

An artistic, painterly illustration of a landscape from an aerial perspective. The terrain is divided into numerous irregular, colorful patches of yellow, orange, red, green, and blue, suggesting different types of land use or vegetation. A small church with a dark, pointed steeple is visible in the middle-left portion of the image. In the upper right, a biplane is depicted in flight against a pale, cloudy sky. The overall style is impressionistic and expressive.

# REVUE ARCHEOLOGIQUE DE PICARDIE

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## Actes du colloque international d'archéologie aérienne

AMIENS, 15 - 18 octobre 1992

**Hommage à Roger AGACHE**  
pour 35 ans de prospections aériennes dans le Nord de la France

Jimmy  
Glibent



ROYAL COMMISSION ON THE HISTORICAL  
MONUMENTS OF ENGLAND

THE YORKSHIRE DALES.  
A PILOT PROJECT FOR THE NATIONAL MAPPING PROGRAMME

Peter HORNE \*

Résumé

Entre 1989 et 1992, l'Unité de photographie aérienne de la Royal Commission on the Historical Monuments of England (RCHME) a examiné des clichés aériens couvrant 2729 km² du territoire au nord de l'Angleterre. Les informations archéologiques ont été cartographiées à l'échelle du 1/10 560e et une base de donnée spéciale (MORPH) a été utilisée pour créer plus de 10000 enregistrements relatifs aux sites archéologiques de toutes périodes allant du Néolithique au vingtième siècle.

Abstract

Between 1989 and 1992 the Air Photography Unit of RCHME examined aerial photography for 2729 km² of upland northern England. The archaeological information was mapped at a scale of 1/10 560, and a specially designed database (MORPH) was used to create more than 10000 records relating to archaeological sites of all dates from the Neolithic period to the twentieth century.

Zusammenfassung

Zwischen 1989 und 1992 untersuchte die Einheit der Luftaufnahmen der königlichen Kommission historischer Denkmäler in England (RCHME) ein Gebiet von 2729 km² im Norden Englands. Die archäologische Information wurde kartographisch im Massstab 1 : 10 560 dargestellt und unter Verwendung einer speziellen Datenbasis (MORPH) wurden mehr als 10000 Aufnahmen erstellt, die allen Perioden vom Neolithikum bis zum 20. Jahrhundert entsprechen.

BACKGROUND

From early in 1989 to the middle of 1992 RCHME and EH funded the Yorkshire Dales Project. The project had two primary aims :  
1°) - to produce a comprehensive first level archaeological record of an area known to be rich in archaeological remains, especially earthworks and stoneworks and  
2°) - to develop a methodology for mapping and recording suitable for use in other areas.

The area chosen for the project was the western part of the county of North Yorkshire (2729 km²), half of which lies within the Yorkshire

Dales National Park. The archaeological potential of the area was well-known from a number of key sites and small landscape studies, but the national and county records were known to be inadequate, particularly for the later periods.

Geologically the area is dominated by Carboniferous Limestone capped by gritstone, the latter becoming more dominant in the north of the area. Approximately 50 % of the land lies over 350 m above sea level, with hills rising to 600 m. The area has numerous glacially cut valleys and many of these have wide fertile bottoms and naturally terraced slopes suitable for agricultural purposes.

The current land-use is largely pastoral; the lower-lying enclosed land is used for grazing and rich hay meadows, and the generally unenclosed

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upland areas are used for rough sheep grazing and managed heather moorland for grouse shooting. There are, however, small areas of arable within the valleys and also larger areas on the lower-lying ground to the south-west and north-east of the area. Other important activities include stone quarrying, forestry, water reservoirs and tourism. The lead-mining industry, so important in the past, is no longer active.

## METHODOLOGY

The project was divided into two main parts. The record for the area was enhanced by the National Archaeological Record (NAR) from documentary sources and the archaeological sites were mapped and recorded from aerial photographs by the Air Photography Unit's (APU) office in York.

As well as enhancing the record from traditional archaeological published sources, journals and academic works, the NAR examined the First Edition 6" mapping of the Ordnance Survey (1849-1857) in detail, recording a wide variety of structures. This source material was particularly useful for recording the remains of early-mining as many of the mines were still active at this time. Additionally the NAR created records based on place-name evidence. The NAR recording process increased the record from about 1500 records to 17000 records.

The APU used as its source material all readily available vertical and oblique air photographic coverage. No photography was specifically commissioned before the project started, but as the project progressed some targeted reconnaissance did take place. The main source of photography was the RCHME's National Library of Air Photographs (NLAP) which supplied 11000 vertical photos and several thousand specialist oblique photographs. These were supplemented by various other extremely important specialist collections, most notably those owned by North Yorkshire County Council, the Yorkshire Dales National Park, and the Cambridge University Committee for Aerial Photography. Apart from a few key areas, especially around Grassington, specialist archaeological photography was not available, so the vertical collection was the main source of new information. Complete commercial coverage by Meridian Airmaps Ltd taken between 1968 and 1972, at a scale of 1/10 000, provided the basis for most of the work. In addition the extensive RAF vertical collections taken in the 1940s and 1950s were also very useful as they were flown in a variety of weather and lighting conditions, revealing archaeological sites in unexpected areas.

The photography was examined in some detail, and where appropriate stereoscopically. Archaeological information was sketch-plotted at a scale of 1/10 560 on translucent overlays covering 25 km<sup>2</sup> to coincide with the available OS map bases. The archaeological information was then described using the specially designed MORPH database (Edis *et al.* 1989), entering details of location and site morphology as well as site type and period. As the project progressed and experience of the archaeology, geology, and the method of working was gained, it was possible for one person to map 25 km<sup>2</sup> in two to three weeks even in areas with quite extensive archaeological remains. The mapping and MORPH database, which contained 17599 records, were completed in April 1992 and have been supplied to the local planning authority to be used as a resource management tool.

## RESULTS

A full analysis of the data is currently being undertaken and some preliminary results can be presented. Nearly 80 % of the records created as a result of the interpretation of aerial photographs are of previously unrecorded sites and structures. The majority of these are of probable medieval or post-medieval date, but a significant number are probably Roman or earlier. More than 50 % of the prehistoric sites recorded from aerial photographs had not been previously recorded.

Good preservation of settlements and their associated field systems of prehistoric to medieval date occurred throughout the area, sometimes in uninterrupted palimpsest landscapes of several square kilometres (fig. 1). In general the best preservation is within the areas of enclosed pasture lying above the valley floor, sometimes extending into the unenclosed moor above. Industrial landscapes are similarly well preserved, but here the majority of the remains lay outside the enclosed land. Areas where the land had been improved for pasture of arable farming, such as the valley bottoms and lower lying areas, revealed fewer archaeological remains as there are few recorded crop-marks in the area. Other techniques may be appropriate to fill in the archaeological knowledge of these areas.

Prehistoric sites in the area had received some archaeological attention for many years but this project has doubled the number of probable sites. In particular, several significant enclosures were discovered, for example near Askrigg (fig. 2), as well as extensive areas of field systems.

Medieval field systems of lynchetts and ridge and furrow were recorded over large areas along



Fig. 1 : Conistone, Wharfedale, North Yorkshire. An example of the type of 1/10 560 mapping produced by the Yorkshire Dales Project (The large crosses are at one kilometre intervals). The archaeological complexity in this sample area is representative of many parts of the Yorkshire Dales. Several periods of field system can be identified along with settlements of various types (the arrows indicate areas of ridge and furrow). RCHME, Crown Copyright.





Fig. 2 : Enclosure near Askrigg, Wensleydale, North Yorkshire. Probably a late prehistoric enclosure, first identified through the examination of historic maps and vertical photographs. Photographed May 1990 (NMR 4931/7). RCHME Crown Copyright.

with the substantial remains of at least 23 deserted or shrunken medieval villages. The deserted medieval village discovered at Walburn was entirely new to the record (fig. 3). Numerous other discrete settlements which are undated at present may also be medieval but require further analysis on the ground or from other sources to confirm their identification. For example, monastic control of the area was very important and as well as the known abbeys there are numerous granges identified from documentary sources which probably relate to some of the earthworks recorded during the project.

The extensive nature of the remains of lead-working and their complexity meant that only a

summary record could be created for these industrial sites. The maps and records provide a guide to the extent and general form of the remains, as well as highlighting some of the most important areas (fig. 4).

### CONCLUSIONS

Within the limitations of the source material the project has clearly fulfilled its first aim of producing a comprehensive first level archaeological record for the area. Further, and more detailed study of existing aerial photographs, would without doubt extract more archaeological information, and reconnaissance will continue to find

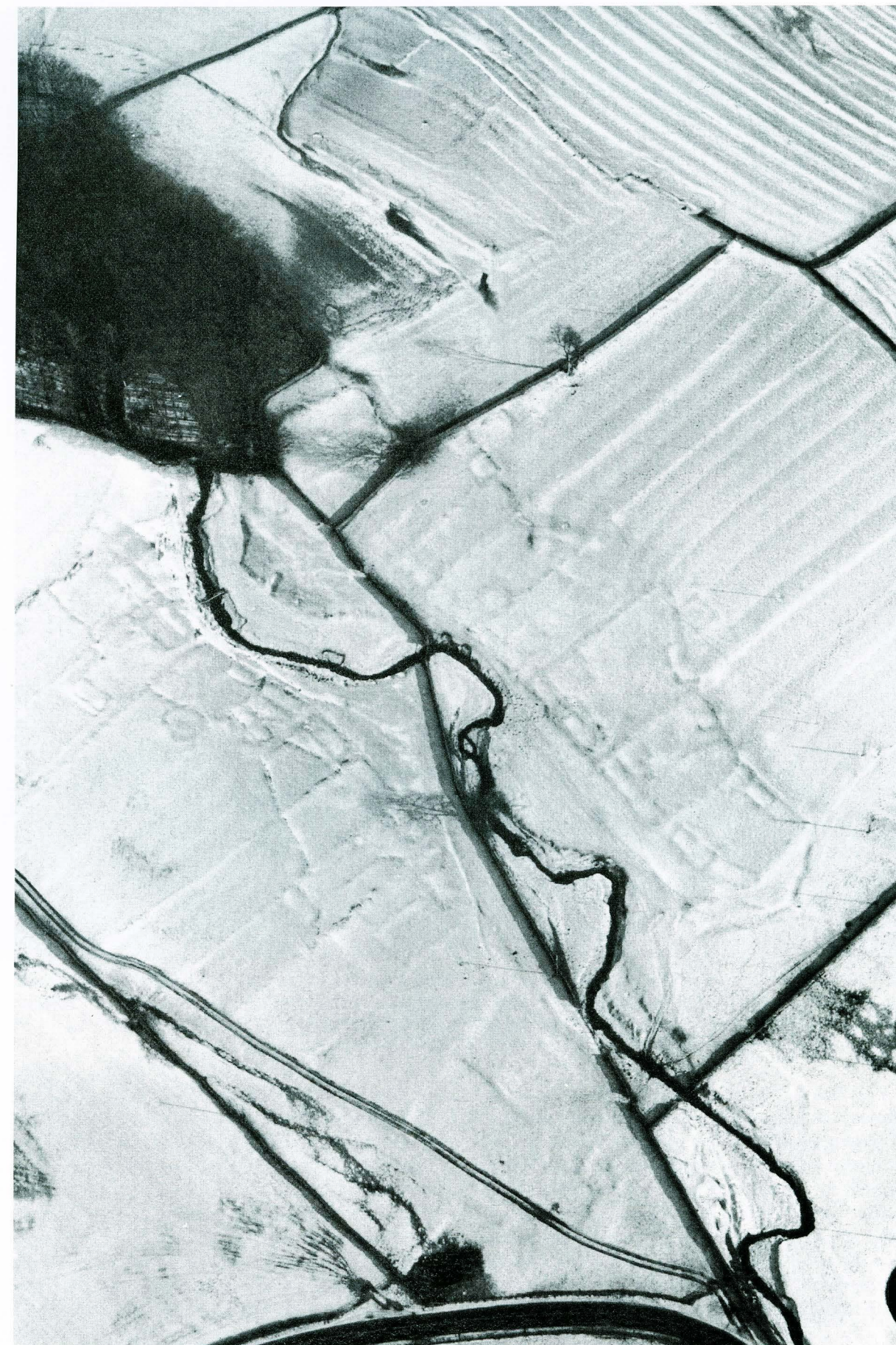


Fig. 3 : Walburn deserted medieval village, North Yorkshire. One of the "lost" villages of England rediscovered by careful study of vertical air photography. Photographed January 1993 (NMR 12348/17). RCHME Crown Copyright.





Fig. 4 : Old Gang Lead Smelting Mill, Swaledale, North Yorkshire. An important processing site for lead ores in the eighteenth and nineteenth centuries. Visible remains include the smelt mill with its flue running up the hillside, spoil heaps and open workings, and lines of stone piers for a peat storehouse (100 metres long); peat was the main fuel used in the smelting process. Photographed May 1990 (NMR 9700/7) RCHME Crown Copyright.

new sites but the record already provides a good framework to inform future surveys and management strategies. The project maps and data can be used effectively to direct aerial reconnaissance and field survey to answer specific questions. For example, the probable limitations of the record relating to plough-levelled and small monuments such as standing stones, prehistoric cord rig, can be quantified and evaluated by targeting sample areas for field-walking and field survey (fig. 5 and 6).

The second aim of defining a methodology was also fulfilled. Changes to working practice were introduced and tested during the project and the experience gained has helped the development

of the methodology for the National Mapping Programme (NMP). The rapid computer-based recording was seen to be efficient, although the exact structure of the database will require re-examination in the light of its relationship with other national databases, and its usefulness for analytical purposes. The method of using mapped overlays with a simple series of conventions and a digital (text) database is clearly seen as appropriate at this level of survey; it is the only practical way to provide a synthesis of the information that has been interpreted from the analysis of thousands of photographs and present them in a rapidly retrievable form.

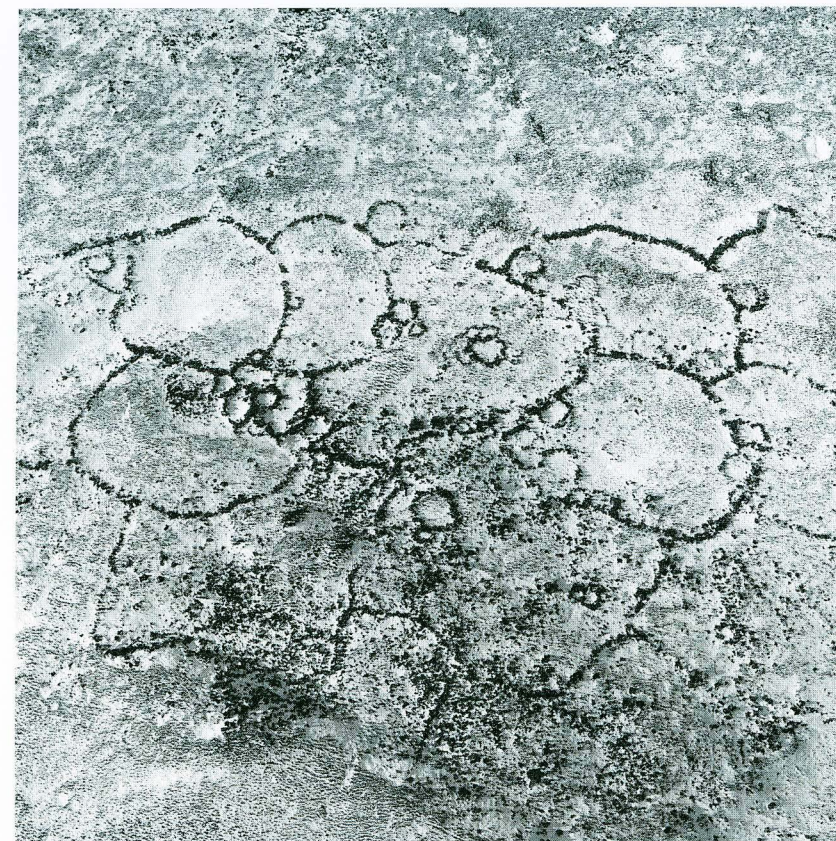


Fig. 5 : Prehistoric settlement, Pen Hill, North Yorkshire. A well known prehistoric settlement recorded as part of the Yorkshire Dales Project and where photography in exceptional (snow) conditions resulted in new information. Photographed January 1991 (NMR 0385/6) RCHME Crown Copyright.

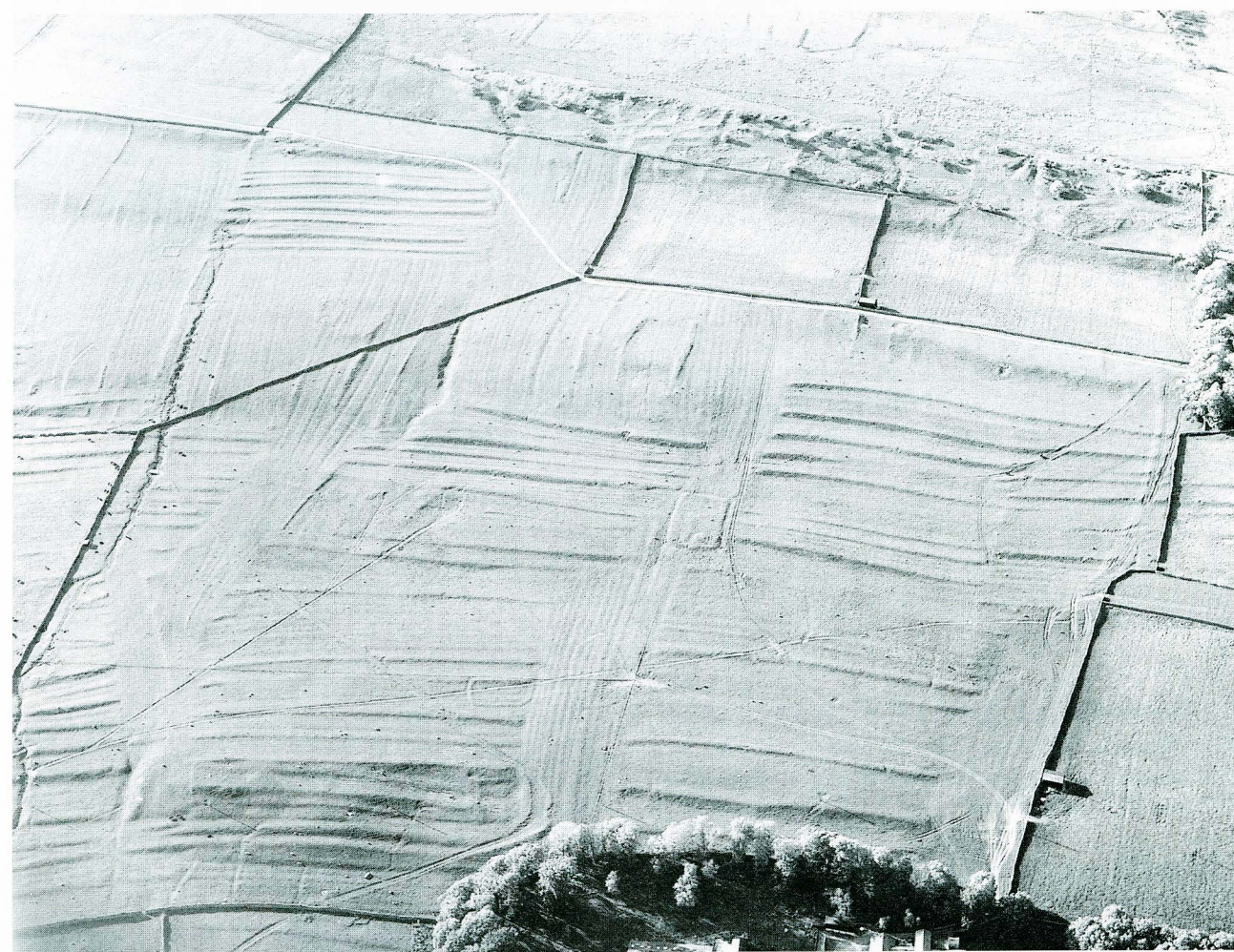


Fig. 6 : Field systems near Castle Bolton, Wensleydale, North Yorkshire. One of the most extensive medieval field systems surviving in the Yorkshire Dales. Photographed May 1990 (NMR 4946/27) RCHME Crown Copyright.



TAB. I : Breakdown of records created by mapping from aerial photographs for the Yorkshire Dales project.

Period	N° of Records*	% of new Records
Unknown	1683	86
Prehistoric and Roman	2046	50
Medieval	7046	88
Post-Medieval	6824	71
Total	17599	77

\* The numbers of Records refers to "sites" as defined in the MORPH database e.g. three hut circles in a settlement would be 3 "sites" in one "Group". In general a Morph "Group" will relate to a normal archaeological single-period site; as a guide the 17599 Morph "sites" are allocated to 11578 "groups".

Only the full analysis of the data will be able to show the extent of the success of the project, but in providing a data set which can be used on a day to day basis by the local planning authority, and in helping to define a methodology for rapid and efficient archaeological recording, the project has clearly been beneficial for archaeology in both a local and a national context.

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ABBREVIATIONS USED

APU : Air Photography Unit of the RCHME  
DOE : Department of the Environment  
EH : English Heritage  
GPS : Global Positioning System  
MONARCH : A new national database for the RCHME : part of the NMR  
MPP : Monuments Protection Programme : an English Heritage initiative designed to increase the number of scheduled monuments in England

NMP : National Mapping Programme : RCHME project, using all available aerial photographs  
NAR : National Archaeological Record : part of the NMR, within RCHME  
NMR : National Monuments Record : contains MONARCH and all the archives and records for archaeological and architectural sites in England  
OS : Ordnance Survey : the national mapping agency and map makers since 1792  
PPG 16 : Planning and Policy Guideline Number 16 : a DOE guideline which provides a framework for preservation and mitigation strategies for archaeological sites in England and Wales  
RCHME : The Royal Commission on the Historical Monuments of England  
RCAHMS : The Royal Commission on the Ancient and Historical Monuments of Scotland  
RCAHMW : The Royal Commission on the Ancient and Historical Monuments in Wales  
SMR : Sites and Monuments Records : usually local databases of archaeological sites based in a county authority or in an National Park.