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Appendix D

Formative Period Chronology for the Southern Highlands of Ecuador

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This Appendix presents the radiocarbon dates for the Formative period in the southern highlands of Ecuador, specifically for sites in the provinces of Azuay, Cañar, and Loja. Twenty-nine radiocarbon assays and their calibrated calendrical ranges are provided in Table D1, divided into two groups, the first with sites in Cañar and Azuay and the second in Loja. Within each of the groupings the radiocarbon assays are listed from earliest to latest. For each listing the radiocarbon date is given in radiocarbon years before present together with the standard error (RYBP ± SE). Each date was calibrated with the OxCal program, version 3.5, and the calendrical dates are given as age ranges at 68.2% probability and 95.4% probability.

As James Zeidler notes in Appendix A, there are far more Formative period radiocarbon assays from the coastal region than from the highlands or the Oriente. For the southern highlands the dates come from just seven sites. There is as yet no refined relative ceramic chronology for the region comparable to that of the coastal region, a further indication of the disproportionate attention the various regions of Ecuador have received from archaeologists.

The range of radiocarbon dates from the southern highlands falls mostly within the Late Formative period, as defined for the coastal chronology (see Appendix A; Marcos 1998), which fits with Bruhns's (this volume; 1989; Bruhns, Burton, and Miller, 1990) comparative study of ceramic styles. An exception is the early date of 3928 ± 60 BP (BM 896) from Cerro Narrío, which is suggestive of an occupation toward the end of the Early Formative. Robert Braun (1982) argued that Cerro Narrío was occupied from the beginning of the Early Formative, on the basis of his seriation of ceramics from Cerro Narrío and comparisons with coastal sequences. Karen Bruhns (this volume) argues co-

gently that ceramic styles from Cerro Narrío are no earlier than the Late Formative, from comparisons with the ceramic sequence at Pirincay, and she correctly points out that the deviant radiocarbon date came from a disturbed context.

Uncertainty about the age range of the occupations at Cerro Narrío is likely to continue, since the site has been badly disturbed by *huaqueros*. The onus seems to be on those who argue for an earlier occupation to find convincing evidence. The early radiocarbon date, however, may well be indicative of an occupation, but the question is *what kind of occupation*. In Appendix A Zeidler suggests that there may have been a lighter occupation in the highlands than on the coast during the Formative, especially the Early Formative, which might account for lesser amount of evidence. Additionally, we need to take into account the differential probability that evidence of occupation will survive. On the coast, if we compare the coastal valleys, such as the Valdivia valley, with the huge floodplain of the Guayas, the bias of preservation is overwhelmingly on the side of the smaller, drier valleys. From Bruhns's account of flooding, erosion, and sedimentation in the Paute valley, the probability seems low that evidence would survive of small Formative villages situated along the floodplains of the highland valleys. We clearly need a great deal more research in the southern highlands before we can know with a high degree of confidence just how early sedentary village life began there.

Table D1
Formative Period Radiocarbon Chronology for the Southern Highlands of Ecuador, by Site, according to Province, from Earliest to Most Recent Radiocarbon Year before Present (RCYBP)

Site by province	Lab and lab. no.	Uncalibrated date RCYBP	Probability calibrated range 68.2% (year B.C.)	Probability calibrated range 95.4% (year B.C.)	Reference
		Cañar and Azuay			
Cerro Narrío	British Museum BM 896	3928 ± 60	2550-2300	2580-2200	Burleigh, Hewson, and Meeks 1977
Pirincay	Cambridge Q 3191	3170 ± 120	1610-1260	1750-1050	Bruhns, Burton, and Miller 1990
	Oxford Radiocarbon Accelerator Unit OxA 1376	3000 ± 120	1400-1050	1550-900	Bruhns et al. 1990
Chaullabamba	British Museum BM 907	2964 ± 50	1290-1050	1380-1010	Burleigh and Hewson 1979
	BM 897	2909 ± 55	1220-1000	1270-920	Burleigh et al. 1977
	BM 906	2800 ± 48	1020-890	1130-830	Burleigh and Hewson 1979
Pirincay	British Museum BM 901	2697 ± 49	900-805	970-790	Burleigh et al. 1977
	BM 903	2635 ± 77	910-590	100-450	Burleigh et al. 1977
	BM 900	2581 ± 66	830-540	900-410	Burleigh et al. 1977
	Cambridge Q 3195	2525 ± 40	800-540	800-510	Bruhns et al. 1990
El Carmen (Bajo)	British Museum BM 905	2446 ± 50	760-400	770-400	Burleigh and Hewson 1979
Pirincay	Oxford Radiocarbon Accelerator Unit OxA 948	2440 ± 70	760-400	770-390	Marcos and Obelic 1998
El Carmen	British Museum BM 904	2334 ± 61	520-230	800-200	Burleigh et al. 1977
Pirincay	Cambridge Q 3161	2160 ± 60	360-110	380-50	Bruhns et al. 1990
	Q 3190	2250 ± 70	400-200	410-90	Bruhns et al. 1990
	Q 3196	2260 ± 75	400-200	520-90	Bruhns et al. 1990
Uchukay	British Museum BM 899	2242 ± 48	390-200	400-180	Burleigh et al. 1977

(*cont.*)

Table D1 (*cont.*)
Formative Period Radiocarbon Chronology for the Southern Highlands of Ecuador, by Site, according to Province, from Earliest to Most Recent Radiocarbon Year before Present (RCYBP)

Site by province	Lab and lab. no.	Uncalibrated date RCYBP	Probability calibrated range 68.2% (year B.C.)	Probability calibrated range 95.4% (year B.C.)	Reference
		Loja			
Trapichillo	Centre de Recherches Geodynamiques[a]				
	CRG 301	3480 ± 90	1920-1680	2050-1500	Guffroy 1987
Putushío	Hannover				
	Hv 16798	3420 ± 255	2150-1400	2500-1000	Ziólkowski et al. n.d.
	Hv 16799	3210 ± 180	1740-1260	1950-1000	Marcos and Obelic 1998
La Vega	Centre de Recherches Geodynamiques[a]				
	CRG 295	2900 ± 60	1220-990	1290-910	Guffroy 1987
	CRG 287	2870 ± 80	1210-920	1290-830	Guffroy 1987
Putushío	Hannover				
	Hv 16797	2815 ± 95	1120-830	1260-800	Marcos and Obelic 1998
La Vega	Centre de Recherches Geodynamiques[a]				
	CRG 211	2787 ± 94	1050-820	1220-790	Guffroy 1987
Putushío	Hannover				
	Hv 15831	2780 ± 120	1110-800	1400-750	Ziólkowski et al. n.d.
	Hv 15835	2705 ± 155	1150-550	1300-400	Ziólkowski et al. n.d.
	Hv 14707	2560 ± 85	820-520	840-400	Marcos and Obelic 1998
	Hv 15832	2535 ± 120	810-430	950-350	Marcos and Obelic 1998
	Hv 14706	2450 ± 65	760-400	770-400	Marcos and Obelic 1998
	Hv 14704	2360 ± 130	800-200	800-100	Marcos and Obelic 1998

Notes: Data compiled by J. S. Raymond. All calibrations made with the OxCal software program version 3.5 (Ramsey 1995). Culture and phase information has been omitted because of unresolved issues of standardization.
[a] The Centre de Recherches Geodynamiques is located at the Université Pierre et Marie Curie.

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