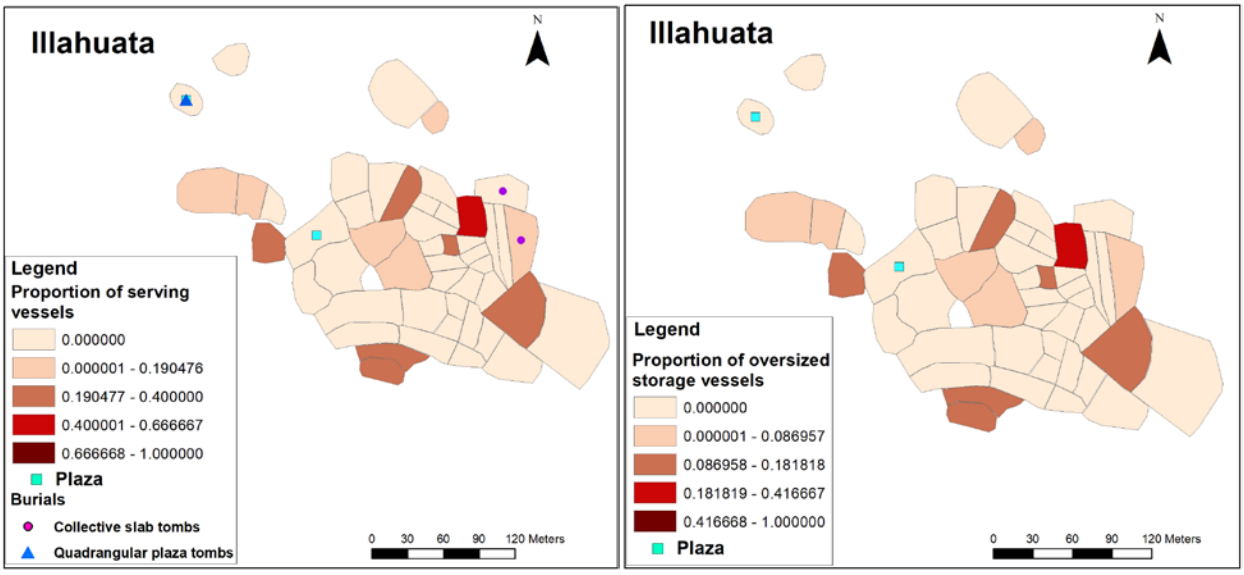


Figure 6.40. Distribution of proportions of serving and oversized vessels at the Illahuata settlement

The two units with higher proportions of serving vessels do not contain visible residential units, but instead platforms (Figure 6.40). The difference between the proportions of the two units with highest proportions is not very significant (53.3% ± 11.1% and 42.85 ± 15.3%, at an 80% of confidence level). Higher proportions of oversized storage vessels occur from one unit located closer to the collective slab tomb and the other is located close to the hilltop (Figure 6.40). The difference between the proportions of the two units with higher numbers is not very significant (33.3% ± 11.2% and 16.75 ± 7.7%, at an 80% confidence level).

Overall, the most likely candidate for a distinct wealthy elite locus is the central collection unit that yielded among the highest proportions of decorated and non local pottery. Unlike at Kalchipata, high proportions of high value materials were not spatially associated with the plaza.

6.2.3 Jajapata

The Jajapata settlement is part of the Jaja supra local community. This settlement is well preserved and has considerable high standing preserved architecture, including parts of perimeter wall (Figure 6.41). The Jajapata settlement is also multi component being occupied from the Middle Horizon through the Late Period. Most of the units did not yield 35 fragments from this period (Figure 6.42).

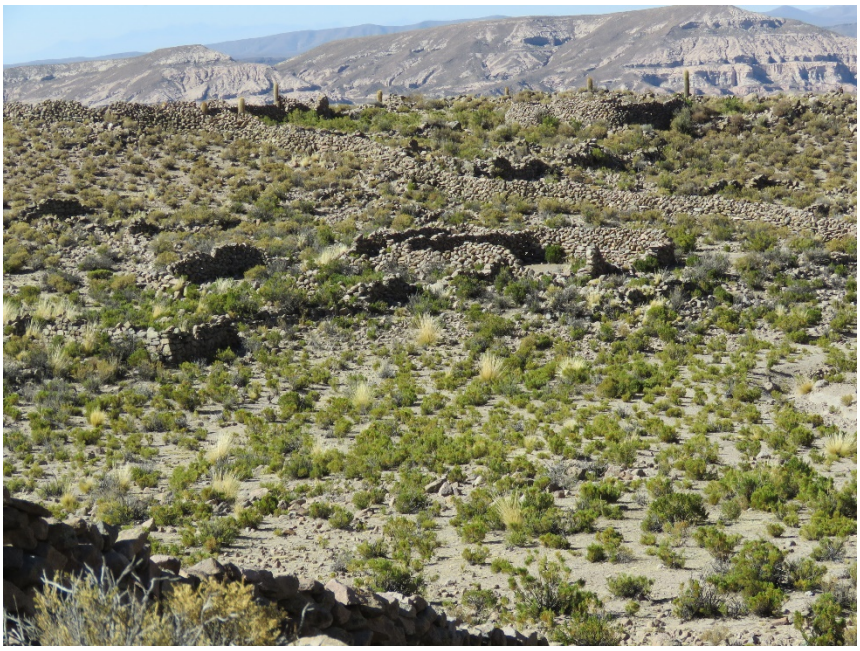


Figure 6.41. The residential units at the Jajapata settlement

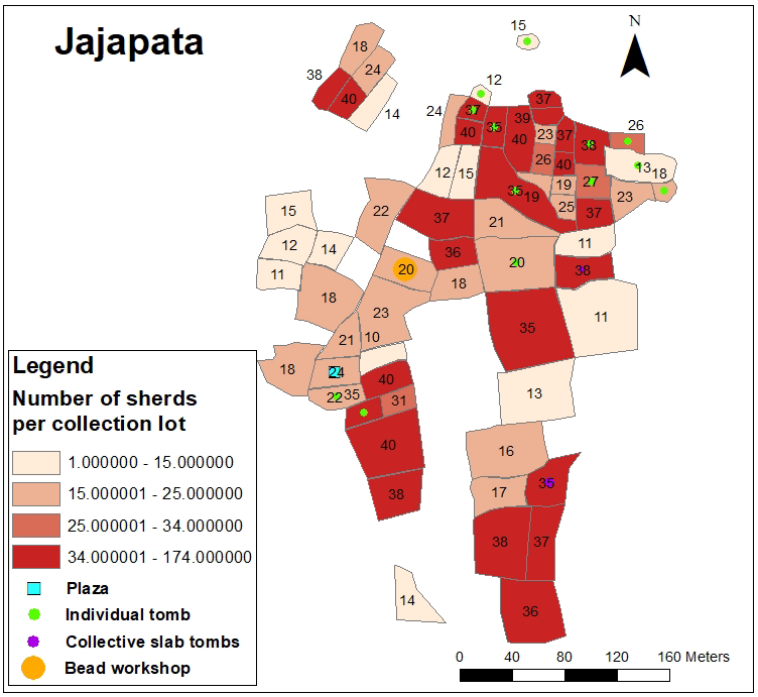


Figure 6.42. Distribution of collection lot with total number of sherds at the Jajapata settlement

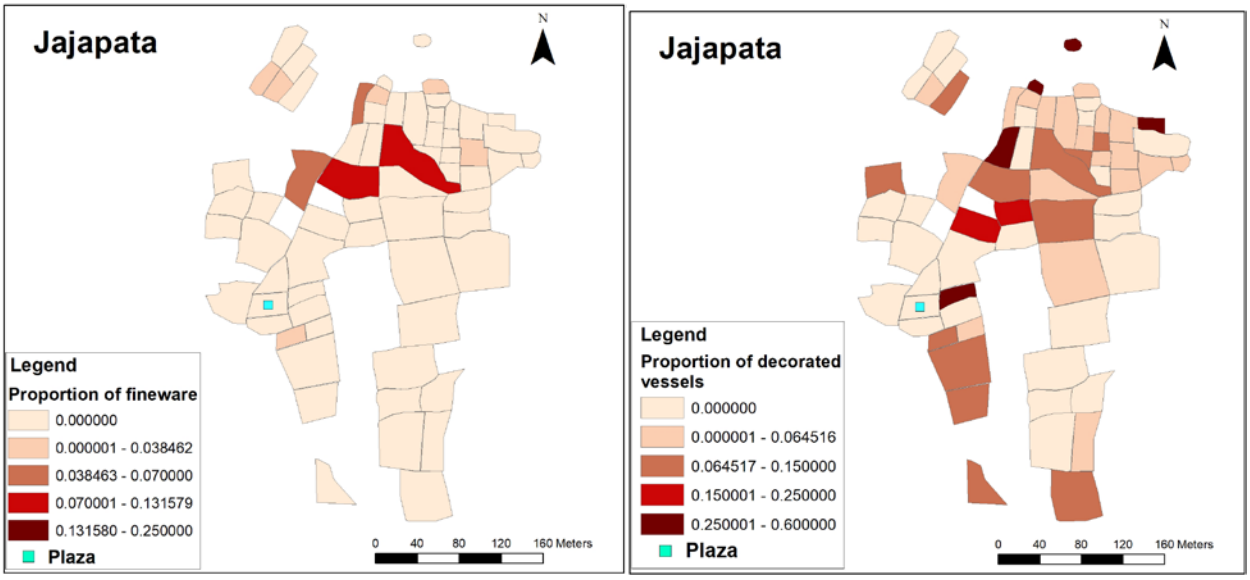


Figure 6.43. Distribution of proportions of fineware and decorated vessels at the Jajapata settlement

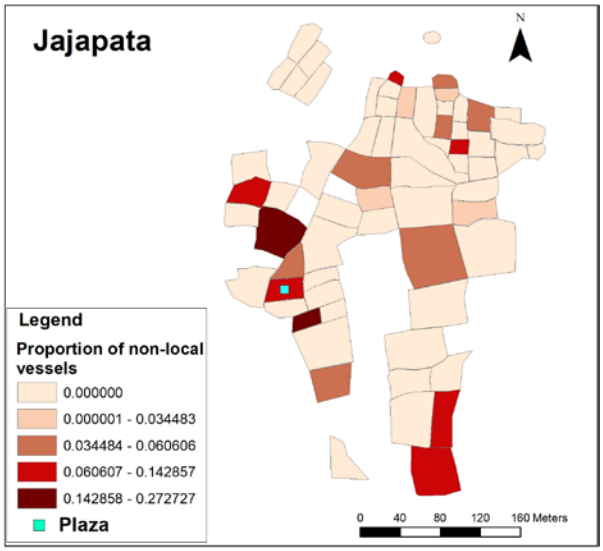


Figure 6.44. Distribution of proportions of non-local vessels at the Jajapata settlement

The units with higher proportions of fineware and decorated fragments are located generally in the central northern section of the settlement but there is little overlap in terms of individual units (Figure 6.43). The higher proportions of non-local pottery are located towards the center of the settlement (Figure 6.44).

The difference between the proportions of the two units with the highest proportion of fineware is not significant (13.2% ± 7.2% and 10.7% ± 6.9%, at an 80% of confidence level), nor are the differences for decorated (60.1% ± 19.3% and 50.2% ± 44.4%, at an 80% confidence level) and non-local vessels (27.3% ± 14.9% and 24.1% ± 12.1%, at an 80% confidence level).

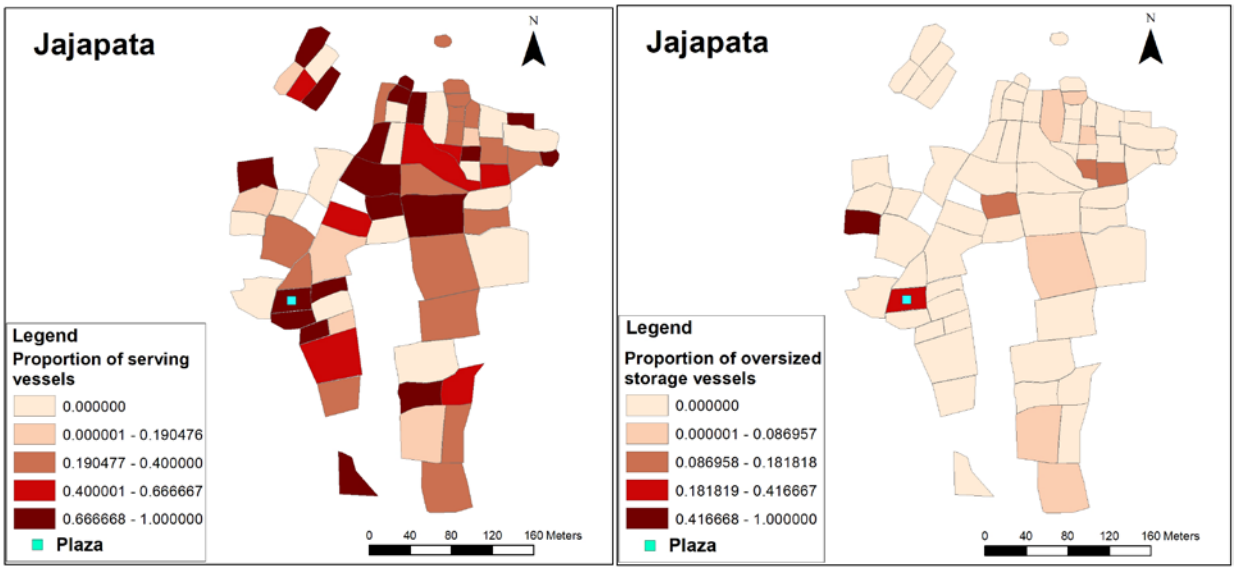


Figure 6.45. Distribution of proportions of serving and oversized vessels at the Jajapata settlement

Higher proportions of serving vessels are from collections loosely clustered in the north of the settlement (Figure 6.45). The units with higher proportions have 35 and 37 sherds - - all of which are from serving vessels. The unit which follows these units in higher proportions has 86.6% ± 8.7%, at an 80% of confidence level. Both units with higher proportions of serving vessels also containing slab tombs, and only one has a still standing structure resembling a dwelling. It is possible that these collections reflect assemblages generated by mortuary rituals. The unit close to the collective slab tomb and the unit containing the plaza also present higher proportions of serving (75% ± 11.7% and 91.2% ± 8.9%, at an 80% confidence level, respectively). Units with higher proportions of oversized storage vessels are located to the west of the settlement, one of them is related to the plaza (Figure 6.45). The difference between the proportions of these units is of little significance (55.2% ± 28.2% and 41.7% ± 13.3%, at an 80% of confidence level). The difference between the proportions of the second and the third units with higher proportions is, however, significant and meaningful (41.7% ± 13.3% and 18.1% ±8.4%, at an 80% confidence

level). Thus, we can still say that it is very likely that oversized storage vessels are disproportionately represented in the vicinity of the plaza. This unit with highest storage proportions does not show any evidence on the surface for a residential unit.

In sum, the evidence here does not allow for facile identification of an elite residential loci, as there is little co-occurrence between high proportions of fineware, decorated pottery, and non-local pottery.

6.2.4 Taypi Circa

The Taypi Circa settlement is part of the Lauca supra local community. It is one of the best preserved sites in the survey area (Figure 6.46). It has two plazas and six groups of collective slab tombs. Most of the units at this settlement provided more than 35 fragments (Figure 6.47). This is a mono component settlement.

Figure 6.46. Residential units at the Taypi Circa settlement

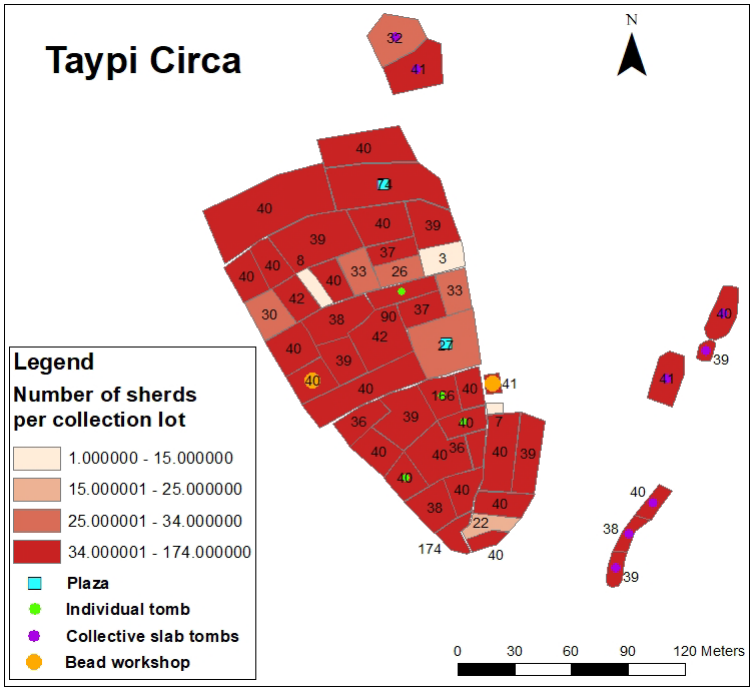


Figure 6.47. Distribution of collection lot with total number of sherds at the Taypi Circa settlement

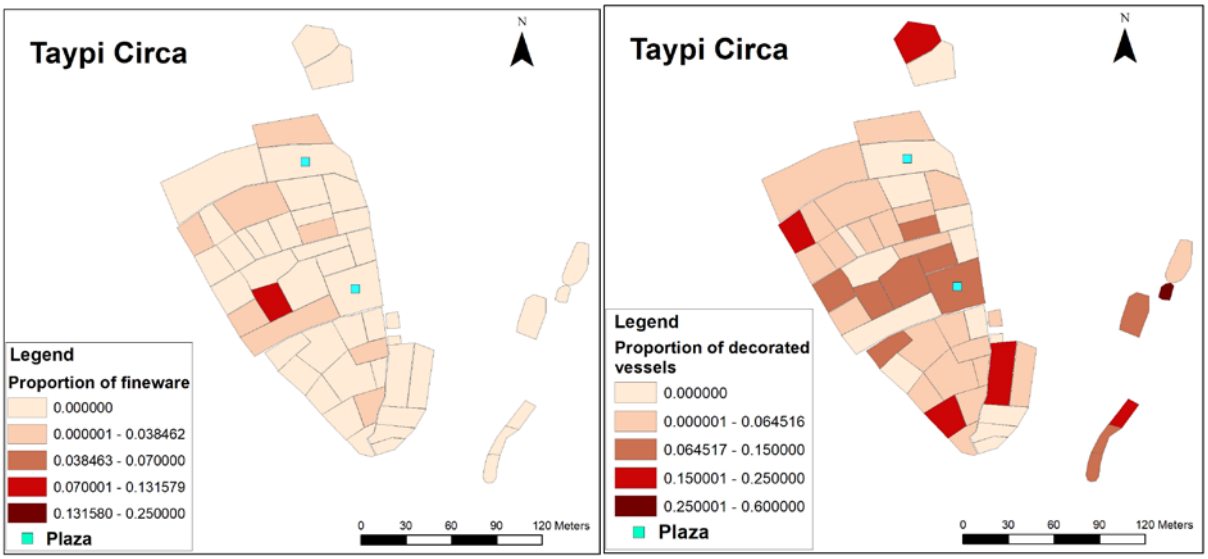


Figure 6.48. Distribution of proportions of fineware and decorated vessels at the Taypi Circa settlement

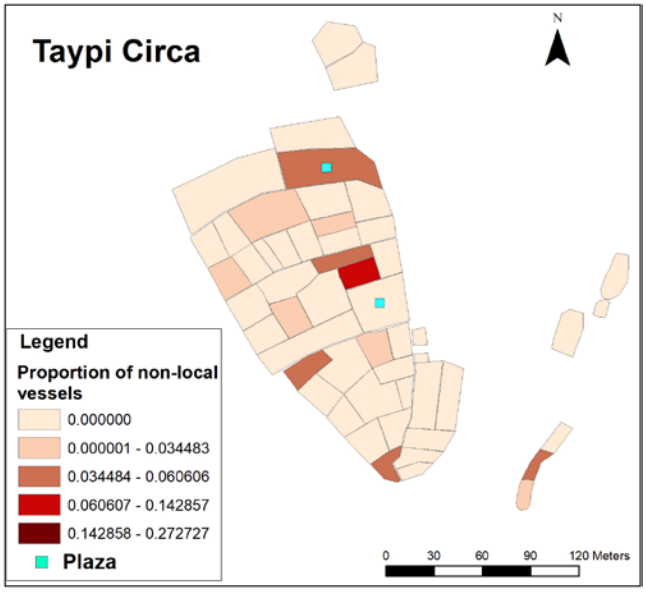


Figure 6.49. Distribution of proportions of non local vessels at the Taypi Circa settlement

The unit with the highest proportion of fineware (Figure 6.48) is located next to a possible bead workshop loci. The difference between this unit and the ones that follow it in terms of high proportions is not very significant (10.2% ± 6.3% and 3.9% ± 5%, at an 80% of confidence level)

and we cannot be confident that the differences between the rests of the units with fineware and others without fineware is not due to the vagaries of sampling.

Several of the units with higher proportions of decorated vessels are contained collective slab tomb features (Figures 6.47 and 6.48). The difference in proportions between the two highest proportion units is very significant (56.4% ± 10.3% and 25.1% and 10%, at an 80% confidence level). These particular units do not contain extant house remains and thus could reflect mortuary assemblages. The difference between the residential units with higher proportions is not significant at all (23.7% ± 9% and 22.5% ± 8.6%, at an 80% confidence level). One interpretation is that people within the community had generally similar access to decorated pottery but some may have been buried (or venerated) with more than others.

In the case of access to non-local pottery (Figure 6.49), we can argue that not all households had access to it. The differences for the two units with highest proportions is of negligible significance (7.5% ± 5.7% and 5.3% ± 4.9%, at an 80% confidence level).

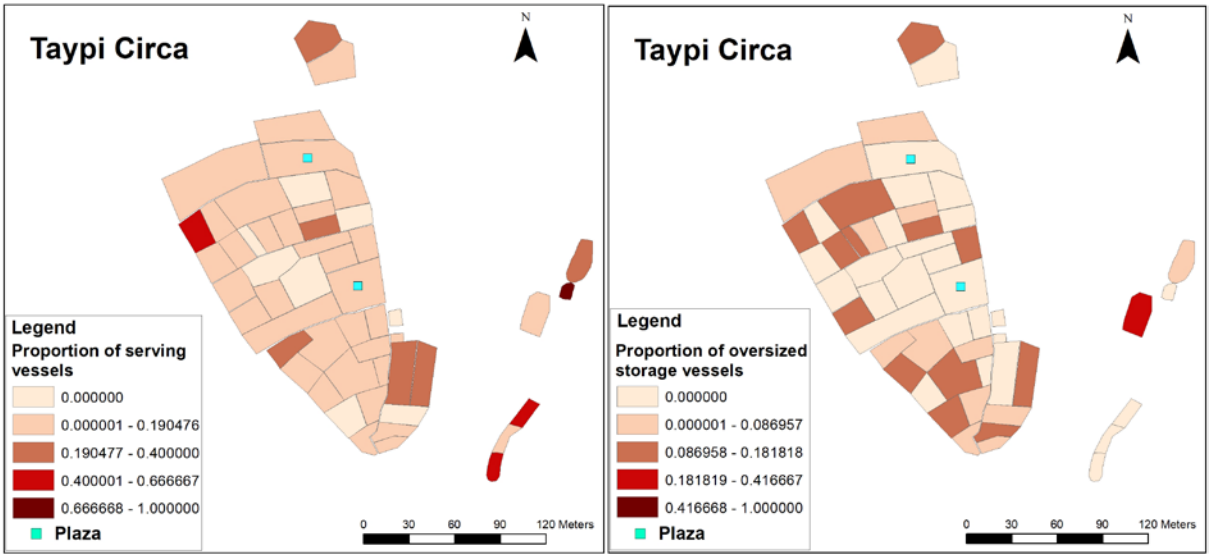


Figure 6.50. Distribution of proportions of serving and oversized vessels at the Taypi Circa settlement

One unit has the higher proportions of serving vessels at the settlement (Figure 6.50). This unit presents a real difference in proportions in comparison with the second unit. This difference is significative (79.5% ± 8.4% and 59% ± 10.1%, at an 80% confidence level). This unit also presents evidence of residential structures. In terms of access to oversized vessels, the higher proportions is located at one of the collective slab tombs, it is possible that the content of these vessels were used during remembering of the death ceremonies, or burial ceremonies. It is also possible that this kind of vessel was being buried with the dead. The difference in proportions between the second and third unit is of negligible significance (15.8% ± 8.3% and 15.3% ± 8.4%, at an 80% of confidence level).

Overall, comparison of the proportions of the different wealth markers does not point to a particular part of the site as home to a wealthy elite. The distribution may of high value pottery may in part reflect the location of mortuary activities. Again, the units containing plazas do not stand out as having significantly wealthy ceramic assemblages.

6.3 Late Horizon Period

There are three potential centers that can be compared for the Late Horizon. As discussed in the previous chapter, only Jajapata-Inka really has the characteristics of a major community and potential central place. The categories of artifacts to use in analysis is even more limited, with the three "wealth" categories (Inka style, non-local, fineware) consisting essentially of imported pottery.

6.3.1 Jajapata-PT

This settlement is part of the Jaja-Lauca supra local community, and displays Inka style architecture and Inka style vessel forms and ceramic decoration (Figure 6.51). The Jajapata-PT settlement has mostly less than 35 sherds mainly because of multiple occupations from the Middle Horizon through the Inka period (Figure 6.52).

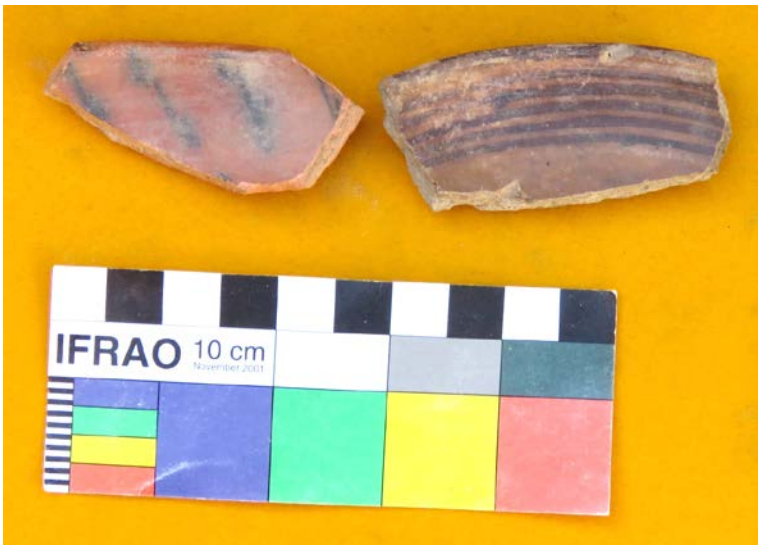


Figure 6.51. Inka style plates at the Jajapata-PT settlement

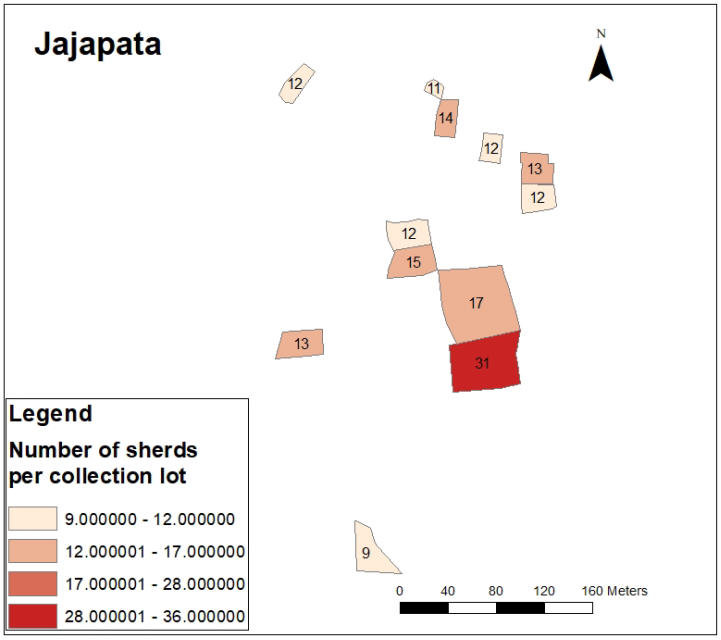


Figure 6.52. Distribution of collection lot with total number of sherds at the Jajapata-PT settlement

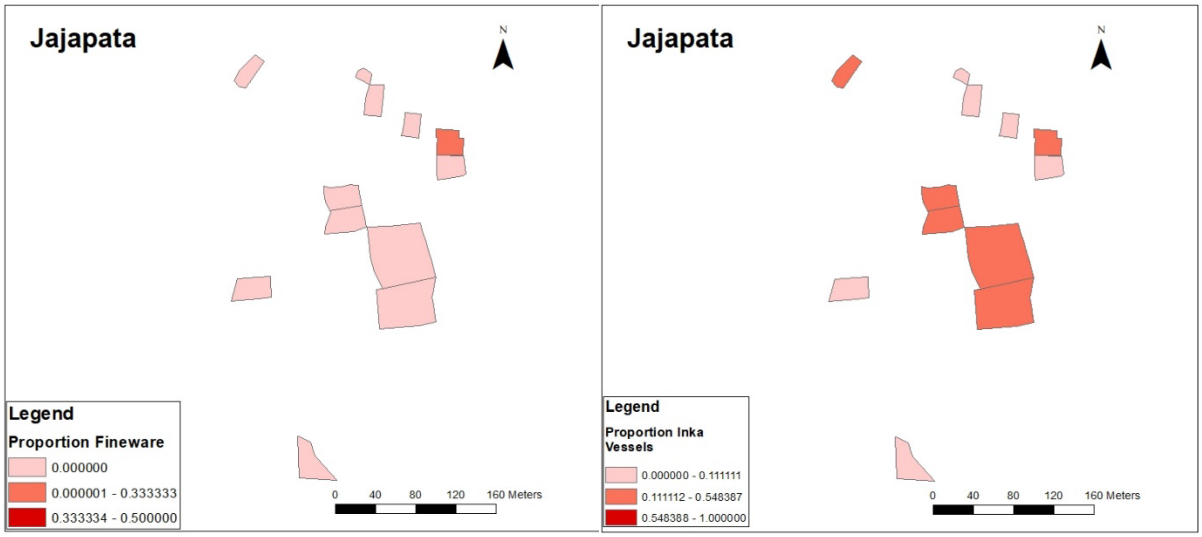


Figure 6.53. Distribution of proportions of fineware and Inka vessels at the Jajapata-PT settlement

Only one unit yielded any fineware (Figure 6.53). However this unit only has 13 fragments with a 13.5% ± 17.7%, at an 80% confidence level. With the error range larger than the proportion, we cannot be that the fineware differences between this unit and those without is anything other

than the result of the vagaries of sample. In contrast, about half the collections provided some Inka style (in form or decoration) pottery. The two units with the highest proportions of Inka style vessels are not significantly different from one another (54.8% ± 11.7% and 40% ± 16.5%, at an 80% confidence level (Figure 6.53). Only two units do not yield Inka style pottery, thus we cannot say that this shows differential consumption of Inka style pottery among residents.

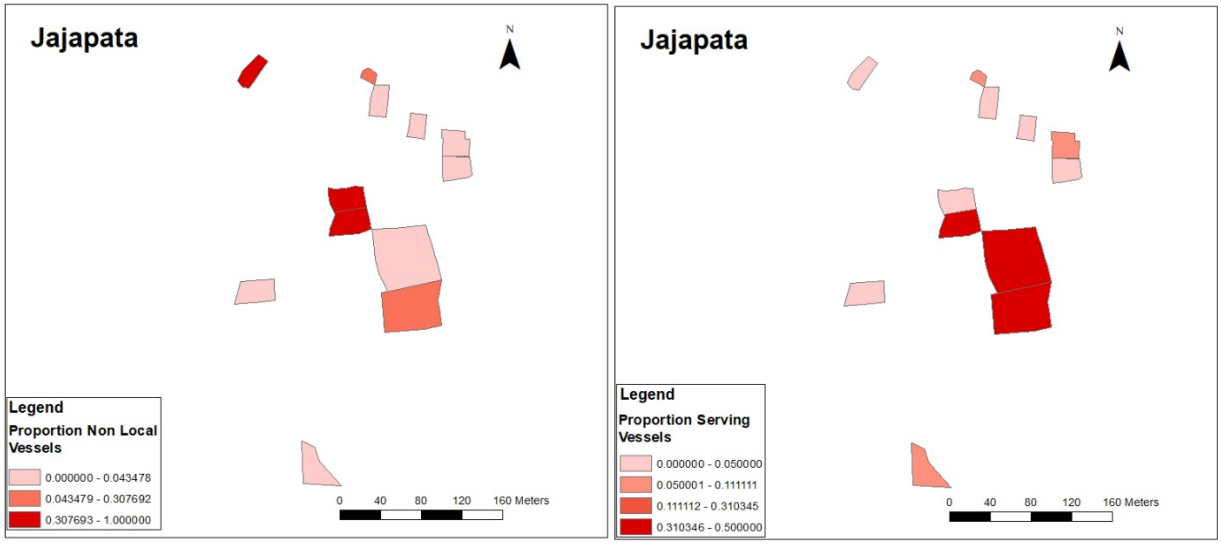


Figure 6.54. Distribution of proportions of non-local and serving vessels at the Jajapata-PT settlement

The units with the highest proportions of non-local (and non-Inka) vessels are located at the center of the settlement (Figure 6.54). The difference between the proportions of these two units and the next highest one is highly significant (50.2% ± 18.3% and 12.9% ± 7.8%, at an 80% confidence level). These units also had an intermediate proportion of Inka style pottery. One interpretation is that the households generating this sample were more tied into regional exchange networks (of Inka and non Inka style pottery) than other households.

Higher proportions of serving vessels are located towards the center of the settlement (Figure 6.54). There is not a significant difference in the proportions of serving vessels between

the two units with highest numbers (45.1% ± 11.6 and 42.9% ± 15.6%, at an 80% confidence level).

In summary, we can say that there are differences in access to fineware and non-local pottery (Inka style and otherwise) suggesting the presence of an elite household(s) at the center of the site.

6.3.2 Huarakalluni

This settlement is also part of the Jaja-Lauca supra local community and is multicomponent with occupations from the Middle Horizon, LIP, and Late Horizon (Inka) Periods. The sample of ceramic sherds is not very large, and only one unit produced more than 35 fragments (Figure 6.55).

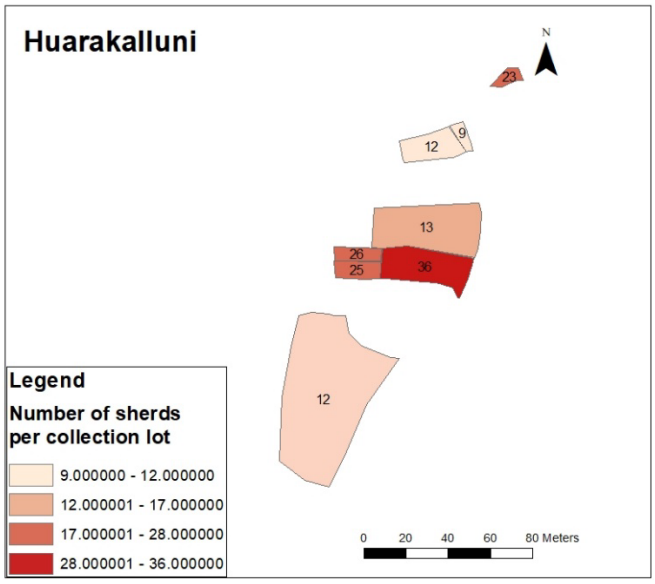


Figure 6.55. Distribution of collection lot with total number of sherds at the Huarakalluni settlement

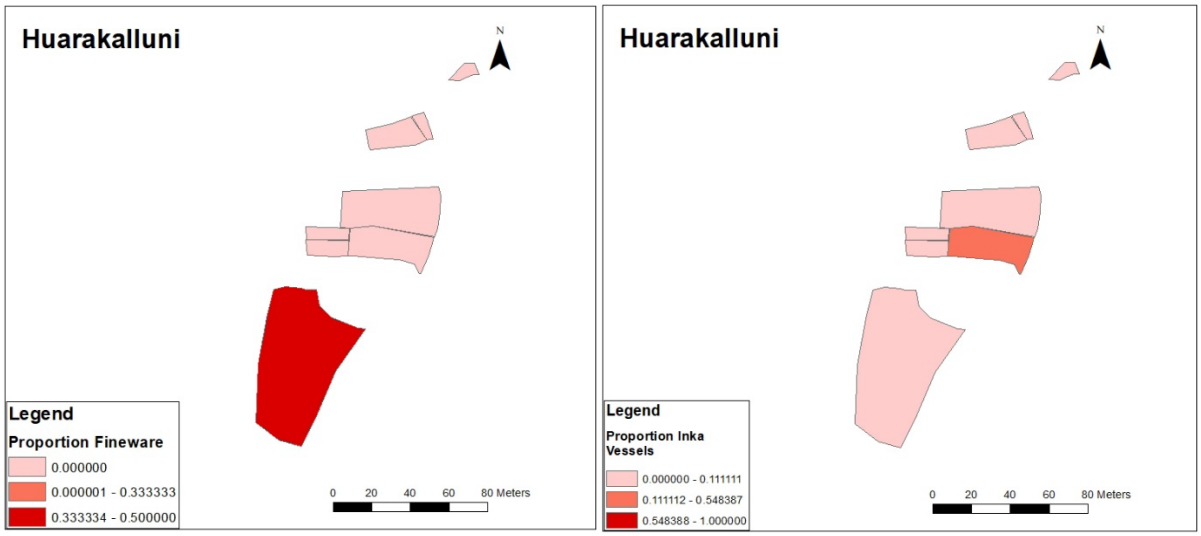


Figure 6.56. Distribution of proportions of fineware and Inka style vessels at the Huarakalluni settlement

Only one unit present fineware vessels at this settlement (Figure 6.56), but this unit had a 50% proportion (50% ± 20%, at an 80% confidence level). We can be thus be confident that the differences between this unit and those without fineware are significant (error ranges do not overlap with 0). A different collection produced the only Inka style sherds (Figure 6.56). We can also be confident that the differences between this unit and others with out is somehow significant (8.03% ± 6%, at an 80% confidence level).

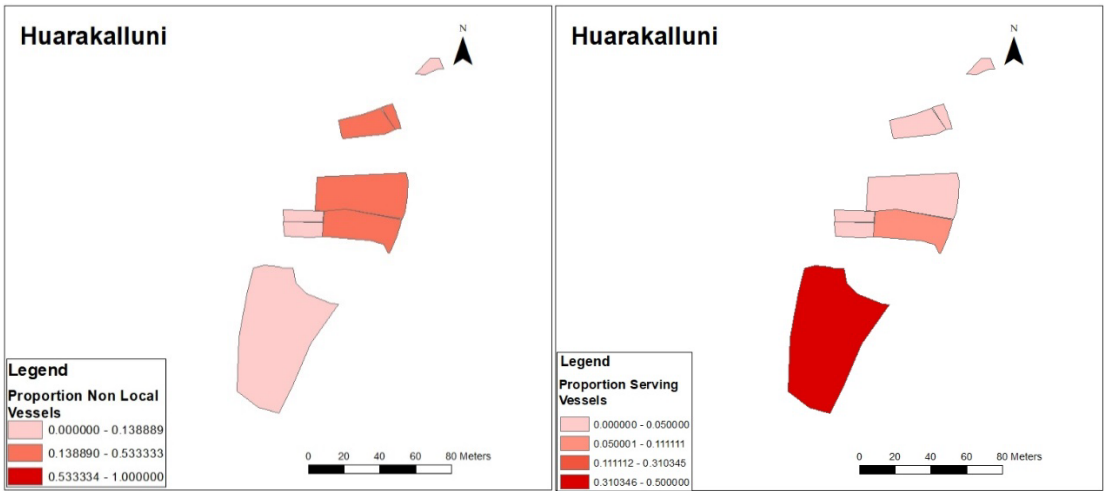


Figure 6.57. Distribution of proportions of non-local and serving vessels at the Huarakalluni settlement

Non local vessel fragments were present in four household units (Figure 6.57), only one of overlaps with the units containing fineware or Inka style ceramics. The difference between the proportions of the two units with the highest proportion of non-local sherds is not significant (30.8% ± 17.4% and 22.2 ± 19.4, at an 80% confidence level).

The distribution of high value pottery here is difficult to interpret. The near lack of overlap in the three categories of pottery could suggest multiple axes of wealth/status or affiliative preferences at the community. It might also suggest that these three categories of pottery were moving through different networks, and that no single household(s) dominated external trade ties.

6.3.3 Quitamalla

This settlement is part of the Quitamalla-Challuma supra local community. This is a small site occupied only during the Late Horizon. We only made four collection lots, and samples were small with only one collecting presenting more than 29 sherds (Figure 6.58).

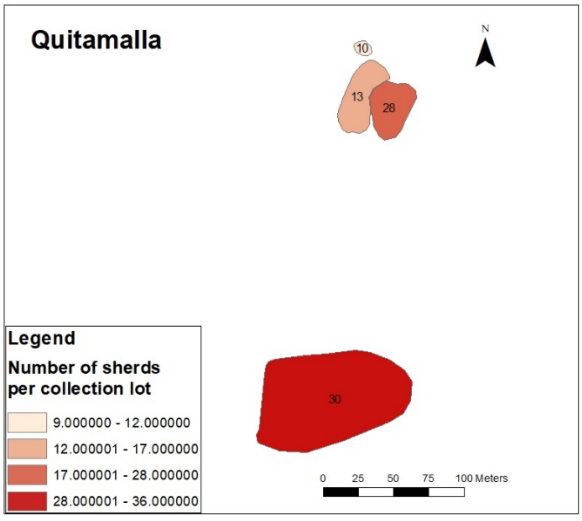


Figure 6.58. Distribution of collection lot with total number of sherds at the Quitamalla settlement

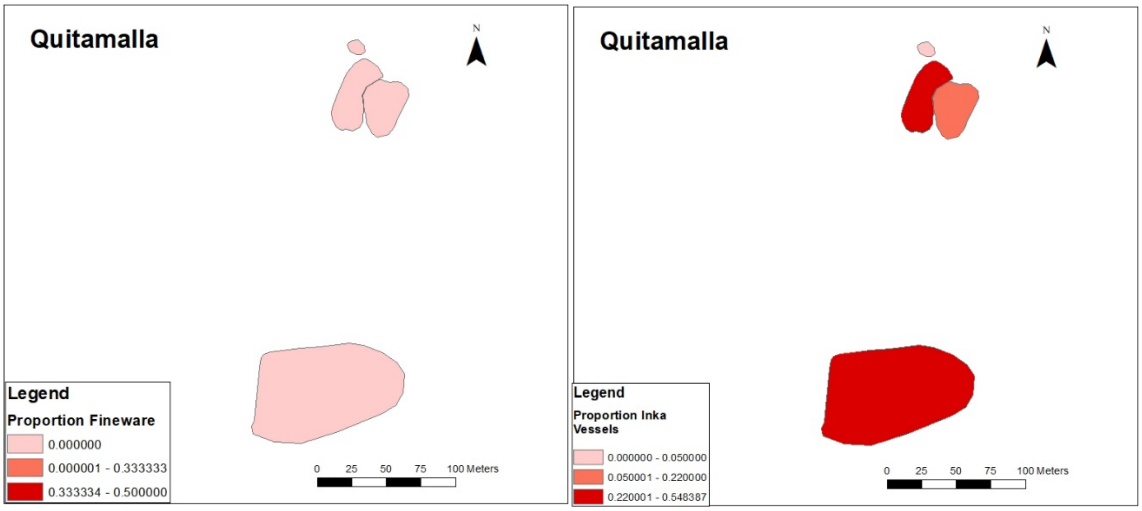


Figure 6.59. Distribution of proportions of fineware and Inka style vessels at the Quitamalla settlement

No fineware at all was provided in collections from this settlement (Figure 6.59). Inka style pottery was found in three of the four collections. Two units present higher proportions of Inka style vessels at this settlement (Figure 6.59), however the differences in proportions between these two units is of little significance (36.7% ± 11.5% and 33.3% ± 17%, at an 805 of confidence level), nor is the differences between these and the other units Thus the collections do not indicate significant differences in consumption of Inka style vessels.

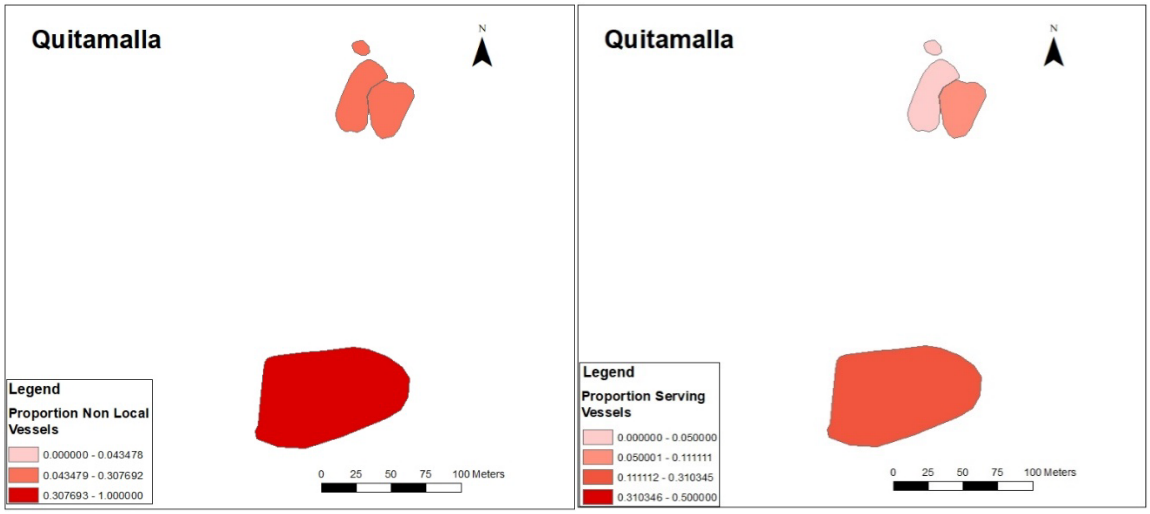


Figure 6.60. Distribution of proportions of non-local and serving vessels at the Quitamalla settlement

Most units present evidence of non-local vessels (Figure 6.60), and the high proportions overlapped with those for Inka style pottery. The difference between the two units with highest proportions is very significant (53.3% ± 11.9% and 22% ± 10.7%, at an 80% of confidence level). Thus, there is one "household unit" - - the large one to the south - - display greater consumption of non-local pottery. This is also the collection with the highest proportion of serving vessels (Figure 6.60). It is very likely that this collection displays differential use of serving vessels (31% ± 11% and 10.7% ± 7.6%, at an 80% confidence level).

In sum, we can identify the southern area of the site as likely resident to higher status households in comparison to those in the north. All households used some Inka style and non-local pottery, but households in the south used significantly more. However, given the small size of this community, it might be a mistake to label these southern households as an "elite." There may be some individual elite households contributing to the southern assemblages, but it is also possible that here we are simply seeing broader higher wealth/status vs lower wealth/status divisions within the community. In addition, this may be something of a special purpose site, rather than a typical Yaretani village.

6.4 Identifying Elites at the Potential *Marka* Sites

In an ideal scenario (that is, most straight-forward of archaeological interpretation) we would recognize a wealthy elite stratum at a potential *marka* site by the following: a household units or group of household units displaying significantly higher proportions of higher value artifacts. These materials would include fineware and decorated pottery and imported materials (pottery and obsidian). If these households had higher proportions of fineware and decorated

pottery, but not of imported materials, we could argue that wealth or elite status was not tied directly tied to differential involvement in exchange networks. If these same households were spatially associated with plazas and displayed higher proportions of ritual vessel fragments, we could argue that they were differentially involved in ceremonial practices, and that these activities were part of the basis power or authority. If these same households displayed higher proportions of serving vessels or large storage vessels, we could argue that they were differentially involved in commensal (serving or feasting) activities as part of their elite status. If there were no households with significantly higher proportions of high value materials, it would suggest either a strongly egalitarian community, or more likely, that status and leadership differences were not expressed in household assemblages.

The results of the Middle Horizon Period analyses present a more complex scenario than sketched in the above paragraph. That this is the case could reflect that sociopolitical differentiation in MH Period communities was more complex than described above. It could also reflect problems with our choice of material proxies for wealth. For example, my results did not show a consistently strong co-occurrence between two wealth markers: fineware and decorated pottery. At Chita, the household units highest in fineware were low in decorated pottery and vice versa. Yet at Cica Catuyo there was strong co-occurrence as the household units highest in fineware were also highest in decorated pottery. This handful of households displayed what we would recognize as a higher value domestic ceramic assemblage.

It is worth a cautionary observation that household inventories (and domestic artifact assemblages) are the product of a number of complicated, interacting factors that militate against easy interpretation. These include wealth, status, display potential for different materials, stage in the household cycle, economic emphases, and variability in discard processes and locations.

In addition, my samples provide a synchronic view of diachronic processes of deposition in particular spaces at each site. If leadership or elite status or wealth did not persist at one household location generation after generation, if it shifted within the community over the centuries of occupation, it would be extremely difficult to pinpoint the elite households with the small collections I made. The ARCGIS maps above are presenting a picture of the last occupation at the site, or, more likely a palimpsest of the longer period of occupation. Or a confounding mix of the two.

The distribution of materials within the five potential MH *marka* sites is certainly not homogenous or indicative of socially undifferentiated communities. At each site, there are collections with significantly higher proportions of wealth markers suggestive of wealth differentiation within the community. Overall, this allows for some confidence in identifying a leadership stratum (of one or several households) at most of the sites: Cica Catuyo, Puqui, and Chita. The patterning is weakest at Cajajalsuri and Jankoma.

The site that comes closest to the ideal is Cica Catuyo. Here, a collection from a single household (plaza) unit had the highest proportions of fineware, decorated pottery, and among the higher proportions of non-local ceramics. This collection was also highest in ritual vessel fragments. Taken together, these lines of evidence suggest a relatively wealthier, "elite" household(s) differentially involved in ritual practices. However, we must be cautious in identifying the three dwellings in this unit as elite residences, because of the possibility that some of the sample derived from activities in the plaza rather than domestic activities. Cica Catuyo also notably has a distinct "non-wealthy" zone of the site, the southeast, virtually lacking in any wealth indicators.

Puqui presents the pattern next closest to the ideal, although in this case the co-occurrence of high value items is distributed over a set of contiguous household units (the southeastern component) rather than in a single household unit. In the collections from this southeastern component occur the highest proportions of fineware and decorated ware, as well as non-local pottery. Unlike Cica Catuyo, these collections do not have high proportions of ritual vessels, (instead they display higher proportions of serving vessels), and they are not spatially associated with a plaza. Chita presents a problem in identifying wealthy assemblages, as the household units with the highest proportion of fineware are among the lowest in decorated ware. However, those units with highest proportions of fineware are also highest in proportions of non-local ware. The association of wealth with ritual is also ambiguous. The highest fineware proportion unit is quite close to one of the plazas, but it does not display a high proportion of ritual fragments. There is no significant co-occurrence of the distribution of wealth markers at Cajajalsuri or Jankoma.

There are also some interesting patterns if we consider the categories of items used in the analysis. Some categories are clearly rarer/more restricted in distribution than others; particularly fineware, ritual vessels, and obsidian. In contrast, most households consumed non local pottery, although the wealthier households (based on fineware and/or decorated pottery) tended to consume proportionally more. This pattern suggests that domination of regional exchange was not an elite strategy. That this was the case is even more strongly supported by the distribution of obsidian at the MH sites. It is striking that there is essentially an inverse relationship between wealthy and obsidian proportions at the site. Collections of highest proportions in fineware, decorated pottery, and non-local pottery tend to be lowest in obsidian, and vice versa. This is easily seen in the ARCGIS maps for each site. From this we can conclude that elites did not dominate regional exchange directly, that the processes distributing non local pottery and non-local stone were

different from one another (not surprisingly), and that there were households with an occupational emphasis on tool that were not otherwise of higher status or wealth.

The intensity of involvement in serving/feasting activities, as represented by proportions of serving vessel fragments, aligns strongly with wealth indicators. The highest fineware household units at Puqui and Chita (the two units west of the central plaza) are highest in serving vessel proportions. The highest wealth units at Cica Catuyo are among the highest in serving vessel proportions.

In summary, the MH Period shows the existence of a likely wealthier "elite" stratum (as defined) at most of the potential *marka* sites analyzed, with perhaps some evidence from Cica Catuyo and Chita of elites being differentially connected to ceremonial practices. Analysis did not show evidence for elites directly dominating economic processes such regional exchange or stone tool production. There is stronger evidence for elite households being differentially involved in serving/feasting activities.

The LIP intrasite analysis had two fewer categories of evidence (ritual vessels, obsidian) than used in the LIP. Nonetheless, we were able to use the primary wealth indicators: fineware, decorated pottery, and non-local pottery and we were able to look at their distribution relative to plaza and mortuary contexts at four potential *marka* sites. Kalchipata comes closest to the ideal, with highest proportion of fineware, decorated pottery and non-local pottery provided by the same collection at the center of the site. However, this unit contains the plaza, and no visible domestic architecture. Therefore, the sample may relate more to plaza activities than to domestic lifestyles. Illahuata has a central unit with higher (but not highest) proportions of decorated and non-local pottery, with the distribution of the latter being quite restricted. As in the Middle Horizon Period, the association between proportions of fineware, decorated pottery, and non-local pottery is not

strong, and there is no overlap in their distributions for Jajapata or Taypi Circa. With the exception of Kalchipata, there is no association of high value materials with plaza (public ceremony) loci. Instead, it is possible that activities (modern looting and prehispanic ancestor ritual) shaped the distribution of high value pottery at the LIP sites. In sum, each site provides evidence for ceramic assemblage variability consistent with some wealth differentiation among collection units. However, it is more difficult to specify a location in any of the sites likely to have held wealthy elites.

Our lines of evidence suggest a possible higher wealth/status (if not exactly a leadership or elite) stratum recognizable at two of the Late Horizon Period potential *marka*s: Jajapata-Inka and Quitamalla. None of the sites come very close to the "ideal. At Jajapata-Inka, two central units show the highest proportions of non local pottery, but only moderate proportions of Inka style ceramics, and no overlap with fineware. At Quitamalla, the southern zone of the site has the highest proportion of non-local pottery, but the distribution of Inka pottery in the samples does not allow us to conclude that any households had differential access to the latter. There is no overlap of high value pottery categories at Huarakalluni. There is considerable variability among the sites in the amount and distribution of Inka style pottery that may relate to the site's (or households within it) connection to broader exchange spheres or to the Inka empire itself.

My survey was not designed to provide fine scale examination of intrasite variability and the interpretations presented in this chapter must be construed as tentative and something in the nature of predications. The analysis suggests that this part of a site, or that part of a site is most likely (based on assemblage variability) to have been home to a wealthier elite or leadership stratum. Confirmation of this predictions will require more collections from each site, and larger samples to narrow error ranges. The more important findings of the intrasite analysis relate to the

larger question of the existence of such social strata. Although these strata were almost invisible in analysis at the intersite, regional level, the intrasite analysis supports: (1) significant wealth differentiation (using one proxy or another) at most potential *marka* sites, particularly in the Middle Horizon Period; and (2) a spatial pattern of distribution and restriction of high value materials consistent with a wealthy household or group of households at many of the sites analyzed.

7.0 CONCLUSIONS

My research aimed to explore archeologically the "señorío" construct of late prehispanic *altiplano* sociopolitical organization, one which is based mainly on ethnohistoric reconstructions. The construct describes segmented polities in which power and leadership were based on prestige rather than economic strategies and which were integrated through interaction at regional central places, essentially señorío capitals, called "*marka*s."

There has been much archaeological study of señorío sociopolitical organization in the northern Titicaca Basin and northern *altiplano*, including at the regional and community levels. In contrast, there has been very limited archaeological investigations of late prehispanic sociopolitical organization in the southern *altiplano*. The existing archaeological study (and ethnohistoric sources) of señoríos in this region tend to focus on the largest centers and the nature of the señorío as seen in regional-level process and activities of the highest tier of elites; in other words, the top levels of the socio-settlement pyramid. In contrast, my goal was to select a territorial unit of manageable size for full scale survey and examine late prehispanic sociopolitical organization against the señorío construct at the local level, gaining something of a "grass roots" perspective.

I chose a small component of one of the lesser known (both archaeologically and ethnohistorically) señoríos of the south - - the Aullagas Uruquillas señorío. The few historic documents relevant to this señorío reference a colonial period (post *reduccion* and *encomienda*) *marka* at a place called Salinas. However, in the colonial census of the Paria district, (Cajias de Vega 2013), although no individual centers are mentioned, the residential site of the Quillacas-Azanaques (Confederation) elite (the Guarache family) is placed in the *ayllu* Kulle. Some

historical research easily revealed the home settlement of the Huarache families within the territory of the Kulle *ayllu* as the settlement of Puqui.

During preliminary fieldwork I was able to identify a multicomponent Puqui archaeological complex very near the modern Puqui community in the Yaretani Basin. Thus I began dissertation fieldwork intending to study this likely *marka* complex in regional context, to reconstruct its development, and to identify the power strategies used by the leadership segment likely to be living there during the course of its occupation. As often happens, the fieldwork quickly revealed that the Puqui complex as *marka* capital scenario was not so simple. Survey revealed that the Yaretani Basin contained more than one potential capital site. In fact, more than a dozen possible leadership centers or *marka* sites (based on size) were identified. Therefore, instead of examining a single potential *marka* in regional context, this dissertation ended up examining a half dozen such sites for each period in regional context, in terms of the site's position within the Yaretani Basin as well as within the site's demographically-define supralocal community.

The survey and surface collection program furthered two broad goals. The first was to examine Yaretani Basin settlement to reconstruct settlement hierarchies and their changes through time. The second was to reconstruct the distribution of occupation through time in terms of zones of differing agricultural and pastoral potential. This latter goal was important to determining whether leadership or power was connected to domination of economic resources. For example, were centers, where artifactual evidence showed the elite leadership stratum likely to have been living, in areas of highest agricultural potential?

7.1 The trajectory of the Yaretani Basin Polities: Demography and Agriculture

The southern *altiplano* has usually been viewed and treated as a marginal area for extensive agriculture because of the cold, dry, and high-risk (frost, drought) setting. This has particularly been the case for the Yaretani Basin where historical documents refer to it as an area useful only for camelid pastoralism and stress the long occupation by pastoral populations. Yet my archaeological survey showed rain fed terraces having been built on every slope possible in the survey area, and today potato and quinoa production continue to expand. We can be certain that the Basin was a region of agropastoral subsistence prehispanically, the key question between the mix of, or relative emphasis on, agriculture versus pastoralism in the agropastoral adaptation.

As discussed in Chapter 4, there were major demographic and settlement shifts through time. From an initial small sedentary population in the Formative Period, population increased dramatically through the Middle Horizon Period and then at a reduced pace, peaking in the Late Intermediate Period. Population declined dramatically with the LH. The area was never been as populated as it was after the Inka conquest. It is worth pointing out that while the Yaretani Basin is today, and was in historical times, considered a "marginal," low density area, the region's prehispanic population density in the MH and LIP was actually quite high when seen from a comparative perspective.

There was an increasing occupational preference for the optimal agricultural zones (particularly the Slope Zone) from the Middle Horizon through the Late Intermediate Period and concomitant less occupation in the zones of optimal pastoral potential (the Bofedale and Flatland Zones). An increased emphasis on agriculture is one explanation for this trend. Another possible factor may be conflict, with the LIP occupational shifts indicating both population aggregation and a preference for defensible locations. The LIP saw construction of several fortified hilltop sites

(pukaras) and walling of some other major settlements. However, not all LIP occupation concentrations were walled or in defensible locations. vulnerable villages, hamlets, homesteads Overall, while defense may have been a concern it was probably not an overriding determinant of settlement distribution. A concern with warfare and increased emphasis on agriculture are not mutually exclusive, as the Slope Zone of higher agricultural potential also generally offered the better *topo*graphy for defense in comparison to Flatlands and Bofedale Zones.

A third factor that must be considered, that is not part of this dissertation, are ecological trends and events between AD 400 and 1400. There is no evidence that the significant drought (AD 1000 – 1100) now often linked to the collapse of the Tiwanaku state transformed Yaretani Basin subsistence and settlement, but what about the effects of a longer period of generally increasing aridity? Would this condition be likely to "push" or constrict occupation to Slope Zones? Would it impact more heavily the vegetation on which pastoralism depends or the rainfall on which agriculture depended? How would an agropastoral population respond? Future work must entail assimilating the existing information on climate fluctuation in the southern *altiplano* and formal modelling of these questions. Doing so might very well produce specific archaeological expectations that could be addressed with the current settlement information or with the results of archaeobotanical work in the future.

7.2 Concentration and Dispersal in The Yaretani Basin Population

For each period following the Formative multiple supralocal demographic communities or population districts were identified. At no point can we distinguish a single, dominant regional-level site or center in the Basin nor have any reason to think that the Basin was politically unified.

Instead, in the MH and LIP, the settlement pattern suggests multiple settlement supralocal settlement units, somewhat equivalent in scale and composition. During the LIP, there may have been conflict between some of these units.

In each of these districts, there is at least one or more high occupation concentrations (average estimated population 150 – 300) with potential to be *marka* sites or central places. During the MH, the highest degree of centralization was represented by the Chita site to the southeast of Yaretani Mountain. The majority of the MH population living in this side of the Basin, between 300 to 600 hundred, were estimated for this site, with perhaps 100 and 200 people living outside of the settlement. In contrast, in the MH there were more people to the northwest of Yaretani Mountain and many more potential *marka* sites, largest of which were in the most populous supralocal community of Lauca (between 600 - 1200 hundred people). In this part of the Basin as well, however, occupation was divided between those living in these larger villages or even centers, and small hamlets, homesteads and camps.

Demographic distribution was quite dynamic in the Yaretani Basin. Where there was a longstanding clustering of occupation on Flatland/ Slope ecotone settings, some areas of the Basin saw marked temporal increases and declines in occupation. For example, one of the major shifts in LIP occupation, (see Chapter 4) was more occupation in the Slope Zone, but this shift was limited to the northern part of the research zone. In comparison to the south, the north saw continuing, even intensifying nucleation processes resulting in the occupational peaks in the Puqui area of the Lauca supralocal community, and in the concentration in the Jaja district. There is proportionally less occupation outside of these concentrations.

In contrast, south of Yaretani Mountain, occupation overall declined in a manner suggesting near abandonment of the area. Chita was abandoned, leaving low density, dispersed occupation. This continuity shows that use of the Salty Zone did not change from the MH to the LIP, in contrast to the significant changes in occupation in the rest of the survey area. Overall, what is visible in the south suggests a strong tilt to emphasize herding. In fact, the pattern is consistent with what we might expect from a primarily pastoral group. Thus in the LIP, the north and south came to differ markedly in resident population size, land use and agropastoral mix, and presumably in social interaction. One interpretation of this development is that it reflects an increased emphasis on agriculture, which may have been easier to implement in the northern part of the Basin. But "non-economic" factors must have been at play as well. Six of the 12 principal MH sites were abandoned, and new LIP potential *marka* sites appear. And not all of the supralocal communities continue from the MH to the LIP even north of Yaretani Mountain. Settlement shifted locally from the MH to the LIP, but there was significant continuity in the Lauca, Caja, and Jaja areas of concentration of occupation in the research area (including around the Puqui Complex).

Roughly similar settlement patterns (mixed larger villages and dispersed hamlets and homesteads) have been proposed for the Intersalar Zone (Cruz et al. 2017; Lecoq 1999), and also for Lipez (located at the southern shore of the Uyuni Salt Lake) (Nielsen 2002) and by research carried out at the southern shore of the Poopó Lake suggested the presence of central places during the all the prehispanic periods, but the degree of this centralization was not explored further (Michel 2008). Little of this previous research included full scale systematic survey, making difficult comparisons of the Yaretani Basin with neighboring regions. More germanely, by design or as an artifact of methodology, this prior research (including my own pilot work in discerning

the Puqui Complex as the putative *marka* site) has been very site-oriented, and tended to identify the largest settlements, with little concern for regional "background" artifact scatter. What my survey showed was dispersed occupation, as well as political decentralization. For example, part of the settlement pattern in the Basin was the preference for occupation near oases and springs. This preference did not always result in the buildup of architecture creating an easily visible site but is a strong structuring principle in Basin settlement none the less. The different perspective follows from my methodology of quantitatively assessing occupation through artifact densities rather than focusing on the traditional site-based approach.

7.3 Central Places and Leadership Bases in the Yaretani Basin

To determine if the potential *marka* sites of the MH and LIP were functionally distinct or differed in wealth of residents from other occupations within their supralocal communities, I compared their assemblages to those of other occupations within their supralocal communities. As detailed in Chapter 5, the results of this comparison are very ambiguous in some ways but very clear in others.

If we conceptualize the *marka* as a regional central place, a political center or capital, and the resident site of señorío leadership, can we identify such a site in the MH and LIP? For both periods, comparing the potential *marka*s to their supralocal communities suggests not. For the MH, it was not possible to infer the existence of a wealthy resident stratum at any of the potential *marka* sites at intersite level. A potential *marka* site might significantly differ from other occupations in it supralocal community in one or another artifact category, but not consistently in the wealth indicators that would distinguish wealthy elite residence. Where such wealthy

households can be tentatively identified (principally at Cica Catuyo), they may have been differentially involved in ceremonial practices taken place at the plazas and differentially involved in serving/feasting activities.

Nor did the MH show a pattern of a single site in each supralocal community being differentially involved in or dominating exchange. It is widely argued that dominating circulation of nonlocal prestige goods was an important strategy for local elites in the southern Andes during the Middle Horizon Period. Direct trade through caravans as well as down-the-line exchange widely circulated craft goods associated (functionally or iconographically) with the Tiwanaku polity. A significant percentage of these items would have been produced in and around urban Tiwanaku itself. Distinctive "regional" or "Tiwanaku style" materials were also widely produced and circulated, notably from the Cochabamba Valley, Bolivia. Tiwanaku style goods have been recorded at sites in southern Bolivia, northern Argentina, and the Atacama Desert (Berenguer 2000; Lecoq and Cespedes 1997; Nielsen 2014; Torres-Rouff 2008; Uribe et al. 2016). Yet Tiwanaku style pottery is almost completely lacking from the Yaretani Basin sites, suggesting that interaction with Tiwanaku was not important to local elite prestige/economic strategies or economically to the Basin residents as a whole. Countering this, MH cave contexts in the Basin display individuals buried dressed in textiles with what are currently considered to be Tiwanaku costumes and motifs, so it is possible that exchange in perishable materials were significant.

In terms of other economic bases for leadership, one hypothesis was that potential *marka* sites would be disproportionally involved in herding or agriculture. In the MH, Chita represents the only possible example of this. In most cases, the potential *marka* tool breakdown was not different from that of the non-*marka* occupation, nor even from the occupation outside ("Outside)

of any supralocal communities. Overall, there was no compelling evidence of any economic focus being linked to leadership at the site level.

While the *señorío* construct stresses the ritual role of leaders, the distribution of ritual pottery in the survey area did not show an association such pottery and potential-*marka* sites. That some supralocal communities had more than plaza site suggests that no single plaza site functioned as a central place even for its entire supralocal community, let alone for the Basin as a whole.

If we step away from the *señorío* construct, there is a feasible alternative interpretation of MH settlement, as discussed in Section 5.2.8 above. If the MH occupation consisted basically autonomous villages of different sizes and occupied by people doing roughly the same things as in other villages, the fact that some of the larger villages had plazas may simply be a function of village life, instead of supralocal public ceremony. As I conclude in Chapter 5, while there were clearly discrete and distinct supralocal communities in the MH, I cannot specify what institutions or activities were integrating such communities.

In the LIP there are even fewer indications that potential *marka* sites were wealthier than other occupations. Instead, there are several cases in which the potential *marka* sites differ from other occupations within their supralocal communities in proportions of agricultural implements. While this may be evidence that occupants of these sites were differentially involved in agriculture this is not the same as showing that there was a leadership stratum at these sites dominating staple production. As discussed in Chapter 5, the most pronounced functional differentiation in LIP settlement lies in the distribution of plazas and mortuary features. There was an increase in public mortuary practices form the Middle Horizon through the Late Intermediate Period. Plazas distinguish many of the potential *marka* sites from other occupations. And only potential *marka* sites display new (to the LIP) collective and/or publicly visible mortuary features. Plazas become

spatially associated with collective slab tombs, or single slab tombs are located around the plazas, so that communal ceremonies seem to have been more closely linked to ancestors. These LIP changes suggest a new role for these sites in supralocal ceremonial integration (through mortuary ritual and ancestor veneration). Such a role aligns with political dynamics and *marka* function in the ethnohistoric constructs of the LIP *señoríos*. Yet, as in the MH, the differences between potential *marka* sites and others may simply be the differences between larger and smaller settlements generally, with public ritual, elaborate mortuary behaviors, and serving and feasting activities concentrated at larger settlements. How these trends related to political leadership is unclear, although Nielsen proposes that the "poor chiefs" living in the Lipez area, had authority rooted in their leadership of public ancestor veneration practices (Nielsen 2002, 2006), and this is certainly a common feature of late prehispanic leadership in the Andes generally.

The mortuary patterns of the MH and LIP also give evidence for significant social differentiation. In each period, certain individuals received special treatment with burial in more commemorative ways and in more socially charged locales (such as at community entrances or in communal plazas). These burial differences themselves suggest the presence of an elite stratum within each supralocal community. My more detailed analysis of Yaretani Burial patterns is not part of this dissertation.

7.4 The Inka Presence in the Yaretani Basin

While there were striking changes at the regional level in the LH Period, there is little evidence for Inka direct control or even imperial infrastructure. As in other conquered areas, in the LH Yaretani Basin some preexisting political and demographic concentrations were broken

up, and residents were pulled out of occupying defensible locations. Surface collections did not serve to identify an elite stratum allied with the Inka, nor even an elite stratum at any of the few LH sites. There is no evidence in facilities, terraces, or canals of Inka intervention to bolster local agricultural production. No Inka massive storage facilities were found, nor evidence of surplus production. Nor did the remaining population in any way "revert" to a much more pastoral pattern than in previous periods. I think it probable that the demographic and settlement dislocation seen in the LH stemmed from another imperial factor - - the procurement of labor forces to work elsewhere, as documented for other Andean areas (Acuto et al. 2015; D'Altroy 2003; D'Altroy and Earl 1985; Harstof 1990; Michel 2008; Sejas Portillo 2010). The reasons for doing so included punishment of groups that represented threats to the empire, but also attempts to increase staple or artisan production in other areas through creating economic enclaves (D'Altroy 2003). According to historic documents, the Inka took people from the Quillacas-Azanaques confederation to be part of the army for the expansion to the south (Espinoza 1981). The largest Inka settlement recorded in the Yaretani Basin region is the Tambo Viejo de Sevaruyo, which is located close to the main Inka road. Moving thousands of people was not difficult for the Inka Empire. Espinoza (2003) notes that historic documents emphasize the Quillacas-Azanaques Confederation ownership of several huge tracts of land in the valleys of Potosi and Chuquisaca. It is possible that the Inka moved people from arid Yaretani Basin to the more productive valleys to the south, and perhaps even to also provide *mit'a* labor for the mines in Potosi.

7.5 Time Depth of the *Señorío* Pattern

One of the objectives of the research was to trace chronologically the evolution of political organization. In doing so, I sought to ascertain the "time depth" of the *señorío*. As noted in Chapter 1, some scholars have seen the *señorío* pattern as of fairly old, developing in the MH or early in the LIP out of the collapse of MH highland empires. Other scholars have seen it as a late development in the LIP, and some have even argued that it was a LH development in response to Inka imperial hegemony. In the case of the southern *altiplano*, some scholars have viewed the coalescing of a *señorío* pattern as developing in the MH, perhaps through interaction with the Tiwanaku state (itself viewed by some as the largest of *marka* settlements), while other prehistorians posit the pattern developing out of the political upheaval associated with Tiwanaku's collapse at the end of the MH. In the Yaretani Basin, the basic political and settlement configuration (whether we care to describe it as the *señorío* pattern or not) clearly emerged in the MH and continued without much change through the LIP. However we label the pattern of multiple small supralocal communities centered on larger sites, this pattern did not spring from the 11th century AD collapse of Tiwanaku, nor as a response to Inka imperial hegemony.

7.6 Archaeologically Evaluating the *Señorío* Construct

The hypothetical expectation of the *señorío* construct was that the Basin would contain a regional center or capital site (*marka*) functionally distinguishable from other settlements by size, public ceremony, involvement in external ties, and being home to an elite or leadership stratum. Something close to this was documented for the Cinti Valley, Bolivia, the only other area of the

southern *altiplano* to see a comprehensive, problem-oriented regional study of late prehispanic sociopolitical organization (Rivera 2004). Here, however, Rivera Casanovas (2004) encountered a highly centralized regional settlement hierarchy with an apical central place. In contrast to the *señorío* construct, the leadership site of the Cinti polity provided strong evidence for a resident wealthy elite and for domination of staple agricultural production and control of surplus.

To recognize the potential *marka*, I looked for such a site to be distinguished by significantly higher proportions of wealth, status, serving or ceremonial artifacts. We wouldn't expect such a site to differ in all of these dimensions (for instance leadership (in the form of "poor chiefs," may have rested on social and ceremonial authority, rather than on domination of economic processes), but in enough of them, or strongly enough in a one or two of them, that it would differ from surrounding non-*marka* occupations lacking social leaders.

The MH and LIP Yaretani Basin archaeological records differ from the hypothetical expectation in one key way: the lack of a single site that could be identified as *marka* for the Basin as a whole. Instead of a single capital site integrating a confederation or nested hierarchy of settlement units, in both the MH and LIP there were numerous potential *marka* settlements, none of which appeared dominant over the others. As a group, there were no consistent artifactual differences between the occupation at these sites and smaller or more dispersed occupations in their supralocal community districts. In trying to investigate the basis for elite power strategies in the MH and LIP at the regional or intersite level, we are hampered by the inability to show an elite stratum at any of the potential *marka* sites (Chapter 5). There are numerous possible interpretations of this finding, including: (1) there were no wealthy elite at these sites; (2) there were, but their consumption of wealth markers was not sufficient to distinguish their residential sites from other sites; (3) there were elites, but they were "poor" not wealthy elites; and (4) the categories of

artifacts used as proxies for wealth are confounded, or in other ways not strong proxy measures of wealth/status.

The intrasite analysis in Chapter 6 offers evidence, at least for some of the potential *marka* sites, of sections of site displaying significantly higher proportions of high value items and/or differential intensity of serving or ceremonial activities. Although the distribution of high value and serving items were not sufficiently congruent to always identify a single household or a set of households representing an elite stratum, in most cases the spatial patterning indicated measurable intrasite wealth differences. This social differentiation was not visible at the regional or intersite level. Thus, the intrasite analysis would tend to support interpretation #2. Against this conclusion however, is that the intrasite analysis itself presents ambiguities preventing facile interpretation as discussed in Chapter 6. Also, the intrasite analysis only involved a handful of the largest potential *marka* sites with the most suitable collections. We cannot be sure that an equal level of "wealth differentiation" would not appear if we were able to analyze the distribution of materials at smaller, non-*marka* occupations.

It can also be argued (in line with interpretation #3), that the lack of discernable material differentiation at the inter and intra site levels was precisely because social differentiation in the population was muted, and leadership, status, or power did not find expression in lifestyle processes. The population may not have been stratified (into distinct elite and commoner classes) and social differentiation may have been more continuous, more fluid, and more complex, with wealth and status being somewhat distinct axes of variability. Supporting this interpretation is the differential treatment of some dead in the MH and LIP, and the much stronger association between potential *marka* sites and plazas and public mortuary monuments in the LIP. Some of the results

of the intrasite analysis also hint at subtle wealth differences correlating with differences in involvement in ritual activities at some of the potential *marka* sites.

The Yaretani Basin research provides an excellent epistemological platform on which to consider archaeological "testing" of models such as the *señorío* construct. Some of the features of the MH and LIP are consistent with expectations, but other features are not, putting us in position to rethink late prehispanic sociopolitical organization. On the one hand, it can be argued that the *señorío* pattern did not exist as such in the Yaretani Basin, and maybe we should consider the extent to which the *señorío* construct can be considered a conjectural and synthetic one created post facto and projected into the past. As such, in its more elaborated form and details, the construct may only accurately capture a particular and limited place or time in Andean prehistory. As attractive as the construct may be, it is not something that should be widely extended to all *altiplano* sociopolitical configuration. I found no single *marka*, and the existence of multiple small centers does not lend itself to interpretation within the *señorío* framework.

The counter argument is that perhaps each of the potential centers was a *marka*, giving us a Yaretani Basin with 6-12 *marka*s at any one time. It is true that late prehispanic society seems to have been very segmentary, and that there were confederations, hetarachical structure, and social unit duality, or even quadripartition (Bouysse-Cassagne 1987; Platt 1987; Rivière 1983). In ethnohistoric accounts, *ayllus* or their segments are sometimes identified in space using binary oppositions, the urcosuyo and the umasuyo, (the first associated with qualities such as high, right, west, pastoralism, masculinity, dry, celestial, and the second to low, left, east, agriculture, femininity, humid, underworld) (Bouysse-Cassange 1986). This segmentation was described as being mainly at the larger scale of *señoríos* but also for *ayllus* within *señoríos* (there were *ayllus* which corresponded to one or the other moiety). However, this argument is disingenuous and not

productive. To attempt to preserve the construct by labeling every large village in the Yaretani Basin a *marka* is inconsistent with the archaeological evidence and presents a circular argument. Doing so illuminates neither the *señorío* construct nor the Yaretani Basin archaeological record.

That my results are not consistent with the *marka* component of the *señorío* construct cannot be used to argue that such a construct is an ethnohistoric invention or did not exist in prehistory, even in the southern *altiplano*. Late prehispanic social configurations in the southern *altiplano* may have very much existed in a form embodied by the *señorío* construct. If we assume that the *señorío* pattern existed as such in the LIP the absence of evidence for a *marka* site at the Yaretani Basin can be explained several ways. One, the señorío configuration may very well have been a conceptual scheme - - even a set of rules - - that existed strongly in people's minds as an abstract way of seeing the world, cognizing space, and governing social interaction without having a particularly recognizable material signature. Two, prehispanically the *señorío* components and leadership may have been fluid. Only with the assimilation and codification inherent in describing and defining a sociopolitical configuration did it assume some of the more rigid features, such as *the marka* center. What if *marka* status rotated among centers, generationally or in other ways, according to which households held leadership within a *señorío* or among *ayllus*? Three, leaders may indeed not have been very wealthy, or materially differentiated as a social stratum. Archaeologists are increasingly identifying prehistoric examples of high status, even powerful, but non-wealthy leaders.

In any of these cases, the *señorío* pattern would be nearly invisible, and certainly very hard to test archaeologically. Alternatively, the *señorío* pattern could have existed strongly in the past and be archaeologically visible with distinctive *marka* sites. However, I might not be seeing this in the Yaretani Basin because of the small scale involved. The ethnohistoric formulations of the

señorío construct tend to describe the dynamics of uppermost level political authority and practice in very large confederations with thousands, even tens of thousands of members. Much less is recorded for how things worked at much smaller scales of individual villages, even hamlets as in the Yaretani Basin case. True prehispanic *marka*s, and the behavior and features that went with them, may have integrated much larger territories than that represented by the Yaretani Basin. Too, patterns of leadership and social integration at the local level may not have replicated *señorío* patterns at the larger, regional level.

In archaeological terms, this work provides a window on local level settlement evolution in a region where such information has been lacking. In the place of archaeological evidence, scholars had instead conjectured a prehispanic past extrapolated from a native ethnographic construct (or set of similar constructs). My research involved only a small portion of the southern *altiplano*, and it would be presumptuous to extrapolate my findings more widely. Nonetheless, the Yaretani Basin pattern and trajectory differs markedly from those seen in the late prehispanic Cinti Valley, as well those of the Lake Titicaca Basin and northern *altiplano*.

7.7 Further Research

Several avenues of research would be useful in further addressing the research questions posed in Chapter 1 as well as some of the issues that arose from the Yaretani Basin work. One important issue is determining if there was a leadership stratum, distinguishable by wealth, status or ritual involvement, at the potential *marka* sites. As mentioned in Chapter 6, my regional survey and surface collection methodology was not optimized to look for intrasite level patterns. Therefore, logical future fieldwork would be additional, intensive surface collection at Yaretani

Basin sites, large and small, to better capture intrasite assemblage variability. That my regional survey collection enabled me to discern *any* patterns at sites such as Cata Catuyo shows that intrasite socioeconomic differentiation can be learned about from systematic surface collection. Another approach to intrasite patterns lies in fine scale architectural mapping of the sites in order to better understand variability in house sizes, amount of associated storage space, even architectural quality. Advances in drone mapping and GIS software have made quite feasible intensive mapping of sites such those of the Yaretani. Ideally, intensive surface collections would be followed by excavation, both to remove the "palimpsest" nature of the surface collections and to explore contexts (refuse, middens) where we're likely to get a more rich and dense picture of household-level consumption patterns. These endeavors would signally aid in identifying a leadership stratum and its attending activities. Such work need not be done for all of the potential *marka* sites, but only that handful in Chapter 6, for some of which indicators of differentiation already exist.

Another benefit of excavation (and the archaeobotanical remains that it would hopefully yield) would be the ability to talk more confidently about the nature of the non-*marka* occupations in the Basin. In this thesis I have generally refrained from calling these artifact scatters "settlements" as that term implies something about what they really represent. We don't know if they were places occupied year round for decades as an isolated homestead, or seasonally as a camp by people that otherwise lived in a nearby potential *marka* site. Excavation of associated features and seasonality data from botanical remains would help to address this issue.

Such fieldwork would also aid in generating a much needed better understanding of the agropastoral mix represented in the various types of Yaretani Basin. Pastoral adaptations will

certainly prove to be have been much more complex, even specialized, than I've approximated with my coarse "zonal" approach.

Finally, to address the limitations to interpretations caused by the "small scale" of the Yaretani Basin and its presumably small place in the *señorío* world, another logical step is to expand the research scale to determine if there is somewhere nearby a very large, central place settlement, architecturally distinct, maybe significantly larger than the largest Yaretani Basin sites, and if so, subject it and its associated outlying occupations to the kinds of fieldwork done for this project.

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