

## LARGE SCALE ARCHAEOLOGICAL PROSPECTION: CASE STUDIES FROM THREE YEARS OF FIELDWORK IN NORWAY

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In the last three years, a lot has changed for archaeologists in Norway concerning the use of digital archaeological data, and since joining the LBI ArchPro as a case study area in 2010, the possibilities of developing new and efficient non-intrusive methods has altered the way we explore and manage the cultural landscape. The combination of all available data sources makes it possible to construct and reconstruct the archaeology of past landscapes, and from a cultural heritage management perspective, the use of these sources facilitate informed decision-making and increased predictability.

The main approach for archaeologists working in the Norwegian counties the past 20-30 years has focussed on systematic test trenching in arable land. Although test trenching has the potential to uncover a wide variety of archaeological features and sites, little or no new methodology has been applied to this method concerning where the trenches should be placed in the landscape. In the planning process we have access to a variety of sources, including aerial photos, archives and usually historical maps. When none of these offer any indications of possible cultural heritage sites, however, we are forced to employ intrusive methods which may or may not prove successful in quantifying and assessing the state of the archaeology. Although test trenching undoubtedly has resulted in many remarkable finds and sites, the critique towards the use of these traditional methods is that they are time consuming and costly, in addition to being potentially damaging to the archaeological sites. Furthermore, where systematic trenching is employed one cannot be sure of the amount of archaeology in the areas between the trenches.

Some counties regularly conduct field walking surveys as well as systematic or random metal detector surveys. Furthermore, a few counties have also employed soil sampling techniques such as phosphate analyses. Archaeologists who are desperately searching for some vague elevation differences in ploughed fields that may indicate previous settlement traces or grave mounds are not uncommon in the Norwegian counties. The usefulness of these methods in terms of efficiency and results, however, can be questioned. Although there has been some sporadic use of geophysical surveys, these have largely been carried out on sites that are already known, and only a few results have been tested by excavation.

Large-scale archaeological prospection using high-resolution magnetometry and georadar in Vestfold County within the LBI ArchPro project has offered archaeologists in Norway new possibilities for detecting palaeolandscape and archaeological sites. Intertwined with the geophysical method of looking at past landscapes that are now arable land, the use of LIDAR is increasing in Norwegian cultural heritage management. Where the arable land ends, the non-arable and forested areas begin. While the use of geophysical methods can unveil archaeology beneath the plough soil, remote sensing by LIDAR unveils the complexity of the now forested and "invisible" archaeological landscapes. By combining remote sensing by LIDAR and large-scale geophysics, we now have unique possibilities to look beyond the modern landscape and create more comprehensive models of the past landscapes. In this presentation, we will discuss some possible scenarios for applying these methods on a large scale using Vestfold County as an example.