

Identify the key reference and data resources that you use in your specialism to ensure that your work is properly informed, and critically evaluate their accessibility, currency, reliability and relevance. (40%, 3,000 words or equivalent)

Introduction

Working as an aerial survey investigator specialising in reconnaissance requires a specialist group of resources to ensure the work I produce is of a high standard, properly informed and in keeping with technical innovations. The resources I use range from guidance documentation produced in-house (Historic England), publications from specialist interest groups including the Aerial Archaeology Research Group (AARG), published books, and internal datasets such as the Aerial Photo Explorer (APEX), which I use to plan future work. It is worth mentioning that there is no CIFA guidance, due to the specialist nature of my role, not just within wider archaeological practice also within the aerial survey specialism; the photography and survey methods are unique to the work I do, which is set within the parameters of projects conducted by a wide range of teams at Historic England.

Working within the parameters of Historic England

Aerial reconnaissance surveys conducted by independent fliers and those working for external companies are mostly focused on looking for new sites in summer through cropmark reconnaissance or targeted sites due to be developed, perhaps for housing or energy infrastructure. The aerial reconnaissance surveys I conduct are set within the context of Historic England as an organisation; the surveys benefit different projects set out by a range of teams which also supports the research strategy (Historic England, 2016) and agenda (Lee, Miles and Sloane, 2017) and ultimately contributes towards the wider corporate plan (Historic England, 2023). I must read and comprehend both the research strategy and agenda, as well as the overarching corporate plan, to think about how the work I do can contribute to this. It is essential to do this as it can often spark new ways of thinking and generate new ideas for how our work can be adapted to benefit the wider organisation. The corporate plan is updated and refreshed every three years; it is also sometimes adapted and refreshed in between these periods, with changes in government and legislation, to keep it up to date. It is important for me to read these updates to ensure I understand how we fit into the organisation and where we can maximise our

services to benefit a wide range of teams. The research strategy and agendas produced by Historic England are documents that provide an overview of how the heritage research at Historic England can contribute more directly to the wider organisational goals; however, quite critically, these documents are not refreshed at set periods and, as such, have not been updated since 2016/2017. These documents are rapidly becoming out of date and may not always fit with the current corporate strategy as easily as when they were first produced. The questions the research strategy and agendas pose may no longer be relevant, and new questions are likely to be omitted. These three documents provide the contextual background for the work I do, and as such, they are documents I constantly refer to within the organisation to explain and rationalise my work.

In-house documentation and guidance

Ensuring the work I do is completed to a high standard and to a standard that fits in with other processes is highly important and requires using a few different pieces of in-house guidance. These can both dictate the way I survey and also how I deal with the data afterwards. The first piece of in-house guidance essential within my work is the Historic England Aerial Investigation and Mapping Standards Technical Review (Evans, 2019). The Mapping Standards Review document (Evans, 2019) sets out the current technical guidance for using aerial photographs in archaeological mapping projects, which is one of the primary uses of the aerial photographs that I take. Understanding how my photographs are used and what is required from the photographic composition to ensure their successful usage has been the main utilisation of this document for my work. This is a document that I first read when I was getting to grips with the methodological approaches to aerial survey and mapping. During my early training, I was given a task to rectify different types of aerial photographs, including some historical Aero films of varying degrees of quality. This process enabled me to understand what makes a good quality and easy-to-use photograph during the rectification process, which is set out in detail in the mapping standards document (Evans, 2019, pp. 41-47). Not only does this document provide an in-depth understanding of the rectification process, but it also critically analyses some of the methodology and software used in the process, enabling others using the document to find the best method and software for their needs. The document gave me a useful introduction to the mapping process and set me up for taking

photographs in the most useful way for my colleagues to be able to map out different archaeological features. Although this document is not one I regularly refer to for the survey process, it is one I have picked back up again as I learn how to execute the rest of the mapping process. The document was produced in 2019 and still fits with the current practice employed at Historic England; it is presumed that with any new software or technological advances, this document will be updated accordingly.

Another piece of in-house documentation, which I don't necessarily refer to, but dictates the way I work and is inherent to the aerial reconnaissance workflow, is the Digital Image Capture and File Storage guidelines document (Cole and Backhouse, 2015). In particular use for my work within this document is the section on digital file and storage standards (Cole and Backhouse, 2015, pp. 9-12) which sets out the preferred file types, processing preferences, metadata to include, and the naming and storage conventions which we follow, making the process for the archive and cataloguers much easier. Although this document is now ten years old, most of how we do things still fits in this framework, however, it might be something that Historic England could consider updating as camera functionality and quality improve and data storage methods may ultimately change to address this. It is also becoming more apparent that storing large amounts of data influences server capacity and, in turn, how environmentally friendly storing large amounts of digital data is.

Conversations within Historic England between colleagues in different departments are discussing the ever-increasing pressure on our storage system and cloud storage functionality, with new trials for alternative storage solutions being discussed. This documentation may well need to be updated to address any changes made and provide more guidance on the best use of new storage solutions and any other implications this may have on further processes.

Keeping informed with current research

To ensure my work is well informed, I regularly read relevant interest groups' newsletters, including the Aerial Archaeology Research Group (AARG), which produces bi-annual newsletters. The AARG newsletter is a publication which sits between an informal newsletter and a formal academic journal, disseminating a range of recent research articles from authors based worldwide (AARG, 2025, p.3). The articles are based within the aerial survey specialism but also discuss research

using other complementary methods of remote sensing, including UAV survey, LIDAR, and satellite imagery. The AARG research articles are often extremely useful for keeping up to date with new archaeological research employing aerial survey techniques, but also provide articles on new software and technological and methodological innovations from across the world. The articles published by AARG are produced in an academic journal style, going through peer review and accompanied by a list of citations, contributing to their overall credibility. The regular publications are useful contributions that enable me to keep in touch with new research, methods, and technical updates that could benefit the aerial reconnaissance program at Historic England. AARG also holds an annual meeting for its members, which provides an extra opportunity to engage with current research and those attending the event who also work within the aerial survey specialism. This kind of event can be just as useful as the AARG publications, as it provides the setting for informal conversations about working practice and enables ideas to be exchanged.

David Wilson's Air Photo Interpretation for Archaeologists

Integral to my learning route through the first few months of my training was reading a few different books to grasp both the methods of aerial photography but also to increase my archaeological knowledge, learning what a few different types of sites looked like in earthwork and cropmark form which enabled me to more confidently identify sites while conducting aerial surveys.

The first publication that I found to be very useful and one recommended by other colleagues is the 'Air Photo Interpretation for Archaeologists' book written by David Wilson, which was first published in 1982 and later updated in a subsequent issue published in 2000 (Wilson, 2000). Although this book is extremely outdated in its publication, it is still a strong go-to for those learning about aerial photography, especially within an archaeological research context. The book outlines the very basics of how to use aerial photographs and how to interpret a range of different archaeological site forms; the methodology described in this book still sets out the principals for how we use aerial photographs to interpret archaeological features and so although old in date, still sits firmly as a good place to start when learning about aerial photographs. The way this book sits most out of date is its use of camera technology. While film cameras and the methods they were used for during aerial

survey are still similar to how I operate today, the limitations on the opportunities for photography due to adverse weather conditions are less so today, as digital photographs can be edited to improve light levels or remove haze. The development of technology certainly impacts some sections of the book, but in principle, the methodology is largely the same, which is why it is still a useful guide.

One area that this book excels in over others is the high volume of photographs included. The book contains over 150 photographs which are used to demonstrate a range of both different photography conditions as well as different archaeological sites, something which is incredibly useful to be able to use as direct comparisons when trying to learn how to interpret a range of different archaeological sites. Many archaeological publications are light on photographic illustrations, but the volume of aerial photographs within this book provides a useful collection of reference material; this was essential for my early learning, and it is still a book I consult when completing reconnaissance recording to aid in my interpretations of archaeological features.

The Online Aerial Photo Explorer Dataset

Before any aerial survey projects are planned, it is vital to consult the Aerial Photo Explorer (APEX) online database and review the photographic coverage already available, as well as assess the quality of the photos and whether there are any ways that a new survey can improve the record of a particular site. Often, if a site has been requested for new photographs, it may be due to the site being on the Heritage at Risk register, recent development work in the area, grant-funded projects or upcoming research projects. The use of APEX provides a comprehensive understanding of the current digital photo coverage of an area and allows me to analyse how sites can be better surveyed in the future, as well as identifying sites to survey before they are requested; if a site has not been photographed for over five years this can be a good reason to revisit the site and take some up-to-date photographs, especially if a site is on the Heritage at Risk register. This database is updated with new photographs every 6 months, ensuring the most recent photographs are accessible. One thing to consider with APEX is the amount of non-digitised photographs which are still unavailable and only accessible via the archive. This means that there is still quite a large number of film photographs which cannot be viewed by the public, and even for me, they are not easily accessible for planning

a flight. Even though these images are not available to view, I can still see where gaps in site coverage are lacking and try to fill these gaps over time.

When assessing coverage, it is very important to view each image of a particular area and not assume, because there are over 20 images, that the site does not need further consideration, as not all photographs are produced to the standards we aim for today. Some photographs may not have been processed and edited in the best way which can make archaeological features difficult to see, this is most likely due to developing methodology and software use, which has come a long way since the early digital photographs were taken for Historic England; there are digital photographs on APEX dating back to 2006. Some photographs although taken of a particular site may omit certain features which may have seemed purposeless at the time they were taken but may now be relevant for current research agendas, a prime example of this are the large lakes within registered parks and gardens, some of which are being altered to become reservoirs, an agenda which can be linked to climate change and the increased need for more water storage when longer periods of drought occur. This is a more recent research agenda which has been brought to the attention of the reconnaissance team, and using APEX allows us to look at the current coverage of these features and assess whether they need newer photographs or more detailed photographs, which show where the water features have been altered. Without this resource, it would take longer to assess all the digital content for a specific area.

The Heritage at Risk Register

Another useful dataset is the Heritage at Risk (HAR) register. This register is published annually and provides a yearly list of heritage assets which are at risk of deterioration, neglect, loss or inappropriate development (Historic England, n.d.). The register is updated by a specialist team who work directly with those who own and manage the heritage asset sites. I must be aware of the heritage assets on the list, but also that I understand why they are at risk and the current issues that I need to look for, especially when tasked with photographing specific sites. The HAR register is both useful in the planning stages of my work, but also for reference when I am conducting surveys. I have information for the HAR register on my flight tablet, so when I am surveying extra sites, I can see if there is any information regarding ongoing issues to be aware of. I also use the register once I have completed a flight,

in the post-processing stages. Sometimes there can be issues which I didn't spot in the air, which I may see more clearly when processing the images back in the office. I can use the HAR register to check if these issues are recorded or if they are new and need to be reported to the relevant team. Without access to this database, I would not be able to perform my role as effectively, and my work would not be well informed. It is worth mentioning that although the register is updated every year, not all heritage assets can be monitored very easily by the HAR team, as this is a monumental task, and inevitably, some new issues may go unnoticed or current issues may have gotten worse since they were last visited. This makes our input and monitoring even more important, to ensure the register itself is as current as we can try to make it. Not only is this dataset essential for our work, but our work is essential for the dataset itself.

The National Heritage List for England (NHLE) Database

The final dataset, which is essential for my work, is the National Heritage List for England (NHLE), which provides an up-to-date list of all of the protected heritage assets in England. As part of my work, it is my responsibility to record the condition, extent and significant features of these heritage assets to provide useful coverage for national research as well as help protect them. The dataset is accessible on my flight tablet and helps me to identify these sites whilst out conducting surveys. The dataset is particularly useful when surveying registered parks and gardens, as these are often large sites with parkland boundaries which are not always clear to see due to modern development. The dataset provides an accurate polygon of the site on a live map and shows which areas I need to photograph. The dataset can also be particularly useful for finding sites in built-up areas, such as specific listed buildings or urban parks, which can be tricky to identify. After completing a flight, I must also record how many of each heritage asset I have surveyed during each flight, so having the dataset within a map format helps me to complete this stage of recording. When surveying, I often observe many sites which are not protected heritage assets and are not on the NHLE database. These undesignated sites can sometimes be similar in condition to others which are designated, and I often consider there may be bias in which ones were chosen to be designated. If I am surveying an area of designated archaeological features, such as a scheduled upland prehistoric settlement, which is not easily accessible on foot, I will also survey the areas of

archaeological activity adjacent to the designated area. In my opinion, these undesignated areas of archaeological activity should also be considered important to the overall context and understanding of the designated area. It would be detrimental to future research if these areas were omitted from the photographic record because they were not on the NHLE 'formal' list. If anything, as these sites do not fall under any protection, they may be worth recording even more. As my work is inevitably bound by the agendas of Historic England, my duty to record the NHLE features as well as considering their wider context and surrounding heritage landscapes becomes a balancing act to ensure my duties to the organisation are met, but sympathetic to wider research needs.

Combined with the NHLE dataset, I also have the National Record of the Historic Environment (NRHE) dataset on my flight tablet, which helps me to identify undesignated areas and survey these in conjunction with the designated heritage assets. The NRHE records can provide extra details for some of the designated NHLE sites, which is especially helpful with records derived from Old County Number scheduling records (OCNs). OCN records were moved across to the NHLE database from an obsolete dataset before the Monuments Protection Programme was introduced; these monuments have very little information attached to their records. These OCN records are also some of the oldest on the NHLE database; I always treat these with caution, both in their interpretation but also in their polygon position, as more modern methods of geolocating these sites have proved some of these old record polygons to be inaccurate, some have also been investigated through various archaeological investigation methods and found to be incorrectly interpreted. These are just some of the things I must be aware of when using this dataset, which helps to ensure the work produced is accurate, reliable and most of all useful for a wide range of purposes.

Conclusion

Overall, the range of sources and datasets I use within my work all provide useful reference material to further my understanding of the archaeology I am photographing, as well as aid in my interpretation. It is my responsibility to stay informed about the latest research and technical innovations to ensure the work I carry out is of the highest quality and informed by both the research agendas of

Historic England, but also much wider in both the specialism of aerial survey and also within the realm of archaeological research.

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