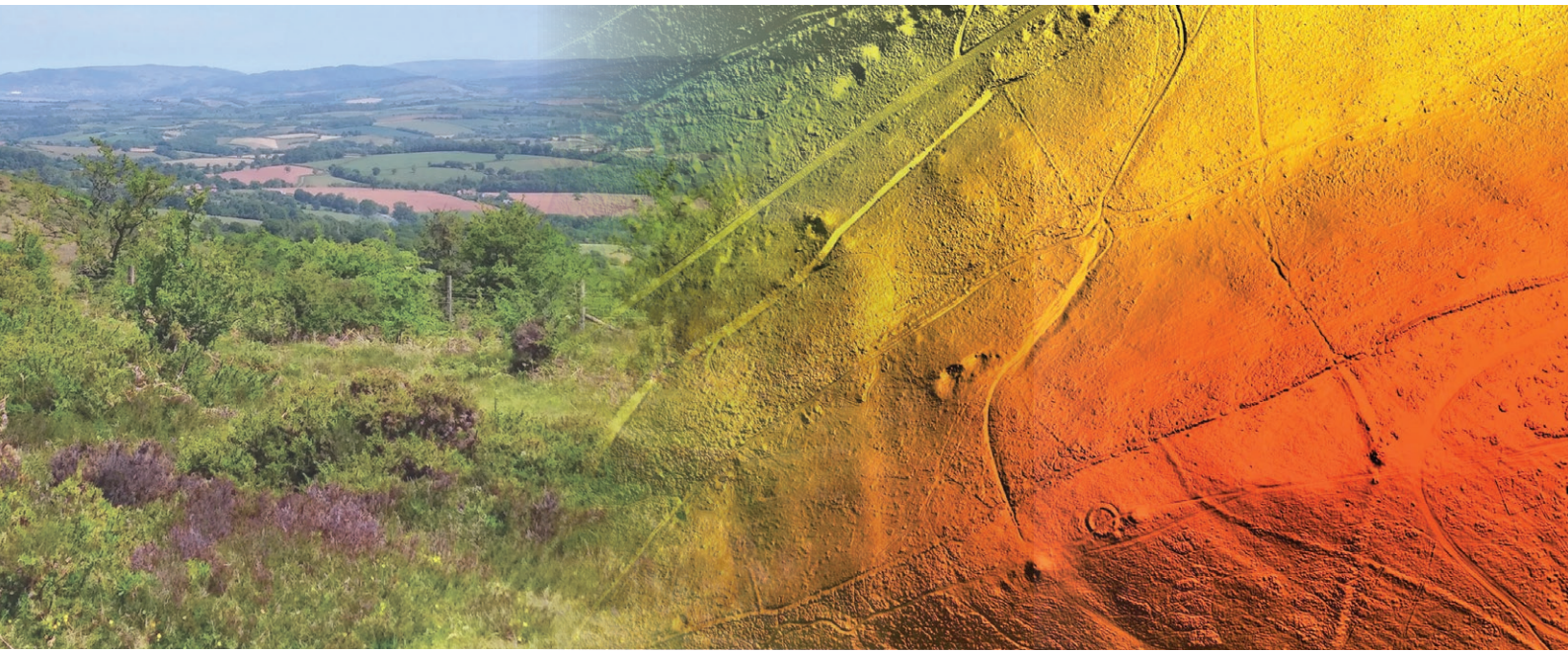
Case Study

Bluesky LiDAR Survey Reveals More than 400 'New' Archaeological Sites in AONB



Client:

The Quantock Landscape Partnership Scheme (QLPS) is a £2.6m National Lottery Heritage Fund (NLHF) 5-year project based in and around the Quantock Hills. The QLPS is made up of 23 separate projects to protect and restore the distinctive features of the Quantock landscape, improve management of the access pressures on the Hills, and make the health and wellbeing benefits of recreation more available to communities in the surrounding towns and villages.

Industry:

Research

Product:

LiDAR

> *"The understanding of this site would not have been possible without the high-resolution LiDAR data captured by Bluesky, and our investigation of the enclosure will continue with a geophysical survey in due course. Meanwhile our LiDAR volunteers continue to analyse the data. We have already identified more than 400 'new' archaeological sites and I am sure there are many more waiting to be discovered!"*
>
> Dan Broadbent, QLPS Historic Heritage Officer

Summary:

A high precision terrain mapping project has revealed more than 400 'new' archaeological sites in England's first Area of Outstanding Natural Beauty (AONB). Commissioned by the Quantock Landscape Partnership Scheme (QLPS) and undertaken using a hybrid airborne sensor by Bluesky, the survey captured around 400 square kilometres of 'leaf-off' LiDAR at a resolution of 16 points per metre (ppm) and recorded in excess of 6 billion individual height measurements which were processed to produce the commissioned datasets that were then interrogated by a team of volunteers.

Challenge:

The QLPS Scheme was launched to address changing pressures on the Quantock Hills AONB and the surrounding parishes in Somerset. The scheme's 23 individual projects extend to natural and historic heritage, community engagement and education with each project expecting to contribute to the long-term future of the hills by protecting, restoring and increasing understanding of the distinctive features of the Quantock landscape. This particular project, 'Understanding the Landscape', aims to create and train a group of local archaeological detectives to uncover clues about the historic landscape of the area to help identify 'new' archaeological features and better understand existing ones.

Solution:

Using one of its state-of-the-art Leica CityMapper sensors, a high resolution (25cm) LiDAR survey was undertaken by Bluesky, creating detailed digital maps of the entire QLPS area. The great advantage of LiDAR data for archaeological work is that, unlike conventional aerial or satellite imagery, LiDAR data can be processed in various ways. For example, simulated light can be cast across the digital landscape to create shadow effects from various directions. These 'hillshades' can help to reveal archaeological earthworks which may be indiscernible on the ground or to aerial photography. LiDAR also allows the effective 'removal' of tree cover, providing the potential to identify archaeological sites and features previously hidden beneath the tree canopy.

Results:

The LiDAR results were received just before the first community excavation at Cothelstone Hill investigating what had previously been identified as a prehistoric linear earthwork. However, the LiDAR data revealed that it was in fact a sub-circular enclosure. Charcoal fragments retrieved during subsequent excavations have shown this to be of Late Bronze Age date and tentatively interpreted as a rare early example of a 'Slight Univallate Hillfort'; a classification of monument, of which there are only around 150 known sites in England, making it not only unique amongst the archaeological features of the Quantocks, but considered to be of national importance. Volunteers have identified over 400 further potential 'new' archeological features including charcoal burning platforms, ancient field boundaries and previously unknown prehistoric burial mounds. The next stage will be to 'ground-truth' some of these features before adding them to the Somerset Historic Environment Record.

LiDAR Specification	
Resolution	16 - 100 PPM
Coverage	Selected cities across Great Britain
Accuracy XY	± 15cm rmse
Accuracy Z	± 10cm rmse
Formats	Include: ASCII Grid, ASCII XYZ, DXF Point, GeoTiff, LAS
Standard Projection	British National Grid

Get in touch today at **info@woolpert.com**