

Archaeology Research Grant 2021

Katharina Becker_Final report

1. Title: Dr

First name: Katharina

Surname: Becker

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3. Grant programme: Archaeology Research Grant

4. Year awarded: 2021

5. Title of project: Loughnashade and King's Stables. Understanding the deposition sites of the Navan landscape

6. Summary of report (Minimum allowed 100 words)

The project examined the Late Bronze Age pool King's Stables at Haughey's Fort and Loughnashade at Navan Fort, Co. Armagh, in order to create understanding of their makeup, landscape siting and the context of the deposition of the four bronze horns and human remains found 1798 'in boggy land on the borders of Loughnashade' (Stuart 1819, 608). The project employed a comprehensive range of remote sensing methodologies – on ground, air and in water – to address the challenges of the sites and landscape, consisting of open water bodies, reclaimed lake, and dryland. This will allow at Loughnashade the reconstruction of the lake bed, the lake's former extent and will form the basis for a discussion of the depositional context of the famous Iron Age hoard. While conditions were too unsafe to survey King's Stable, accessible ground around the site and adjacent Tray bog were surveyed and the Creevroe earthwork traced through it. The survey of Loughnashade suggests that there is no evidence for a crannog on the lake as indicated by historic maps. However, there appear to have existed several basins in the area that is now reclaimed land and the implications of this for the reconstruction of the find context of the Iron Age horns will be discussed in the outputs of the project.

7. Please provide two appropriate images



1. Loughnashade_GPR_WPR_Line_locs.jpg



[LoughnashadeHorn. copyright of the NMI.jpg](#)

8. Please outline the objectives of the project

The Project aimed to generate a better understanding of the Loughnashade and King's stables and their landscape siting, as well as to identify the focus and context of depositional practices on both sites. As outlined in the application, it had a number of aims and objectives:

- Aim 1: Confirm and refine the original extent and shape of Loughnashade lake, attempting to differentiate between the former lough and its possible flood zone.
- Aim 2: Identify possible former depositional focal areas (e.g. piers, crannogs, natural features) or other archaeological features at, surrounding, or within Loughnashade, including a possible crannog identified on Bartlett's map of c. 1602 (Bartlett 1603)
- Aim 3: Clarify the make-up, shape, construction details and cut of the pond at the King's Stables

and identify any possible archaeological or natural features associated with it.

Aim 4: Establish a baseline record for both sites that will contribute to conservation and condition monitoring.

Aim 5: Create a model of the depositional landscape, integrating lidar, survey data, historic data and existing pollen records at key points of its history.

A number of objectives have been devised that will allow addressing the above aims:

Objective 1: Investigate for potential unrecorded archaeological features immediately surrounding King's Stables, e.g. metalworking activity and the connection to the features that have been shown in previous work to link the site with Haughey's Fort.

Objective 2: Map the interior of the King's Stables to produce the first detailed map of the pond cut and any possible features within it, as well as in the deposits on the pond bed.

Objective 3: Produce a bathymetric map of Loughnashade lough bed

Objective 4: Survey for the former maximum extent of the lake

Objective 5: Survey the deposits of the reclaimed portion of the lough in order to differentiate between the former lake and its flood zone as well as any potential unrecorded archaeological features.

Objective 5: Identify potential submerged archaeological features exposed on the lough bed or buried beneath it, including the possible crannog identified on Bartlett's c.1602 map and a partly-submerged feature which is visible on satellite imagery.

Objective 6: Integrate all data in GIS to visualize models of the sites/ landscapes at the time of deposition or other key points in their history that we can pin-point.

Objective 7: Interpret and contextualise the results within current debates on the Navan landscape and deposition more broadly.

9. Please describe the methodology used in conducting the research

Permission was applied to and granted on the 29th. of September by the Historic Environment Division (Department for Communities NI). Permission was sought from landowners. The survey was undertaken on the weekend of the 8-10th of October 202. As per request by the Historic Environment division we also surveyed Tray bog, adjacent to the King's Stables. The survey was undertaken by Dr Kieran Westley, Dr James O'Driscoll, Dr Alastair Ruffel and Ms Clodagh O'Sullivan.

The project employed a comprehensive range of remote sensing methodologies – on ground, air and in water – to address the challenges of the sites and landscape. Techniques comprised magnetic gradiometry, targeted electrical resistance, sonar and ground-penetrating radar (GPR) to survey both dryland, as well as the open water. For further detail of the survey methodology see the application.

The vegetation around the edge of the King's stables however made access impossible and it was for safety reasons decided not to survey this waterbody could not be surveyed. The ground immediately around the site was surveyed, as well as Tray bog. In the area around Loughnashade, vegetation growth prevented survey of some areas, but on its northern and eastern side geophysical survey could be conducted without problems. The sonar and radar surveys at Loughnashade was conducted, and while impacted by the dense vegetation that filled the lake and made the movement of the boat through the lake difficult, creating irregular reading patterns, produced results. Due to technical issues, the multispectral camera was not available and a colleague from QUB will conduct this survey over one of the next weekends.

All survey data for Loughnashade has been processed and preliminary reports submitted to the PI. These have produced some interesting results (see below) and will be integrated into a GIS to create models both landscapes augmented with open source lidar imagery of the site. This will form the basis for visualisations for outputs.

- The survey data for the land around King's Stables has been processed and interpreted.

These will be published in an international and peer-reviewed journal and we are aiming to submit this paper in early 2022.

10. Please outline the findings of your research and/or milestones achieved

Sonar, Radar and geophysical survey data have been processed and reports produced. The geophysical data for Loughnashade has been processed and assessed.

- a bathymetric DEM of the Loughnashade lakebed is now available and can be integrated with other elevation data (e.g. LiDAR) to create a seamless model of the landscape.
- The bathymetric data shows no evidence of any features which could be suggestive of islands or crannogs in the extant lake, such as submerged mounds. The extant island is a floating structure.
- The SSS data have identified nine anomalous features on the lakebed. Four (LN5, 6, 7, 9) are mostly likely image artefacts and one (LN8) probably relates to lakebed bathymetry.
- Of the remaining four anomalies, one is highly likely to be natural (LN1: tree trunk/branch) and one is likely to be anthropogenic (LN2: rectilinear to polygonal feature). The remaining two (LN3 and LN4) could be either natural (upstanding vegetation) or anthropogenic (posts). Given the nature of the vegetation visible elsewhere in the lake, the latter interpretation is deemed slightly more likely.
- Although an anthropogenic origin for LN2, LN3 and LN4 is possible, there is no clear indication that the material is archaeologically significant. There are equally valid reasons to suspect that it is modern debris, such as structural material fallen from the floating island, or for

LN3 and LN4, given the island's close proximity, some part of its mooring.

- The radar survey, conducted both on land and on water at Loughnashade, suggests that an esker or ridge runs through the lake in N-S direction.
- An area of 2.4 hectares was surveyed around Loughnashade with a five sensor GPS enabled Sensys MXPDA gradiometry unit, which collected 32 data points per metre squared. On the northern and eastern sides of the former lake shore is visible as a negative magnetic gradient defined on the higher ground to the north and west by ancient ridge and furrow marks. A number of probable drainage ditches were also identified at the north-west which probably relate to the relatively modern land reclamation event. However, the most interesting results came from the reclaimed part of the lake. Ground conditions allowed approximately 0.8 hectares of the presumed former lake to be surveyed. While much of this is reflected in the results found along the limits of the lake shore (i.e. the former lake was visible in the results as an area of negative magnetic gradient), an area near the centre of the former lake, which is notably more well drained and is in grass cover, revealed a series of ancient ridge and furrow marks. The well-defined nature of these anomalies may suggest they represent hand-dug beds for crops such as potatoes. More importantly, however, it infers that the area marked-out as the 'former lake' at Loughnashade was probably broken up by small areas of partially raised land which was dry enough to use in later periods for crop.

In Tray bog the Creevroe earthwork could be traced in the Northern and Eastern side of King's Stables.

11. a) Please provide details of the dissemination of the outcomes from this project (inc. publications, presentations, outreach, media etc.) including details of any social media/web platforms used to publicise this project

During the survey, the project team publicised their activity via Twitter (Gleeson).

e) How will you continue to communicate the results of your project and what are your publication plans?

The project results will be published in a standalone paper in a peer-reviewed, international journal, co-authored by the project participants. Visual outputs will be offered to the Navan Visitor Centre and the Ulster Museum for display purposes.

We would also be interested in presenting in the RIA's 'Revealing the past' seminar series.

15. How did the award enhance your professional development (e.g. in terms of specific opportunities, opportunities for enhancing skills, collaborations with others etc.)?

This project has been an important opportunity for a number of specialists from Northern Irish, Irish and Scottish Universities to collaborate on an exciting multi-method project, form important new connections among each other. For the PhD candidate this was an important opportunity to network with, and learn from a variety of specialists. The project outputs will contribute to our respective publication profiles and we hope lay the foundation for similar work in other landscapes, and, further work at Loughnashade to clarify the character of the underground features detected.

16. What plans (if any) do you have to further your proposal/project?

We would be keen to explore the features identified on the ground of the lake via underwater archaeological methods. It is quite possible that these features are modern, but clarification of their exact character would be desirable.