|  |  |
| --- | --- |
| A red circle with a white letterDescription automatically generated | Supplementary material for  Covey, R.A., K. Quave, N. Payntar, C. Weinberg, H. Quispe-Bustamante & V. Bélisle. 2025. **Settlement discontinuity at Ak’awillay and the development of the Inca imperial capital region (Cuzco, Peru).** *Antiquity* 99.  Author for correspondence ✉ r.alan.covey@austin.utexas.edu |

**Intensive Surface Collections**

During the 2005 survey of the Xaquixaguana Valley, survey crews conducted intensive surface collections at most sites estimated to be larger than one hectare. Collections were made during a second site visit, during which a grid of circular “dog leash” units with a radius of 4m was placed every 50m where surface ceramics were distributed. This collection strategy permitted the rapid assessment of a sample of approximately 2% of the surface area of large sites. Crew members collected and counted all material in each unit, recovering all decorated and rim sherds to be washed and classified in the laboratory. In total, the XPAS project reported processing roughly 120,000 artifacts in the field, including 22,000 sherds studied in the laboratory (Covey *et al.* 2014:7). Collection units at Ak’awillay indicated a sizeable occupation for all periods (Table S1). By comparison, collection units placed at the nearby site of Chullapunku comprised almost exclusively LIP material.

**Table S1. Sherd Counts from Intensive Collection Units at Ak’awillay and Chullapunku.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Site | Form. | Qotakalli | Araway | Muyu Urqu | Other EIP/MH | Killke | Other LIP | Inca |
| Ak’awillay (X-228) | 802 | 155 | 16 | 35 | 156 | 69 | 191 | 130 |
| Chullapunku (X-258) | 0 | 2 | 0 | 0 | 2 | 172 | 729 | 12 |

**Test Excavations**

The 20 test units excavated at Ak’awillay in 2012 and 2016 were placed in areas of the site where intensive surface collections had identified greater concentrations of late prehispanic ceramic styles. All units were laid out as 1 x 1m squares, four of which were expanded to 2 x 2m units to follow artifact concentrations or architecture encountered in the initial unit. All units were excavated stratigraphically following natural changes in the soil. Analysis of diagnostic pottery in the 2012 excavations identified styles of all periods in the Cuzco sequence; the Inca-associated contexts are described in Quave and Covey (2015).

**Table S2. Diagnostic Sherd Counts from 2012 Test Excavations.**

|  |  |
| --- | --- |
| Description | Count |
| Chanapata (Formative) | 5 |
| Paqalla Moqo (Formative) | 12 |
| Unknown Incised (Formative or EIP?) | 4 |
| Huaru (EIP) | 1 |
| Possible Huaru-related | 115 |
| Qotakalli (EIP/MH) | 9 |
| Local Qotakalli (EIP/MH) | 45 |
| Local Muyu Urqu (MH) | 2 |
| Araway | 4 |
| Other EIP/MH Decorated | 22 |
| Other EIP/MH Undecorated | 6 |
| LIP Decorated | 68 |
| LIP Undecorated | 1 |
| Cuzco Inca Decorated | 230 |
| Inca-related Decorated | 166 |
| Inca Undecorated | 25 |
| Colonial | 3 |
| Republican | 2 |
| Utilitarian/Domestic | 417 |
| Unknown Decorated | 634 |
| TOTAL | 1771 |

For the 2016 excavations, stylistic identifications of decorated pottery were tabulated (Table S3). The sample is much smaller, reflecting a smaller excavated area that had less artifact density and lower percentages of decorated pottery.

**Table S3. Decorated Sherd Count from the 2016 Test Units.**

|  |  |
| --- | --- |
| Style | Count |
| Chanapata (Formative) | 1? |
| Huaro (EIP) | 8 |
| Qotakalli (EIP/MH) | 8 |
| Muyu Urqu (MH) | 1 |
| Araway (MH) | 9 |
| Other MH | 3 |
| Killke (LIP) | 22 |
| Other LIP | 24 |
| Inca | 136 |
| Colonial | 10 |
| Republican | 1 |
| TOTAL | 223 |

**Radiocarbon Samples**

Following the 2016 season, 18 samples of carbonized organic material were selected for dating based on archaeological preservation and association with material culture from different periods (Table S4). Export permits were granted by the Peruvian Ministerio de Cultura, and all samples were processed in the AMS laboratory at the University of Arizona.

**Table S4. Context of Charcoal Samples from Sector II.**

|  |  |  |  |
| --- | --- | --- | --- |
| Sample | Provenience | Depth | Associated Pottery |
| AA113131 | PP2, Level 6 | 84 cm | Waru (EIP) |
| AA113132 | PP3, Level 1 | 31 cm | Colonial, Inca |
| AA113133 | PP3, Level 2 | 46 cm | Inca, Killke |
| AA113134 | PP3, Level 7 | 104 cm | Araway (MH) |
| AA113135 | PP4, Level 4 | 58 cm | Colonial, Inca-related, LIP |
| AA113136 | PP4, Level 5 | 66 cm | Inca and LIP |
| AA113137 | PP4, Level 5 | 62 cm | Inca and LIP |
| AA113138 | PP4, Level 6 | 72 cm | Inca-related, LIP |
| AA113139 | PP4, Level 6 | 72 cm | Inca-related, LIP |
| AA113140 | PP4, Level 8 | 103 cm | Inca-related, LIP |
| AA113141 | PP5, Level 5 | 67 cm | Inca |
| AA113142 | PP5, Level 5 | 65 cm | Inca |
| AA113143 | PP5, Level 6 | 77 cm | Inca |
| AA113144 | PP5, Level 7 | 86 cm | Inca |
| AA113145 | PP5A, Level 5 | 58 cm | Inca |
| AA113146 | PP5A, Level 6S | 73 cm | Inca |
| AA113147 | PP5A, Level 6S | 71 cm | Inca |
| AA113148 | PP6, Level 1E | 43 cm | Qotakalli-related, MH |

**Radiocarbon Calibration**

As the radiocarbon database for Inca archaeology has grown in recent years, scholars have begun to discuss calibration practices for Andean South America (Contreras 2022). The two most widely used calibration curves—IntCal20 (Reimer *et al.* 2020) and SHCal20 (Hogg *et al.* 2020)—were both developed using samples from other continents, and very little dendrochronology has been conducted in the Andes to determine which curve (if either) accurately calibrates dates (e.g., Morales *et al.* 2013). Furthermore, the geographical extent and environmental complexity of Inca territory has led scholars to argue that the circulation of hemispheric air currents (Ancapichún *et al.* 2022; Ogburn 2012) necessitates the careful application of calibration curves in different Andean settings. To present data with maximum long-term utility, we augment the mixed calibration presented in the text with Table S4, which calibrates all dates using IntCal20, SHCal20, and an average of the two.

**References**

Ancapichún, S., J. Pawlyta, A.Z. Rakowski & D. Sieczkowska. 2022. Influence of air parcels from Northern and Southern Hemispheres on radiocarbon-based Inca chronology. *Radiocarbon* 64: 1431–46. https://doi.org/10.1017/RDC.2022.87

Contreras, D.A. 2022. Stages, periods, and radiocarbon: 14C dating in the archaeology of the Central Andes. *Ñawpa Pacha* 42: 205–33. https://doi.org/10.1080/00776297.2022.2028389

Covey, R.A., V. Bélisle & A.R. Davis. 2014. Research projects and field and laboratory methods, in R.A. Covey (ed.) *Regional archaeology in the Inca Heartland: the Hanan Cuzco surveys* (Memoirs of the Museum of Anthropology 55): 3–19. Ann Arbor: Museum of Anthropology, University of Michigan.

Hogg, A.G. *et al*. 2020. SHCal20 Southern Hemisphere calibration, 0–55,000 years cal BP. *Radiocarbon* 62: 759–78. https://doi.org/10.1017/RDC.2020.59

Morales, M.S., A.E. Nielsen & R. Villalba. 2013. First dendroarchaeological dates of prehistoric contexts in South America: *chullpas* in the Central Andes. *Journal of Archaeological Science* 40: 2393–401. https://doi.org/10.1016/j.jas.2013.01.003

Ogburn, D.E. 2012. Reconceiving the chronology of Inca Imperial expansion. *Radiocarbon* 54: 219–37. https://doi.org/10.2458/azu\_js\_rc.v54i2.16014

Quave, K.E. & R.A. Covey. 2015. The material remains of Inka power among imperial heartland communities, in M. Barnes, I. de Castro, J. Flores Espinoza, D. Kurella & K. Noack (ed.) *Perspectives on the Inca* (Tribus Special Edition): 110–27. Stuttgart: Linden-Museum Stuttgart.

Reimer, P.J. *et al*. 2020. The IntCal20 Northern Hemisphere radiocarbon age calibration curve (0–55 cal kBP). *Radiocarbon* 62: 725–57. https://doi.org/10.1017/RDC.2020.41