

Excavations in 2007
at Belderrig
Co. Mayo
04E0893

Stratigraphic Report



UCD School of Archaeology

Fieldwork in 2007 at Belderrig, Co. Mayo.

UCD School of Archaeology
Graeme Warren

Summary

The School of Archaeology, University College Dublin, are conducting a research project focusing on a late Mesolithic quartz scatter and associated pre-bog archaeology, including field walls, at Belderrig, Co. Mayo (Figure 1). The project was directed by Graeme Warren of the School of Archaeology and the archaeological licence was held by Graeme Warren. The National Archaeology Committee of the Royal Irish Academy funds the project.

Site Location

Site Name: Belderrig
Townland: Belderg More
Parish: Belderg
County: Co. Mayo
Excavation NGR: F992415

The site at Belderrig lies immediately above the present shoreline on peat covered west facing slopes of a sheltered bay near the exit of the Belderrig River. The site is on the edge of a notable shelf on the peninsula, giving way to gentle slopes to north, east and, at some distance, south.

The Site and Circumstances of Discovery

The site was initially identified through surface collection of artefacts. Substantial erosion, caused by changes in the up-slope drainage regime, has left a clear scar in the cliff edge at Belderrig, and it was in this erosion scar that Prof. Caulfield and his father first noted the site. The surface collection, dominated by quartz but including other materials, was of recognisably Mesolithic character. At Prof Caulfield's invitation I visited the site in 2002 and designed the fieldwork programmes that have taken place since that time.

Fieldwork 2004-2006

Excavations to date at Belderrig have been very successful. Initial project design focused on exploring and characterizing a scatter of worked stone and associated organic materials visible in eroding cliff sections. Excavations of test pits in 2004 delineated the main concentration of material and raised several questions about the taphonomic processes operative on site. In 2005 changing scales of fieldwork aimed to answer these questions in more detail and one small and one substantial sized trench were opened to provide stratigraphic relationships between pre bog field walls, concentrations of lithics and extensive stony surfaces. These excavations confirmed that the site was characterized by extensive deposits of later mesolithic stone tools, along with small amounts of preserved organic materials. The excavations in 2005 raised considerable question about the status of the large stony layers present in many of the trenches, but did not resolve these issues. In 2006 excavations continued in Trench One, the largest of the Belderrig trenches. Specialist advice suggested that a cultural explanation for the stony layers was likely, leading to the recognition that an area some 40 or 50 metres in length was covered by mesolithic structures. This in turn led to changes in the recording and sampling of these structures. Eleven radiocarbon dates have currently been obtained from Belderrig, ranging from the mid fifth to mid fourth millennia. These are detailed in Appendix Four.

Fieldwork 2007: Aims and Methods

The key aims of fieldwork in 2007 were:

- completion of excavation of Trench 1
- Sampling of one further geophysical anomaly from the 2004 survey to facilitate comparisons to the pattern identified in 2005, where anomalies related to the location of fire settings.
- processing of samples from 2006 and those to be gained in 2007.

A four-week fieldwork programme ran from 25th June – 20th July 2007. The team included 10 student volunteers, two supervisors, an assistant and an assistant director as well as other graduates who joined us for shorter periods of time. Excavation was by hand within a 50cm grid system. Within this system, a consistent, and rigorous sampling strategy was used: Every second square was 100% sampled, with 2L control samples

removed from the intervening squares. All spoil not included in a sample was dry sieved at 5mm. The excavated areas are shown in (Figure 2).

Results of Archaeological Excavation

Fieldwork in 2007 was significantly hampered by weather conditions. Nearly 50% of available digging days were lost to bad weather, and even on days when it was not raining, channelling of water under the bog made digging conditions difficult. Most mornings involved bailing 70 cm of water from the base of the trench. This made it impossible to complete the excavation of the trench and annex, although considerable progress was made. After initial cleaning and planning of the annex, weather conditions precluded full investigation of the features uncovered. Time lost in the field was spent in the lab, with wet sieving and sorting of samples from 2006. All samples from Trenches 2 and 3 are now sieved, and await sorting.

Excavation was undertaken within a 50cm grid system and specialist advice led to the adoption of a rigorous sampling strategy (see below). In order to investigate a geophysical anomaly identified during the 2004 survey a small annex was opened. In the lower part of the trench the stony layers were completely removed and excavation is complete in this area. The stratigraphic sequence is complex, and a provisional model is offered here.

Peat deposits

Three peat contexts, which seal the trench as a whole, have been identified. C.103 is an extremely well humified 'sapric peat'. It was not extensive across the whole trench, and areas where it has been disturbed may be indicative of greater areas of general disturbance. C.102 was a thick, undisturbed very dark brown plastic peat. C.101 is a disturbed, highly root penetrated peat and C.102 is a disturbed, highly root penetrated peat.

Sub soils

Basal deposits (C109/C119/C121) are characterised by compact, if variable, clay-sands. C.119 was clean green-yellow sands with some mottling and was indicative of the natural subsoil. It was archaeologically sterile and highly compacted. Overlying this, and difficult to distinguish from it, was C.109. This was a compact clay-sand with frequent gravel inclusions. It was heavily root penetrated (vertical) and contained some finds in its upper layers. C.109 corresponded to the 'yellow gravelly' characteristic of the test pits in 2004, which also contained artefacts and in places was highly root penetrated. In the upper half of the Trench, C.109 was, in some places, almost immediately sub-peat, with thin washes of material (including C110) overlying. C108, a fine sandy loam, also characterised by strong vertical rooting, appears to represent a colluvial deposit. It is present throughout the trench, and appears to have backed up against parts of a Neolithic field wall, or tumble, although this observation is based on a very small part of the section and further investigation is required to confirm this model (see also C.118 below). In places pockets of C.108 (c.108b) are sealed by washes of clean sand further suggesting soil movement. C.121 was greenish grey compact sand-clay deposit, which was spatially limited to (but not co-extensive with) areas where C.120 appeared, suggesting that these deeper, organically rich deposits may have had an influence over time in the extent of leaching and staining of the sub-soils.

Stony layers

In the middle and lower trench thick archaeological deposits sealed C.109. These deposits, 'the stony layers' are of considerable importance, and some complexity (Figure 3). C.120 was a dark, olive brown deposit (2.5y 3/3) found in the lower half of Trench 01. The deposit was discontinuous: in places it was extensive across the width of the trench, 6m in length (E-W) and 0.20m in maximum depth with sharp, smooth boundaries above and below. In 2006 C120 was described at the extreme west of the trench and observed to decline in depth within the width of the trench. In areas where it is present, C.120 was plano-convex in section. Full assessment of the dimension of these concentrations is difficult in a narrow slot trench, but in places the surface was certainly about 6-7m across. C.120 itself was a highly compacted deposit, including frequent angular, sub-angular and sub-rounded stones of roughly 10cm in diameter and smaller. In general C120 was matrix supported, but in one area, excavated in 2006, the deposit was clast supported (c.135). C.120 and C.111A were very difficult to distinguish, but in areas where C.120 was clearest a demonstrable relationship with tree roots was present. These root hollows themselves contained cultural material. A provisional model of deliberate infilling of tree throws is proposed here, with significant amounts of material being introduced to level these throws and then, possibly, occupation continuing in this area. Several significant finds in these throws, including a mica schist Moynagh point, suggest some formality to these processes. It should be noted that no banking or slow sedimentation sequences characteristic of tree boles, was observed and the levelling appears to have been a systematic process. Two radiocarbon dates, UB-7583 & 7584 (see Appendix 2), suggest that the infilling of one of these hollows took place c. 4300 – 4050 BC. A sequence of radiocarbon dates through part of a stony layer in

Trench Three, obtained in 2006, suggest that in this location, at least, the layer dates 4160 – 4000 BC (Appendix Two). Importantly the character, and formality of, these fills appears to vary across the site.

Overlying C.120 was C.111, one of the most ambiguous contexts on site, with vertical and horizontal boundaries proving very hard to establish. Its interpretation is critical. C.111 was very dark brown silty clay containing frequent angular stones of comparable size and form to C.120. However the clay within C.111 was more akin to C.108. In 2006 the layer was further subdivided into C.111 (i.e. stone free) and C.111A (stony), reflecting vertical and horizontal variation in the deposit. C.111 is extensive across the lower parts of the trench, rich in artefacts. In places possible horization was identified within C.111, with small lenses of (?) peat (C.176) present. Samples of these areas have been taken for micromorphological analysis. The provisional model proposed here is that C.111 (C.111A) are occupation soils which accumulate over time. Their precise spatial boundaries with C.120 are difficult to establish because these boundaries were never sharp, with irregular 'edges' to the areas where tree throws had been leveled – and, in fact, some of this expansion being associated with the movement of stones within the use of the surfaces. These contained significant quantities of artefacts and in one location a cache of three polished stone axes were recovered on, or in, the stony surface (C.111). A large shallow pit (C.173/174) was identified beneath the stony surfaces (Figure 4) but, based on reappraisals of plans from 2006, appears to have been cut through the surfaces themselves: it is important to note that despite careful focus, it was not possible to identify a cut through the stony layers, replicating a problem observed in 2006 during the excavation of stake holes in Trench Three and paralleling the situation at Ferriter's Cove (Woodman et al. 1999). The pit contained a substantial number of quartz lithics.

The stony layers and associated deposits are exceedingly compacted, which in turn raises another interpretative problem as the combined depth of deposits here is too thin to easily represent an *in situ* soil profile. Two possibilities arise from this: firstly that the soil profile has been compacted to such a degree that it appears to be too thin; secondly that aeolian processes have winnowed fines from this area leading to some deflation. Further work is required to discriminate between these hypotheses.

The annex

The annex to the trench contained a range of important structural features and forced a reappraisal of the sequences excavated in 2005. A boulder defined field wall (C.151) ran NW-SE. This was a substantial stone wall composed of large psammite and dolerite boulders, with a small component of other lithologies. This wall was abutted to the north by a small D-shaped cairn (C.153) comprised entirely of psammite and filled with sand (C.168). The upper part of the cairn was composed of medium sub-rounded cobbles (0.15m-0.30m in diameter), with larger material (c. 0.50m) in the northwest half. Clusters of stones (C.156) appeared to have been thrown up against the wall at some stage and these were interpreted variously as tumble or field clearance. C.165 was a charcoal spread to the east of the wall, which formed an arc c.0.20m wide and curving across 1m. The main concentration appeared to be *in-situ*, although areas of the deposit in the vicinity of the wall cavities may have been transported through water action. C.165 possibly occurred over C.132 and was sealed by C.108.

To the west of the wall was a stony pavement (C.155) comprised of angular slabs of psammite and dolerite and small rounded pebbles, which appeared to have been set into the underlying deposit. Also to the south a low curving wall was identified (C.154) and this corresponded to a feature excavated in a test pit in 2004. The feature displayed a maximum length (as exposed) of 2.50m and appeared to abut the field wall C.151. This feature, which included distinctive deposits, is currently ambiguous. Excavations in the annex are incomplete, but it is clear that an area of important neolithic activity has been identified. The stratigraphical relationship between this layer and the mesolithic layers is of considerable importance.

Neolithic features in the Upper Trench

In 2005 a field wall, associated tumble and a fire setting (C.115), dating to the mid fourth millennium (UB-7590, 7591, UBA-7591) was excavated. Field observations in 2007 have led to reappraisals of the sequence offered in 2005. In brief, it appears that wall (C.112) had originally run down slope to join C.151. The junction of the two walls had been removed, leaving a trace of smaller stone, assumedly accumulated against the wall (C.113). This led to material being thrown back onto and around a small D-shaped cairn, entirely comparable to that exposed in 2007, and of which traces still remained (C.160/161), these two discrete episodes were not distinguished in 2005, and were removed as one unit of tumble. The area where the walls were modified *may* be associated with a metal surface (C.162). Also in 2005, the fire-setting C.115 was interpreted as sealed by 'tumble' of the field wall C.112. Given the complexity of this area, and the failure to identify detail in 2005, and reappraisal of the plans this relationship between the fire setting and tumble is no longer upheld. Importantly, C.115 is sealed by C.108, and therefore predates the appearance of colluvium. In this area small pockets of C.132, or 'brown gravelly' were sealed by C.108. They are here interpreted as remnants of an OLS

The area of reworked walls contained several highly ambiguous features, notably, accumulations (C.118) of clay and varied clasts and possible 'banks' identified in 2007 (C.149/150). These features require further attention in 2008, but one possibility is that C.118 is comprised of redeposited colluvial material forming lynchet (possibly akin to C.163) and then disturbed by the transformations to wall C.112/C.151.

Artefacts and Ecofacts

A wide range of artefacts and ecofacts continue to be recovered from the site. A rigorous sampling strategy has led the accumulation of a large number of samples, many of which are currently unprocessed. The current understanding of the site is therefore incomplete. Processing of samples in 2007 demonstrated that small quantities of fish bone, in particular teeth, are present within trench one, along with abundant plant macrofossils, particularly carbonised hazelnuts. Some beetle remains were identified, but these have mainly derived from excavations on or near the cliff, and their taphonomic status and antiquity is currently uncertain. The fish bone, in keeping with that recovered in previous years, is extremely fragmentary, but nevertheless provides a key resource for understanding the settlement of the area.

Excavations within Trench One revealed many more chipped and other stone artefacts. Large numbers of quartz artefacts in particular were identified – it is notable that the pit C.173 contained a significant density of worked quartz. Other key artefacts included a fine, large blade of high quality flint, presumably imported from Antrim. This was recovered at the base of the stony layers in the centre of the trench. The artefact is patinated, but otherwise in good condition. The most striking find, however, was a cache of three polished stone axes, recovered in a linear deposit in/on C111 (Figure 5). These axes are small and varied in character – one in particular is rather triangular in section, and with squared sides. The other two axes are broadly in keeping with materials from mesolithic assemblages elsewhere in Ireland (Woodman 1977; Woodman 1978), but the more formal example is a little distinct; here of cause, the limitations of our understandings of axe typology in the centuries around 4000 BC must be stressed. The axes have been transformed by the bog – on recovery they appeared to be a siliceous green material, but have since become dull and tan. Detailed geological analysis, including whether they are all of the same material or if two lithologies are present, is awaited. The axes were displayed to the community as part of our open evening, and one of the local farmers had found a larger example, of a very similar material, some ten years ago on the western shores of Belderg Bay.

Discussion

Excavations at Belderrig continue to refine our understandings of a site of considerable importance. Work in the annex this year, although incomplete, has revealed a range of features and it is imperative to understand the relationships between these features and the 'stony surfaces' containing so many mesolithic artefacts and radiocarbon dates. Notably, at present, the stony surfaces appear to lie within an area delimited by field walls (Figure 6) and key problems about this remain: are the walls deliberately enclosing this area, or is the preservation of these features in this area a chance artefact of neolithic agricultural practice? In any case, a provisional model of site formation and sequence can now be proposed. For detail of the dates, see Appendix Two.

The earliest demonstrable activity lies in the middle of the fifth millennium, with dates from charred hazelnuts associated with fish bone lying between c. 4800 – 4300 cal BC (UB-6882, 7585, 7586). The activities giving rise to these dates are poorly understood. In the late fourth millennium a series of tree throws were deliberately infilled with stone and cultural material, in one area this dates to c. 4300 – 4050 BC, in Trench Three a tighter modelling of dates suggests 4160 – 4000 BC. It is not, at present, possible to establish whether these activities are synchronous. Activity on and around these foci, as well as possible colluviation, led to the generation of a wider, extensive, occupation soil, itself the focus for some depositional activity, including a deposit of stone axes. These dates are of considerable importance, suggesting that hunter-gatherer activity at Belderrig is contemporary with neolithic activity at Carrowmore and Magheraboy, Co. Sligo (Sheridan 2003a; Sheridan 2003b; Sheridan 2004; Sheridan 2006). The site therefore has a significant contribution to make to the understanding of the mesolithic – neolithic transition in Ireland (Cooney 2000; Woodman 2000).

At some stage field walls were constructed on the slopes above and immediately adjacent to the site. By analogy with other sites in the region (Caulfield 1978; Caulfield 1981; Caulfield et al. 1998; O'Connell and Molloy 2001), the date of large scale agriculture should lie soon after the elm decline – at Behy-Glenulra the extensive clearance is argued to date to c. 3700 BC – and comparable dates may be appropriate for the Belderg More system. The field system appears to have been actively modified, and cairns and other features are associated with it. Colluvial deposits, poorly understood at present, suggest some soil erosion and movement associated with the use of the fields, these post-date a fire setting of the mid fourth millennium, and appear to bank up against the field walls. Detailed analyses of the neolithic field system at Belderg Beg imply that agriculture was abandoned, in association with erosion exacerbated by a dry climate, by 3425 BC (Verrill 2006), with peat

formation following some time after this. Evidence of comparable erosion is mainly present behind field walls on the Belderrig site but is also found sealing the areas of mesolithic activity.

The site at Belderrig then provides a sequence of activity from the mid fifth through the mid fourth millennium BC, providing a critically important perspective on the latest mesolithic and neolithic settlement of Ireland, and, in particular, the important centuries immediately surrounding 4000 BC. A range of artefacts, ecofacts, and structural remains demonstrate the considerable importance of the site in national and international debates.

Acknowledgements

We are grateful to the Royal Irish Academy for financial support and to the UCD School of Archaeology and ITAS Beal Deirg for support in kind. I would like to thank the community of Belderrig for their welcome, especially Tony Murphy for permission to excavate. I am indebted to Seamas Caulfield for the introduction to the site and region. Many volunteers or specialists worked on or visited site this year, and I would like to acknowledge their energy and support; I would particularly like to mention Thomas Cummins, Stephen Davis, Brian Dolan, Killian Driscoll, Dominik Fuchs, Thomas Kador, Sonja Laus, Emmett O'Keefe and Conor McDermot. I am especially grateful to Kim Rice for field supervision, co-ordination of post excavation and assistance in preparation of this report.

References cited

- Caulfield, S. 1978. Neolithic Fields: the Irish evidence. In *Early Land Allotment in the British Isles: a survey of recent work*, eds. H.C. Bowen and P.J. Fowler, 137-43. Oxford: British Archaeological Reports 48.
- Caulfield, S. 1981. Forest Clearance and Land Use in Mayo around 3000 BC. *Irish Forestry*, (38): 92-100.
- Caulfield, S., R.G. O'Donnell and P.I. Mitchell. 1998 14C Dating of a Neolithic Field System at Céide Fields, County Mayo, Ireland. *Radiocarbon* 40: 629-40.
- Cooney, G. 2000. *Landscapes of Neolithic Ireland*, London: Routledge.
- O'Connell, M. and K. Molloy. 2001. Farming and Woodland Dynamics in Ireland During the Neolithic. *Biology and Environment. Proceedings of the Royal Irish Academy*, 101B(1-2): 99-128.
- Sheridan, A. 2004. Neolithic connections along and across the Irish Sea. In *The Neolithic of the Irish Sea: materiality and traditions of practice* eds. V. Cummings and C. Fowler, 9-21. Oxford: Oxbow.
- Sheridan, A. 2003a. Ireland's Earliest 'Passage' Tombs: a French connection? In *Stones and Bones: Formal disposal of the dead in Atlantic Europe during the Mesolithic - Neolithic interface 6000-3000 BC. Archaeological Conference in Honour of the Late Professor Michael J. O'Kelly*, eds. G. Burenhult and S. Westergaard, 9-25. Oxford: BAR International Series 1201.
- Sheridan, A. 2003b. Megalithic chronologies: the chronology of Irish megalithic tombs. In *Stones and Bones: Formal disposal of the dead in Atlantic Europe during the Mesolithic - Neolithic interface 6000-3000 BC. Archaeological Conference in Honour of the Late Professor Michael J. O'Kelly*, eds. G. Burenhult and S. Westergaard, 69-73. Oxford: BAR International Series 1201.
- Sheridan, A. 2006. A non-megalithic funerary tradition in early Neolithic Ireland. In *The Modern Traveller to Our Past: Festschrift in honour of Ann Hamlin*, ed. M. Meek, 24-31. Oxford: Oxbow.
- Verrill, L., (2006). Later prehistoric environmental marginality in western Ireland: multi-proxy investigations. Unpublished PhD Thesis University of Edinburgh.
- Woodman, P.C. 1977. Recent excavations at Newferry, Co. Antrim. *Proceedings of the Prehistoric Society*, 43: 155-99.
- Woodman, P.C. 1978. *The Mesolithic in Ireland*, BAR British Series 58.
- Woodman, P.C. 2000. Getting back to basics: transitions to farming in Ireland and Britain. In *Europe's first farmers*, ed. D. Price, 219-59. Cambridge: Cambridge University Press.
- Woodman, P.C., E. Anderson and N. Finlay. 1999. *Excavations at Ferriter's Cove, 1983-95: last foragers*,

first farmers in the Dingle Peninsula, Bray: Wordwell.

Figure 1: Location Map

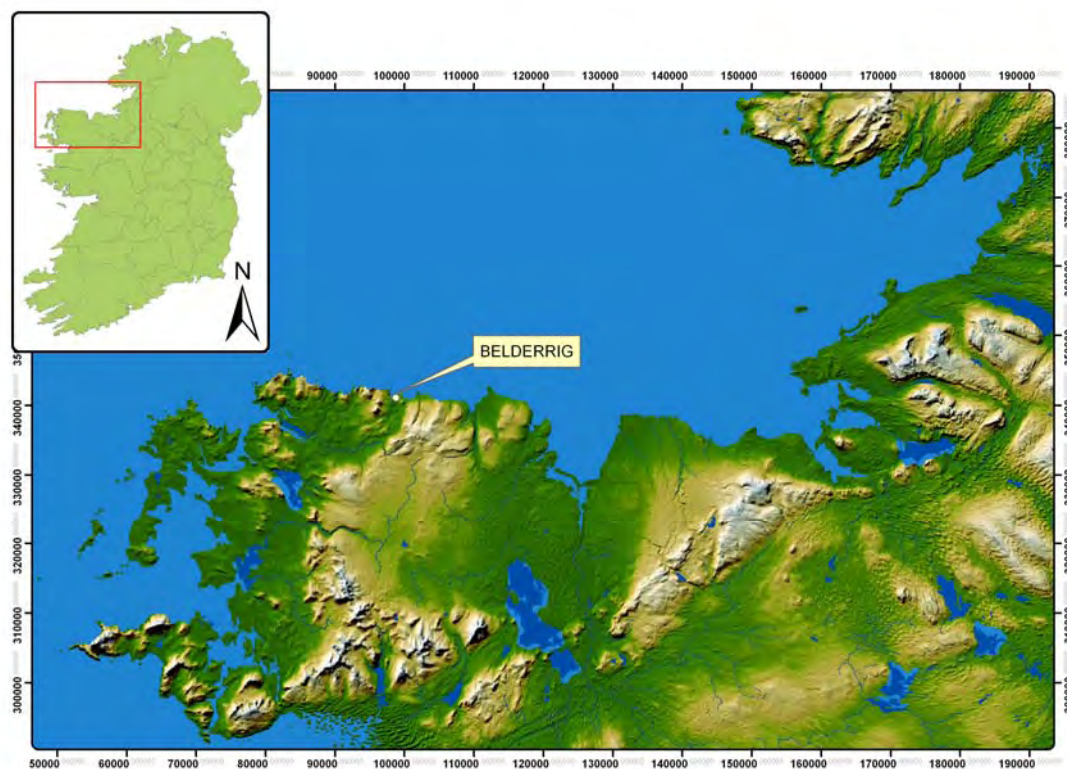


Figure 2: Trench Location: Trench One and Annex in centre of plan, yellow indicates test pits 2004 - 2005

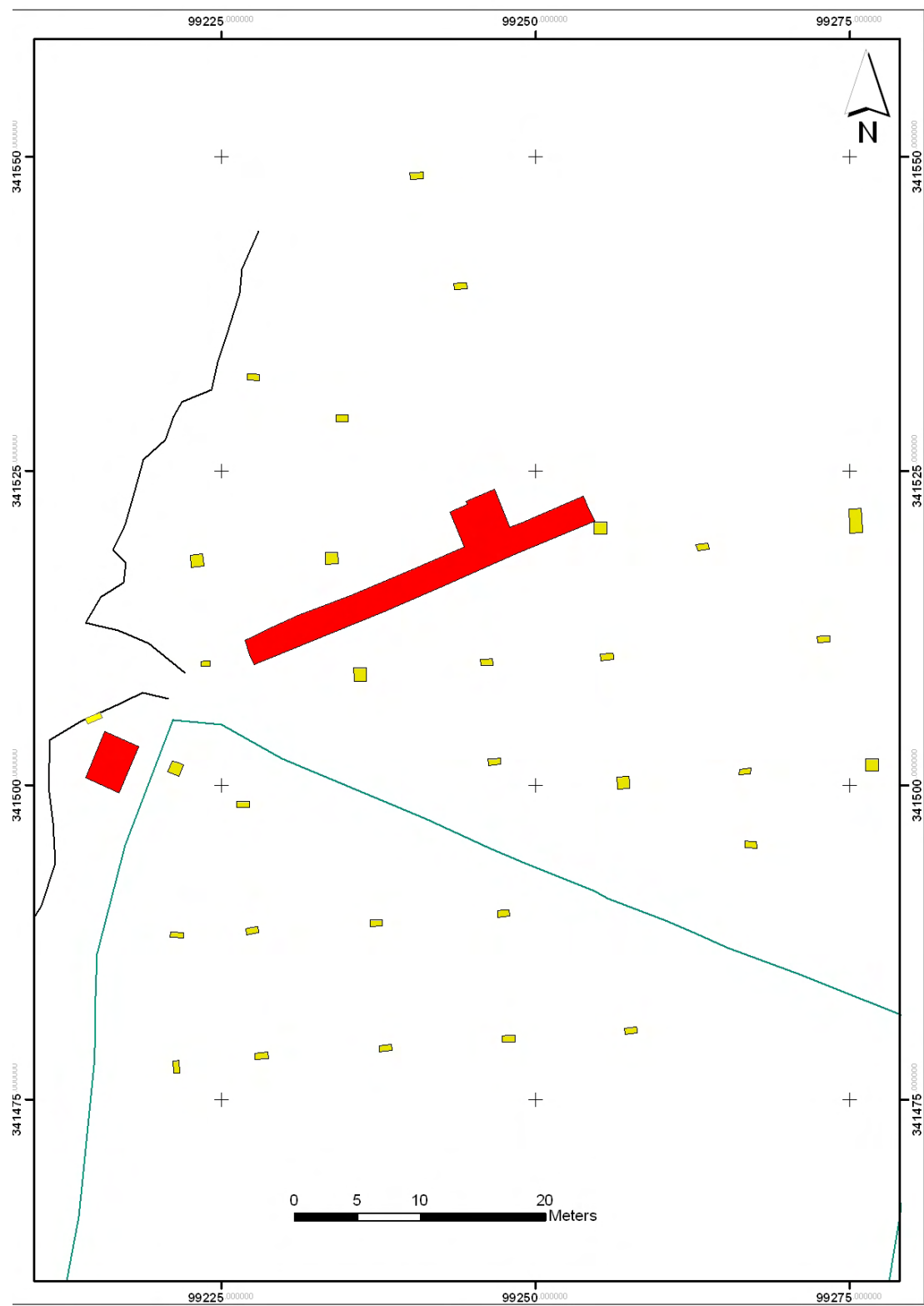


Figure 3: BDG08, Trench One; Overview of Stony Layer (C111/C111A), facing east



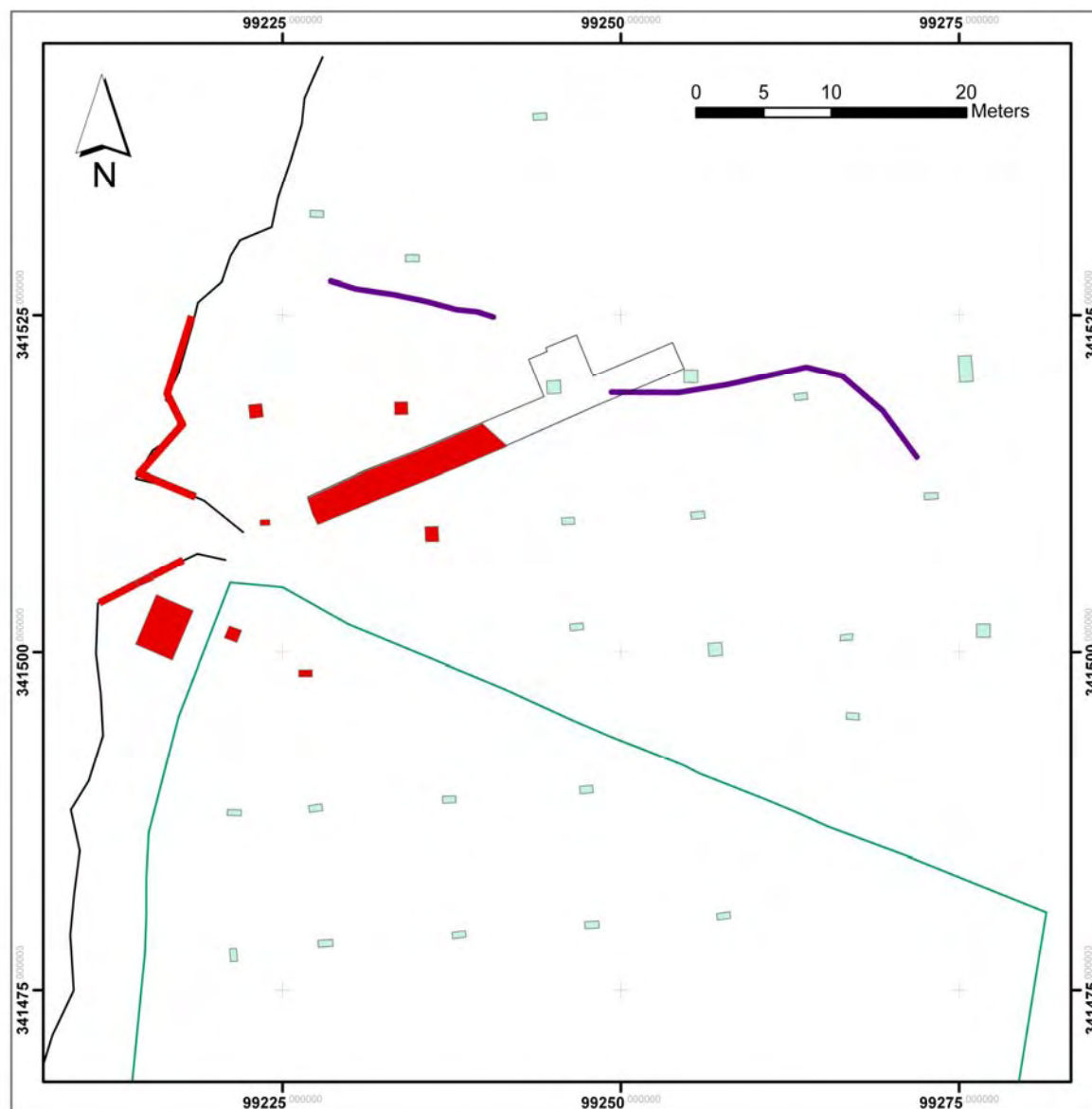
Figure 4: BDG08, Trench One. Pit (C.173/C.174) cut into C.109. Facing West.



Figure 5: BDG 08; Trench One. Cache of Three Polished Stone Axes found on the surface of/within C.111



Figure 6: Relationship between areas where 'stony layer(s)' have been identified (red), total area excavated and sub-bog field-walls identified by probing. The stony layer(s) appears to be delimited by the walls.



Appendix One: Sample Register Trench One

Context	Brief Description		
100	Top sod.	149	Small stone accumulation
101	Disturbed peat	150	Redeposited feature with inversions (C118?)
102	Undisturbed peat	151	Wall, large boulder construction - annex
103	Humified/Sapric Peat	152	Collapse from wall (C151) and cairn (C153)
104	Sand fill of C107	153	D-shaped cairn to E of and abutting wall (C151)
105	Burning(coke/coal) in 107	154	Narrow wall (partially excavated in test pit)
106	Flat (fire-cracked?) stones, 107	155	Stony pavement set against NW of C151
107	post-medieval hearth	156	Stones thrown against C151 (cf C149)
108	Brown loams, clays and gravels: colluvium	157	D-shaped cairn excavated in 2005 (cancel - duplication)
109	Subsoil: yellow mottled compact sand with gravel. "Yellow Gravelly"	158	Rebuilt wall excavated in 2005
110	Pure grey sand, & grey sand with 108	159	Grey peat in annex
111	Compact, mid-brown silt clay with stone (C111A)	160	D-shaped cairn in E end of trench associated with C112
112	In-situ field wall	161	Deposit associated with C160
113	Collapsed/robbed out field wall, evidenced by accumulations at base	162	Possible mettaled surface in E end of Tr 01
114	Lighter brown (re-?)deposit	163	Arc of stones curving NW-SE
115	burning in fire-setting	164	Stony area W of wall (not yellow wall)
116	Fire setting	165	Charcoal spread E of wall in annex
117	Sand in walls	166	Tree root
118	Colluvium	167	Tree root (mainly removed)
119	Clean sand sub soils	168	Dark grey sandy fill of C153
120	Compact, olive black, stone-filled deposit: fills of tree throws?	169	Redeposited natural associated with tree roots in 38B & 38C
121	Grey sandy layer under c.0121.	170	Sandy silt associated with tree roots in 38B & 38C
122	Peaty, pure brown layer at west end Tr.1	171	Loose clean sand associated with tree roots in 38B & 38C
123	Fill of 'pit' in Sq. 36D (cut c.0124): tree root?	172	Peat present in small linear features
124	Cut of 'pit' in Sq. 36D (fill c.0123) : tree root?	173	Fill of C174 in squares 52 & 53
125	cut of linear feature in Sq.38D (fill c.0126) : tree root?	174	Cut of pit containing C173
126	fill of linear feature in Sq.38D (cut c.0125) : tree root?	175	Peat underlying C108?
127	fill of possible stake-hole in Sq.36C (cut c.0128) : tree root?	176	Peaty lenses of material Between C111 & C120
128	cut of possible stake-hole in Sq.36C (fill c.0127) : tree root?	177	Mineral deposits above C108 in W of trench
129	tumble from wall C112	178	Red peat at base of sections
130	Charcoal-rich deposits at east end Tr.01: truncated OLS?		
131	Deleted		
132	Thin 'brown gravelly,' organic rich clay silt with gravel		
133	Fill of possible stakehole		
134	Cut of possible stakehole		
135	Fill of possible feature in C120 Cavities? Rooting?		
136	Fill of C137/C138		
137	Deleted: rooting		
138	Deleted: rooting		
139	Deleted: rooting		
140	Deleted: rooting		
141	Deleted: rooting		
142	Deleted: rooting		
143	Deleted: rooting		
144	Deleted: rooting		
145	Deleted: rooting		
146	Deleted: rooting		
147	Deleted: rooting		
148	Deleted: rooting		

Belderrig, Co. Mayo: Radiocarbon Dates

Eleven dates have been obtained from Belderrig so far. This very simplified account gives a very preliminary interpretation. All dates are in the table at the end. Please note that UB-7587, 7588, 7589 are taken from within one 25cm area and provide a clear sequence.

Beneath the stony layers

Five dates have been obtained on deposits sealed by the stony layer(s) across the site. These are:

Context	Material	Code	Date	Error	Cal BC (95.4%)
304	<i>Corylus</i> (hazel) shell fragment	UB-7589	5380	38	4334 – 4061
203	<i>Corylus</i> (hazel) shell fragment	UB-6882	5631	39	4538 – 4366
203	<i>Corylus</i> (hazel) shell fragment	UB-7585	5545	40	4456 – 4337
205	<i>Corylus</i> (hazel) shell fragment	UB-7586	5845	39	4823 - 4593
121	<i>Corylus</i> (hazel) shell fragment	UB-7583	5433	39	4353 - 4180

Superficial interpretation of these dates suggests activity through the mid – late fifth millennium. Further dates and analysis are required, not least to assess spatial variation.

The Stony Layer

Three dates have been obtained from the stony layer.

Context	Material	Code	Date	Error	Cal BC (95.4%)
135	<i>Corylus</i> (hazel) shell fragment	UB-7584	5362	38	4328 - 4053
302	<i>Corylus</i> (hazel) shell fragment	UB-7587	5255	36	4229 - 3978
303	<i>Corylus</i> (hazel) shell fragment	UB-7588	5201	37	4222 - 3952

UB-7584 comes from an area of some complexity, not fully excavated yet. Note that UB-7588 has a 91.2% probability of dating to 4070-3950 cal BC.

Hearth, Trench One

Three dates from two samples, both from short lived species, were obtained from a hearth. UB-7591 and UBA-7591 are replicate dates, the later obtained as part of the calibration of Belfast's AMS machine. They date the same sample. These dates from hazel and birch are very consistent and indicate activity in the mid fourth millennium.

Context	Material	Code	Date	Error	Cal BC (95.4%)
115	<i>Corylus</i> (hazel) charcoal, twig	UB-7590	4780	36	3646 - 3384
115	<i>Betula</i> (birch) charcoal, twig	UB-7591	4717	37	3633 - 3374
115	<i>Betula</i> (birch) charcoal, twig	UBA-7591	4732	30	3634 - 3377

Date table

Context	Description	Square	Sample	Material	Code	estimate	error	δ13C	Cal BC (95% confidence)
115	Burning in hearth	-	7	<i>Corylus</i> (hazel) charcoal, twig	UB-7590	4780	36	-23.0	3646 - 3384
115	Burning in hearth	-	7	<i>Betula</i> (birch) charcoal, twig	UB-7591	4717	37	-23.0	3633 - 3374
115	Burning in hearth	-	7	<i>Betula</i> (birch) charcoal, twig	UBA-7591	4732	30	-23.1	3634 - 3377
121	Grey clay-sand.	36D	16	<i>Corylus</i> (hazel) shell fragment	UB-7583	5433	39	-23.0	4353 - 4180
135	"Fill" of feature in c.0120 in row 36/37	37A	110	<i>Corylus</i> (hazel) shell fragment	UB-7584	5362	38	-25.0	4328 - 4053
302	Metalled stone surface	3A	35	<i>Corylus</i> (hazel) shell fragment	UB-7587	5255	36	-20.0	4229 - 3978
303	irregular stone surface, set in peat	3A	43	<i>Corylus</i> (hazel) shell fragment	UB-7588	5201	37	-18.0	4222 - 3952
304	?peat, containing fish bone in section	3A	64	<i>Corylus</i> (hazel) shell fragment	UB-7589	5380	38	-24.0	4334 - 4061
203	In-situ prehistoric land surface sealed by metalling	F6		<i>Corylus</i> (hazel) shell fragment	UB-6882	5631	39	-25.0	4538 - 4366
203	In-situ prehistoric land surface sealed by metalling	F4		<i>Corylus</i> (hazel) shell fragment	UB-7585	5545	40	-24.0	4456 - 4337
205	Sandy, possibly interface material beneath metalling	F2		<i>Corylus</i> (hazel) shell fragment	UB-7586	5845	39	-23.0	4823 - 4593