Forest Research

Woodland Heritage Services Group

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Not all lidar surveys are the same!

There is significant interest in the use of airborne lidar to map the historic environment, especially given its potential to reveal relics previously hidden under a forest canopy. However, like all remote sensing techniques, lidar has its limitations and will neither work under all vegetation types nor reveal every feature present. There are multiple variables within site, survey, data and image processing that can alter the effectiveness and success of the technique. When planning to acquire lidar data it is therefore important to understand the objectives of its use. Points to consider may include:

- ❑ What is the required survey scale - Landscape, site or feature?
- ❑ Is the survey area predominantly open landscape or woodland?
- ❑ How important is it to survey beneath the canopy of any woodland present?
- ❑ What is the optimal resolution given aims, scale and budget?

The answers to these and other project level considerations will determine the many survey variables and their influence on the quality and usability of all final products. Such variables include:

- ❑ Date of data acquisition
- ❑ The types of vegetation cover present and their extent
- ❑ System type - laser power, footprint, form of captured reflected signal
- ❑ Data processing methods and product formats
- ❑ Desired resolution - scan frequency and angle, survey height, swath width and overlap

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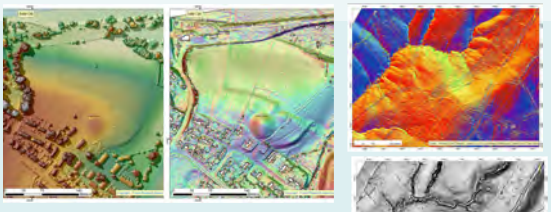
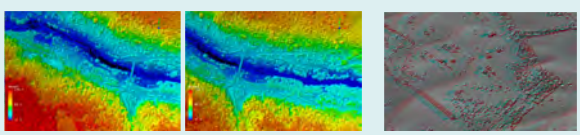
Working closely with many partner organisations, Forest Research (FR) has developed the optimum specifications for the successful heritage-based surveys of wooded landscapes. Our knowledge of wooded environments also provides us with the unique understanding of how trees and understorey vegetation influence the effectiveness and interpretation of these lidar surveys. FR has established the Woodland Heritage Services Group (WHSG), offering support and advice to others considering this application of lidar. The group aims to continue working with others in refining and developing lidar related methods, which allows us to help existing and future partners to take full advantage of the technology and its many benefits.

Anyone considering a heritage-based lidar survey of a predominantly wooded landscape is therefore encouraged to contact Peter Crow for advice at the email address above. Further information can also be found at - www.forestry.gov.uk/fr/lidar

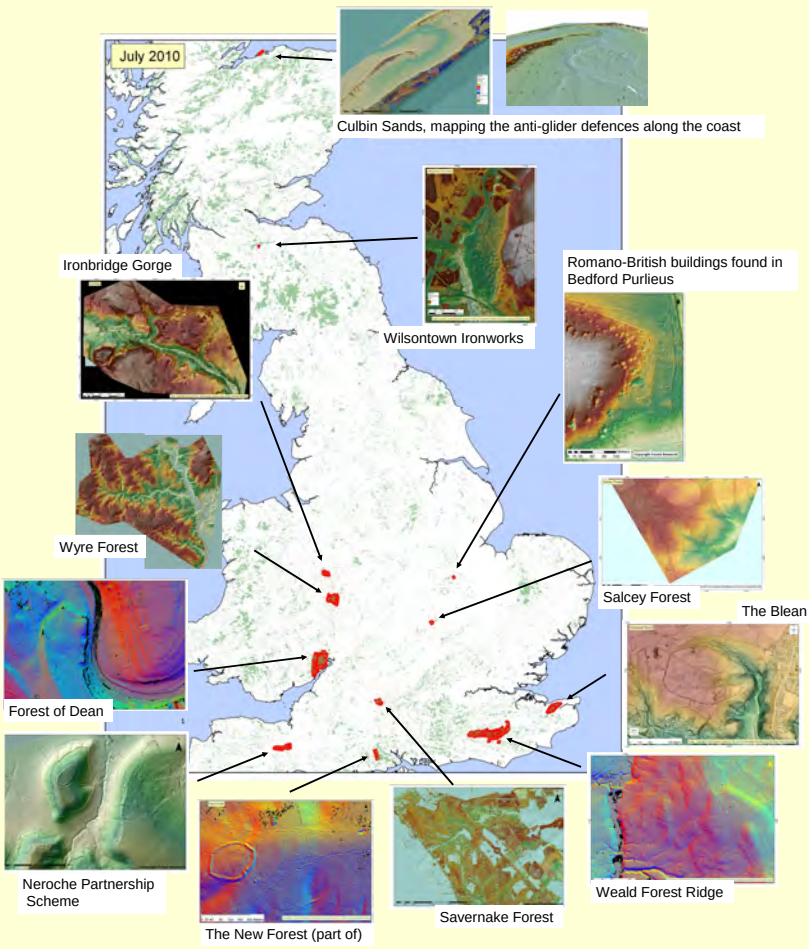


Examples of images showing height, aspect and slope information

Examples of stereo pair and anaglyph images



Locations of lidar surveys supported by the WHSG



Current services offered by the WHSG include:

- ✓ Advice on site suitability or existing data
- ✓ Scoping, project development and survey specifications
- ✓ Full project management, contracting data capture
- ✓ Storage and archive of data
- ✓ Specialist image processing (using combinations of hillshaded, statistical, aspect, slope and elevation data) and provision of GIS-ready material
- ✓ Rapid archaeological and ecological surveys (on a sample area) to aid data interpretation
- ✓ Production of 'map books', showing detailed composite images of the entire survey area
- ✓ Initial analysis, presentation and hand-over of data
- ✓ Video fly-through animations
- ✓ Production of stereo and anaglyph images for use with viewing glasses
- ✓ Training on data use and advice on IT requirements
- ✓ Access to experience obtained by WHSG, but also existing data users
- ✓ Conversion of data into a 3-D format for dissemination with a free viewer – see examples below