

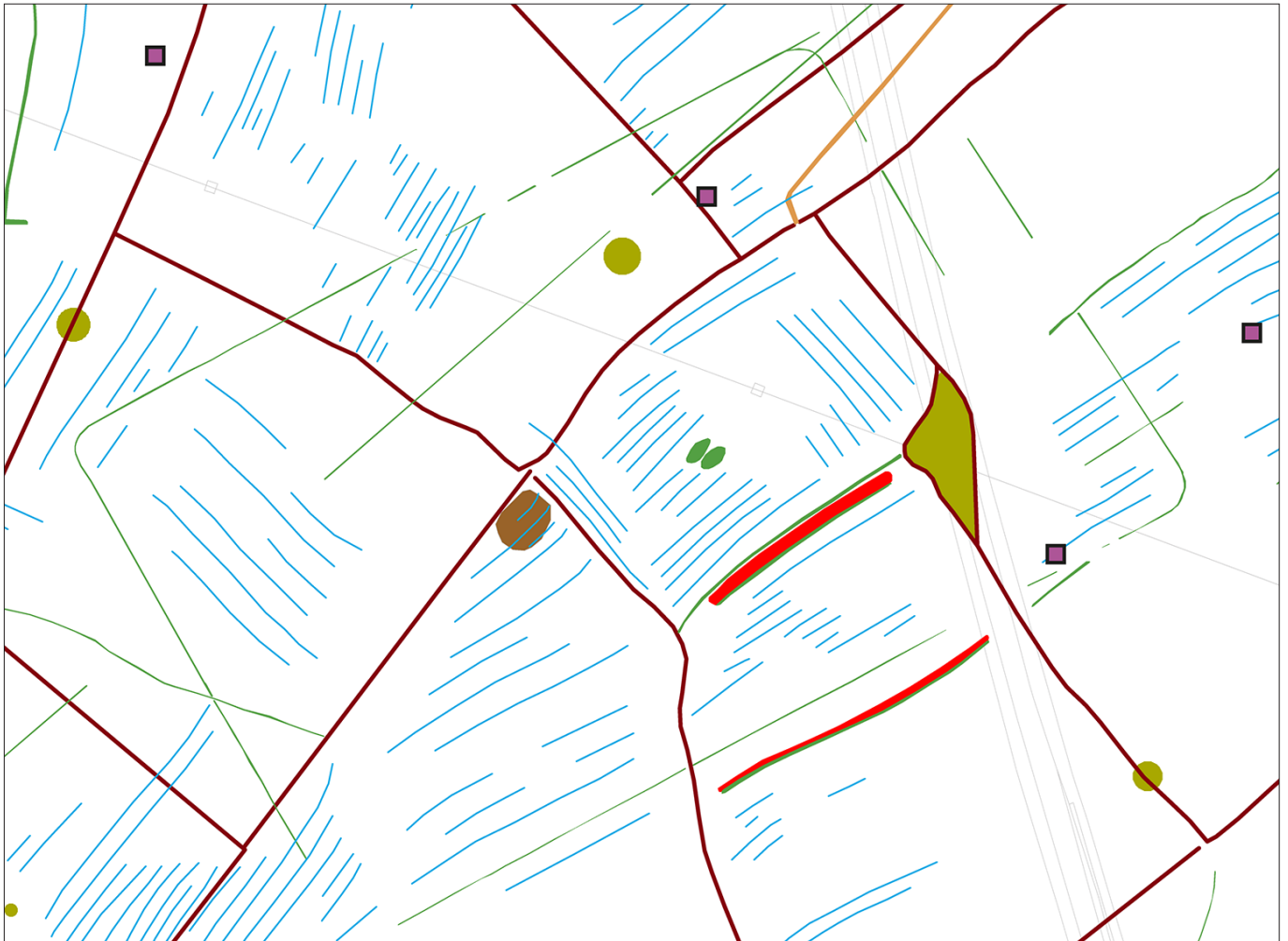


Historic England

Uffington Roman Temporary Camp, Uffington, Shropshire. Aerial Investigation and Mapping Report

Matthew Oakey

Discovery, Innovation and Science in the Historic Environment



UFFINGTON ROMAN TEMPORARY CAMP
UFFINGTON
SHROPSHIRE

Aerial Investigation and Mapping Report

Matthew Oakey

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SUMMARY

This report summarises the results of an assessment of aerial photographs and lidar for Uffington Roman camp in Shropshire (Shropshire HER No 002124). The assessment was requested by the Historic England Midlands Region to better understand the potential significance of the camp in a regional and national context. Subsequent to the aerial assessment, and associated geophysical survey and excavation, the camp was designated as a scheduled monument (National Heritage List for England List Entry Number 1480432).

The buried remains of the camp were first discovered from cropmarks in 1975 by J K St Joseph of Cambridge University. In plan, the camp conforms to the classic 'playing card' form but it was adapted during a phase of reoccupation when its size was reduced or enlarged.

The camp is probably one in a group of camps (a gathering ground) clustering around the legionary fortress at Wroxeter. It may form part of a sequence of camps (along with Whittington, Pen Plaenau and Penrhos) which relate to a single campaign into Wales. Identification of sequences such as this is unusual in England and this is the only cited example in Wales and the Marches.

CONTRIBUTORS

Interpretation and mapping was undertaken by Matthew Oakey.

ACKNOWLEDGEMENTS

The aerial photograph loan was administered by Luke Griffin of the Historic England Archive. Nigel Wilkins and Graham Deacon of the Historic England Archive assisted with supply of other archive material. Giles Carey of Shropshire Council provided information and advice on the Shropshire HER archive material and supplied aerial photographs. Prof Tom Spencer, on behalf of CUCAP, granted permission to scan and use a CUCAP vertical photograph held in Shropshire HER. Paul Linford, Neil Linford and Andy Payne of the Historic England Geophysics team provided access to the initial geophysical survey results. Nigel Baker provided interim results on archaeological excavation of the site.

ARCHIVE LOCATION

Historic England Archive, Swindon.

DATE OF SURVEY

July - November 2021

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INTRODUCTION

This report summarises the results of an assessment of aerial photographs and lidar for Uffington Roman camp in Shropshire (Shropshire HER No 002124). The assessment was requested by the Historic England Midlands Region to better understand the potential significance of the camp in a regional and national context.

In addition to the aerial assessment, geophysical survey and an archaeological evaluation of the camp were carried out (Linford, Linford and Payne 2021; Baker 2021). The site was subsequently designated as a scheduled monument (National Heritage List for England List Entry Number 1480432).

The buried remains of the camp were first identified and photographed as cropmarks in 1975 by J K St Joseph of Cambridge University. Four previous transcriptions of the camp have been undertaken and the site was evaluated by the Royal Commission on the Historical Monuments of England (RCHME) Roman Camps in England project (Welfare and Swan 1995). Excavation in advance of the A49 link road construction (Ellis *et al* 1994) uncovered two ditches which were interpreted as the probable remains of the camp.

Uffington forms part of a group of temporary camps in the vicinity of the legionary fortress at Wroxeter which have been interpreted as a gathering ground for military operations into Wales. In plan, the camp conforms to the classic ‘playing card’ form but was adapted during a phase of reoccupation when its size was reduced or enlarged.

Project area

The project area (Fig 1) measures 1.28sq km and covers the extents of the temporary camp and a broader contextual area. It is approximately defined by Uffington village to the north, Uffington Lane to the east, Ferry House to the south and the River Severn to the west, and encompasses the two modern fields in which the camp is situated.

Location, soils and geology

Uffington camp is centred at SJ 5243 1284, in the Civil Parish of Uffington, Shropshire, to the east of the town of Shrewsbury. It is situated on a level area of low-lying ground at an elevation of 55m Ordnance Datum. To the west the camp is flanked by a meander of the River Severn and to the east the ground rises to Haughmond Hill.

Bedrock geology comprises sandstone, mudstone and conglomerate of the Salop Formation. These are overlain by river terrace deposits of sands and gravels ([BGS GeoIndex \(onshore\) viewer](#)). Soils are freely draining slightly acid loamy ([UK Soil Observatory viewer](#)).

The remains of the camp were all identified from cropmarks – changes in the height and colour of a crop caused by underlying archaeological deposits. Formation of cropmarks is affected by a broad range of factors including soils, geology, crop type and weather. The underlying geology and freely draining soils at Uffington are conducive to cropmark formation but variations in farming regimes, crop type, weather and timing of photography mean that cropmarks have only been observed on a selection of the aerial photographs available to the project. For the reasons outlined above, the absence or quality of a cropmark cannot be used to infer the absence or condition of underlying archaeological deposits.

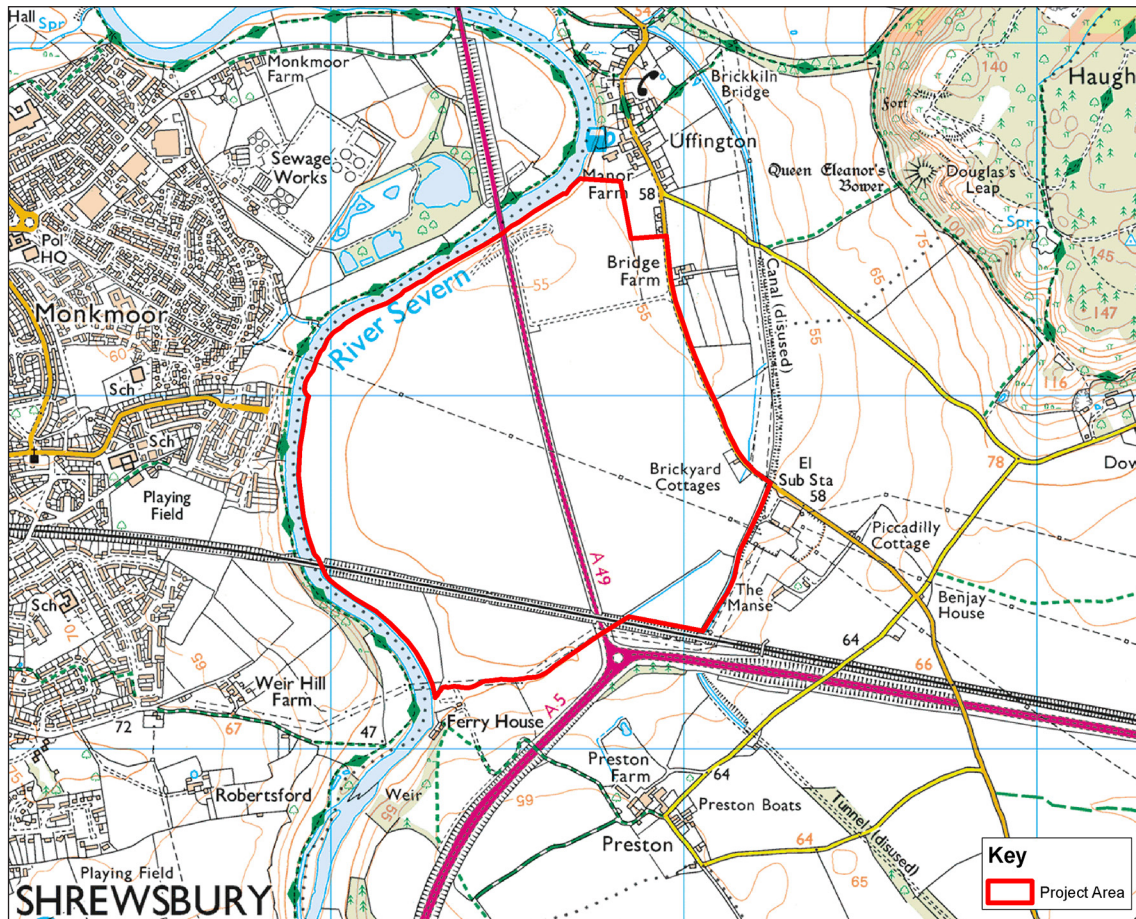


Figure 1: Project area. The A49 cuts through the eastern side of the camp. © Crown Copyright and database right 2021 All rights reserved. Ordnance Survey Licence number 100024900.

Sources

All available vertical and oblique aerial photographs held by the Historic England Archive in Swindon were assessed. No additional prints that required assessment were identified in the Shropshire Historic Environment Record (HER). Vertical orthophotographs available via the Aerial Photography for Great Britain (APGB) agreement were downloaded. Additional vertical aerial photograph and satellite data were viewed online using Bing Maps and Google Earth.

At present the Cambridge University Collection of Aerial Photography (CUCAP) library is closed so the collection was not accessible to the project. However, a copy of one vertical frame from 12 July 1975 (CUCAP K17AI 192) is held by the Shropshire HER so permission was granted from CUCAP to scan this image for mapping purposes.

Environment Agency lidar data were downloaded as ASCII files and processed using the Relief Visualization Toolbox 2.2.1 to create visualisations.

The 1975 Cambridge University vertical image held by the Shropshire HER shows considerable detail of the camp, including elements of the NE side which are not visible on other sources. Vertical coverage taken in 2017 (APGB 10-MAY-2017) gives the clearest and most comprehensive record of the site since the 1975 CUCAP photographs. To the west of the A49, almost the entire defensive circuit can be seen. East of the A49, only the outermost SE corner of the camp is visible but, as discussed above, the absence of cropmarks defining the NE side of the camp does not necessarily demonstrate a lack of subsurface survival. Cropmarks are also clearly visible on photographs taken in 1999 (APGB 30-JUL-1999) where much of the camp to the west of the A49 can be seen. This run of aerial photographs is also hosted on Google Earth.

The earliest aerial photographs which show traces of the camp were taken in 1959 when a short length of the SW side can be seen as a cropmark on Ordnance Survey vertical photographs (sortie no OS/59/84 20-JUN-1959). Further small fragments of the NW and SW sides were visible on photographs taken in 1964 (sortie no OS/64/116 27-JUL-1964).

Specialist oblique photographs taken in 1989 and 1995 by Chris Musson of the Clwyd-Powys Archaeological Trust show cropmarks of the NW and SW sides as well as the NW corner. The outermost SE corner can be seen on Google Earth satellite photography taken in 2015.

No evidence for earthwork survival of the camp was identified on lidar. This is undoubtedly due to the long history of arable cultivation over the site which has plough-levelled any extant remains.

A full list of sources consulted by the project is in **Appendix 1**.

SURVEY RESULTS

The Roman camp (Fig 2)

The cropmarks indicating the buried remains suggest that the camp is defined by a single narrow ditch approximately 1m in width. In plan the camp is a classic ‘playing card’ shape – rectangular with rounded corners – with its long axis orientated NE-SW. Two phases of the camp are evident, with the SE, SW and NW sides being reused and a second NE side either enlarging or reducing the size of the camp (see discussion below). At its largest measurable extents it is approximately 542m long by 333m wide while the smaller camp measures approximately 480m by 333m. The two phases enclose areas of 18ha and 16ha respectively.

On the aerial photographs available to the project, the SW corner, outermost NE corner and innermost SE corner were not visible but previous transcriptions which had access to other CUCAP photographs depict these elements (St Joseph 1977, fig 13; Welfare and Swan 1995, fig 137; Ellis *et al* 1994, fig 34). Several gaps in the cropmarks defining the ditched circuit have been observed but it is unclear if any of these represent gates (see discussion below). At least some are likely to be caused by areas of deeper and/or more moisture retentive soil which has inhibited cropmark formation.

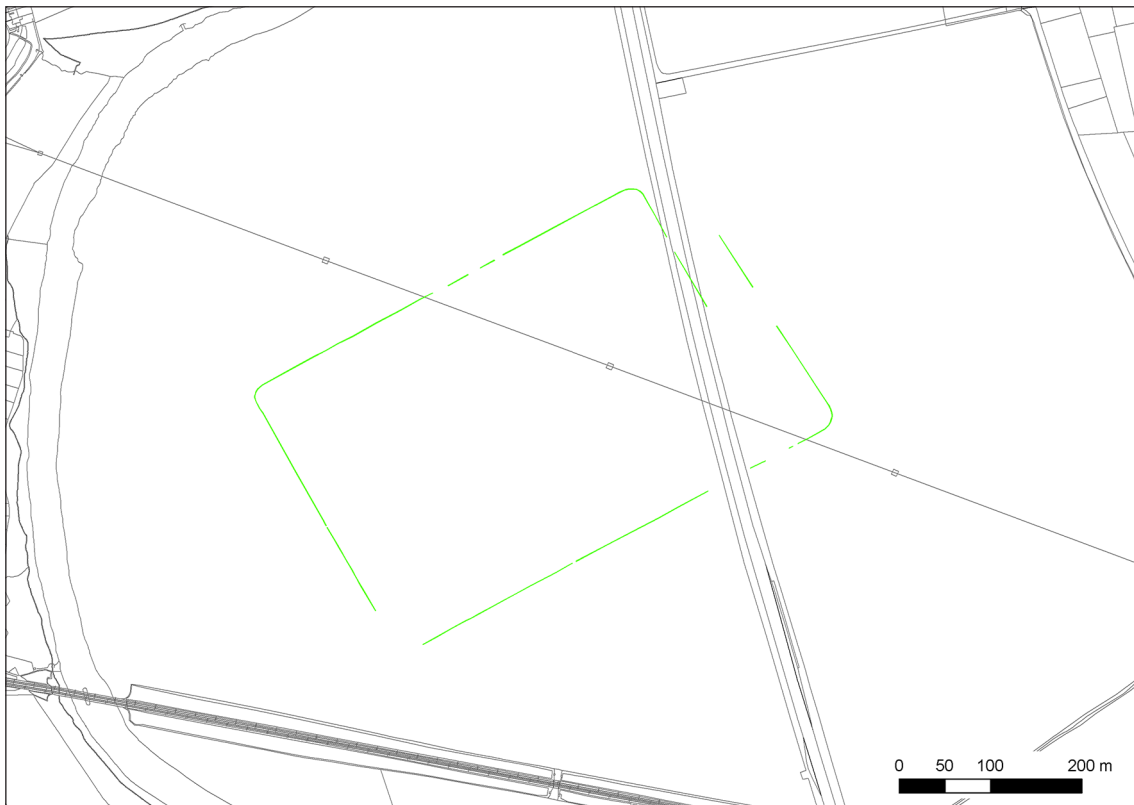


Figure 2: Cropmarks of the Roman camp. © Crown Copyright and database right 2021 All rights reserved. Ordnance Survey Licence number 100024900.

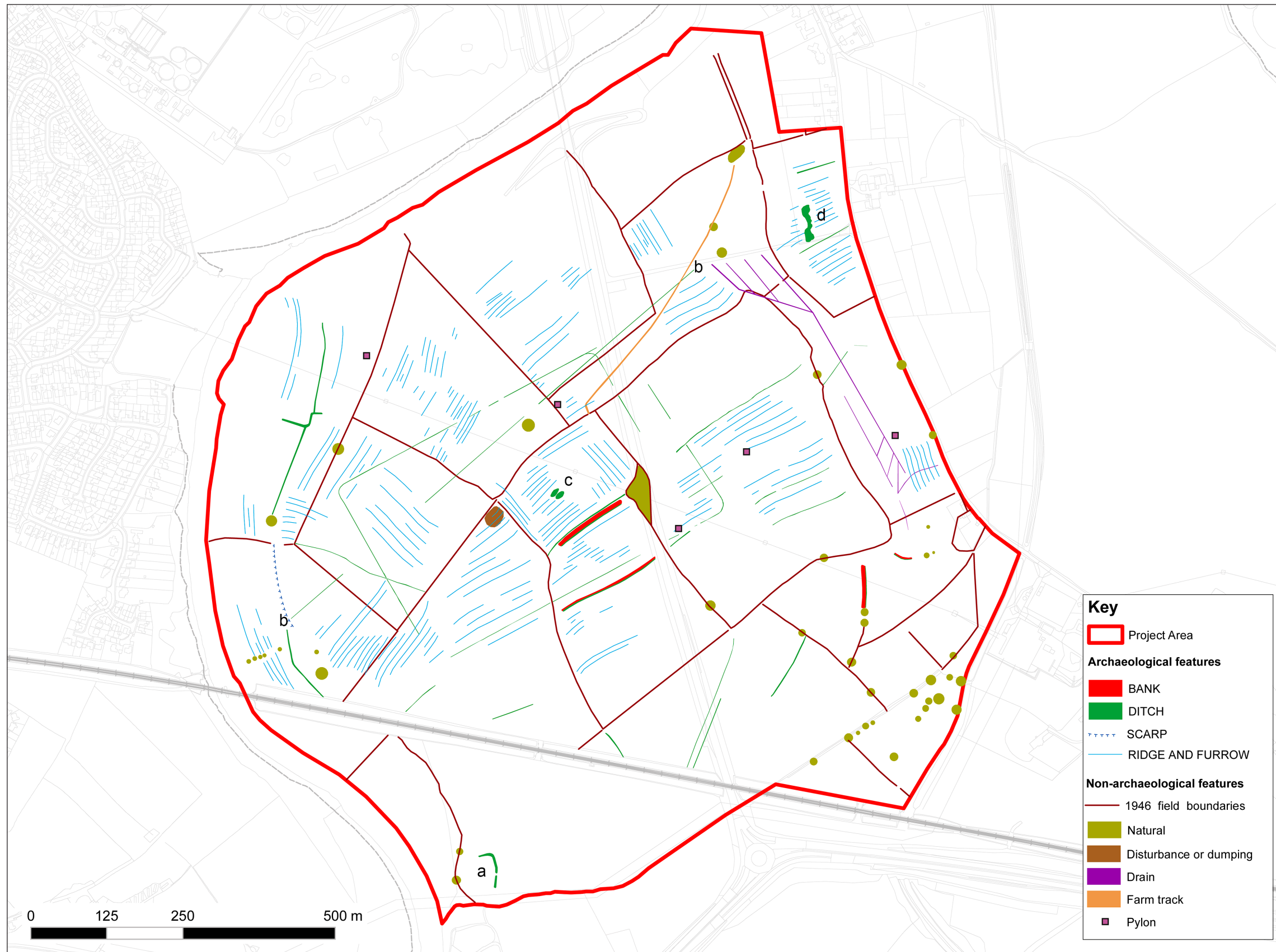


Figure 3: All archaeological and non-archaeological features mapped from aerial photographs. These include a probable Iron Age/Roman enclosure (a), a modern pipe trench (b), hollows of uncertain date (c) and an area of extraction (d). © Crown Copyright and database right 2021 All rights reserved. Ordnance Survey Licence number 100024900.

Other features (Fig 3)

To the south of the camp is part of a small enclosure at SJ 5236 1222 (Shropshire HER No 04472) which was seen as a cropmark (Fig 3, a). This is defined by a single ditch with a probable east-facing entrance and is likely to be Iron Age or Roman in date based on its morphology. It is the only feature in the project area that has been identified on aerial photographs as potentially pre-dating the camp.

Some traces of the furrows associated with medieval and post medieval ploughing can be seen as soilmarks and cropmarks on a number of photographs across large parts of the project area. Some areas of extant ridge and furrow can also be seen as earthworks on historic photographs but recent sources indicate that these have been ploughed level. A number of ditches are also visible as cropmarks and earthworks on historic and modern photographs. Many of these appear to relate to extant field boundaries visible on 1940s RAF vertical photographs and probably represent post-medieval enclosure boundaries which were removed before the first edition OS mapping.

A number of trees are visible on historic photographs which have since been removed. Some of these are situated on field boundaries while others are located within the fields. A small irregular shaped area of woodland, also removed, was located at SJ 5262 1285 (*see* natural features depicted on Fig 3). It is possible that hollows or areas of disturbed ground may be identified through geophysical survey or excavation at these locations.

A very narrow, straight ditch is intermittently visible and crossed the area of the camp (Fig 3, b-b) – this is probably a modern pipe trench. A line of four pylons, now removed, is recorded on historic photographs. These follow a different route to the current pylons in the field. Two hollows of uncertain date or function are visible as soilmarks at SJ 5248 1285 (Fig 3, c) and there is a potential area of extraction at SJ 5289 1329 (Fig 3, d). A network of modern field drains lies to the east of the camp.

LAND USE

Aerial photographs show that until at least 1948 the project area was enclosed by small, irregular fields defined by hedges (Figs 3 and 4). Aside from one small area covering the NE corner of the camp, the fields were under arable cultivation. A small area of woodland was located in the SE quadrant of the camp. At some point between 1948 and 1959 all the field boundaries were removed and the project area consolidated into a single field under arable cultivation.



Figure 4: The site of Uffington temporary camp photographed in 1946, divided into small irregular fields defined by hedges. RAF/106G/UK/1483 RP 3323 09-MAY-1946 Historic England RAF Photography (detail).

Some images showed the fields in bare soil so it was not possible to determine the crop type in those years. Where a crop was observed, this was most commonly a cereal crop. Photographs taken 1988, 1989, 1996 and 2018 showed that the site was at least partially under cultivation for root crops. The crop recorded on the 2018

Google Earth layer can clearly be identified as potatoes and the crop in 1988 is also likely to be potatoes. Photographs taken by Shropshire County Council in 2021 show the field to the east of the A49 planted with maize. Cultivation of root or tuber crops can be damaging to buried archaeological remains but geophysical survey and excavation undertaken in 2021 have demonstrated survival of the camp's ditches.

PREVIOUS WORK AND DISCUSSION

Layout and development of the camp

The buried remains of Uffington camp were first identified in 1975 as a cropmark showing in a crop of peas by J K St Joseph, and published two years later (St Joseph 1977). St Joseph's description of the camp, and accompanying transcription of the cropmarks, described further ditches to the NE which were interpreted as an extension to the original camp (St Joseph 1977, 145; fig 13). The transcription indicates the presence of gaps in the NW and SE sides but these do not appear to have been interpreted as entrances. Entrances were, however, identified in the centre of the SW and NE sides of the original camp, and the NE side of the 'later extension'.

The camp was mapped for a second time in 1981 as part of the RCHME/Cambridge University Committee for Aerial Photography (CUCAP) Cropmark Project (Whimster 1989; Historic England Archive Ref: AF1035090). This transcription largely replicates the one published by St Joseph but does not depict the break in the innermost NE side that St Joseph had interpreted as an entrance.

A further transcription of aerial photographs was undertaken in 1988 for the RCHME Roman Camps in England project, later published in *Roman Camps in England: the Field Archaeology* (Welfare and Swan 1995, fig 126). In this volume, the authors leave a more open interpretation of the phasing of the camp, suggesting that the additional ditches to the NE interpreted by St Joseph as an extension could represent the original extents of the camp which was later reduced in size. They are also more cautious about the interpretation of breaks in the camp's ditches as entrances, instead suggesting that 'none can be unambiguously identified as a gate' (Welfare and Swan 1995, 164). Davies and Jones (2006, 151) also conclude that the available evidence is insufficient to determine whether the camp was enlarged or reduced in size.

Between 1988 and 1990 archaeological work was undertaken in advance of the construction of the new A5 Shrewsbury bypass and A49 link road, the latter of which bisects the camp. A single archaeological trial trench was located on the basis of a computer-aided transcription of the site undertaken by M Roberts at Wolverhampton Polytechnic. It was sited to investigate what was interpreted at the time (presumably on the basis of St Joseph's description) as the intersection of the camp and its 'annexe' (Ellis *et al* 1994, 69; fig 34).

Excavation revealed two parallel V-section ditches, 1.2m wide and 65cm deep, both of which cut an earlier ditch. The authors note that these 'may' represent the ditches of the camp and annexe and suggest that they indicate that the annexe was wider than the original camp (Ellis *et al* 1994, 70). However, no dating evidence was recovered from either of the ditches, so while their interpretation as the remains of the camp seems reasonable, the available evidence does not appear to support the proposed construction sequence. It is also interesting to note that geophysical survey undertaken in 2021 (Linford, Linford and Payne 2021) did not indicate the

presence of a second parallel ditch and no evidence for this has been seen on aerial photographs.

While the construction and occupation sequences cannot be proven from the currently available evidence, Uffington is nonetheless a good example of a camp with at least one phase of reoccupation after its initial construction. Adaptation of existing camp defences would have represented a pragmatic solution to reoccupying strategic locations and evidence for this can be seen at a number of sites in Scotland, England and Wales. Commonly, later iterations of a camp reutilised a single corner of an existing camp but instances of just a single side being reused are also recorded. Uffington represents one of the few camps where expansion or contraction reused three sides and is the clearest known cropmark example (Welfare and Swan 1995, 22–23).

At its largest extent, the camp enclosed an area of approximately 18ha while its smaller phase measures around 16ha (previously estimated at around 16.3ha (Welfare and Swan 1995, 164)). It has been calculated that respective capacities of the camp were 12,000 or 9,440 soldiers (at 18ha) and 10,960 or 8,560 soldiers (at 16.3ha) (Davies and Jones 2006, fig 26).

Chronology, context and significance

Uffington has been interpreted as a ‘marching camp’ – a temporarily occupied defensive enclosure constructed during military campaigns. Due to the often short duration of occupation, little archaeological evidence for temporary camps beyond the perimeter defences is generally found (Jones 2012, 18). The lack of datable artefacts, coupled with limited excavation of camp sites means that few have absolute dates derived from scientific dating techniques (Jones 2012, 110).

Welfare and Swan (1995) record a total of 95 camps in England. New discoveries continue to be made, particularly from aerial survey, but this would require detailed analysis of national and regional datasets which is beyond the scope of the current report. Due to the nature of the evidence, the known distribution of camps will be biased by a number of factors and is inevitably incomplete. The largest concentrations have been identified in Northumberland and Cumbria but there is a further cluster in Shropshire where the majority of camps in the English Midlands have been identified (Welfare and Swan 1995, fig 2; Jones 2012, fig 2).

A total of 16 temporary camps are recorded in Welfare and Swan’s inventory for Shropshire (1995, 150–168; *also see* Appendix 2 below). In addition to these, Davies and Jones list a further 10 as ‘possible marching camps’ (2006, 154–155; *also see* Appendix 2 below). At Stretford Bridge two linear cropmarks may represent the sides of a small marching camp (Stretford Bridge III) while three curved angles at Norton (Norton III, IV and V) may also represent the remains of camps. However, the evidence at both locations is considered insufficient to make a definitive interpretation (Davies and Jones 2006, 155). Similarly fragmentary remains have been identified at Brompton (Brompton III and IV). Here again, the interpretation ‘remains undetermined’ (Davies and Jones 2006, 154). Three possible camps at

Leighton (Leighton I, II and III) were interpreted as annexes or outworks to the fort by the Roman Camps in England Project but are noted by Davies and Jones as 'suggestive of marching-camps [but with] an element of doubt' (2006, 155). Finally, excavation at Rhyn Park in 1977 uncovered a ditch pre-dating the campaign base and fort. This was interpreted as a possible marching camp by the excavators (*ibid*) but at present no further evidence exists to confirm this interpretation.

Seven further records in the Shropshire HER include 'temporary camp' as an index term. However, these records have varying degrees of certainty and it has not been possible to re-evaluate these as part of the current project.

Uffington appears to be part of a group of seven camps that have been identified around the legionary fortress at Wroxeter (Fig 5). The others in this group are Cound Hall, Norton I, Norton II, Attingham Park, Ismore Coppice and Leighton (the degree of certainty for Leighton is discussed above).

The distribution of Roman military installations, including temporary camps, can help inform our understanding of the invasion routes into Wales (Burnham and Davies 2010, 38) and the grouping of camps around Wroxeter indicates that this area probably formed a 'gathering ground' from which military operations would have been initiated (Davies and Jones 2006, 35). Uffington's location, along with the other camps in the group, would have enabled access into Wales along the Severn as well as command of a river crossing point. Combined with its location on an important communication route, this area was clearly of high strategic importance (*ibid*).

The temporary nature of camps such as Uffington means that dating from artefactual evidence is unusual. However, broad chronologies can sometimes be inferred from historical texts, their geographical distribution and relationship to other sites. It is considered probable that the temporary camps in Wales and the Marches were constructed before the end of the 1st century AD (Davies and Jones 2006, 37). For those camps around Wroxeter, dating evidence for the occupation of the legionary fortress has also been used to extrapolate potential construction dates. It is likely that the fortress was established around the mid-50s AD and abandoned by AD 90. While some camps may be contemporary with the fortress, others are likely to pre-date its construction and relate to Claudian period (pre-AD 68) campaigns into Wales (Davies and Jones 2006, 37; Burnham and Davies 2010, 38).

There appears to be a significant relationship between Uffington and the camps at Whittington, Pen Plaenau and Penrhos. This grouping has been interpreted as one of the few instances where a probable sequence of camps can be identified, potentially representing a single pre-Flavian (before AD 69) campaign into Wales with Uffington as the starting point (Davies and Jones 2006, 57; Toller, 2006, 19; Burnham and Davies 2010, 38). This is the only such potential sequence identified in Wales and the Marches.

All four camps are of comparable size, ranging from 15.3 to 18ha. The distances between Uffington, Whittington and Pan Plaenau are both 24km while the distance from Pan Plaenau to Penrhos is 10km. Assuming campaign stages of 10-12km, it

has been suggested that there are possible hitherto unidentified sites in the vicinity of Baschurch and Llanarmon (Toller 2006, 19).

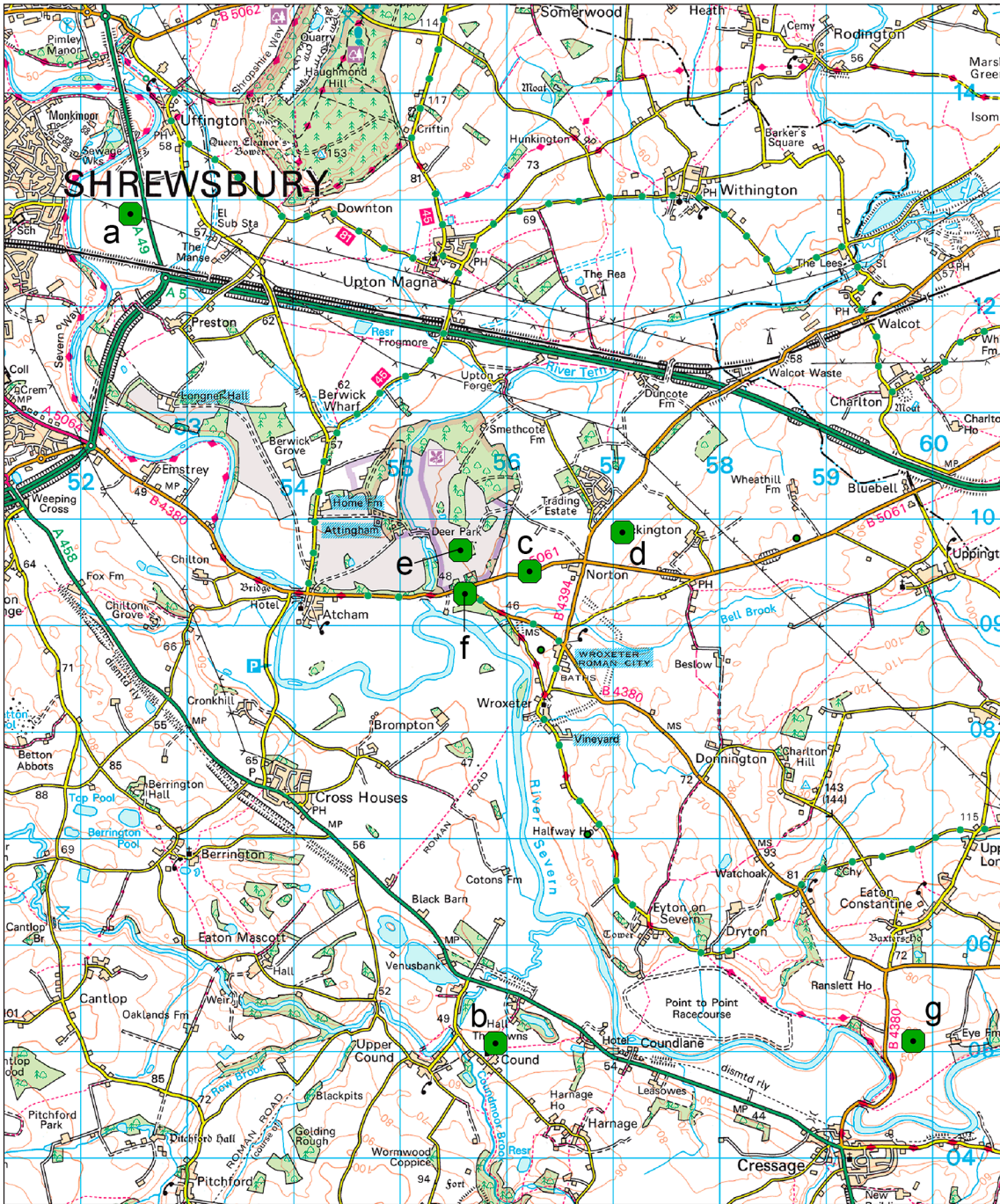


Figure 5: The group of seven temporary camps in the vicinity of the legionary fortress at Wroxeter. Uffington (a), Count Hall (b), Norton I (c), Norton II (d), Attingham Park (e), Ismore Coppice (f) and Leighton (g) © Crown Copyright and database right 2021 All rights reserved. Ordnance Survey Licence number 100024900.

At Pen Plaenau a combination of the gate morphology, a truncated eastern angle and the camp's relationship to a Roman road have been used to suggest a possible date range for construction of between the late 50s and early 70s AD. This may mean that the camp relates to a campaign in AD 60 by Suetonius Paulinus or one in AD 78 by Agricola, the latter of which is thought more likely (Toller 2006, 20). A radiocarbon date was obtained from the site of the camp at Whittington (1955 ± 25 BP equating to AD 15–70 at 1σ) but this was recovered from a shallow pit which could not be shown to relate to the camp (Esmonde Cleary 1999, 345).

Scheduled camps in Shropshire

Of the known temporary camps in England, within the Midlands, there seems to be a concentration in Shropshire. This includes the 16 positively identified by Welfare and Swan and a further 10 possible sites listed by Davies and Jones. Of the scheduled temporary camps in England, just five are in Shropshire – Bromfield (NLHE 1006273), Brompton I and II (NLHE 1006247), and Burlington I and II (NLHE 1006249). At both Brompton and Burlington, two camps are co-located – indicating reuse and adaptation of the site – and are designated as a single scheduled area.

CONCLUSIONS

- The form and layout of the enclosure at Uffington are typical of a Roman temporary camp. Aerial photographic evidence allows almost the entire plan of the camp's defences to be mapped. Based on currently published evidence, this indicates that it is one of the most complete camps in Shropshire.
- Cropmarks visible on aerial photographs taken in 2017 demonstrate survival of a significant proportion of the camp's perimeter to the E and W of the A49. This was confirmed by geophysical survey in 2021 (Linford, Linford and Payne 2021) and subsequent excavation.
- Uffington has been cited as the best example identified from cropmarks in England of a multi-phase camp which was extended/reduced by retaining three sides of the original defences.
- The camp is probably part of a group of camps (a gathering ground) clustering around the legionary fortress at Wroxeter.
- Uffington may form part of a sequence of camps (along with Whittington, Pen Plaenau and Penrhos) which relate to a single campaign into Wales. Identification of sequences such as this is unusual in England and this is the only cited example in Wales and the Marches.

REFERENCES

- Baker, N 2021 *An archaeological evaluation of the Roman marching camp at Uffington, Shrewsbury*. Unpublished report for Historic England
- Burnham, B C and Davies, J L 2010 *Roman Frontiers in Wales and the Marches*. Aberystwyth: RCAHMW
- Davies, J L and Jones, R H 2006 *Roman Camps in Wales and the Marches*. Cardiff: University of Wales Press
- Ellis, P, Evans, J, Hannaford, H, Hughes, G and Jones, A 1994 'Excavations in the Wroxeter hinterland 1988-1990: The archaeology of the Shrewsbury bypass'. *Transactions of the Shropshire Archaeological & Historical Society* **69**, 1-119
- Esmond Cleary, A S 1999 'Roman Britain in 1998'. *Britannia* **30**, 333-374
- Historic England 2018 *Pre-1500 Military Sites: Scheduling Selection Guide*. Swindon: Historic England
- Jones, R H 2012 *Roman Camps in Britain*. Stroud: Amberley
- Kokalj, Ž., and Somrak, M., 2019 'Why Not a Single Image? Combining Visualizations to Facilitate Fieldwork and On-Screen Mapping', *Remote Sensing* **11**(7), 747
- Linford, N, Linford, P, and Payne, A 2021 *Manor Field, Uffington, Shropshire, Report On Geophysical Surveys, August 2021*. Historic England Research Reports Series **52/2021**
- St Joseph, J K 1977 'Air Reconnaissance in Roman Britain, 1973-76'. *The Journal of Roman Studies* **67**, 125-161
- Toller, H 2006 'A newly discovered Roman marching camp at Pen Plaenau in the Berwyn mountains'. *Archaeologia Cambrensis* **153** for 2004 (2006), 13-21
- Welfare, H and Swan, V 1995 *Roman Camps in England: the Field Archaeology*. London: HMSO
- Whimster, R 1989 *The Emerging Past. Air Photography and the Buried Landscape*. London: RCHME
- Zakšek, K, Oštir, K, Kokalj, Ž 2011 'Sky-View Factor as a Relief Visualization Technique'. *Remote Sensing* **3** (2), 398-415

APPENDIX 1 SOURCES AND METHODS

Historic England Archive verticals consulted

Sortie No	Camera position	Frame No	Date flown
RAF/106G/UK/1483	RP	3190	09-May-46
RAF/106G/UK/1483	RP	3321-3323	09-May-46
RAF/106G/UK/1483	RS	4322-4326	09-May-46
RAF/541/116	RP	3127-3131	29-Jul-48
RAF/58/3278	F22	284-288	22-Oct-59
RAF/543/922	2F21	296-297	24-May-60
RAF/543/922	2F21	300-303	24-May-60
RAF/543/922	2F22	295-297	24-May-60
RAF/543/922	2F22	300-302	24-May-60
RAF/58/3967	F22	179-180	05-Dec-60
RAF/543/1139	V	42-43	05-Dec-60
RAF/48/HAV	RP	3092-3096	13-Mar-45
US/7PH/GP/LOC291	VM	8037	20-Apr-44
OS/64116	V	81-84	27-Jul-64
OS/64116	V	146-150	27-Jul-64
OS/65006	V	88	28-Mar-65
OS/59084	V	15-21	20-Jun-59
OS/59084	V	39-45	20-Jun-59
OS/59084	V	63-69	20-Jun-59
OS/59084	V	85-90	20-Jun-59
OS/59084	V	110-113	20-Jun-59
OS/59084	V	132-135	20-Jun-59
OS/59084	V	155	20-Jun-59
OS/88168	V	5-8	13-Jun-88
OS/88168	V	17-21	13-Jun-88
OS/88171	V	87-89	14-Jun-88
OS/88171	V	123-132	14-Jun-88
OS/88171	V	165-168	14-Jun-88
OS/89148	V	816	06-May-89
OS/89148	V	850-852	06-May-89
OS/92284	V	8-14	30-Jul-92

OS/92285	V	155-159	30-Jul-92
OS/96603	V	69-74	08-Jun-96
OS/96603	V	98-104	08-Jun-96
OS/96603	V	151-157	08-Jun-96

Historic England Archive obliques consulted

Index No	Source/Flight/Frame	Date
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SJ5212/0002	CPT 6034/808	27-Jun-89
SJ5212/0003	CPT 6034/809	27-Jun-89
SJ5212/0004	CPT 6034/824	02-Jul-89
SJ5212/0005	CPT 6034/825	02-Jul-89
SJ5212/0006	CPT 16312/785	02-Jul-95
SJ5212/0007	GXB 11867/26	22-Sep-90
SJ5212/0008	CPT 16873/133	19-Jul-96
SJ5212/0009	RAF 540/84/PFFO/0085	29-Aug-48
SJ5212/0010	RAF 540/84/PFFO/0086	29-Aug-48
SJ5212/0011	RAF 540/84/SFFO/0085	29-Aug-48
SJ5212/0012	RAF 540/84/SFFO/0086	29-Aug-48

Cambridge University Collection of Aerial Photography consulted

Film No	Frame No	Date flown
K17AI	192	12-JUL-1975

Sources

All available vertical and oblique aerial photographs held by the Historic England Archive in Swindon were assessed. These range in date from 1944 to 1996 and provide a detailed record of landscape changes over the course of five decades.

At present the CUCAP library is closed so the collection was not accessible to the project. However, a copy of one vertical frame from 12 July 1975 (K17AI 192) is held by the Shropshire HER so permission was granted from CUCAP to scan this image for mapping purposes. This showed a significant proportion of the camp as cropmarks, in particular elements of the north eastern defences which were not visible on other sources.

No additional prints that required assessment were identified in the HER. Four photographs of the site taken by Shropshire County Council in July 2021 (SA2101_030-033) were supplied by the HER. Although they do not show any cropmarks relating to the fort, they provide a valuable record of current land use.

Vertical orthophotographs available via the Aerial Photography for Great Britain (APGB) agreement dated from 1999, 2000, 2008, 2017 and 2020. Of particular value was coverage from 2017 which showed clear cropmarks of a substantial proportion of the camp. This source is also metrically accurate so it was possible to plot the extents of the camp with sub-50cm accuracy. Additional vertical aerial photograph and satellite data were viewed online using Bing Maps and Google Earth.

Environment Agency lidar data were downloaded as ASCII files and processed using the Relief Visualization Toolbox 2.2.1 (Kokalj and Somrak 2019; Zakšek, Oštir and Kokalj 2011) to create visualisations (Simple local relief, openness-positive and 16-direction hillshade) as 2D GeoTIFF images.

Rectification and mapping

Print photographs were viewed under magnification and in stereo where possible. Digital photographs were viewed on screen. Rectification was undertaken using the specialist Aerial 5.36 software. Control was derived from 1:2,500 scale OS MasterMap data or APGB orthophotography. Digital 5m height data were used to improve the accuracy of rectifications. Relative accuracy of rectifications undertaken in Aerial is nominally $\pm 2\text{m}$ from the source of control but this can be considerably higher if good quality control information is available. Features plotted from APGB orthophotographs will be sub-metre accurate. Initial comparison of the aerial mapping of the camp and results from magnetometer survey of the field to the west of the A49 which was located with survey-grade GNSS indicate an extremely high degree of correlation.

Rectified images, lidar data and orthophotographs were imported into ArcMap 10.3.1 where features were digitised. GIS attribute data were used to record the period, monument type, evidence and source.

All archaeological features seen as cropmarks, soilmarks, earthworks and structures were mapped. To aid interpretation of geophysical survey and excavation data, recent manmade features, trees and field boundaries that were extant on historic vertical photographs were also mapped (*see* Fig 3).

APPENDIX 2 SHROPSHIRE CAMPS

Sites listed in Welfare and Swan's inventory (1995, 150–168).

Name	NGR	HER PRN	NHLE No
Attingham Park	SJ 5560 0975	02637	-
Bromfield	SJ 4833 7741	00192	1006273
Brompton I	SO 2496 9343	01211	1006247
Brompton II	SO 2496 9334	01212	1006247
Burlington I	SJ 7790 1064	01111	1006249
Burlington II	SJ 7798 1078	01111	1006249
Cound Hall	SJ 5618 0504	00469	-
Ismore Coppice	SJ 5567 0933	04159	-
Norton I	SJ 5621 0950	00128	-
Norton II	SJ 5714 0989	00029	-
Quatt	SO 7381 8898	-	-
Stretford Bridge I	SO 4290 8410	02041	-
Stretford Bridge II	SO 4300 8369	00620	-
Uffington	SJ 5243 1283	00124	-
Upper Affcot	SO 4433 8640	00175	-
Whittington	SJ 3505 3033	00935	-

Sites recorded by as possible marching camps by Davies and Jones (2006, 154–155).

Name	NGR	HER PRN	NHLE No
Brompton III	SO 2499 9355	01213	-
Brompton IV	SO 249 934	01213	-
Leighton I	SJ 5965 0487	00453	-
Leighton II	SJ 5965 0506	00453	-
Leighton III	SJ 599 053	00453	-
Norton III	SJ 5630 0960	-	-
Norton IV	SJ 5648 0960	-	-
Norton V	SJ 5684 0974	-	-
Rhyn Park	SJ 3050 3700	00645	-
Stretford Bridge III	SO 4310 8396	-	-

Additional sites in Shropshire HER containing Temporary Camp as an index term.

Name	NGR	HER PRN
Earthwork Enclosure in Sallow Coppice	SO 4220 8210	03725
Possible Marching Camp N of Beckjay	SO 3912 7804	04878
Possible marching camp, Lower Upton Farm	SJ 7630 0615	32086
Rectangular Enclosure W of Halfway House, Wroxeter	SJ 5677 0703	00077
Wroxeter winter camp?/enclosure	SJ 5633 0876	06488
Cropmark of NE corner of a possible marching camp E of Culmington Manor	SO 4794 8377	32064
Cropmark of NE corner of possible Roman temporary camp, c.485m SSW of Wheathill Farm, Uppington	SJ 5873 0981	34772



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