

THE SETTLEMENT HISTORY OF THE LUCRE BASIN (CUSCO, PERU)

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INTRODUCTION

This article outlines the results of a systematic archaeological survey that took place between the towns of Oropesa and Andahuaylillas in the Department of Cusco during June and July of 2006.¹ The fieldwork was part of a decades-long effort to document the settlement patterns of the Inca heartland, and it built directly on earlier surveys by Bauer (1992, 1999, 2004) and Covey (2006, 2014a) and later continued by Kosiba (2010). These surveys, which now cover more than 2200 square kilometers and have recorded more than 3000 archaeological sites, have brought new, multi-regional perspectives to questions of cultural development in the Cusco region (Figure 1). The surveys have also helped archaeologists move away from interpretations based on myth and legends that have long handicapped investigations of Inca history (Bauer and Smit 2015), and they

have brought data-driven, anthropologically-based models to the forefront (Covey 2006; Covey *et al.* 2013). Equally important, when the surveys are combined with the results of excavation projects that are being conducted at different sites across the region by a new generation of archaeologists (Bélisle 2011, 2015; Davis 2011, 2014; Hardy 2019; Skidmore 2014; Quave 2012) we can begin to place site-specific information within broader perspectives of regional change.

For decades, research in the Oropesa to Andahuaylillas region, and more specifically within the Lucre Basin, has contributed important data on the Wari site of Pikillacta (McEwan 1984, 1987, 2005), the occupational history of the multi-component site of Chokepukio (Gibaja Oviedo 1973, 1983; Gibaja Oviedo *et al.* 2014; McEwan *et al.* 1995), and the early development of the Inca state (Bauer and Covey 2002). The goal of this article is to build upon these previous studies with data from a comprehensive archaeological survey. More specifically, our work in the Oropesa to Andahuaylillas area helps to explore four research themes: 1) the pre-Wari settlement history of

¹ Field members of the project included Véronique Bélisle, Eulogio Alcacondor, and Geanette Guzmán. We thank Monica Barnes, Alan Covey, Douglas Smit, Mary Glowacki, and the reviewers for *Andean Past* for their comments and suggestions.

the region; 2) the impact of the arrival of the Wari on the local settlement system; 3) the nature of the Late Intermediate Period political organizations; and 4) and the impact of the Inca incorporation of the region and its transformation through state practices. While these issues have been addressed, to a greater or lesser extent, by previous investigators at specific sites, our survey brings a regional perspective to these issues. While our research confirms many aspects of hitherto conducted research, our survey data provide new, and in some cases more nuanced, information regarding changes over time in the region.

THE 2006 SURVEY REGION: OROPESA TO ANDAHUAYLILLAS

The 2006 survey began east of Cusco near the modern town of Oropesa, where Bauer's Cusco Valley survey ended in 1999 (Bauer 2004:9–13). The new survey terminated some fourteen kilometers to the southeast, near the town of Andahuaylillas, where Glowacki's survey work in Huaro region began in 2000 (Glowacki 2002:268). The northern border of the study area was marked by the Vilcanota River, and the southern edge was drawn across a series of mountain summits (Figure 2). As such, the survey covered the Lucre Basin and the much smaller Andahuaylillas River drainage. The research area also contained the confluence of the Huatanay and Vilcanota Rivers, as well as Lake Muina. Much of the survey area had already been explored during McEwan's study of the Lucre Basin during the early 1980s (McEwan 1984, 1987), but our work introduced a more consistent field methodology and employed a more extensively defined ceramic sequence (Bauer 1999; Bauer and Jones 2003). The 2006 field work, which included a one hundred percent pedestrian survey with team members walking at fifty meter intervals, followed the same basic survey methods that have been used in other regional survey projects

across the Cusco region (Bauer 1992, 2004: 9–12; Covey 2006, 2014a) as well as the ceramic typologies presented by Bauer (1999), Bélisle (2011:235–253) and Covey (2014a:10–16) (Figure 3).² In total, the Oropesa–Andahuaylillas survey covered approximately one hundred square kilometers, and recorded the size, location and approximate age of about 170 archaeological sites, ranging from small lithic scatters to the magnificent and well-researched site of Pikillacta (McEwan 2005).

We anticipate that the results of the Oropesa–Andahuaylillas survey will be of interest to a range of Andean scholars concerned with the history of the Cusco region, particularly Wari specialists, because the survey included the Lucre Basin, the area surrounding the site of Pikillacta. The survey may also draw the attention of scholars interested in later time periods, because the study area contained two important groups, the Muina and the Pinagua, during the Late Intermediate Period (A.D. 1000–1400)

² The archaeological survey of the Lucre Basin followed guidelines introduced by Jeffrey R. Parsons, Charles M. Hastings, and Ramiro Matos M. many decades ago (Parsons *et al.* 2000, 2013), and followed by dozens of survey projects in the Andes. Each day our surveyors walked assigned areas to identify the locations of prehistoric sites. When a site was found, its coordinates were recorded with a Global Positioning System (GPS), and its location was marked on 1:25,000 topographic maps and on aerial photographs of the region. Standardized survey forms were used to record information such as: the size of the site, its location relative to natural and cultural features, the presence or absence of architecture, the presence or absence of burials, and the density of ceramics and lithic visible on the surface. Diagnostic surface pottery and lithic artifacts were collected at each site to determine the occupation periods for the site. During the surface collections, the surveyors walked in lines over the surface of the site systematically collecting the artifacts. If architectural units or field boundaries were present at the site, separate collections were made in each. As with pedestrian surveys worldwide, the results of our findings are limited because of erosion, farming, and the destruction of large areas in modern times because of road construction and urban growth.

who came under the control of the Inca relatively late in the process of state growth (Bauer and Covey 2002). The survey area also included the ancient quarries of Rumicolca (Béjar Mendoza 2003; Protzen 1985, 1986) and the small Inca site of Qañarakay (also spelled Cañaraqay and Kañarakay and also known as Muina or Huascar) that may be a surviving portion of Huascar's royal estate (Arriola Tuni and Bustinza 2000; Betanzos 1996 [1557]:176).

PREVIOUS RESEARCH IN THE SURVEY REGION

The ruins of the Lucre Basin have long drawn the attention of visitors and scholars. The Spanish foot soldier Pedro Cieza de León (1976:261) remarked on the well-preserved remains of Pikillacta and the nearby aqueduct of Rumicolca. Centuries later, Ephraim George Squier (1877:419–422) also commented on both the great size and antiquity of Pikillacta and on the impressive nature of the Rumicolca aqueduct. The ruins of Pikillacta and Rumicolca were photographed and described by Hiram Bingham (1913:526–529) and they are mentioned in early tourist guides for the Cusco region (e.g., Cosío 1924; Giesecke 1924) as well as in the first archaeological summary of the region (e.g., Pardo 1937:192–203).

John Rowe (1956:112) was the first to link the site of Pikillacta with the Ayacucho region, and his work was followed by others (e.g., Harth-terre 1959; Sanders 1973).³ However, most of what we currently know about Pikillacta is based on Gordon McEwan's long term study

of the site. His landmark dissertation (1984, 1987) produced an excellent map and a description of the site, and established Pikillacta as a likely provincial capital for the Wari in the Cusco region. McEwan also conducted reconnaissance work in the Lucre Basin, recording the locations of thirty-two sites, approximately half of which appeared to date to Wari times.⁴ He proposed that the constellation of Middle Horizon sites in the Lucre Basin, which he referred to as Greater Pikillacta, functioned as a nexus for Wari administrative control over the Cusco region. During 1989 and 1990, McEwan (1996, 2005) directed a larger-scale excavation project at Pikillacta aimed at better understanding its construction sequence and the activities that occurred within this critically important site. Since that time, the Ministry of Culture has conducted numerous projects at Pikillacta (Figure 4). Unfortunately, with the exception of the contents of an elaborate offering pit (Arriola Tuni 2008; Arriola Tuni and Tesar 2011), the results of the Ministry of Culture's projects have not been made accessible to the public.

There are two other large sites within the Lucre Basin. The first is Chokepukio, the massive walls of which have long fascinated researchers (Giesecke 1924; Pardo 1937:193–203). The systematic study of Chokepukio began in the early 1970s under the direction of Arminda Gibaja Oviedo (1973, 1983). In 1994, Gibaja Oviedo joined with McEwan to conduct more than a decade of excavations at the site (Gibaja Oviedo *et al.* 2014; McEwan *et al.*

³ Research was also conducted in the Lucre Basin by various professors (Luis Barreda Murillo, Manuel Chávez Ballón, José Gonzáles Corrales, and Alfredo Valencia Zagarra) and students (Magda Mateas Cardenas [1984], Carlos A. Arriola Tuni and Reynaldo Bustinza Espinoza [1995], Betsy Nohemí Vallenás and Nilda Ccanchi Atayupanqui [2010] of the Universidad San Antonio Abad, as well as members of the National Institute of Culture (now the Ministry of Culture).

⁴ While our survey confirmed most, if not all, of the sites found by McEwan (1987), and our estimates of occupation periods generally concurred, our site-size estimates differ considerably. For example, McEwan (1987:9) suggests that the site of Chokepukio covers more than one square kilometer, an estimate that was developed by clumping what we feel are several different sites into one. We estimate that the maximum occupation area of the site of Chokepukio *per se* was about thirty hectares.

1995).⁵ The other large site in the Lucre Basin is Minaspatha (Figure 5). Although Edward Dwyer's test excavations at Minaspatha in the early 1970s determined that the site was exceptionally large, and that it had a continuous occupation from Formative to Inca times (Dwyer 1971a:41, 71–78, 1971b:33, 35), until recently this site has received little attention.⁶ Our understanding of this important site will soon change, however, as it is the focus of Thomas Hardy's 2019 doctoral dissertation and a large-scale excavation project directed by the Ministry of Culture.

Another major prehistoric feature of the Lucre Basin is the large canal and terrace system that draws water from the Lucre River (Valencia Zagarra 1996, 2005). Because the highest of the canals crossed the Rumicolca aqueduct, it has been long suggested that the canal was used to bring water to Pikillacta (Cieza de León 1976: 261; Pardo 1937:192–203; Squier 1877: 419–422) and that this impressive hydraulic system was built by the Wari (McEwan 2005: 19–20; Valencia Zagarra 2005).

Before we review our data and the long history of settlements in the survey region, it is important to draw attention to another cluster of sites located just beyond the boundaries of our study region, in the nearby Huaró River Valley, some twelve kilometers southeast of Pikillacta. In 1952, looting at the site of Batán Orqo, within the Huaró River Valley, revealed

the remains of a cemetery with at least one elite burial dating to Wari times (Reichlen 1954; Rowe 1956:142). Later work by Julinho Zapata Rodríguez (1997) confirmed the existence of the cemetery and indicated that there were other Wari occupations in the area. Mary Glowacki and Zapata Rodríguez conducted excavations at five major sites in the Huaró region in 1996 and 1997. This was followed by a survey of the Huaró Valley by Glowacki and Nancy Román, which documented a dense distribution of Middle Horizon sites that are now referred to as the Huaró Archaeological Complex, as well as additional excavations (Glowacki 2002). More recently, Maeve Skidmore (2014) conducted extensive excavations at the site of Hatun Cotuyoc within the Huaró Archaeological Complex to better define the nature of the Wari occupation. Her research suggests that Wari colonists arrived in the Huaró region around A.D. 650 and that there was an apparent increase in the intensity of state affiliation after A.D. 800. Like Pikillacta, the Wari colonies of Huaró appear to have been abandoned near the end of the first millennium A.D.

ARCHAIC PERIOD REMAINS

Little is known about the Archaic Period in the Cusco region. Although it is clear that hunting and foraging bands were moving through some of the highest regions of the Andes Mountains at the end of the Pleistocene (Rademaker *et al.* 2014), the first occupations of the Cusco region have yet to be intensively studied (Bauer 2007). In a recent publication, Covey and Griffis (2014) outlined the difficulties in studying the Archaic Period in Cusco, noting that terrace construction and thousands of years of village settlements have destroyed most evidence. They note that the few Archaic Period sites that have been found tend to be in marginal areas that are undergoing high rates of soil erosion. This is certainly true in the Oropesa–Andahuaylillas study region.

⁵ Although we visited the sites of Chokepukio and Pikillacta during our survey, we did not make systematic surface collections at them. Our observations on these sites are guided by the published works of McEwan and his colleagues.

⁶ Dwyer excavated at Minaspatha with a group of students from UNSAAC in 1981–82. In addition UNSAAC field school excavations were conducted by Valencia Zagarra in 1996 and by José González Corrales in 2002. The results of these projects have not been published.

During our field work we identified eight sites that we believe date to the Archaic Period.⁷ Each of the sites consisted of a light scatter of andesite flakes, and half of these contained one or two andesite projectile points that were discarded before completion because of flaws in the stone. The overwhelming selection of andesite for tool making is not surprising given the outstanding andesite quarries in the region. The preference for locally recovered andesite has also been noted at the Archaic Period site of Kasapata, which is located only a few kilometers from the survey area (Bauer 2007).

THE FORMATIVE PERIOD SETTLEMENT PATTERNS

The Formative Period in the Cusco region is a large expanse of time that begins with the establishment of the first small settlements and ends with the emergence of large villages (Bauer 2004). The later part of this period is notable in the archaeological record by the appearance of Chanapata ceramics (c. 500 B.C.–A.D. 200; B  lisle 2011:83–84; Rowe 1944:15–16; Zapata Rodr  guez 1998:310–311).⁸ The combined results of the various regional surveys that have been conducted in the Cusco region over the past twenty-five years have identified hundreds of small Formative sites and a dozen or so disproportionately large Formative Period settlements (Bauer 2004:39–46; Covey 2014b; Kosiba

2010:132–142).⁹ This two-tiered settlement pattern suggests that a limited number of multi-village polities developed in the Cusco region during late Formative times (Bauer 2004: 45–46). Our work in the Lucre area lends support to this model of regional settlement development.

During our survey work between Oropesa and Andahuaylillas, we recovered Formative ceramics at thirteen sites (Figure 6). The two largest Formative sites in the region are Minas-pata (POA 61) and Chokepukio (POA 71), both of which may have measured ten hectares or more during this period. What is clear is that both Minas-pata and Chokepukio were established early, and that they quickly came to dominate the local settlement pattern (also see Dwyer 1971a, 1971b). Four other Formative sites within the survey region are estimated to measure between one and five hectares. Two of these sites are in the Andahuaylillas Valley (POA 124, POA 129), one is near the ancient quarry area near the archaeological site of Pi  nipampa (POA 46), and one is on a high knoll near the town of Oropesa (POA 17). Seven other Formative sites are recorded as small

⁷ While it is likely that most, if not all, of these sites date to the Archaic Period, none yielded known projectile point styles, so their occupation dates cannot be determined with certainty. The identification of Archaic Period sites was also complicated by the millennia of mining and stone building/terrace construction that have occurred in the region. These activities have produced a vast amount of lithic debris. Excavations will be needed to confirm that these sites are all preceramic in date.

⁸ McEwan *et al.* (1995:15) have published two dates from the Chanapata deposits at Chokepukio, both of which fall a century or two before the common era.

⁹ Among the largest documented Formative sites in the Cusco region are: Ak'awillay in the Xaquixaguana plain (B  lisle 2011), Wimpillay in the Cusco Valley (Bauer 2004:43–44; Zapata Rodr  guez 1998:311), Wat'a in the Huarocondo region (Kosiba 2010), Raqchi and Muyumuyupata in Chit'apampa (Covey 2014b:67–69), Apu Sompechu near Pisac (*ibid.*), Minas-pata and Chokepukio in the Lucre Basin (Dwyer 1971a:71; McEwan 1995:14–15), Batan Orqo in Huaru (Zapata Rodr  guez 1998:309, 311), as well as several others in the area of Maras (Davis 2011:26–27, 33–38, 2014:54–48). Allison Davis (2011) conducted excavations at the site of Yuthu, located to the west of Cusco between Maras and Anta. Her work represents the first horizontal excavations at a Chanapata site, and has provided information on what daily life was like at a small village during Formative times. Recent research at the site of Ak'awillay has also shown that Derived Chanapata ceramics continued to be in use in later time periods in parts of the Cusco region (B  lisle 2011:83; Covey 2014b:66).

settlements (less than one hectare) defined by light scatters of surface ceramics. These small sites are distributed across the lower and mid-range valley slopes, from 3150 meters to 3620 meters, in different farming zones. The overall settlement pattern suggests that there may have been two multi-village polities in the Lucre Basin during Formative times, at Minaspata and Chokepukio, each of which had its central village on different sides of the Huatanay River.

THE DISTRIBUTION OF LESSER KNOWN EARLY INTERMEDIATE PERIOD AND MIDDLE HORIZON CERAMIC STYLES IN THE SURVEY REGION

Sites dating to the Early Intermediate Period (A.D. 200–600) and the Middle Horizon (A.D. 600–1000) are difficult to separate in archaeological surveys of the Cusco region because the most common ceramic style of the Early Intermediate Period, Qotakalli, continues well into the Middle Horizon (Bauer and Jones 2003: 14–15; B  lisle 2011:87–89). This also appears to be true for three lesser-known styles called Ccoipa, Muyu Orco, and Incised Incensarios.¹⁰

¹⁰ A Cusco-based ceramic style called Huaro (Waru), which was identified in the 1960s, is generally thought to date to the Early Intermediate Period. This has been supported by excavations by Hardy (2019) and Gonz  lez Arend  o *et al.* (2015:78) at Minaspata (also see Bauer 1999:110–111, 158, 231–232 and Rowe 1944:3–8, 19–20). Excavations by B  lisle (2011:85) indicate that Huaro-style pottery was also in use during the Middle Horizon in the Xaquixaguana Plain and Glowacki found a few sherds during her work at Pikillacta. However, we still lack a detailed study of this ceramic style. We know that there are examples in our study region, However, because we did not recover clear examples of Huaro ceramics during our surface survey, we offer no distribution study. When definitive samples of Huaro ceramics are recovered in the Lucre area, either in surface collections or from excavations, we expect the settlement pattern to be roughly similar to that represented by Formative and Qotakalli pottery. That is to say, we expect a two-tiered settlement pattern with both Minaspata and Chokepukio representing the two largest sites, and a series of much

In contrast, Wari-style and Arahuaay ceramics date only to the Middle Horizon, so they are generally used by researchers to help measure the impact of Wari colonization in the Cusco region (Bauer 2004:55–56; Covey *et al.* 2013: 511–543; Glowacki 2005a, 2005b; Skidmore 2014: Appendix B, pp. 352–372). Below we discuss the distribution of the first three of the lesser-known ceramic styles (Ccoipa, Muyu Orco, and Incised Incensarios) in the Oropesa to Andahuaylillas study region (Figure 7). The distribution of Qotakalli, Wari, and Arahuaay ceramics will be examined in following sections.

Ccoipa pottery is a minor ceramic style of the Cusco region composed of alternating black and red, nested, geometric figures on a reddish-yellow paste (Bauer 1989; 1999:75–78). Produced in the province of Paruro, Ccoipa ceramics have also been found in the adjacent Cusco Valley (Covey *et al.* 2013:543). During our survey work between Oropesa and Andahuaylillas we found Ccoipa ceramics in very small quantities at the large village of Minaspata (POA 61), the small village sites of Pi  nipampa (POA 46) and Mama Colla (POA 167a), and at three small, unnamed sites located along the Lucre River (POA 146, 168, 169). The locations of the smallest Ccoipa ceramic containing sites are intriguing because, by traveling up the Lucre River, one can enter the province of Paruro, the source of Ccoipa ceramics (Figure 8).

Two other ceramic styles, Incised Incensarios and Muyu Orco, are thought to document Altiplano influences in the Cusco region (Bauer and Jones 2003:57–65). It is worth noting that these styles are not part of extensive assemblages, but instead are limited to a small range of special function vessels. Incised Incensarios and Muyu Orco ceramics are rarely found in surveys to the north of Cusco (Ollantaytambo

smaller sites spread across the agricultural zones of the area.

and the Sacred Valley), but are more numerous in the Xaquixaguana Plain, the Cusco Valley, and areas to the south. Incised Incensarios (Figure 9) were first noted between Cusco and Lake Titicaca (Chávez 1985), and were later documented in Paruro (Bauer 1999:129–130), in the Cusco Valley (Bauer 2004:50–51), and at the site of Ak'awillay (Bélisle 2011:86–86). Excavations have recovered Incised Incensarios in contexts with Qotakalli pottery and Muyu Orco ceramics both in the Cusco Valley and at the site of Ak'awillay near Anta (Bauer and Jones 2003:14; Bélisle 2011:247). Our survey of the Lucre Basin found two Incised Incensario fragments at the large site of Minaspata (POA 61).

Muyu Orco pottery contains strong black, white, and orange colors painted over a polished, dark red background. While relatively uncommon, Muyu Orco ceramics have been found in small amounts during surface collections and excavations at sites in the Xaquixaguana region (Bélisle 2011:87; Covey *et al.* 2013:544), the Cusco Valley (Bauer 2004:50–51; Bauer and Jones 2003:9–14, 62), and the province of Paruro (Bauer 1999:78–81). Excavations have recovered Muyu Orco pottery in contexts with Qotakalli pottery and Incised Incensarios both in the Cusco Valley (Bauer and Jones 2003:9–14) and at the site of Ak'awillay near Anta (Bélisle 2011:127–128, 173–174). During our survey of the Lucre Valley, we recovered a small number of Muyu Orco fragments at the two sites: Minaspata (POA 61) and Piñipampa (POA 46).¹¹

THE EARLY INTERMEDIATE PERIOD SETTLEMENT PATTERN

The dominant ceramic style used during the Early Intermediate Period in the Cusco region is called Qotakalli (Figure 10). It is generally composed of black or black-and-red linear designs painted on thin white or cream slip ceramics on a buff or occasionally pinkish fabric (Bauer 1999:70–73; Bauer and Jones 2003:45). Although burnished earthenwares continued to be produced during the Early Intermediate Period in some areas of the Cusco region (Bélisle 2011:83), the advent of a new design style, along with different production technologies and a host of different vessel types, appears to document the introduction of a new artistic tradition into the Cusco region. Clay studies suggest that Qotakalli ceramics were produced in the Cusco Valley (Montoya *et al.* 2003, 2009). These results are supported by regional surveys conducted to the north (Covey 2014c: 101–103), south (Bauer 1999:73–75), and west (Bélisle and Covey 2010:83–85; Bélisle 2014:84) of the Cusco Valley that have found that the density of sites containing Qotakalli diminishes as distance from Cusco increases. Beginning around twenty to thirty kilometers from Cusco, a range of similar, but of lesser quality, locally-produced ceramic styles begins to appear (Bélisle 2011, 2014; Covey 2006:66–67, 2014c: 102).

Our survey work in the Lucre Basin found Qotakalli ceramics at sixteen sites (Figure 11).¹² The results suggest that the largest two sites of the Formative Period, Minaspata (POA 61) and Chokepukio (POA 71), continued to grow during the Early Intermediate Period, with each containing deep Qotakalli strata (González

¹¹ We expect that Ccoipa, Incised Incensarios, and Muyu Orco ceramics will be recorded from Chokepukio once the ceramic analysis has been completed.

¹² Excavations and radiocarbon samples taken by Thomas Hardy (2019) at Minaspata support the proposition that the production of Qotakalli style ceramics began in the fourth or fifth century A.D.

Avendaño *et al.* 2016; Hardy 2019, McEwan *et al.* 1995). The Qotakalli occupation of Minas-pata was especially large during the Early Intermediate Period, perhaps covering fifteen hectares. There were also three small village-sized sites in our study region measuring between one and five hectares (Raqchi [POA 17], Patawasi [POA 129], and Piñipampa [POA 46]) with Qotakalli pottery, each of which grew out of Formative Period occupations. The site of Mama Colla (POA 167a) appears to have been established during Qotakalli times, and it continued to be occupied in subsequent periods. In addition to these sites, nine other small Qotakalli sites measuring less than one hectare were located.¹³

The appearance of Qotakalli ceramics is paralleled in many areas of the Cusco region by settlement shifts. In the Xaquixaguana Plain and the Sacred Valley there is a general settlement shift in the Early Intermediate Period from occupations on knolls or ridges to lower areas (Bélisle 2014; Bélisle and Covey 2010:83–85; Covey 2014c:96–103). A similar shift has been noted in the Cusco Valley (Bauer 2004:51–53), as various knoll-top settlements were abandoned towards the end of the Formative Period and the number of valley-bottom sites increased sharply during the Early Intermediate Period. An analogous shift was not, however, noted in our survey of the Lucre Basin. The largest Formative Period sites in the Lucre Basin were already founded near the valley bottom, and these sites continued to grow during the Early Intermediate Period. In other words, rather than seeing a settlement shift in the Lucre Basin

between the Formative and Early Intermediate Periods we see a continued occupation and growth of the largest valley-bottom sites.

The settlement locations of the Early Intermediate Period sites are especially interesting because many researchers suggest that the Wari reorganized the local Middle Horizon economy towards maize production. While the field data of the Cusco region certainly suggest that the Wari were interested in the production of maize, lake cores (Chepstow-Lustry 2011; Chepstow-Lustry *et al.* 2002, 2003) and excavations (Chávez 1981:243–244; Davis 2011:16) document that maize was already present in the region during the Formative Period. These findings are supported by recent excavations by Hardy (2019) at Minas-pata that recorded maize being produced and consumed in the Early Intermediate Period and possibly in the Late Formative. In short, survey and excavation results from across the Cusco region indicate that its many local economies had begun concentrating on maize production during Early Intermediate times, if not earlier, well before the arrival of the Wari (Bauer 2004:52–54; Bélisle 2011:133, 225; Bélisle and Covey 2010:85).

THE MIDDLE HORIZON (WARI) SETTLEMENT PATTERN

Current data suggest that the Wari populations entered the Cusco region sometime around A.D. 650 and their major installations appear to have been abandoned around the end of the first millennium (Glowacki 2005b; Skidmore 2014:332). Initial archaeological research on the Wari in the Cusco region was centered on the monumental site of Pikillacta. Located on a previously unoccupied mountain slope above Lake Muina, and built following a rigid orthogonal system, Pikillacta represents the largest planned Andean site of its era. Because of its vast size and formal layout, Pikillacta has long been thought to be the center of Wari

¹³ Qotakalli pottery, and a few fragments of Waru ceramics, have been recovered at the site of Pikillacta (Glowacki 1996:212, 248, 2005a:106–108). However, rather than representing an Early Intermediate Period site, the Qotakalli and Waru remains at Pikillacta record the continued use of locally produced vessels during the Middle Horizon.

administrative control of the Cusco region (McEwan 1987; Sanders 1973). McEwan (1987, 1989, 2005; also see Glowacki 2005a, 2005b, 2012; Glowacki and McEwan 2001) in his pioneering study of Pikillacta, suggests that the entire Lucre Basin was converted by the Wari into a “Greater Pikillacta,” a basin-wide arrangement of sites that were developed to support Pikillacta.

More recently, a dense cluster of Wari sites, referred to as the Huaro Archaeological Complex, has also emerged as an important focus of archaeological research on the Wari in the Cusco region (Glowacki and McEwan 2001; McEwan 2005; Skidmore 2014; Zapata Rodríguez 1997). It has been proposed that Wari colonists first settled the Huaro area and shortly thereafter began to construct Pikillacta (Glowacki 2002, 2012). The large and architecturally diverse Huaro Archaeological Complex, which contains workshops, temples, domestic housing, elite spaces, isolated burials, and cemeteries, is now seen as having been a thriving area of Wari activities (Glowacki 2002; Skidmore 2014). The possible displacement of the previous inhabitants is marked by sudden changes in both architectural (Skidmore 2014:187–194) and burial (Zapata 1998:317–319) styles.

As we began our survey between Oropesa and Andahuaylillas in 2006, the importance of the Huaro Archaeological Complex in relation to the Wari presence in the Cusco region was just becoming understood, and it raised several new questions. Most importantly, we wanted to know if the large sites of Chokepukio and Minaspata, both of which are located within two kilometers of Pikillacta, remained as largely autonomous communities during the Middle Horizon, or if they, like Huaro, became the focus of large-scale Wari occupations. Furthermore, we wanted to understand more fully the distribution of Middle Horizon sites in the Lucre Basin as a whole, particularly in light of the

suggestion that there was a dense array of sites within the basin that directly supported Pikillacta (Glowacki and McEwan 2001; McEwan 1987, 1989, 2005).

Middle Horizon settlements in the Cusco region are generally identified by remains of Wari architecture, as seen in Pikillacta and Huaro, and the recovery of Wari-style and Wari-influenced material culture (especially ceramics). Like others who have conducted survey work in the Cusco region, we limited our classification of “Wari-style ceramics” to fine polychrome vessels that closely conform to stylistic canons that have been identified in the Wari heartland of Ayacucho and other major Wari state installations (e.g., Glowacki 1996, 2005a; Knobloch 1991; cf. Menzel 1964). Some of these fine polychrome vessels were made in the Wari heartland, while others were produced in its provinces (Montoya *et al.* 2003). While experts in ceramics who are more familiar with Wari artistic traditions are sometimes able to further subdivide individual sherds within Wari ceramic collections into separate styles based on different iconographic traditions (e.g., Chakimpampa, Conchopata, Ocros, Viñaque, and Huamanga), survey archaeologists working in the Cusco region have been more comfortable applying a more general classification (*i.e.*, Wari-style ceramics) to fine polychromes recovered during surface collections (Covey *et al.* 2013). During our survey work, we also used the stylistic designation “Arahuay” to refer to a particular kind of locally produced, Wari-influenced, ceramics (Figure 12). More specifically, Arahuay pottery appears to be a locally-produced imitation of Huamanga pottery (Glowacki 1996: 204–207), one of the most common ceramic styles found in the Wari heartland of the Ayacucho area (Cabrera Romero and Ochatoma

Paravicino 2003, 2016).¹⁴ First identified in the late 1980s (Bauer 1999:67–68, 2002:81) Arahua ceramics are now known to have been made from Cusco clays (Montoya *et al.* 2003; Delgado *et al.* 2007) and survey and excavations have found them to be widely distributed across the Cusco region (Covey *et al.* 2013).¹⁵

In the course of our survey work in the Lucre Basin, we noted the presence of Wari-style and/or Arahua ceramics at twenty-one sites. The largest of these sites was Pikillacta. The exact occupation size of Pikillacta is difficult to estimate as research published by McEwan (2005:47–148) and by Glowacki (2005b:120) has documented that it was never fully occupied. Nevertheless, it is clear that Pikillacta was massive in comparison to any other settlement in the survey region. A small number of Wari-style and/or Arahua ceramics were also found at the two large village sites of Chokepukio (POA 71) and Minaspata (POA 61). However, based on the distribution of surface pottery, it appears that these settlements became *smaller* during Wari times rather than expanding. For example, our surface collections suggest that Minaspata (POA 61) shrank in size to between five and ten hectares during the Middle Horizon.¹⁶ More recent test excavations

conducted by Thomas Hardy (2019) and the Ministry of Culture (Cabrera Carrillo 2015) across Minaspata also suggests that there was a sharp reduction in size—perhaps a near abandonment—of the site after A.D. 600.

Our survey work also found Middle Horizon materials at the small village sites of Patawasi (POA 129), Piñipampa (POA 167), Mama Colla (POA 167a), and Unka Punku (POA 167b). It is important to note, however, that all four of these sites were established well before the arrival of the Wari in the Cusco region and the number of Qotakalli fragments recovered at them greatly outnumbered the Wari-style and Arahua sherds. Small numbers of Wari-style and/or Arahua fragments were also recovered at fifteen other sites that were each less than one hectare. Two of these small sites (POA 50 and POA 52) are in a large rocky area pockmarked by shallow pits. We believe that these two sites represent small settlements related to the extraction of near-surface rocks to help build the great walls of Pikillacta.

While it is clear that the Wari were conducting activities in the Lucre Basin, it is important to note that our survey did not find evidence of a strong Wari presence outside of the site of Pikillacta (Figure 13). These findings were contrary to our initial expectations. Based on the results of Glowacki's work in the Huaro area (Glowacki 2002; Glowacki and McEwan 2001) as well as the observations made by McEwan (1987, 1991, 1996) during his work in the Lucre Basin, we expected to find a large number of Wari support facilities directly related to Pikillacta. In contrast, apart from evidence of Wari quarrying, we found only light scatters of Wari-style ceramics at a series of sites, the largest of which were at well-established villages that had already been occupied for centuries.

¹⁴ Local imitations of Huamanga pottery also appear to have been identified in other areas of Peru that may have been Wari provinces, such as Majes (Owen 2007) and Cotahausi (Jennings and Yépez Álvarez 2014). However, direct comparisons of Wari-style and Wari-imitation pottery between these regions has not been done, and as a result, their relationships are unclear.

¹⁵ Detailed analyses of ceramics recovered at Pikillacta and Huaro have documented numerous Wari and Arahua style sherds at these Wari centers (Glowacki 1996, 2005a, 2012; Skidmore 2014).

¹⁶ Because we did not make systematic surface collections across Chokepukio, our understanding of this site's size during Wari times is less well developed. McEwan *et al.* (1995:15) note that there is a level of Wari and Qotakalli remains at the site, but its areal extent remains to be

defined.

There is also no evidence in our survey area, as has been found in the nearby Huaro area, for a dense array of new occupations during the Middle Horizon. In contrast, our surface collections from Minaspata (POA 61) suggest that this site became smaller during the Middle Horizon, and we suggest that a similar reduction in size may have occurred at the site of Chokepukuio (POA 71) as well. Furthermore, unlike in the Huaro area, where Skidmore (2014:313–315) suggests that some of the local population was replaced by new settlers from Ayacucho, we propose that the light presence of Wari-style and Arahua ceramics at the two largest village sites in the Lucre Basin, as well as at several small villages, reflects the consumption of Wari-style and Wari-related goods by local inhabitants, rather than marking a fundamental change in the population. In other words, our survey results suggest that the major Early Intermediate Period sites of the Oropesa–Andahuaylillas region continued to be occupied into, and perhaps throughout, the Middle Horizon, albeit at much smaller scales. While these villages had access to Wari-style and Wari-related ceramics during the Middle Horizon, there does not appear to have been the same sort of large-scale transition to an Ayacucho-based identity at these settlements that has been documented in the Huaro area.

The Lucre Basin also contains an impressive canal system. In the only detailed study of the system, Alfredo Valencia Zegarra (2005:83–97) mapped six separate canals (A–F) that he believed together measure more than forty-eight kilometers. Valencia Zegarra (1996, 2005:88) proposes that the entire system was built by the Wari (also see McEwan and Williams 2012: 74–75). The total construction costs of the system must have been enormous, as it involved the building of canals, as well as retaining walls, aqueducts, reservoirs, and large expanses of low

terraces. Valencia Zegarra (2005) suggests that at its peak, the system irrigated some 572 hectares of warm valley-bottom lands. It is also worth noting that in most cases of state constructed canal and terrace systems, the formerly marginally productive land that is converted into irrigable fields is claimed by the state, and the resulting produce is used to support the political economy (Earle 1997). In other words, we can assume that whoever constructed the massive canal and terrace system in the Lucre Basin, be it the Wari or the Inca, benefitted directly from the new lands that were brought under cultivation.¹⁷

The highest canal, what Valencia Zegarra calls Canal A, is of special interest to Wari scholars because it crossed two large aqueducts (the Rumicolca aqueduct [Figure 14] and the Combayoc aqueduct [Figures 15, top and 15, bottom])¹⁸. Valencia Zegarra believes that Canal A is the longest of the canals in the system and that it began some sixteen kilometers up valley at the Chelque River. Because the Rumicolca aqueduct is less than two kilometers from Pikillacta, it has been proposed that Canal A was built by the Wari to bring water to Pikillacta (Cieza de León 1976:261; McEwan 2005:19–20; Pardo 1937:192–203; Squier 1877:419–422; Valencia Zegarra 2005). Frustratingly, the link between Canal A and Pikillacta cannot yet be

¹⁷ Dating the various parts of the canal system is complicated by the fact that the town of Lucre is a *reducción*, created after 1572, and several of the canals that are integrated with the town may date to the early colonial period. Other, clearly modern, canals were made to help support textile production that occurred within the Obraje Hacienda Nuestra Señora de la Asunción that was founded in the early eighteenth century and which continued until modern times (c. 1968).

¹⁸ See McEwan (2005: figures 2.3 vs. 5.1) for two contrasting models for the course of Canal A over the Rumicolca and Combayoc aqueducts. We concur with the second of these models for the route between the two aqueducts.

definitively identified because, as Valencia Zegarra (2005:90) notes, the course of the last kilometers of the canal, which could have brought the water from the Rumicolca aqueduct to Pikillacta, has not been definitively located.¹⁹

Our survey of the region provides an opportunity to compare the prehispanic settlement patterns of the region with the proposed courses of the canals and the distribution of the fields that they watered. When we began the project we anticipated, based on the previous research of the area (McEwan 1987, 2005), that the Wari reorganized the old settlement pattern of the region to better fit their imperial goals. We also expected that in the wake of state-expansion there would be a proliferation of new settlements within the newly converted agricultural lands along the canals. In other words, assuming that the canal system was constructed by the Wari, we expected that numerous small Middle Horizon occupations would have been established along the canals and within the newly developed agricultural areas as farmers moved in to work the fields. The survey results did not, however, support these expectations. With the important exceptions of the construction of Pikillacta and, presumably, Canal A, the Middle Horizon settlement pattern of the

Lucre Basin looks remarkably like the settlement pattern of the Early Intermediate Period, albeit with apparently smaller occupation areas at many sites. There is no evidence of a large-scale settlement reorganization, nor do we see new occupations develop on the lands which are believed to have come under cultivation by the Wari. Surprisingly, apart from the possible linkage of Canal A with Pikillacta, we see little relationship between the proposed courses of the canals, the terraced areas watered by them, and the locations of Middle Horizon settlements. As will be discussed below, rather than supporting the suggestion that the entire canal system was built by the Wari, our survey data suggest the system is smaller than has been argued, and that much of it was built hundreds of years later. More specifically, it appears that the upper part of Canal A never existed, and that other parts of the Lucre Basin canal system was constructed during Inca times to irrigate the areas of Miskapata and Amarupata and that other parts are related to the establishment of a royal estate at Qañarakay and the adjacent Inca terrace system now called Escalerayoc.

When we began the field work for this project, we also anticipated that we would detect a marked population growth in the research region once the Lucre Basin was incorporated by the Wari into their expansionist state. We thought that people from surrounding areas would have been drawn to the vast complex of Pikillacta, and that the size of nearby settlements would have increased dramatically during the Middle Horizon. In contrast, as we conducted the analysis for this article, we found that our research suggests that one of the largest sites of the region, Minaspata, continued to be occupied, but became substantially smaller during the Middle Horizon. Rather than swelling because of its close proximity to Pikillacta, our analysis indicates that Minaspata contracted in size. In other words, rather than serving as a magnet to draw local populations from afar to

¹⁹ While it is clear that Canal A crossed both the Rumicolca and Combayoc aqueducts, we were unable to verify its course from a little above the Combayoc aqueduct to its proposed source on the Cheque River. It is possible that Valencia Zegarra (1996, F) unintentionally merged the upper course of Canal A and that of Canal B, and that Canal A is actually much shorter than currently believed. This has important implications for the actual length of Canal A (perhaps reducing it by more than ten kilometers) and for evaluating the overall impact of the Wari on the Lucre Basin. Nevertheless, for the purposes of model testing, we have relied on Valencia Zegarra's research (2005) to plot the proposed course of Canal A during the Middle Horizon on Figure 13.

settle in the Lucre Basin, the construction of Pikillacta may have inspired a large percentage of the local population to leave the basin. Although we may never know for sure, perhaps it was excessive demands to provide labor for Pikillacta that encouraged the indigenous people to leave the larger settlements of the basin and to settle elsewhere in the Cusco region. These unexpected results of the survey complicate our understanding of the Wari occupation of the Cusco region (Covey *et al.* 2013) and help to inform recent debates concerning the complex nature of the Wari expansion and its occupation of areas outside of the Ayacucho heartland (Jennings 2010).

THE LATE INTERMEDIATE PERIOD SETTLEMENT PATTERN

The decline of the Wari in the south central highlands of Peru occurred between A.D. 1000 and 1100 (Bauer and Kellett 2010; Glowacki 2005b; Williams 2002, 2009). There are hints in the Cusco region that this process was marked with violence, as parts of Pikillacta and some Huaro sites appear to have been burnt at the time of abandonment. If this is the case, it seems that the Wari ultimately failed to enculturate the Cusco region and, perhaps, they were still seen as a foreign entity hundreds of years after they established their first settlements.

This is not to say, however, that the centuries-long presence of Wari in the Cusco region left no legacy. One area of impact was in the realm of craft production, as a Wari influence can be seen in the development of the two major Late Intermediate Period ceramics styles of the region: Killke and Lucre. Killke ceramics were produced in the Cusco Basin and Lucre ceramics in the Lucre area (Figure 16). It has been argued elsewhere that Killke ceramics share certain stylistic features and vessel forms with the Middle Horizon

pottery of Arahua, and thus preserve a heritage of Wari artistic traditions (Bauer and Jones 2003:38; also see Dwyer 1971a:135–137). McEwan *et al.* (2002: 295) and Glowacki (2005a) suggest that the Wari influence on the ceramics produced within the Lucre area during the Late Intermediate Period (*i.e.*, Lucre ceramics) is even more notable. Unfortunately, while a few general motifs that some researchers use to identify Lucre ceramics and a handful of individual Lucre vessels have been published, there has been no formal study of the Lucre style. Without a comprehensive description of its motifs and vessel forms, it is difficult to assess how closely Lucre ceramics link Wari artisanal traditions and how it differs from other, better documented, Late Intermediate Period ceramic styles, such as Killke, from the Cusco region.

In our survey of the Oropesa–Andahuaylillas area, we recovered Late Intermediate Period ceramics at forty sites (Figure 17). Most of these sites yielded Lucre and/or Killke ceramics, with many sites containing both. There were also a few sites that contained decorated fragments that we could not confidently classify as either Killke or Lucre, but which contained stylistic elements suggesting that they were also manufactured during the Late Intermediate Period. These sites are included within our Late Intermediate Period site counts.

During the Late Intermediate Period, the two oldest and largest villages of the region, Chokepukio (POA 71) and Minaspatha (POA 61), resumed growth. For example, based on our surface collections, we estimate Minaspatha was around thirty hectares in size. Likewise, the sites of Patawasi (POA 129), Mama Colla (POA 167), Unka Punku (POA 167b), and Piñipampa (POA 46) continued to be occupied, and most likely grew in size. However, a series of other substantial settlements also developed in the region (POA 1, Raqaychayoq [POA 13], Torrechayoq [POA 15], Combayoq [POA 55], Raq-

chi [POA 76], Antahuaylla [POA 93], Jamanqayniyoq [POA 128], and Patacancha [POA 137]). Furthermore, some twenty-four sites measuring less than one hectare appeared across the survey area, filling up the countryside, particularly on the lower slopes and valley bottom.

It is important to note that during the Late Intermediate Period, the two long-occupied sites of the region, Chokepukio and Minaspata, took on very different features. As first noted by Kendall (1985:337) the primary benefactor of the Wari withdrawal from the Cusco region appears to have been the site of Chokepukio. During the Late Intermediate Period, a series of massive trapezoidal compounds was built near the prominence of Chokepukio (Gibaja Oviedo 1983; Gibaja Oviedo *et al.* 2014). The largest enclosure measures some sixty by eighty meters, with walls reaching as high as ten meters (McEwan *et al.* 1995:11). These enclosures are constructed in an architectural style that is unique to Chokepukio, but which is reminiscent of that used at Pikillacta (Kendall 1985:337; McEwan 1987; McEwan *et al.* 1995). A series of radiocarbon dates, taken from both excavated contexts and from organic materials within the massive walls, indicates that the construction of the large compounds began near the time of the Wari collapse, and continued throughout the Late Intermediate Period (Kendall 1985:347; McEwan 1987:227; McEwan *et al.* 2002:294, 2005:275–276; *cf.* Hiltunen and McEwan 2004). In short, Chokepukio appears to have quickly expanded during the early part of the Late Intermediate Period, possibly after a period of reduced size during the Middle Horizon.

Sometime during the Late Intermediate Period, the site of Minaspata also underwent major transformations, although very different

from those that have been documented at the site of Chokepukio. The Late Intermediate Period in the south-central Andes is generally known as a time of regional warfare, as thousands of low-lying villages were abandoned and a multitude of new fortified sites were constructed, frequently on ridges or hilltops (*e.g.*, Arkush 2011; Bauer *et al.* 2010; Covey 2008). The establishment of one such ridgetop site was documented on the edge of our survey region (Llatapata, POA 174), and numerous others have been found in the Sacred Valley (Covey 2006, 2014d, 2014e; Kosiba 2011, 2012). In contrast, the Late Intermediate Period inhabitants of Minaspata did not resettle, but, instead, fortified their valley-bottom occupation with the construction of at least one large, concentric wall (Figure 18) around part of their settlement (also see Hardy 2019). This massive wall records, at minimum, the fear that the inhabitants held of conflict within the Lucre region after the abandonment of Pikillacta and before the region was incorporated into the growing Inca state (see Bauer and Covey 2002). Nevertheless, there are two distinct possibilities for when in the Late Intermediate Period the wall was built: (1) it may have been built at the beginning (or, perhaps, middle) of the Late Intermediate Period as a response to increasing conflicts resulting from the power vacuum of the Wari collapse, or (2) it may have been built later in the Late Intermediate Period as a response to increasing hostility with the expanding territorial ambitions of the Inca. Additional research is needed to resolve this important issue. Another critical question that remains to be addressed is: Why did the sites of Chokepukio and Minaspata have such disparate post-Wari histories? More specifically: Why was Chokepukio the site of such monumental compounds (so reminiscent of a Wari legacy) while the people of Minaspata invested their construction resources in massive fortification walls?

THE GROUPS OF THE LUCRE BASIN

Oral histories collected by Spanish chroniclers indicate that two groups, called the Pinahua and the Muina, occupied the Lucre Basin. Bauer and Covey (2002) suggest that the Inca became locked in a prolonged confrontation with these groups at the time of state expansion. They propose that a section of the Cusco Valley, between Huasao and Oropesa, was largely abandoned during the Late Intermediate Period as it became a buffer zone between the Inca and the groups of the Lucre Basin.

Documents from a Colonial Period court case suggest that the Pinahua were located on the north side of the Huatanay River and their name lives on in a small village above the site of Chokepukio. The site of Chokepukio itself was probably the principal town of the Pinahua, referred to as “Pinagua-Chuquimatero” in the court case. For example, in 1571, Pedro Lampa, a witness presented by the Pinahua, states, “there was in past times on one side of the narrow drainage of Lake Muyna in some old buildings, a town that was called Pinagua-Chuquimatero” (Espinoza Soriano 1974:205; also see Hardy 2019).²⁰ The area and principal city of the Muina are more difficult to define, since few documents have been found to help reconstruct their landholdings (Bauer 2004:71–90). However, as Minaspatá is the other major Late Intermediate Period settlement in the Lucre Basin, it is logical to propose that this fortified site was the center of the Muina during the Late Intermediate Period.²¹

²⁰ “En tiempos pasados en el angostura del desagadero de la laguna de Muyna estaua en el un lado, en unos edificios viejos, un pueblo que se decía Pinagua-Chuquimatero. . . .”

²¹ Espinoza suggests that the town of Muina was located at the modern day site of Tipón in the Oropesa Basin, but an archaeological survey of the Tipón region has

THE INCA SETTLEMENT PATTERN

The effects of the Inca expansion into the Oropesa–Andahuaylillas region are a complex issue, and a full understanding will require many additional projects. Nevertheless, our survey provides some insights into the transformations that occurred in this region following its incorporation into the Inca state. As noted above, Bauer and Covey (2002) suggest that the expansion of the Inca into the Lucre Basin occurred relatively late, and that the development of a buffer zone between the Cusco and Lucre Basins during the Late Intermediate Period documents a period of hostilities between the two regions. The construction of large fortification walls, to protect the local center of Minaspatá, supports the understanding that the period before Inca unification was marked with the threat of regional conflict.

Our survey suggests that the population of the Oropesa–Andahuaylillas region reached its apex during Inca times, with a total of some 140 archaeological sites (Figure 19). Many of these sites are large, and the region was densely occupied. Nevertheless, the settlement pattern for the Inca Period is not unlike those that came before it. In other words, the Inca Period settlement pattern appears to be a continuation of the Late Intermediate Period pattern with many Late Intermediate Period sites becoming larger and the overall site density of the region becoming greater. There is no archaeological evidence of large-scale village abandonments occurring with the incorporation of the region into the Inca state, although documents suggest that many of the Pinahua were resettled in the

provided no evidence of a Late Intermediate Period village (Bauer and Covey 2002) and a detailed examination of the aforementioned legal documents suggests that Espinoza is likely incorrect in this assertion (see Hardy 2019).

Paucartambo region by Huascar (Espinoza Soriano 1974).

Chokepukio (c. thirty hectares) and Minas pata (c. thirty-five hectares) continued to be the largest settlements in the area, and they both reached their maximum size during Inca times. Excavations at Chokepukio have revealed that after it fell to the Inca, a series of new buildings were constructed across the site (McEwan *et al.* 1995) and a group of burials with impressive offerings were placed near its center (Andrushko *et al.* 2009; Gibaja Oviedo *et al.* 2014). Less is known concerning the nature of the Inca occupation at Minas pata, but it appears to have been larger than Chokepukio, but perhaps less concentrated.

A host of new sites were also established—or expanded from Late Intermediate Period times—that relate to the specific needs of Cusco, the ruling elite, and the state. It has been well documented that the elite kin groups of Cusco built “country estates” outside of the imperial city (Niles 1999). The largest of these became affiliated with specific Incas, and, after their deaths, their mummies continued to visit the estates that were then run by their descent groups (commonly called *panaqas* in the academic literature). These estates included concentrations of well-constructed buildings that were often associated with impressive canal and terrace systems, the production of which was used to support the running of the estate. For example, the large estate of Yucay in the Sacred Valley, with its massive terrace system, was managed by Huayna Capac’s descendants (Covey and Amado González 2008; Niles 1999), and the impressive holdings of Chinchero, with associated terraces, are believed to have been managed by the descendants of Topa Inca (Nair 2015). As more archival documents are analyzed, it is becoming clear that many, if not most, of the large ruins and agricultural sys-

tems within the Cusco region were built under the directions of specific rulers, and were seen as private, elite-based, holdings, rather than representing more generalized “state lands”. Near the end of the empire, this land-tenure system had become so entrenched that Huascar once complained that the dead kings already controlled the finest things of the kingdom (Pedro Pizarro 1921 [1571]:205–206).²²

This brief review of “royal estates” is important because one such holding, now called Qañarakay (POA 61C), was built on the shore of Lake Muina. At least some of these buildings were likely built in the time of Huayna Capac, and it was there that Huascar was born (Betanzos 1996 [1557]:176). During his brief rule, Huascar obtained control over the Lucre area. So, despite his discontent over the landholdings of his ancestors, Huascar was able to at least establish direct control over his birthplace near Cusco. Yet, true to his observations, this estate was much smaller than those of the other Incas that ruled before him. Had he maintained control of the empire for a longer period, perhaps Huascar would have continued to seize additional lands and increase the holdings of his kin group. The association between the Lucre Basin and Huascar remained strong after the Spanish invasion and the basin is simply called Huascar in many colonial accounts.

During the short time that Huascar was in power, he removed part of the Pinahua and brought in a group of colonists called the Yanamanchi (Espinoza Soriano 1974).²³ These colonists were so closely linked with Huascar that

²² “Tenían (los muertos) todo lo mejor de su reyno” (Pedro Pizarro 1986 [1561]:54). For a similar statement made by Huascar see Betanzos (1996 [1557]:189).

²³ In 1537, Francisco Pizarro awarded the lands of Muina to Paullu Topa Inca Yupanqui and they were later inherited by his son Carlos Inca (Cook 1975:131; Vázquez de Espinosa 1948 [1628]:551).

they are frequently referred to as Huascar-Yanamachi in colonial documents. Furthermore, Yanamanchi continues to be an important community division within the town of Lucre and its land holdings are along the upper Lucre River.

Throughout Inca times, stone quarrying in the Rumicolca and Piñapampa areas (Béjar Mendoza and Colque Enriquez 1997) also expanded as more monumental structures were built in the city of Cusco (Protzen 1985, 1986). The Inca established a village in the center of the Rumicolca quarries (POA 44) and large numbers of partly prepared stone blocks ready for transport can still be seen in various areas of the quarry. Our surface collections among these ruins yielded fragments of provincial Pacajes ceramics (Bauer 2004:92, 105), suggesting that some of its laborers might have been drawn from the Lake Titicaca region.

The Inca also greatly increased the agricultural production of the region, constructing various terraces systems and new canals. For example, it appears that the largest sets of terraces in the areas, called Miskapata and Amarupata, date to the Inca Period. At the same time, Canal B (see Valencia Zegarra 1996, 2005) was built to provide water to the elegant set of Inca terraces now called Escalerayoc (POA 57) near Qañarakay (Figure 20). This is currently the best dated canal in the Lucre Basin because it cuts across (*i.e.*, post-dates) the Late Intermediate Period defensive walls of Minaspata, and it arrives at the uppermost terrace of Escalerayoc.²⁴ The

Inca also appear to have remodeled the Rumicolca (POA 110) and Combayoc (POA 67) aqueducts along the higher Canal A. Furthermore, numerous small settlements were established along some of the lower valley slopes, where there had been few previous occupations, suggesting that these areas were being cultivated for the first time. The Incas also built a tambo, which is now called Olleraiyoq (POA 111) near the ruins of Pikillacta (McEwan 1987:22, 25, 28). The tambo lies along the royal road to Cusco that passed through the Rumicolca aqueduct and connected the heartland of the Inca with the Lake Titicaca region.

SUMMARY AND DISCUSSION

McEwan's (1987) important early work in the Lucre Basin recorded the locations of thirty-two sites and established the foundations for our understanding of the settlement patterns of the region. Nevertheless, both archaeological survey techniques and our knowledge of the local ceramic sequence had improved to such an extent that there was a growing imperative that additional survey work be conducted in this important area of the Andes. A survey of the Oropesa to Andahuaylillas region, which included the Lucre Basin, was especially timely, since it followed a series of other large scale surveys conducted in the Cusco region (Bauer 2004; Covey 2006, 2014a; Covey *et al.* 2008; Kosiba 2010) as well as the increased recognition of the important Wari occupations in the nearby Huarro Valley (Glowacki 2002, 2012; Glowacki and McEwan 2001; Skidmore 2014).

Our survey data indicate that the relatively dry and steep valley slopes of the Oropesa–Andahuaylillas region have long discouraged occupation, and that during much of prehistory the inhabitants of this region preferred settle-

²⁴ According to our field work, Canal B may also be the longest of the canals in the Lucre Basin, with its head water in the Cheque River. Because we could not confirm the course of Canal A from a little above the Combayoc aqueduct, it appears much shorter on our Inca map than it does on the maps of Valencia Zegarra (1996, 2005). The exact course of Canal A needs to be

better documented with archaeological excavations, as the surface remains are currently ambiguous.

ment locations near the valley floor. This is a somewhat different long term settlement pattern than we see elsewhere in the Cusco region, where there can be notable settlement pattern shifts between: 1) the Formative and the Early Intermediate Periods, 2) the Middle Horizon and Late Intermediate Period, and 3) the Late Intermediate Period and the Inca Period (see Bauer 2004; Covey 2014a).

Our fieldwork has also helped to confirm that the sites of Chokepukio and Minaspata were among the earliest villages established in the region, and that by the end of the Formative Period they might have been the centers of two multi-village entities. It is also clear that these two sites remained critically important to the region's history up to and during the time of Inca rule. Our research has also helped to document the large fortification walls of Minaspata that had not been highlighted in previous studies of the region. These walls indicate that the inhabitants of the site, like so many others who lived in the South Central Andes, became fearful of attacks following the decline of the Middle Horizon states of Wari and Tiwanaku.

Nevertheless, the most important contribution of our systematic survey has been to gain new insights into the regional settlement pattern during the Middle Horizon. We began the project with the expectation that we would find a dense concentration of Middle Horizon sites within our study area. We also expected that the Wari state would have reorganized the old settlement pattern to better fit its imperial goals (McEwan 1987; 2005). Furthermore, we predicted that there would be a proliferation of new settlements within the newly converted agricultural lands along the canals, which in turn, would support our understanding of the Wari's desire to produce more maize in the region. The survey results did not, however, support these expecta-

tations. Although there is a slight rise in the number of sites in the survey region between the Early Intermediate Period and Middle Horizon, with the exception of the construction of Pikillacta and perhaps Canal A, there is no dramatic change in the settlement pattern. Furthermore, there is no evidence of new sites being established on what might be considered newly developed agricultural lands. Unlike the Huarco area, located fifteen kilometers to the south along the Vilcanota River, there does not seem to be a unification of the Lucre Basin under Wari rule (Glowacki 2002, 2012; Skidmore 2014).

The construction of the vast site of Pikillacta was only possible with enormous labor contributions of local workers; and it is reasonable to assume that few would have given their labor voluntarily without compensation or reciprocity. Local inhabitants might have even elected to leave the basin, rather than fulfill the labor and tribute demands of the Wari. Our survey suggests that the occupation size of Minaspata was markedly smaller during the Middle Horizon than in the Early Intermediate Period, suggesting that many residents may have resented the loss of indigenous control of the region, and left this ancient village with the arrival of the Wari. Rather than serving as a magnet for the concentration of people within the Lucre Basin, it appears that the intrusion of this massive Wari state installation into the local settlement system repelled the inhabitants living in the basin. This may not be a unique case, as Schreiber (2000:436–442) documents a decline in the local population of the Nazca region after it came into contact with the Wari. This exodus of population from the Lucre Basin appears to have reversed itself after the fall of Wari and the abandonment of Pikillacta, since Minaspata once again became a massive village during the Late Intermediate Period, and Chokepukio likely expanded significantly as well.

While Wari colonization affected the people of the Lucre Basin in significant ways, the local settlements do not appear to have been reorganized into some kind of integrative network that willingly served the needs of Pikillacta. Rather, the changes wrought by Wari presence during the Middle Horizon seem to be more diverse, complex and difficult to understand than first proposed, and may have engendered a multitude of responses from local groups. In this way, our survey of the region has provided a more nuanced understanding of the impact of the Wari on the Cusco region, and helps highlight the complexity of the Wari colonialization process that is currently being examined by numerous researcher within the Cusco area (Bélisle 2011; Covey *et al.* 2013; Skidmore 2014) and elsewhere across the central Andes (e.g. Jennings 2010).

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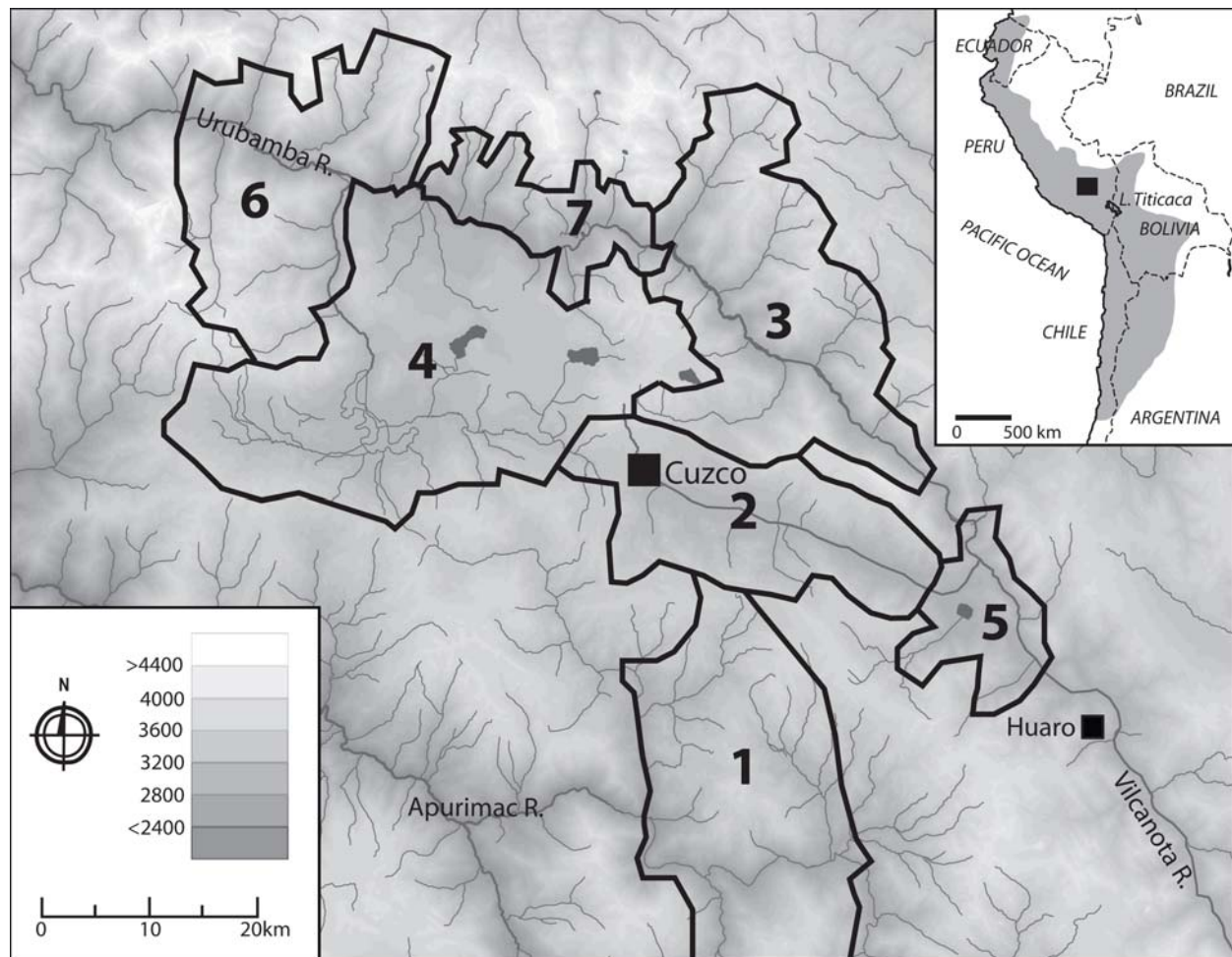


Figure 1. Systematic archaeological surveys in the Cusco region include (1) Bauer's Paruro survey (1984–1987), (2) Bauer's Cusco Valley survey (1997–1999), (3) Covey and Yépez's Sacred Valley survey (2000), (4) Covey and Yépez's Xaquixaguana survey (2004–2006), (5) Bauer and Araóz Silva's Oropesa-Andahuailillas survey (2006), (6) Kosiba and Galiano Blanco's Wat'a survey (2005–2006), and (7) Covey et al.'s Calca-Yanahuara survey (2007). All projects used the same basic field methods (map courtesy of Alan Covey).

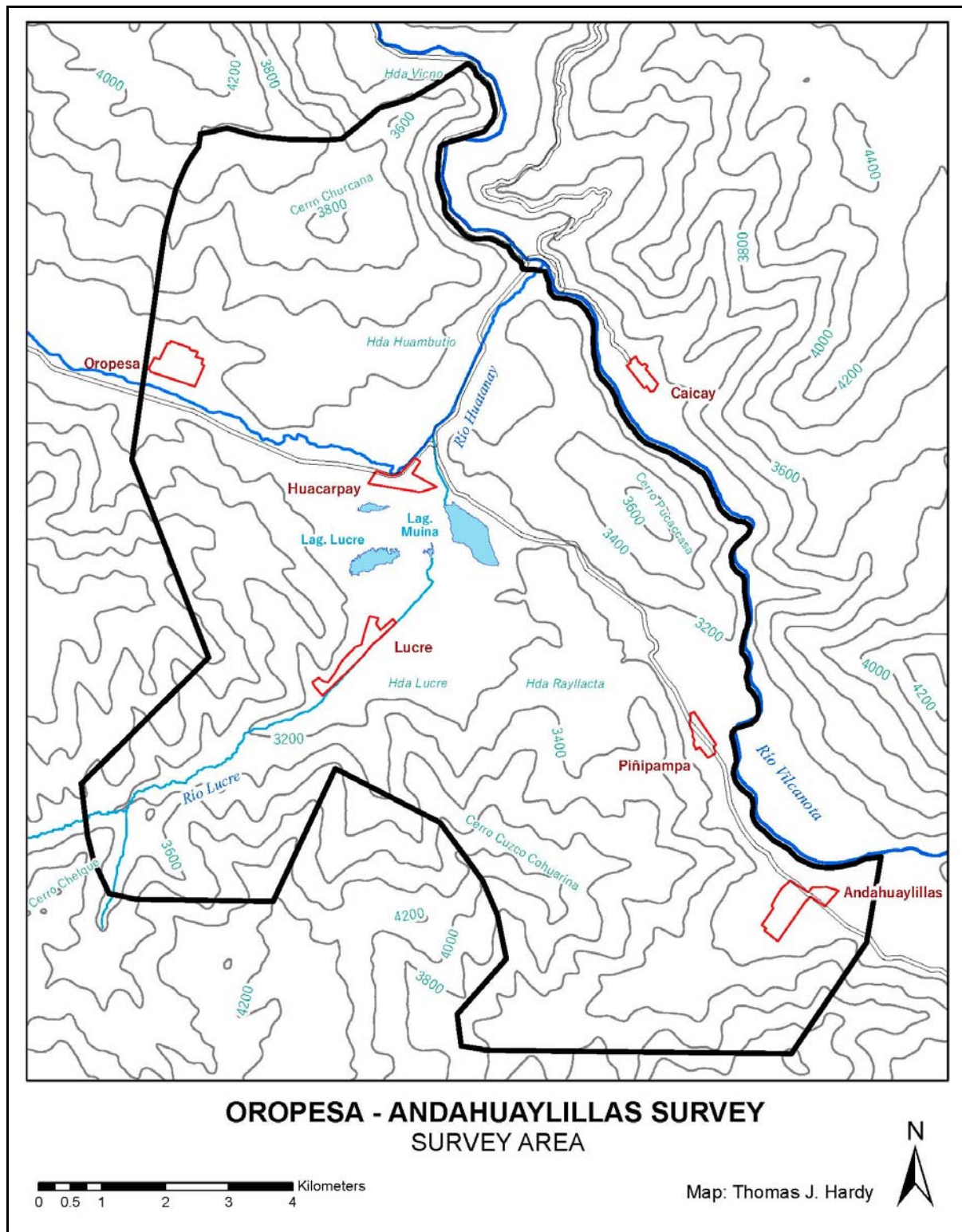


Figure 2. The Oropesa-Andahuaylillas survey area (contour intervals are 200 meters).

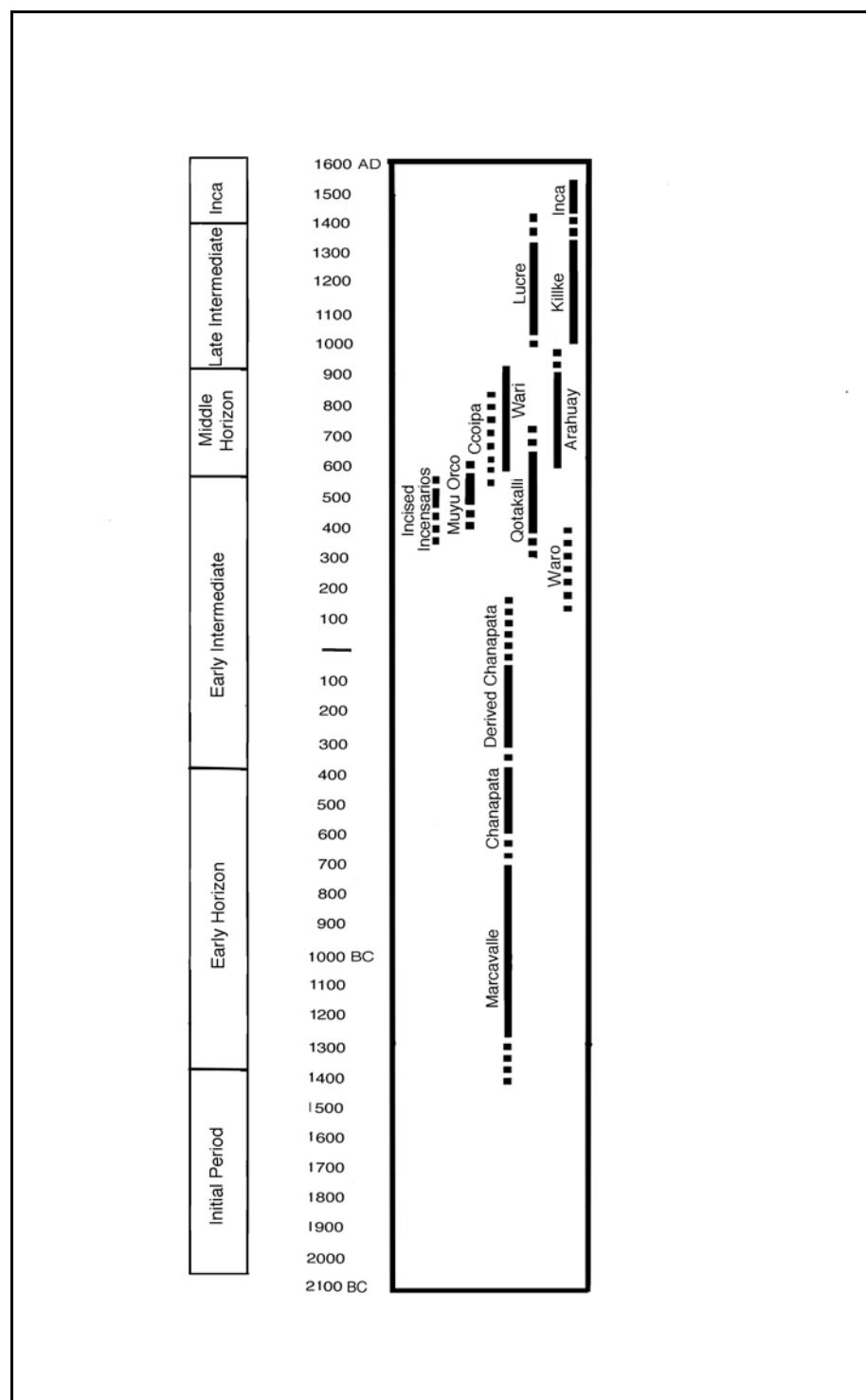


Figure 3. Cusco ceramic chronology for styles discussed in this article.



Figure 4. The large site of Pikillacta dominated the Lucre Basin during the Middle Horizon. Part of Chokepukio (left edge, center) and part of Minaspata (lower right corner) can also be seen in this photograph (courtesy of the Servicio Aerofotográfico Nacional, Peru).



Figure 5. Despite its large size, the site of Minaspata in the Lucre Basin has received little archaeological attention (Negative Number 334819, Shippee Johnson Collection, courtesy Division of Library Services, American Museum of Natural History and Thomas Hardy).

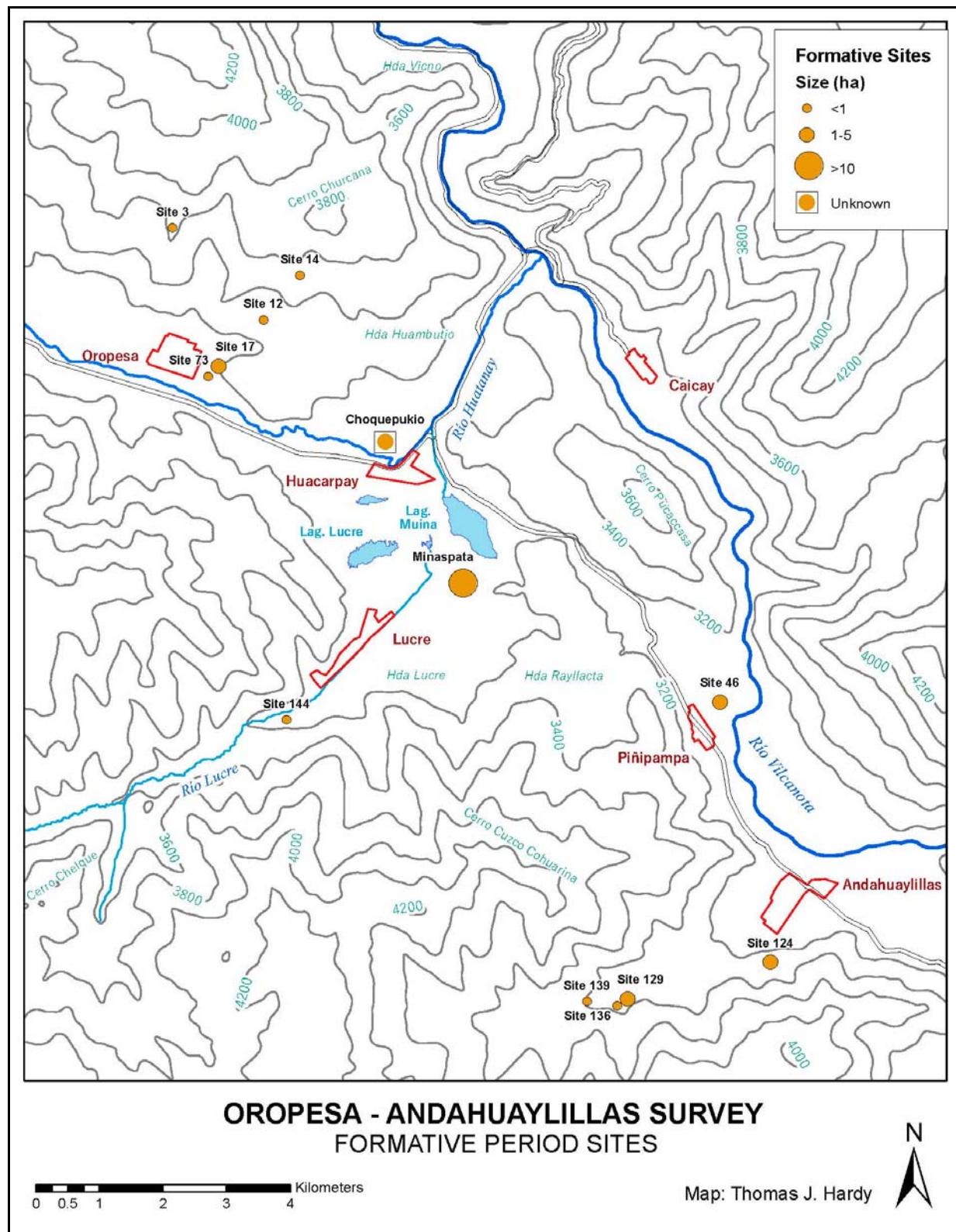


Figure 6. Thirteen Formative Period sites were found within the Oropesa-Andahuaylillas survey region.

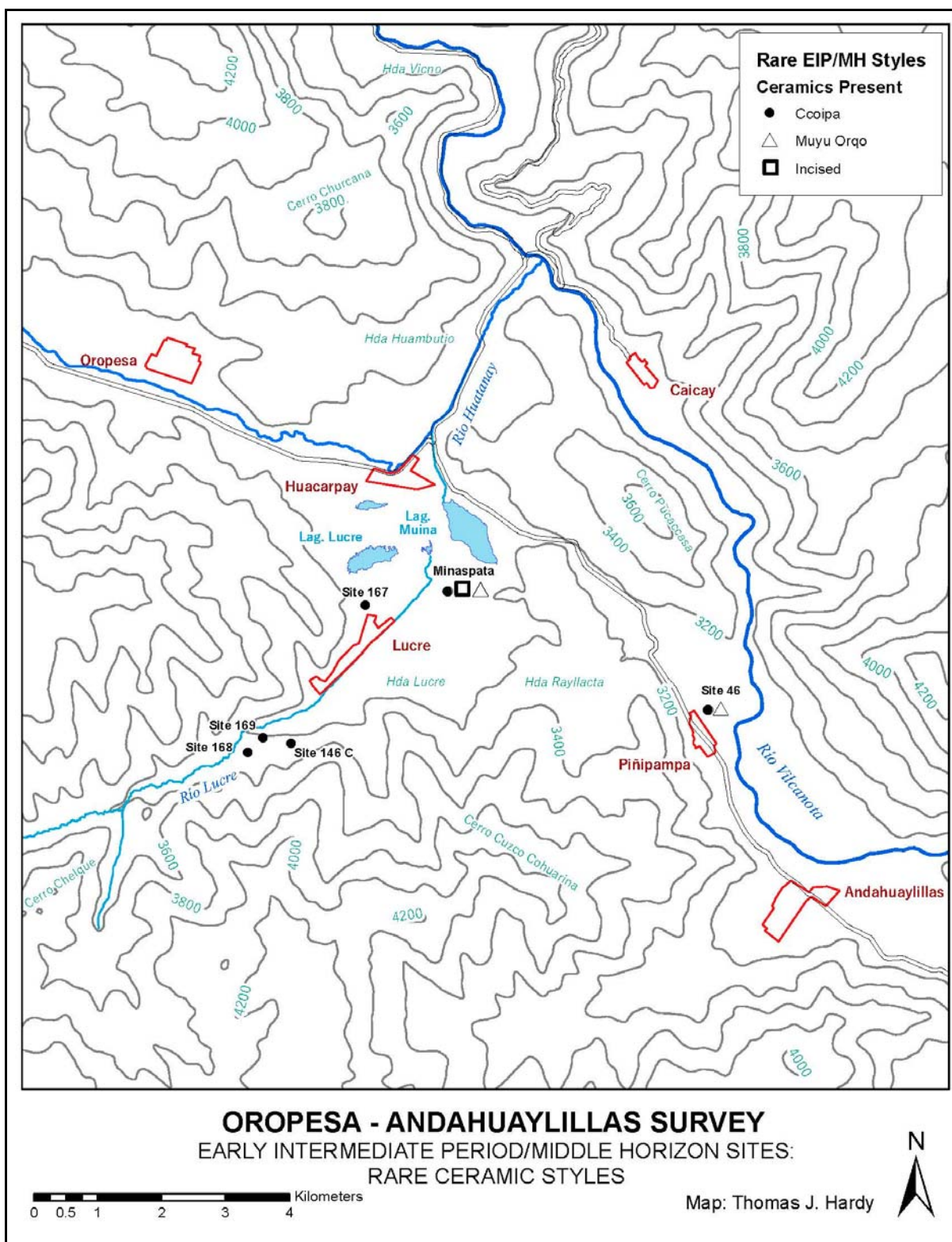


Figure 7. Sites known to contain Ccoipa, Muyu Orco, and Incised Incensarios ceramics within the Oropesa-Andahuaylillas survey region.



Figure 8. Examples of Ccoipa ceramics from the Oropesa-Andahuaylillas survey.



Figure 9. Examples of Incised Incensarios found at Minas pata.



Figure 10. Qotakalli pottery was used during the Early Intermediate Period and the Middle Horizon in the Cusco region.

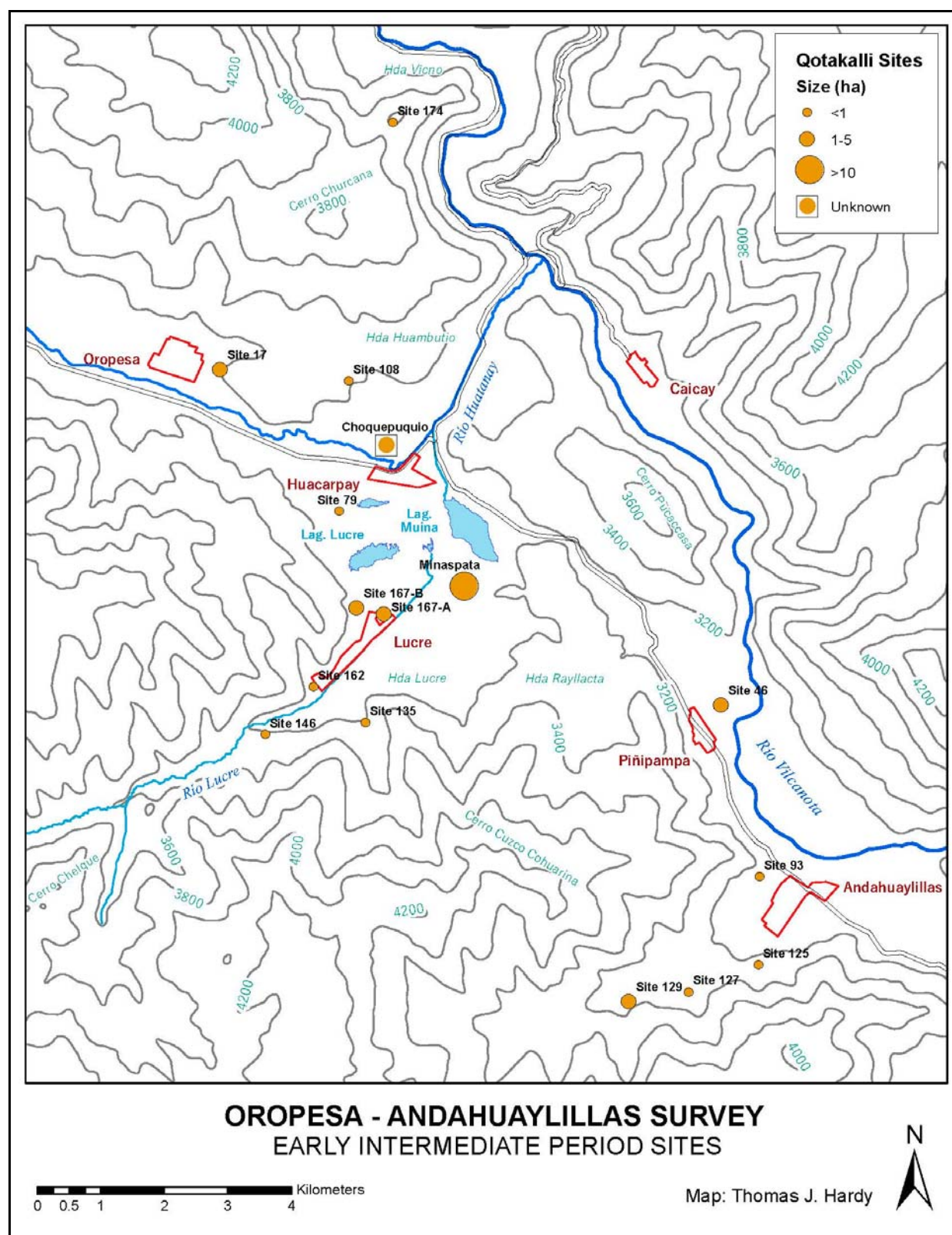


Figure 11. Early Intermediate Period sites (Qotakalli) within the Oropesa–Andahuaylillas survey region.



Figure 12. Wari-style pottery recovered at Minaspatha.

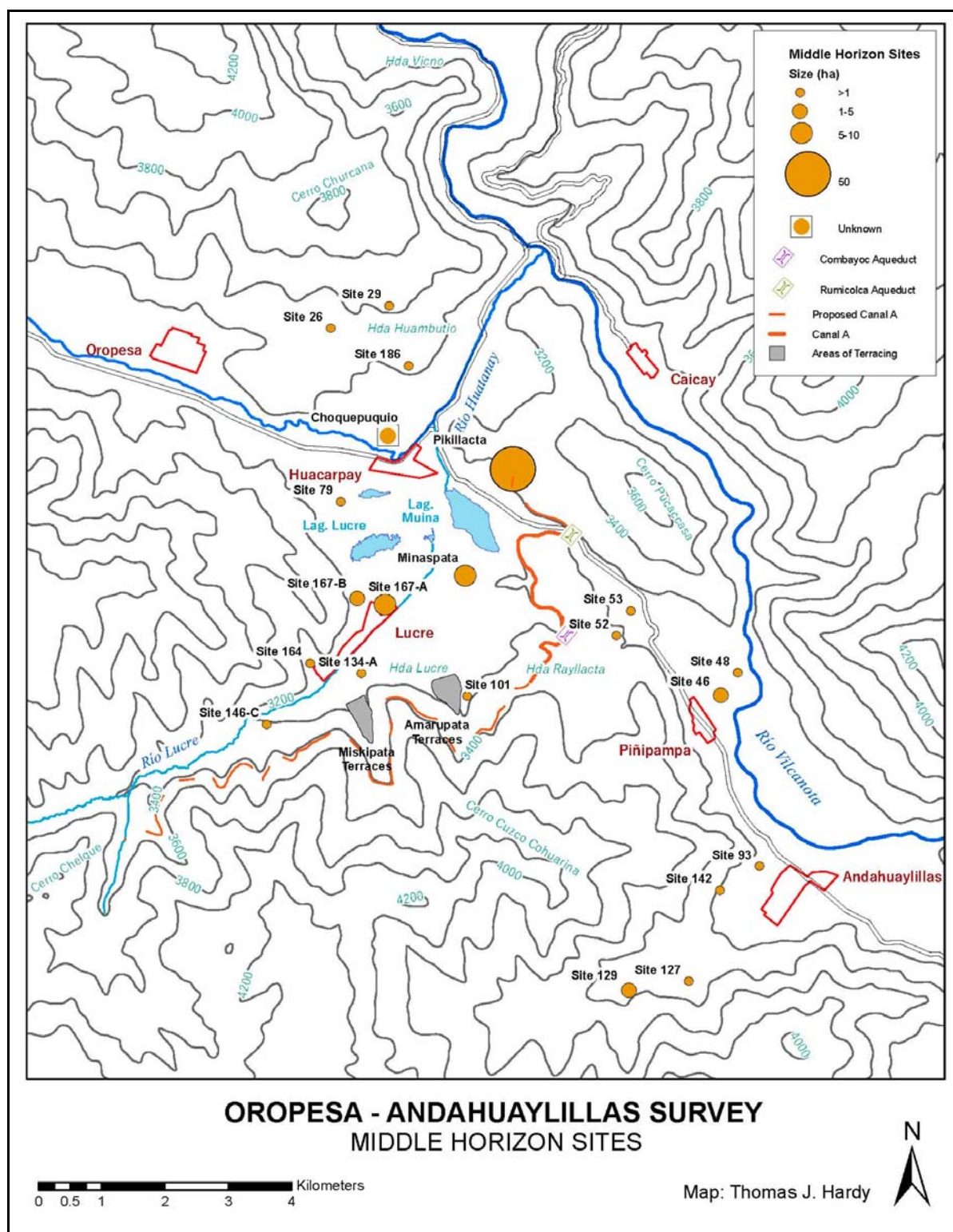


Figure 13. The Middle Horizon sites in the Oropesa–Andahuaylillas survey region.



Figure 14. The Rumicolca aqueduct was used in Inca times, but it may have been first constructed by the Wari to bring water to Pikillacta. This aqueduct has been reconstructed by the Ministry of Culture.



Figure 15. The Combayoc aqueduct is less well known than the Rumicolca aqueduct, yet it is also impressive.



Figure 16. Lucre ceramics from the Oropesa–Andahuaylillas survey.
We still know little about this Late Intermediate Period ceramic style from the Lucre Basin.

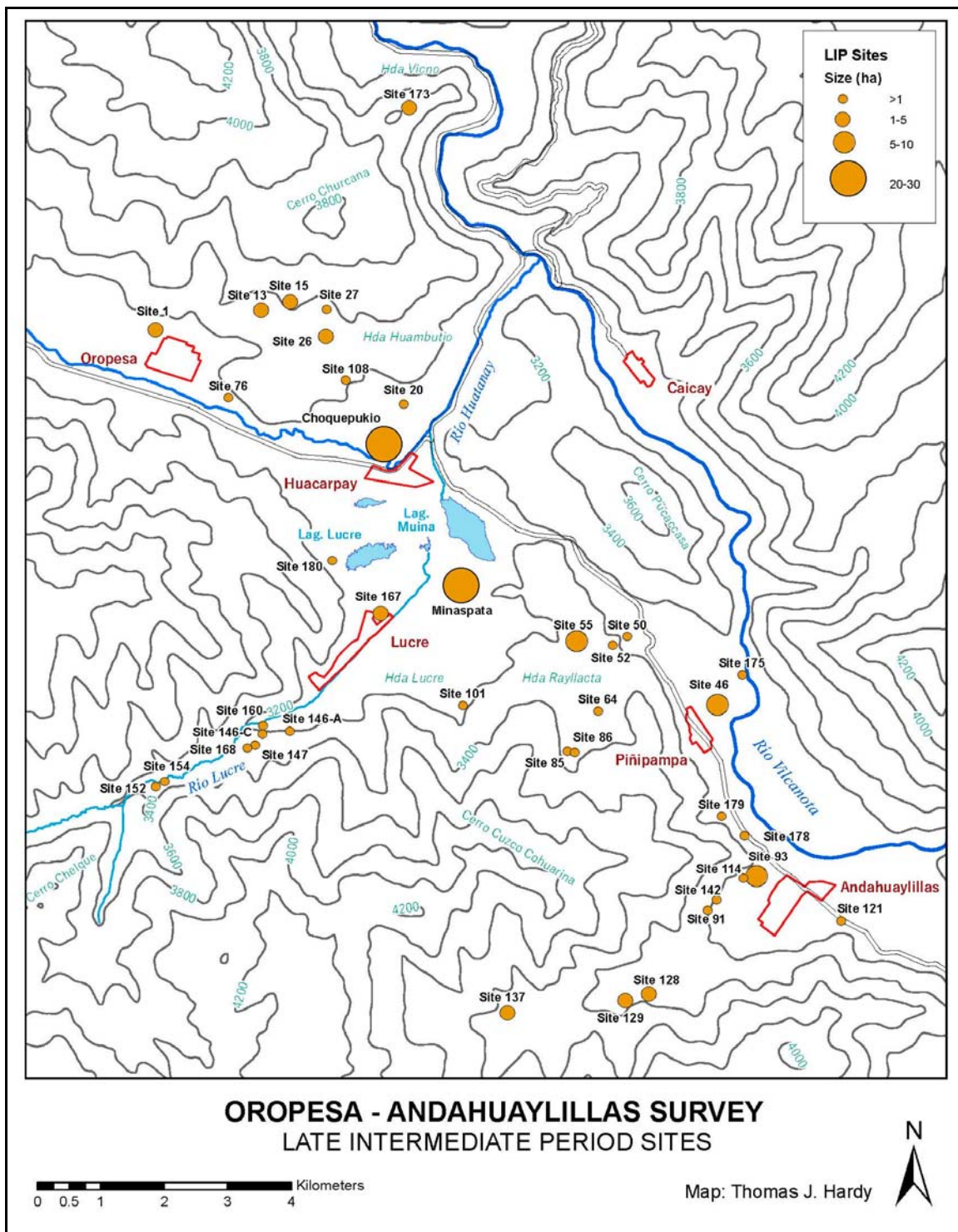


Figure 17. The Late Intermediate Period sites in the Oropesa–Andahuaylillas survey region.



Figure 18. A large fortification wall built around parts of Minaspata during the Late Intermediate Period.

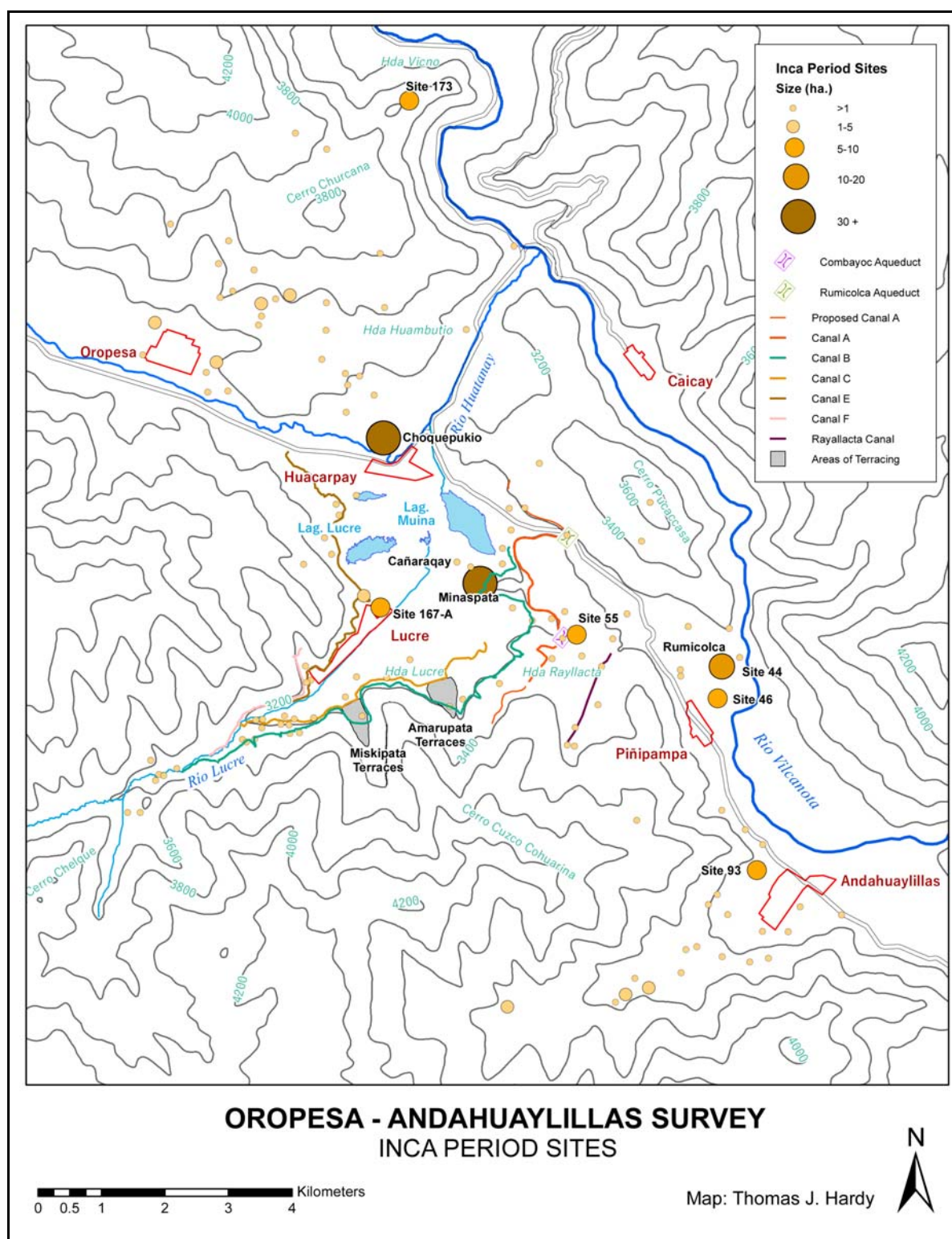


Figure 19. The settlement pattern of the Oropesa–Andahuaylillas survey region during Inca times.



Figure 20. The elegant Inca terraces system of Escalerayoc were watered by Canal B. This is the best dated canal in the Lucre Basin because Canal B cuts across (i.e. post-dates) the Late Intermediate Period defensive walls of Minaspata.