

[Supplementary material]

Pre-ceramic riverside hunter-gatherers and the arrival of Neolithic farmers in northern Luzon

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Table S1. Radiocarbon dates from the Cagayan Valley shell middens and the related sites discussed in this study. Dates on riverine shells are not calibrated because of their unknown reservoir corrections—the Cagayan River and its tributaries flow over limestone (abbreviations in the table: P = pit; L = level; Q = quadrant).

Lab. and code	Cultural associations	Depth below the surface	Material dated	Uncal BP	Cal BP	Reference
S-ANU-13021	Modern shell—main Cagayan valley	Modern shell	Kabibe shells (<i>Batissa childreni</i>),	Modern		This study
S-ANU-13023	Modern shell—Zabaran Creek	Modern shell	Kabibe shells (<i>Batissa childreni</i>)	>Modern		
<i>Pintú rockshelter, Nueva Vizcaya Province</i>						
GaK-2940	Pottery layer, ‘black ware’	Layer 4	Charcoal	2260±150	2720–1930	Peterson (1974)
GaK-2942	Earliest pottery layer, ‘reddish-orange ware’	Layer 6	Charcoal	3290±230	4150–2949 BP (95.4%)	
GaK-2943	Preceramic layer	Layer 10	Charcoal	3880±240	4960–3683	
<i>Preceramic phase in the lower Cagayan Valley, Cagayan Province</i>						
Gaerlan						
NUTA2-7941	Shell layer with flakes	Layer 2, spit, 0.40–0.55m	Animal bone (species unknown)	3810±30	4295–4090 BP (93.4%)	Ogawa (2005)
Ulet						

NUTA2-7905	Shell layer with flakes	1–1.20m	Charcoal	5830±50	6745– 6495 BP (95.4%)	Ogawa (2005)
Miguel Supnet						
GX-24455	Soil layer	P1, L3, Qa, 0.30m	Charcoal	4240±50	4877–4780 BP (43.7%) 4772–4612 BP (49.6%)	Tsang (2007)
GX-24126	Shell layer with flakes	P2, L5, Qd, 0.50m	Charcoal	4560±290	5914–4514 BP (94.7%)	
GX-24128		P1, Layer III, 0.50m	Riverine shell	4740±90		
GX-24127		P2, Layer II upper, 0.24m	Riverine shell	4680±90		
GX-24125		P2, Layer II lower, 0.45m	Riverine shell	5100±150		
GX-24124		P2, Layer III lower, 0.48m	Riverine shell	4845±90		

GX-24123		P2, Layer IV upper, 0.48m	Riverine shell	4815±90		
GX-24121		P2, Layer IV lower, 0.80m	Riverine shell	4980±95		
S-ANU-66805	Shell layer with flakes	P2, L2, Qb, 0.20m	Pig bone	4035±27	4575–4420 BP (95.4%)	This study
S-ANU-66806		P2, L6, Qb, 0.60m	Pig bone	4102±28	4655–4520 BP (60.6%) 4814–4752 BP (22.8%) 4711–4666 BP (10.5%)	
Leodivico Capiña						
GX-24112	Shell layer with flakes	P1, L7, Qc, 0.60m	Charcoal	4875±90	5764–5448 BP (84.4%)	Tsang (2007)

GX-24114		P1, L8, Qd, 0.70m	Charcoal	5260±220	6500–5582 BP (95.3%)
GX-24119		P1, L27, Qd, 2.60m	Charcoal	6085±50	7075–6795 BP (83.9%)
GX-24110		P1, north wall, 0.20m	Riverine shell	5575±95	
GX-24111		P1, north wall, 0.50m	Riverine shell	5750±95	
GX-24113		P1, north wall, 1m	Riverine shell	5580±95	
GX-24117		P1, north wall, 1.80m	Riverine shell	5850±95	
GX-24116		P1, north wall, 2.20m	Riverine shell	5990±110	
GX-24120		P1, north wall, 3m	Riverine shell	6065±115	
GX-24456		P2, L4, Layer II, 0.40m	Charcoal	4940±50	5753–5586 BP (90.0%)
<i>Neolithic Phase in the lower Cagayan Valley, Cagayan Province</i>					
Gaerlan					

NUTA2-7938	Shell layer with red-slipped pottery	Layer 1, spit 1, 0.14–0.23m	Animal bone (species unknown)	3555±30	3926–3820 BP (67.6%) 3797–3722 BP (24.9%)	Ogawa (2005)
NUTA2-7939		Layer 1, spit 2, 0.23–0.30m	Animal bone (species unknown)	3485±30	3839–3687 BP (91.6%)	
NUTA2-7940		Layer 1, spit 3, 0.30–0.40m	Animal bone (species unknown)	3665±35	4092–3891 BP (94.3%)	
Irigayen						
NUTA2-914	Silt layer with red-slipped pottery	Layer 3, 0.885m	Charcoal	3025±20	3265–3161 BP (72.4%)	Ogawa (2005)
NUTA2-912		Layer 3, 1.11m	Charcoal	2925±20	3162–2997 BP (95.4%)	

NUTA2-913		Layer 3, 1.35m	Charcoal	3165±25	3450–3349 BP (95.4%)	
NUTA2-917		Layer 3, 1.32– 1.355m	Charcoal	3185±25	3451–3368 BP (95.4%)	
Nagsabaran (the alluvial layer beneath shell midden)						
NTU-3799	Silt layer with red-slipped pottery	P1, L31, 3.10m	Riverine shell	3450±40		Tsang (2007)
GX-26704		P2, L14, 1.40m	Charcoal	2620±40	2792–2705 BP (88.4%)	
GX-26705		P2, L15, 1.50m	Charcoal	6610±290		
GX-26711		P4, L21, 2.10m	Charcoal	2520±50	2749–2426 BP (95.4%)	
GX-28379		P7C, L16, 1.60m	Charcoal	3050±70	3402–3060 BP (94.3%)	
GX-28381		P7A, L19, 1.90m	Charcoal	3390±130	3980–3364 BP (95.4%)	

NTU-3798		P7C, L16, 1.60m	Charcoal	2670±40	2854–2739 BP (95.4%)	
WK-23397		P9, silt layer	Domestic pig tooth	3940±40	4448–4246 BP (81.8%) 4519–4470 BP (13.6%)	Hung (2008); Piper <i>et al.</i> (2009)
WK-19712		P9, L15, 1.50m	Pig bone	2504±35	2737–2464 BP (95.4%)	Hung (2008)
WK-17756		P9, L18, 1.80m	Charcoal	2528±31	2600–2493 BP (48.9%) 2742–2675 BP (29.4%)	
S-ANU-13016		P11-17-F33, 1.70m	Charcoal	3510±30	3871–3695 BP (95.4%)	This study

S-ANU-13024		P14, L21-Qac, 2.10m	Charcoal	2680±30	2849–2750 BP (95.4%)
S-ANU-13014		P14, L24-Qac, 2.40m	Charcoal	2660±30	2848–2809 BP (17.9%) 2794–2739 BP (77.6%)
S-ANU-13013		P14, L24-Qcb, 2.40m	Charcoal	2540±30	2745– 2689 BP (37.2%) 2643–2612 BP (15.4%) 2597–2496 BP (42.8%)
UGAMS-27088		P15, spit 23, 2.55m	Job's tears grain	2500±25	2725– 2665 BP (20.7%)

					2660–2490 BP (74.7%)
UGAMS-27089		P15, spit 23, 2.55m	Rice grain	2500±25	2725–2665 BP (20.7%) 2660–2490 BP (74.7%)
UGAMS-27090		P15, spit 23, 2.55 m	Rice grain	2500±25	2725–2665 BP (20.7%) 2660–2490 BP (74.7%)
Beta-437271		P15, spit 24, 2.65m	Rice grain	2550±30	2750–2694 BP (47.4%) 2640–2613 BP (13.1%)

					2594–2699 BP (34.9%)
UGAMS-27091		P15, spit 25, 2.75m	Job's tears grain	2530±25	2740–2691 BP (30.9%) 2642–2612 BP (17.0%) 2596–2497 BP (47.5%)
Beta-436818	the base of the excavation square, dense charcoal layer, with fired clay	P15, spit 31, 3.45m	Charcoal	3760±30	4236–4195 BP (15.4%) 4187–4076 BP (65.2%) 4041–3990 BP (14.9%)

Beta-330577	Silt layer with human burial	P6, HB-1	Human bone	2490±30	2724–2463 BP (94.2%)	
Magapit						
N-5396	Shell layer with red-slipped pottery	Layer II (Spit 9)	Charcoal	2800±140	3357–2703 BP (94.7%)	Aoyagi <i>et al.</i> (1993)
N-5397		Layer III (Spit 20)	Charcoal	2760 ±125	3241–2696 BP (92.0%)	
(Number Unknown)	Shell layer with red-slipped pottery	Layer II, trench A1	Riverine shell	3790 ± 100		Aoyagi (1983)
(Number Unknown)		Layer III, trench B	Riverine shell	3680 ± 100		
Gak-7048	Shell layer with red-slipped pottery	Square :12S46E, 0.85m	Riverine shell	3680 ± 110		Thiel (1986– 1987)
Beta-416880	Shell layer with red-slipped pottery	P1, spit 4, 0.40m	Rice grain	2910±30	3160–2961 BP (95.4%)	This study
Beta-426159		P1, spit 10, 1m	Animal bone	2900±30	3158–2954 BP (95.4%)	

Beta-416881	Clay layer with red-slipped pottery	P1, spit 27, 2.70m	Charcoal	2800±30	2967–2844 BP (88.2%)	
Beta-416882		P1, spit 32, 3.20m	Charcoal	2810±30	2999–2846 BP (93.5%)	
Beta-426160		P1, spit 35, 3.50m	Animal bone	2860±30	3071–2876 BP (95.4%)	
Andarayan						
SFU-86	Layer with large quantities of red slipped pottery		Charcoal	3240±160	3890–3060 BP (95.4%)	Snow <i>et al.</i> (1986)
Not reported	Rice husk inside pottery		Rice husk	3400±125	3935–3378 BP (93.6%)	
Pamittan						
GaK17967	Layer associated with red slipped pottery		Charcoal	3390±100	3890–3441 BP (93.7%)	Tanaka & Orogo (2000)

GaK17968			Charcoal	3810±200	4728-3697 BP (92.7%)	
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