
Kevin Barton
Landscape & Geophysical Services, Convent Road, Claremorris, County Mayo, IRELAND.
kevin.barton@lgis.ie

Conor Brady
Department of Humanities, Dundalk Institute of Technology, Dublin Road, Dundalk, County Louth, IRELAND.
conor.brady@dkit.ie
http://rosnaree.dig.wordpress.com/

Historically for site discovery and delineation aerial photography, and latterly LiDAR, has been used in the Brú na Bóinne World Heritage Site (WHS), an internationally significant archaeological landscape known for its many Neolithic passage tombs and other monuments (Fig 1). The question of Neolithic settlement distribution in Brú na Bóinne has largely been unexplored until the present Lithic Scatters Project which is using geophysical survey to follow up mapped areas of lithic concentration. A component of the project is the assessment of remote sensing techniques in addressing key questions raised in the Brú na Bóinne WHS Research Framework.

The Brú na Bóinne landscape today is mainly composed of the floodplain and terraces of the River Boyne which are formed in a combination of pasture crops and tillage. In the case of Rosnaree (Fig 1), the site was first identified through fieldwalking in 1999 as a large, loose scatter of worked lithics (chipped stone artefacts, primarily flint) in the NE corner of a tillage field.

There is no evidence for the site in a recent LiDAR survey (Fig 2) and from vertical and oblique aerial photography (Figs 3 & 4).

The lithics (Figs 5 & 6) suggested intensive activity, possibly involving residential settlement, broadly dating to the Neolithic (4,000-2,500 cal BC).

Follow-up to the discovery of the lithics scatter (Fig 7A) used a combined topographic and reconnaissance topsoil magnetic susceptibility survey on a 10m x 10m grid (Fig 7B & 7C) which delineated a zone of susceptibility enhancement coincident with the dense scatter of lithics. The anomalous zone also appeared to be related to a small topographic rise in the NE corner of the field (Fig 7B).

In order to resolve some of the questions arising from the geophysical survey data a series of radial electrical resistivity tomography (RERT) and ground penetrating radar (GPR) transects were planned in 2009 (Fig 6P). RERT 3 (Fig 6Q), confirmed the two outer ditches and showed the third ditch to lie in a presumed natural sediment-filled channel. The GPR survey (Fig 6R) results were disappointing with a subdued response and little correlation with the RERT results. This may be due to a combination of choice of GPR centre frequency and there being a significant slay and clay component in the topsoil and sub-soil resulting in the GPR signal being degraded.

In late 2009 it was decided to conduct a test excavation to provide secure dating for the features identified during the geophysical investigations, to explore some of their detail and to test some of the physical results. The most suitable location lay immediately to the north of the core area, where the geophysics had been conducted (Fig 7D), on steeply sloping ground directly overlooking the bank of the River Boyne (Fig 8).

An earth resistance survey (Fig 9) was done in the area to be excavated as the steep and uneven terrain had prevented magnetic gradiometry being carried out. The survey imaged the interpreted ditches.

In early 2010, in order to further assist the planning of the excavation, a 120m ERT transect (Fig 9) was carried out to optimise the location of the trenches relative to the ditches. RERT 7 (Fig 10) ran WSW-ESE sub-parallel with the slope and confirmed the location of the ditches seen in the georadar and resistivity data. In addition the depth and extent of ditches to be excavated were interpreted from the modelled section allowing for appropriate allocation of excavation resources.

The excavation of Trenches 1 (Fig 11) and 3 in July 2010 largely confirmed the geophysical interpretation and recovered artefacts which, pending C14 dating, are believed to be early medieval in date. These excavation results seem to indicate that the ditches are not Neolithic in date and the question of the nature of activity and possible location of the population in Neolithic times at Rosnaree remains unclear.

In August 2010 further geophysical surveys with a higher spatial resolution were targeted on the core area of the enclosure. Magnetic susceptibility data (Fig 12) show a systematic variation of enhancement over the core area. Magnetic gradiometry data (Fig 13) further define the enhancement and reveal features including a ditched enclosure some 30m x 26m in size (R1). Earth resistance data (Fig 14) confirm the ditch and in the southeast show it to lie in the presumed sediment-filled natural channel. This enclosure and nearby features will be possible excavation targets in 2011.

Fig 8 Excavation area viewed from the east (Photo: Igor Moriz)

In early 2010, in order to further assist the planning of the excavation, a 120m ERT transect (Fig 9) was carried out to optimise the location of the trenches relative to the ditches. RERT 7 (Fig 10) ran WSW-ESE sub-parallel with the slope and confirmed the location of the ditches seen in the georadar and resistivity data. In addition the depth and extent of ditches to be excavated were interpreted from the modelled section allowing for appropriate allocation of excavation resources.

In early 2010, in order to further assist the planning of the excavation, a 120m ERT transect (Fig 9) was carried out to optimise the location of the trenches relative to the ditches. RERT 7 (Fig 10) ran WSW-ESE sub-parallel with the slope and confirmed the location of the ditches seen in the georadar and resistivity data. In addition the depth and extent of ditches to be excavated were interpreted from the modelled section allowing for appropriate allocation of excavation resources.

In early 2010, in order to further assist the planning of the excavation, a 120m ERT transect (Fig 9) was carried out to optimise the location of the trenches relative to the ditches. RERT 7 (Fig 10) ran WSW-ESE sub-parallel with the slope and confirmed the location of the ditches seen in the georadar and resistivity data. In addition the depth and extent of ditches to be excavated were interpreted from the modelled section allowing for appropriate allocation of excavation resources.

In early 2010, in order to further assist the planning of the excavation, a 120m ERT transect (Fig 9) was carried out to optimise the location of the trenches relative to the ditches. RERT 7 (Fig 10) ran WSW-ESE sub-parallel with the slope and confirmed the location of the ditches seen in the georadar and resistivity data. In addition the depth and extent of ditches to be excavated were interpreted from the modelled section allowing for appropriate allocation of excavation resources.

In early 2010, in order to further assist the planning of the excavation, a 120m ERT transect (Fig 9) was carried out to optimise the location of the trenches relative to the ditches. RERT 7 (Fig 10) ran WSW-ESE sub-parallel with the slope and confirmed the location of the ditches seen in the georadar and resistivity data. In addition the depth and extent of ditches to be excavated were interpreted from the modelled section allowing for appropriate allocation of excavation resources.