6. MANAGING FIELDS OF CONFLICT

Three aspects of fields of conflict require active management:

- visual character and setting
- physical evidence for the historic terrain
- archaeological evidence in and on the ground

Together with written and graphical records, these are the primary resources for future interpretation and research. Terrain and battle archaeology are not yet being managed at any level. This is largely because the archaeological entity that is a field of conflict is only just coming into focus - potential cannot be managed in the absence of a general awareness of what it is. In practical terms, the ability to manage and to mitigate threats is determined by

- the effectiveness of measures available
- accessible information about the location, extent, and character of a field of conflict, and the wider significance of the evidence it contains
- availability of appropriate guidance
- well signposted sources of specialist advice

None of these is currently in place.

The ability to manage fields of conflict will depend upon the degree to which methodologies that are needed to increase understanding are improved by paradigmatic studies.

The present state of things

The main mechanisms currently available for battlefield management are:

- ownership or guardianship, as with that part of Hastings that is managed by English Heritage
- the planning process, operated by local authorities
- agri-environment schemes managed by DEFRA

The Battlefields Register is non-statutory and so can only provide guidance for the operation of these mechanisms on sites that are registered. However, the draft Heritage Bill proposes to extend statutory controls to Registered battlefields; present discussion takes this into account as a potential fourth strand of management.[1] The mechanisms themselves have not proved fully effective, in part because they were not designed for the task, and partly because of widespread unawareness as to where the archaeological significance of fields of conflict actually lies.

As already shown, information about battlefield terrain is generally inadequate. Until components are identified – hedgerows, walls, earthworks, cut features and so on – they cannot be managed.

As also seen, battle archaeology is typically exiguous and often under threat. Most of what has survived into the early 21st century is eroded and depleted. Without urgent and appropriate measures, this reduced legacy will itself be destroyed before it has even been defined.

Only the visual character and setting of nationally important battlefields has been effectively addressed, thanks to the Battlefields Register, but only to the extent that the Register's level of understanding allows. Nonetheless, for this reason the present discussion focuses on the other key aspects – historic terrain, and archaeology.

Experience in the United States

Lessons can be learned from battlefield management in the USA, where a similar range of problems has been tackled over a much longer time. While the earliest European management initiative was the English Battlefields Register in 1995, the first US National Military Parks were established in the 1890s.[2]

The strategy of management through acquisition has been more successful than any other. Thus, for example, the greater part of the 1781 Yorktown battlefield in Virginia is part of the Colonial National Historical Park, managed by the National Parks Service. In 1993 there were 31 Civil War battlefields where all or part was protected within a National Park of some kind, with most areas being of more than 1000 acres and the largest of more than 8000 acres.[3] Parts of other battlefields are also managed by various state and local battlefield preservation organisations. In addition, there is collaboration between the various national organisations, through

[1] DCMS, 2008
[2] Chickamagua, Chattanooga, Shiloh, Gettysburg and Vicksburg battlefields: Official Guide to Chickamauga and Chattanooga National Military Park, Georgia & Tennessee
[3] Civil War Sites Advisory Commission, 1993, 30-31

the American Battlefield Projection Program, to promote the conservation of fields of conflict across the USA.[4]

US management in the face of development threats has been less effective. Where government land is involved or where the government is the developer then evaluation and recording prior to destruction is now normally taking place. On private land the mechanisms are generally far weaker than in England, though effectiveness varies between states and local authorities. Urban encroachment on major battlefields has been restricted on some sites by zoning, but there are far more cases where development has proceeded without restriction.[5] Thus, to take a site managed at a local level, in 2007 the Piedras Marcadas pueblo on the outskirts of Albuquerque, which contains exceptional battle archaeology from Coronado's campaign of 1540-1, was under threat from urban expansion. Since there is little potential for protection of the area beyond the city land, managed as part of the Open Space Visitor Centre, the main strategy under discussion is to restrict further encroachment by purchase of key areas of land.[6]

US battlefields also face an enormous and relentless threat from metal detecting. Even where detecting is banned, on the national parks and other state and locally managed sites, illicit detecting occurs.[7] Beyond park boundaries there is typically no control on relic hunting and extensive destruction takes place. Immediately outside the boundary of Shiloh National Military Park is a shop that sells artefacts collected from that part of the battlefield that lies outside the park boundary.

Threats

Threats to battlefields are both active and passive, resulting from human action and natural decay, respectively.

Land use change may affect the aspects of the terrain which survive as functioning features in landscape or are present as earthworks or buried remains. Then there are the impacts of decay, removal or mechanical damage upon artefact spreads, both in relation to their patterning and to the integrity of the individual objects that make them up. Among factors which influence the vulnerability of a site, proximity to built-up areas, with consequent exposure to tendencies for encroachment, infilling, and fragmentation of landholding – looms large.

[4] Greenburg, 1997
[5] Civil War Sites Advisory Commission, 1993
[6] Information from Dr Matt Schmader (Open Space Assistant Superintendent, City of Albuquerque)
[7] Information from Larry Ludwig (Park Ranger, Fort Bowie National Historic Site)

Development

Urban development, road construction and mineral extraction will destroy or occasionally mask the archaeology in the areas upon which they impact. Large scale earthmoving can transform the detail of relief and drainage. Such activity will also threaten other surviving aspects of terrain. Stripping and redeposition of topsoil will redistribute artefacts and so destroy the detail of spatial patterning. Even modest or small development can have large impact. Artefact patterning can only be fully understood through consistent recovery across a wide area, and the potential of a site may be significantly reduced through fragmentation even if substantial areas remain undeveloped. Hence in the Edgehill survey it proved impossible accurately to position all the battalions in the principal deployments, or fully to grasp important detail of the main infantry action, because the central area of the battlefield was so heavily disturbed and fragmented.

With this said, Edgehill has shown that where fragmentation has taken place a site can still have a high archaeological potential and may yield terrain or battle evidence critical to the validation of hypotheses on the location and nature of principal deployments and the character and distribution of the action. Such analysis of fragmented patterning should become increasingly practicable as detailed research on well preserved battlefields enables us to distinguish the finer detail of particular aspects of the action. Thus even poorly preserved battlefields, or poorly preserved areas on battlefields which are otherwise in good condition, may have research potential to justify recording when the remaining evidence is under threat. This is particularly true of early modern battlefields where relatively small areas of surviving battle archaeology in key locations may enable the testing of hypotheses or illuminate particular features of terrain.

Piecemeal land use change, such as the incorporation of parcels of a battlefield into gardens, will also cause fragmentation, render future survey impracticable, and expose the ground to small scale removal and redeposition of topsoil. If such change of use is to take place then prior recording should ideally take place beforehand to ensure that a battle archaeology data set is available.

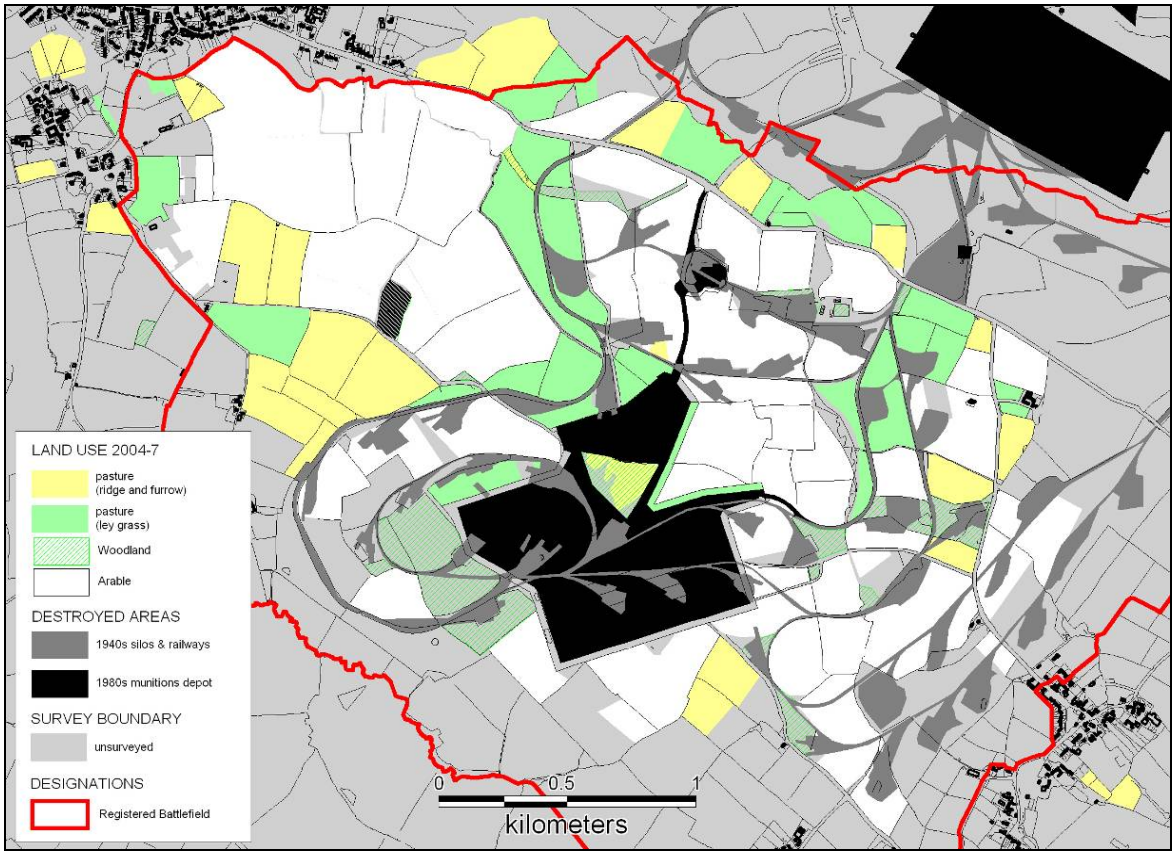

Figure 103: Edgehill battlefield in 2004-7: land use and state of development, showing the degree of fragmentation caused by the first phase of the munitions depot and the massive destruction of the core area of the infantry action by the modern depot

Fragmentation should be resisted, but if it does occur then the paramount need is for consistency between different episodes of survey.[8] To ensure compatibility of data, the intensive detecting of corridors across a battlefield should be preceded by a lower intensity 'base survey' (for 17th-century battlefields this can be at 10m transects) of all or at least a substantial part of each field traversed by the corridor, to enable future data sets to be effectively correlated to the detailed record for the corridor. This approach has been piloted in the present project on one field on Sedgemoor battlefield. Accurate recording of the extent of topsoil disturbance is also essential, so that the redeposited element of the artefact scatter is known for future survey.

Investigation of a battlefield poses needs that differ from those faced in most other evaluations. This is because the significance of an area can only be understood from the distribution pattern of metal artefacts over a wide area, not from a small corridor or even a single field. For example, an absence or very low density of artefacts need not mean that an area did not see significant action or that the scatter

[8] Foard, 2008a, 211-1

is not worth detailed recording. With a 17th century battlefield a low density scatter can often reflect a particular character of action that did not involve an intense or indeed any kind of fire-fight. Yet when the small quantity of bullets or other artefacts is viewed within a wider context, it may reveal essential information about the nature of that action as compared to adjacent sectors. Thus at Edgehill the royalist right wing cavalry attack left a very low density of bullets, but also a very distinctive assemblage of calibres and the patterning, which when viewed with the adjacent areas suggested the position and orientation of the parliamentarian cavalry deployment and the direction of the royalist attack. The resulting re-interpretation placed the deployment in a different location to any previously suggested.[9]

The 1995 guidance from the Battlefields Register suggested that 'small-scale ground disturbance such as pipeline laying is unlikely to diminish the value of battlefields'. We can now see that this is wrong. While it is true that the visual character of the site may not be compromised, for reasons already explained the archaeological effect can be significant. While the probability that a pipeline might destroy a stratified mass grave is low, it may well impact on terrain, and through large-scale topsoil disturbance will almost always distort patterning by the removal and redeposition of artefacts. As has been seen from Edgehill, distribution patterns that relate to firing lines and the firing of case from artillery can be highly specific. Thus the removal of topsoil over a 20m wide corridor could destroy the orientation of a case shot scatter. A good example of this is seen with the rail line on the Edgehill battlefield which has cut through the centre of the only such scatter so far identified on the parliamentarian left wing of cavalry. As a result, the orientation of the case scatter remains in some doubt; these data are critical to the exact alignment of the parliamentarian cavalry wing.[10]

Sedgemoor: a case study

To explore these issues a study was undertaken as part of the present project, in collaboration with archaeological contractors Context One, Somerset County Council and Wessex Water, to examine the impact of previous pipelines and to attempt more effective mitigation of new pipeline construction on Sedgemoor battlefield.[11]

Sewer pipeline data for the Registered area were provided by Wessex Water. The routes of water mains were not released as this is sensitive data, though the opinion expressed was that although the mains do impinge upon the registered area

[9] Foard, 2008a, chapter 5
[10] Foard, 2008a, 242
[11] Foard, 2003b

they ‘occur in areas of previous disturbance which may limit their impact upon the battlefield’. For existing sewer pipelines there is no record of the width of the disturbed areas; however, it was suggested there was probably removal of c.30cm depth of topsoil over a 15-20m wide working corridor and then a construction trench c.2-3m wide. For the present purpose a 20m corridor has been mapped spanning the recorded course of the pipeline.

The two early sewer pipelines cross the centre of the main action, on either side of the Bussex rhyne. In this central zone of the battlefield where most of the key action occurred, the pipelines have disturbed 5.1% of the surface area. Had the 2008 scheme gone ahead then this would have increased to 8.2%. Following evidence from previous terrain analysis and from an evaluation detecting survey, which demonstrated the wide extent of the battle archaeology in this central area, Wessex Water implemented a scheme comprising direct drilling. The only disturbance was the drill pits, thus limiting the impact to 0.5% of this core area.

The survey of the route was undertaken at 2.5m transects which proved adequate for an evaluation of the battle archaeology.[12] Had full recording been necessary then more intensive survey at 1m intervals with resurvey at 90 degrees would have been undertaken to ensure a sufficiently large sample of the total artefact population was recovered before destruction to enable the full character and pattern to be established. In an attempt to ensure that the data recovered from the evaluation of the corridor could be compared with any future survey data, a sample area of one field crossing the pipeline corridor was also surveyed at 2.5m transects and the two distribution patterns compared.

From this limited sampling exercise it is not possible to assess the degree to which the old pipelines have disturbed the battle archaeology. This may only be determined, if at all, after comparable systematic survey of the whole of the core area to seek any breaks in the patterning which correlate with the approximate pipeline corridors.

[12] McConnell, 2007; Foard 2008d

Figure 104: Sedgemoor: extent of destruction of battle and terrain archaeology by pipeline construction with mitigation for 2007-8 construction

It should also be noted how close one pipeline runs to the apparent location of the lower plungeon, which was one of two crossing points of the Bussex rhyne used by the royal army in their counter attack and is taken to be the gap in the line on the plan. Had the pipeline been just 15m further to the north-west then it would have passed through the plungeon. This would have destroyed most of the information about its character that in turn would be valuable in understanding its tactical significance.

Adwalton Moor: another case study

Adwalton Moor lies on the edge of the city of Bradford. Fought in 1643, it is one of the most threatened of all English battlefields. Despite intensive study, the extent of the battlefield and the exact location of key elements of the action remain uncertain.[13]

The battle began as the two armies encountered each other in the closes between Bradford and Adwalton Moor. The royalists had deployed their army and artillery on Adwalton Moor but according to Sir Thomas Fairfax had 'manned divers houses standing in the enclosed grounds betwixt Bradford and Atherton moor with musketeers, and sent out great parties of horse and foot by the lanes and enclosed grounds to give us fight . . .' Parliament's hope had been to advance up a hill to drive the royalists from the enclosures. The hill is named by another account as Wiskeard Hill, where the pub stands on Westgate Hill today. According to Slingsby the royalists at first stopped the parliamentarian advance, but then 'they come on fiercer, and beat the enemy (the royalists), from one hedge, from one house to another; at last they were driven to retreat and we (the royalists) recover the moor . . .'

Having driven back the royalists from the enclosures, the main body could at last deploy on the hilltop and then advance close to the royalist army, which was in open moorland, but staying within the protection of the enclosures. Fighting from the security of the hedgerows, the parliamentarians' advantage in firepower gave them the upper hand. When they ventured forward into the open ground where the royalists were deployed they were at a severe disadvantage, even if at least once during the action they drove the royalists right back to their own artillery, for they then had to retreat once more to the security of the enclosures. After successive royalist attempts to break into the enclosures were repulsed, and with the royalists about to retreat and leave the field to the parliamentarians, a final desperate royalist infantry attack supported with artillery fire and seconded by cavalry drove back the defenders on the parliament left. Here the sheer weight of numbers finally told. Thanks in part to the failure of the parliamentarians to commit their reserves, the royalist infantry and cavalry broke into the enclosures and the tables were turned. Now the cavalry were also able to outflank the parliamentarians on that side of the field. On the left and in the centre, parliamentarian resistance collapsed and they fell back in disarray north westward towards Bradford. On the right Sir Thomas Fairfax's forces were cut off and had to retreat, still in good order, south westward towards Halifax.

[13] Foard, 2003a; Johnson, 2003; National Army Museum, 1995

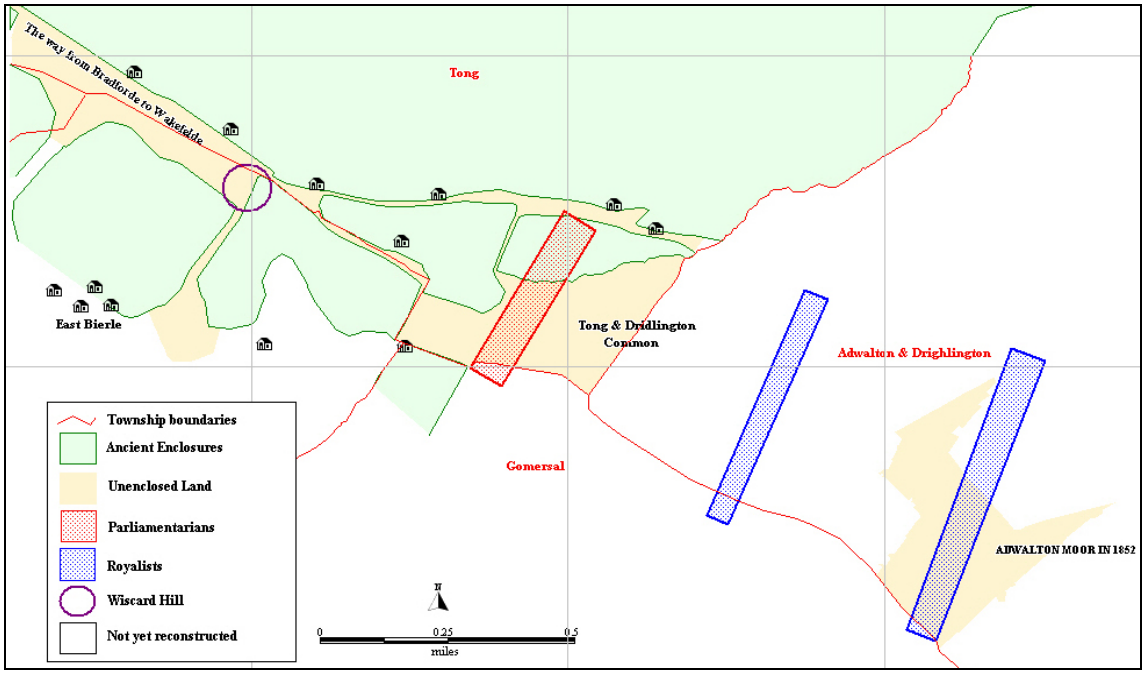

Figure 105: Adwalton Moor: terrain reconstruction of the western area of the battlefield in 1599 with the extent of Adwalton Moor on the eastern part of the battlefield from 1852 map (Foard 2003)

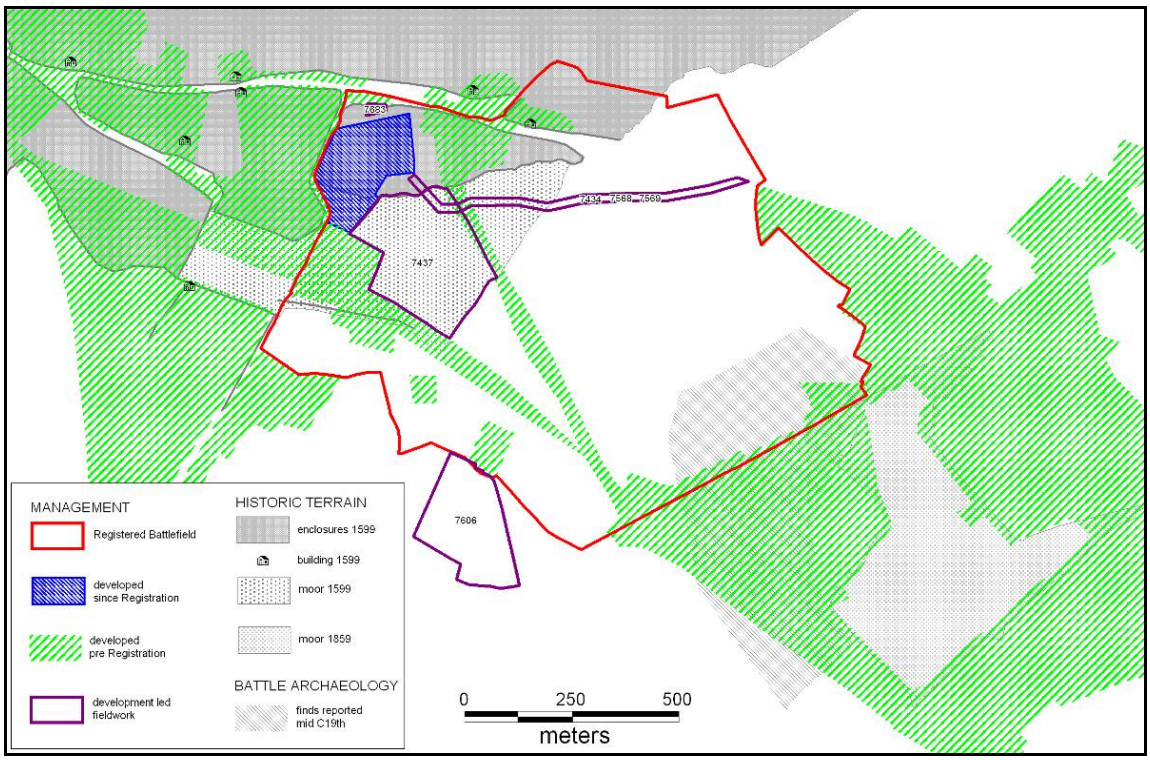

Figure 106: Adwalton Moor: state of development in 2007 (7683 & 7437: detecting survey; 7606: watching brief; 7568, 7569 & 7434: evaluation, watching brief and detecting survey)

The areas of former moorland, enclosures and buildings at the western end of the battlefield are where the initial fire-fight occurred. The main action probably took place on the western edge of Adwalton Moor as defined in 1852, though the exact

extent in 1643 of the enclosures immediately to the west has not been defined and they are not shown on our reconstruction. It is at this moor edge, on the west and south of the surviving piece of the moor, that Scatcherd recorded extensive battle related finds in the 19th century.

It can be seen that small areas of enclosures and moor on the western part of the battlefield still survive undeveloped. These fragments may contain sufficient evidence to locate securely the initial fire-fight, but most lie outside the Registered boundary. Similarly, on the eastern part of the battlefield a large tract of Adwalton Moor remains undeveloped yet is also excluded by the Registered boundary. Though the Moor is partly disturbed by early coal pits some of these might predate the battle, while substantial areas appear to survive undisturbed between the pits. Again, any surviving battle archaeology in this area could be decisive in fixing the location of the main action.

Adwalton Moor clearly shows the influence of the Register report and the Registered boundary in determining what is and is not achievable in managing a battlefield in the face of development pressure. The local planning archaeologist reports: 'The main problem with Adwalton Moor is that the area of the Registered Battlefield does not fully reflect the area of the battle. The eastern part of the battlefield, where the Royalists probably drew up on the ridge and repelled a Parliamentarian advance, is not within the Registered area.' [14] This area 'has relatively recently been landscaped into playing fields without any archaeological work carried out (as far as we are aware) although this was what we had recommended. We find it difficult to recommend refusal in these circumstances because the boundaries drawn by English Heritage are further west and English Heritage has conceded industrial development within the Registered area.'

There is also pressure for incremental development within the historic battlefield but outside the Registered battlefield, including house building in larger gardens within Drighlington. In some cases it has proved possible to achieve a watching brief and metal detecting survey, in several cases with positive results. A metal detector survey in 2003 at 163 Moorside Road, Drighlington, in advance of construction of 9 houses within the garden of a single bungalow, produced 6 musket balls, a possible spent musket ball or pewter cap, a decorative lock cover and 3 buttons. 'Within the Registered Battlefield there has been development pressure at the western end (within Bradford district) where English Heritage agreed development in the late 1990s. Archaeological work was carried out here although

[14] Information from Ian Sanderson

probably the methodology used & the degree of work is less than we would now wish to see. Unfortunately, English Heritage's agreement to development in this area has significantly weakened our case in trying to protect the Registered boundaries.' The pressure for development continued and in the early 2000s development proposals were made for the south western part of the Registered area, although this has not occurred. The additional pressures faced on an urban periphery are also seen at Adwalton where, in addition to development there have been other potentially destructive activities, such as the use for some years of one field on the battlefield for a go-kart track. Given the results from similar motor sport use on one field at Bosworth, where the vast quantity of modern artefacts made survey detecting impracticable, the battle archaeology in this field at Adwalton may also have been put beyond reasonable recovery.

Much of the work undertaken at Adwalton in advance of development has proved negative. This cannot, however, be taken as indicating that no battle archaeology existed, as the standard of the work has been variable. In some cases detecting was without retrieval of artefacts, and by modern standards the work was piecemeal and poorly documented. Adwalton demonstrates the need for guidance on good practice, and for comprehensive survey, to provide a context into which localized work may fit. Both reflect the need for an overall strategy for management and investigation.

Other land use and related changes

While the character of land use on many battlefields has changed since the time of the action, remnants of original character survive more often than one might imagine, especially where the action was fought in a largely enclosed landscape. Where features like hedgerows or walls that provided cover survive, they are vulnerable to what by ordinary standards would be considered to be minor changes, but in relation to the battlefield may be very significant.

Other activities can change the historic personality of battlefields. Among them is earthmoving, which may change the form of the land, for example by removing high points that provided important prospects or created tactically important dead ground. The insertion of new buildings or tree planting may affect the intervisibility of different parts of the battlefield. Cultivation can remove earthwork evidence of former terrain features, such as ridge and furrow, banks and ditches. Even if such features had no direct tactical significance, they are important for understanding of the character of the battlefield at the time of the action.

Tree planting can be an obstacle to survey. At Edgehill, for example, in Grave Ground Coppice, a key surviving area in an otherwise destroyed zone at the heart of the battlefield, it proved impossible to undertake consistent survey on 10m transects because of the close spacing of trees and the density of undergrowth and roots. Conversion of open ground to plantation threatens accessibility to battle archaeology, while coniferous plantations may also have an effect on soil chemistry.

Repairs or changes to buildings that were standing at the time of battle may diminish the total body of evidence if they involve stone or brick replacement on structures containing bullet and roundshot impact scars (see chapter 5).

There are two main types of landscape evidence that may be used to assist in the reconstruction of the battlefield: ridge and furrow and associated headlands from open field systems; and hedges, walls and ditches from enclosed field systems. In addition, on battlefields that were partly or wholly outside any field system, there may be particular types of evidence, such as drainage dykes, carrs and causeways that are sometimes encountered on lowland moors. Hence on Sedgemoor there are fragmentary earthworks and extensive buried evidence of the Bussex and Langmoor rhynes, pre-enclosure drainage dykes which were of key tactical significance during the battle (see chapter 5).

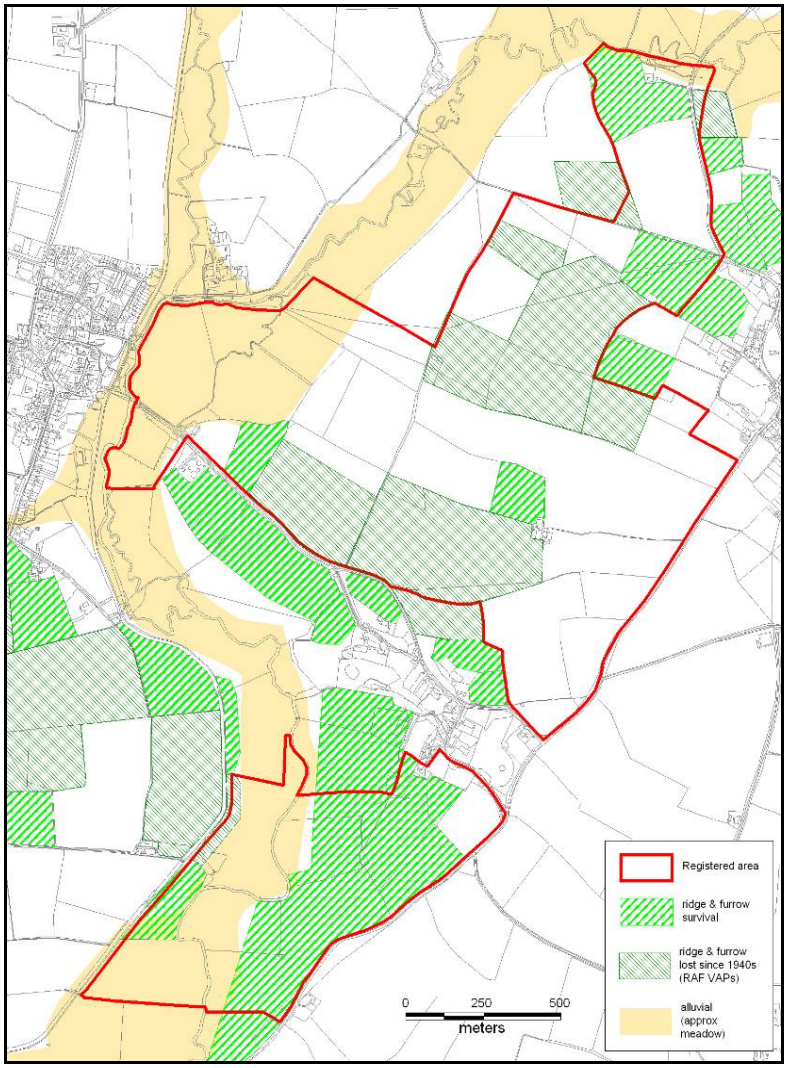

Figure 107: Cropredy: ridge and furrow survival 1940s and 2007

Lessons from Cropredy

A review of all Registered battlefields as they appeared on RAF vertical air photographs taken in the later 1940s has shown that a number of those in the Central Province[15] of open field landscapes still had extensive survival of ridge and furrow. These were Edgehill (Warwickshire), and Cropredy (Oxfordshire). Survival at Rowton and Nantwich (Cheshire) was also extensive. Bosworth (Leicestershire) and Naseby and Northampton (Northamptonshire) had significant though less complete survival, while several more had just a few fields, as at Stoke (Nottinghamshire). Today most of those earthworks have gone and there are just a few fields remaining on one or two of these battlefields. The occasional field can nevertheless still be of interpretive value because it typifies the form of the landscape at the time of the battle and so is worthy of conservation.

[15] As defined by Roberts & Wrathmell, 2000

Only one Registered battlefield, Cropredy, retains extensive continuous areas of ridge and furrow. Cropredy also had by far the most extensive survival in the 1940s.[16] In addition, a substantial area can be seen to have been meadow within the open field system, [17] with at least one field containing surviving palaeo-channel earthworks.[18] The Registered area at Cropredy is in two parts, reflecting the standard interpretation of the location of the action in two discrete areas. Re-examination of the primary sources and the very limited metal detecting survey so far undertaken (see p.00) suggest that action extended into the intermediate zone.

The degree to which ridge and furrow persisted long enough at least to appear on mid-20th-century aerial photographs is also a guide to the potential for reconstruction of the open field systems today. Field examination conducted by Hall for this project at Towton has shown that even the least promising of the former open field landscapes may still have sufficient survival of headlands, which, when taken together with other evidence, is sufficient to enable the reconstruction of the furlong pattern. Such reconstruction is important not only because it shows what areas of land were open, but also because it identifies the areas which never had furlongs because they were too wet or too steep and were left as uncultivated pasture, meadow, heath, moor or wood.[19] With this said, reconstruction is achievable with greater confidence and in much greater detail on better preserved landscapes, as at Bosworth or Naseby.[20]

Headland earthworks which survive in cultivated land suffer rapid destruction and require either reversion to pasture or recording. It follows that for those battles fought wholly or partly across an open field landscape, field survey should be considered to recover the evidence for the furlong pattern that is not available from air photographs or historic maps.

Ridge and furrow surviving in permanent pasture is vulnerable to arable conversion. In such cases, the only effective conservation measure in the long term is scheduling.[21] The highest priority is for the small number of cases where there is substantial survival, most notably Cropredy. Here enough survives to be of value also for the conservation of an open field system in its own right. Protecting the small number of fields surviving on some other battlefields would be primarily for

[16] RAF vertical air photos 1947: CPE UK 1994/1107, 1109 & 1019; CPE UK 1926/1072. Modern survival from vertical photography is available at http://www.flashearth.com/ and complemented by field inspection in 2007
[17] Evidence from alluvial deposits defined on the geological mapping
[18] The extent of meadow will be defined through a full reconstruction of the open field system
[19] Hall, 1995; 1982
[20] Foard, in preparation a; Foard, 1995, 212
[21] Hall, 2001

interpretative reasons but would have added value in that these are also likely to be the best preserved areas for artefact survival.

A small number of battles were fought across a largely enclosed landscape, elements of which – like hedgerows or walls – may survive, as at Stratton and Newbury I. There are more battlefields where limited areas of enclosure provided a critical tactical element, as at Adwalton Moor.

Assessment of the issue has not proved possible because work at Marston Moor, discussed in chapter 5, and at Edgehill has shown that, in the absence of documentary sources of the right date, it is not possible to prove the existence of some features. However, a reasonable hypothesis may be developed based on later documents, such as enclosure awards.[22] It is possible that on early modern battlefields the presence of such features may be proven by detailed study of the battle archaeology – for instance, if distinctive impact damage is found on bullets associated with a former boundary line where a major fire-fight took place. But this needs to be proven by research on an appropriate battlefield, such as Newbury I.

It appears from assessment of air photographs and field inspection that only rarely do substantial earthworks remain from such features. The best example may be at Lansdown where an extensive area of earthworks including banks, ditches, hollow ways and quarries seem to represent a significant part of the battlefield terrain, though no study has yet been made of them. Smaller areas exist on other battlefields, as with the village closes at East Stoke which appear to be associated with the destruction of the rebel army in the rout. Like ridge and furrow, all such features are vulnerable to conversion to arable and require protection where they are not already protected for other reasons, as with the existing scheduling of the East Stoke earthworks for their settlement history value. There will be many more battlefields where such features have been levelled but where buried evidence still survives in the form of ditches or foundations, though the aerial photographic assessment yielded only a few examples, as discussed above for Sedgemoor.

Cultivation and soil chemistry

For reasons explained in Chapter 4, land use and soil chemistry have a large influence on the rates at which metal objects decay. To recapitulate:

- Objects in topsoil are usually more vulnerable than those more deeply buried[23]

[22] Foard, 2008a
[23] Cronyn, 1990; Janaway and Wilson, 2006; and see chapter 4

- Decay in soils with a tendency to waterlogging and with high pH will tend to be slower than in soils that are well aerated or have a low pH. Decay's effects are greatest for ferrous artefacts, although in certain conditions other metal types such as lead can also be vulnerable.
- Decay is exacerbated by cultivation, which both aerates soil and inflicts mechanical damage; cultivation effects will be acute for artefacts already affected by other factors
- Fertilisers and other agri-chemicals can speed up decay, particularly through an increase in chloride levels
- Ploughing, especially subsoiling or deep ploughing, may in some contexts disturb artefacts that hitherto have been protected through secondary stratification (e.g. post-battle colluvial or alluvial build-up) or burial in other features such as remnant furrows (cf Towton, pp.105—113, esp.110-113).
- Exceptional deposits exist on a few battlefields. Peat may preserve pollen and macrofossils that will witness landscape character at the time of the battle, or occasionally may preserve artefacts of organic materials that were deposited during the action. Such deposits are vulnerable to drainage schemes.
- Where land has remained as pasture or otherwise uncultivated over a long period, or where there has been secondary stratification then artefacts may survive in exceptional condition. Research to predict such sites is a priority.

As a generalisation, arable cultivation threatens battle archaeology, and the condition of terrain and of artefacts within it will be roughly proportional to the length of time that cultivation has been taking place.

To generalise further is difficult, as many aspects of the subject are highly particularistic. For example, where the condition of artefacts is currently good this may mask a trajectory of rapid decay if the land has seen conversion to arable in recent years. Deep ploughing or subsoiling will have no greater impact than normal cultivation on most battlefields, but if there is secondary stratification then such activity will be highly destructive if it disturbs funds of hitherto well-preserved artefacts below normal plough depth. Artefacts recently removed from such protected zones may appear in relatively good condition at present but are likely to undergo rapid decay. This applies especially to ferrous objects which are likely to oxidise rapidly and so suffer total disintegration. In terms of scale of threat, our best estimate is such erosion is second only to artefact removal by metal detectorists.

Artefacts in land under permanent pasture are likely to be in far better condition. The conversion of pasture to arable is accordingly problematic. The

identification of battlefield areas that are now under permanent pasture should thus be a high priority, to enable the putting in place of measures to maintain their status.

Conversion of arable to minimal cultivation may also have benefits, though in some circumstances this will be more than offset by the periodic subsoiling that accompanies it. Arable reversion is the most positive step to reduce artefact decay, especially if there is also a halt to the use of chemicals. An incidental additional benefit to reversion is the protection that permanent pasture offers in the face of metal detecting: this is because of the tendency for artefacts to gravitate to the bottom of the topsoil making them more difficult to locate.[24]

Data are being collected to measure decay processes more accurately, [25] and so enable the ascertaining of varying degrees of vulnerability to inform management. [26]

Contamination

Battlefields can be archaeologically devalued by means other than direct damage or depletion. Contamination of a site with modern artefacts may render survey and/or interpretation difficult if not impossible. In parts of continental Europe 20th-century warfare has caused massive contamination with munitions and other debris, as for example noted in survey work on the battlefields of the Crimean war.[27] While nothing of this character is seen in England, there is a range of modern activities that can cause significant problems.

Of greatest concern is re-enactment, because the contaminants may be difficult to distinguish from historic artefacts. This problem will increase as knowledge about original manufacture advances, and skills in replicating ancient technologies improve. Further, the longer the reproductions are in the ground, the harder it will be to differentiate them from original objects. This will be especially true of ferrous artefacts, where high levels of oxidation are seen on most battlefield finds. These include the most important artefact classes on medieval battlefields.

In recognition of these and other problems, the US National Park Service prohibits all forms of ‘simulated warfare’ on their sites because they ‘create an atmosphere that is inconsistent with the memorial qualities of the battlefields and other military sites placed in the Service’s trust. The safety risks to participants and visitors, and the inevitable damage to the physical resource that occurs during such events are also unacceptably high when seen in light of the NPS mandate to

[24] Foard, 2008a, 212-214
[25] By R C Janaway, as part of the Bosworth project
[26] For example, of different metals, artefact types, contexts
[27] Wason, 2003, 167 and plate opposite 160

preserve and protect park resources and values.'[28] The NPS does, however, recognise the importance of re-enactment for the appreciation of historic events and so in some circumstances it does support re-enactment off the battlefield. This approach is followed by most US federal and state organisations with battlefield management responsibilities.[29]

Any activity which brings together large numbers of people on a battlefield as participants or spectators, together with the wide range of logistical support that accompanies major events particularly where camping is promoted, will also contaminate the site with modern artefacts. While these artefacts will rarely confuse the assemblage of battle archaeology in themselves, the modern coins, ring-pulls, tent pegs and other small items can come to outnumber the battle artefacts and so make systematic detecting survey difficult if not impossible.

Another activity which causes contamination is long term use for motor sport. One pasture field on Bosworth battlefield has been used for stock car racing, depositing a vast number of small non-ferrous items that put the area beyond survey.

While concern to maintain battlefields first and foremost as memorials to the dead is not as strong in England as it is in the USA (perhaps because the English battles were fought in the more distant past), the potential archaeological threat is just as great. The issue needs urgent assessment, for English Heritage and some other organisations and individuals responsible for battlefields and siege sites promote re-enactment on the original locations. On siege sites the National Trust has sponsored re-enactment at Corfe Castle; Hampshire County Council does so at Basing House, while English Heritage holds an annual re-enactment on the Hastings battlefield. Other battlefields which have seen on site re-enactment include Cheriton, Roundway Down and Worcester. There are also new interpretive schemes being developed, for example at Shrewsbury and Naseby, where regular re-enactment is intended.

The threat should be assessed by systematic sampling of the unstratified battle archaeology on Hastings and on one early modern battlefield which has been used for re-enactment, such as Cheriton or Roundway Down. This would provide data as to the quantity, character and condition of the contaminating artefacts already present, compared to the genuine battle archaeology. It would also provide a baseline against which future survey results can be assessed, when the reproduction artefacts will have suffered more sustained decay.

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[28] National Park Service, 2006, section 7.5.9 Re-enactment
[29] National Park Service Living History and Re-enactments Policy; information from Douglas Scott

Contamination: a case study

Limited assessment of contamination from other types of public event has taken place at Cropredy, where a significant proportion of the 1644 Cropredy Bridge battlefield has been used for an annual folk festival since the 1970s. The festival has been held in the same location throughout, including camping and parking fields as well as the event fields, and is thus ideal to determine the impact on battlefield archaeology.

Visual inspection gave no sign of ground disturbance. Small scale sampling was then undertaken to assess any masking effects of artefacts deposited by the Festival and its impact on the practicality of battlefield survey.[30] The site has been subject to some previous metal detecting but though the exact scale is uncertain it does appear to have been occasional rather than intensive and sustained. Three fields were detected along single transects: fields 1 and 3 on the Festival site and field 2 immediately across the river. All artefacts were recorded but none was removed in order not to further compromise the distribution of the battle archaeology prior to any larger scale survey.

Field	***Transect Metres length***	***Modern non ferrous finds***	***Metres per modern find***
1	425m	>32	13m
2	228m	11	21m
3	183m	34	5m

The Edgehill survey provides comparative data. There the number of metres per modern non ferrous find was typically greater than 100m, while even in close proximity to a modern farm the total reduced to only 40m per find. At Cropredy while the non-festival field produced double the maximum Edgehill density the festival fields produced up to 20 times the average Edgehill density. The impact of this upon systematic survey is thus likely to be massive. A more substantial survey should be undertaken of all of the fields at 10m transects to determine the full impact on the archaeological recovery pattern.

[30] Field inspection 19th May 2007. Metal detecting by L Macfarlane 29 August and 3 September 2007

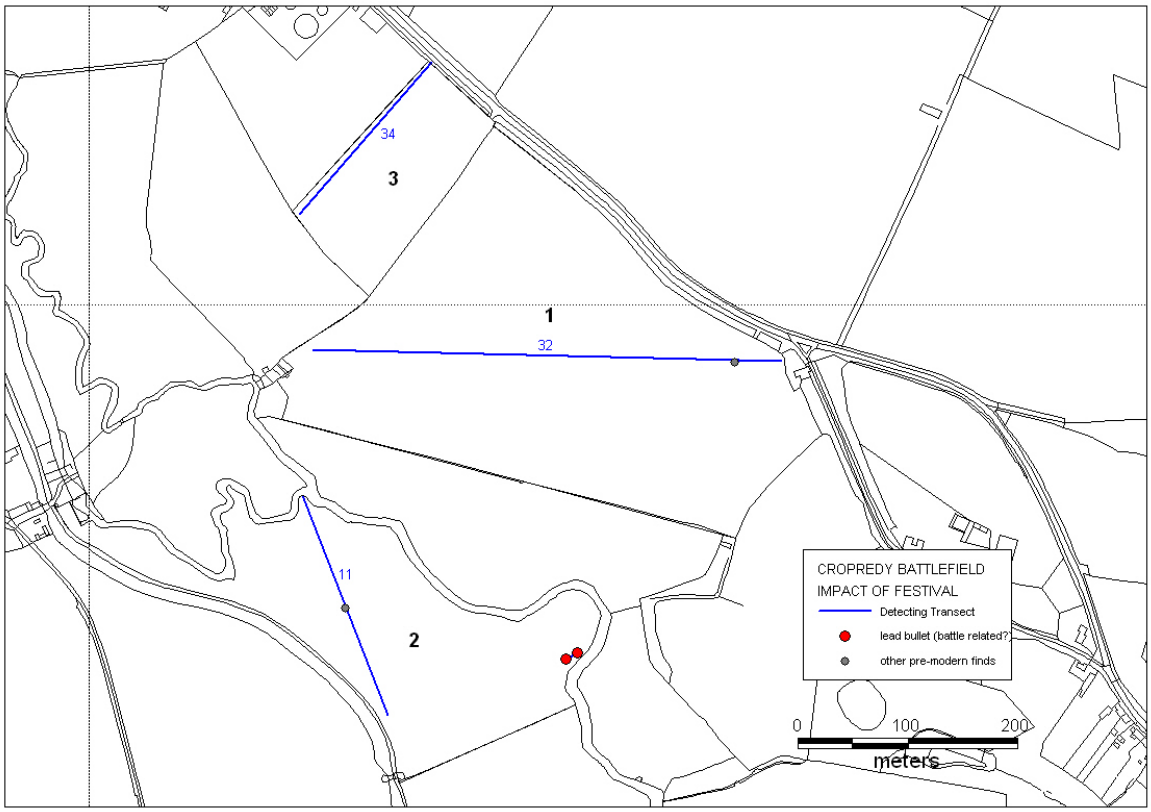

Figure 107: Cropredy: assessment of the impact of the Festival on the surveying of battle archaeology

Metal detecting

The greatest threat to battle archaeology is the removal of artefacts by metal detectorists outside the framework of an archaeological survey. Such detecting is problematic because

- The removal of artefacts leaves no record
- The interpretation of battle archaeology is heavily dependent upon the relative densities of artefacts across the landscape, so any unrecorded removal is significant
- Battlefields are exceptionally vulnerable among archaeological sites because almost all evidence is in the form of spreads of metal artefact

The threat divides into two main kinds: (a) treasure hunting, which may be for the development of private collections or for sale; and (b) survey which departs from current best practice in battlefield archaeology.

Reports from the Portable Antiquities Scheme, several museums and HERs, together with published and anecdotal evidence suggest that many if not most

battlefields have seen metal detecting, although the scale is largely unmeasured.[31] Battlefields where non-archaeological detecting is known to have taken place include Marston Moor *2; Sedgemoor *2; Naseby; Stratton; Shrewsbury; Barnet; Cropredy; Towton *2 (plus many other occasional detectorists working without permission); Cheriton *3; Edgehill, though only peripheral; Blore Heath.[32]

The single most constructive action for the conservation of battlefield archaeology will be the introduction of a licensing scheme for metal detecting on the Registered areas of battlefields, with approval given only for survey that is undertaken to the current best practice.[33]

Though licensing may not stop nighthawks, this is not where the main threat lies. With the exception of one or two sites, such as Towton, most battle archaeology consists of lead bullets and other artefacts which individually have a relatively low value. As in the USA, illicit detecting will still occasionally occur on protected ground; indeed, there are already reports of illicit detecting on the Scheduled area of the Basing House siege site. However, it is normal metal detecting that causes the most destruction and here a licensing scheme should be largely effective, because most metal detectorists, rally organisers and detecting club officials are law abiding and will respect the Register restrictions.[34]

Rallies

Metal detecting rallies pose the highest profile threat to battlefields: those held at Marston Moor led to Parliamentary questions and national press coverage. Not all rallies on battlefields have resulted in such a high level of reaction. Some, like Nantwich, have gone almost unnoticed.

At least four rallies are known by the Portable Antiquities Scheme to have been held on battlefields. The first, at Marston Moor, was held on 13 September 2003. Following discussion between English Heritage and the Portable Antiquities Scheme there were Finds Liaison Officers present to conduct recording, the data being entered onto the PAS database.[35] In response to a question in the Lords, Lord McIntosh of Haringey responded thus for the Government: 'My Lords, I agree with all that the noble Lord says. It is why we have a review that includes historic battlefield

[31] Smith, 2004-5; Bailey, 2001
[32] Newman and Roberts, 2003 & FLO; HER and FLO; Foard, 1995; FLO; landowner; information from Andrew Coulston; landowner; information from T Sutherland & West Yorkshire FLO; FLO; landowner; Staffordshire Museums
[33] DCMS, 2008, clause 161
[34] Information from Alan Turton, Hampshire County Council
[35] Keyes, 2003; recording by S Holmes and D Evans, then the North and East Yorkshire Finds Liaison Officers, respectively

sites as part of the general subject of listing and scheduling. At present, it is entirely unsatisfactory that we can do nothing about battlefields, metal detectorists or anybody else, if they operate with the permission of the landowner and avoid scheduled sites.''[36]

Despite the furore over the first rally, two years later a second was held, on 27-29th August 2005, on another area of the battlefield, again promoted locally by the same landowner to raise money for charity. Despite approaches by English Heritage and others the rally went ahead, this time impinging on the Registered area. This rally involved about 300 detectorists and affected 540 acres, though it did see more substantial recording by Finds Liaison Officers. There were a number of potentially battle related artefacts reported for recording among which were 60 bullets, including at least one case shot, 1 roundshot and 1 sword hilt guard. In addition, 136 other post-medieval finds, 37 coins from a hoard and 7 other coins were recorded. Where possible GPS was used to record find locations, using volunteers assistance, and this enabled a partial distribution plan to be compiled. There is no distributional evidence for the 2003 rally and only a small proportion of the bullets recovered on that occasion are believed to have been shown to the Finds Liaison Officers present, although there are reports of more than a hundred bullets having been found.[37] The 2005 data are more informative, for they show that some action occurred well to the north of the published scatter and well beyond the Registered area. However, it is not known whether all bullets found were reported or whether the concentrations reflect the intensity of detecting rather than a genuine concentration of action. In addition, there is recorded detail for each find is inadequate, because the bullets were not examined and reported upon by an appropriate specialist. The bullets were taken away by the detectorists and thus dispersed, so that it is not possible to return to the material for re-analysis.

[36] Hansard, 17 September 2003, 230917-02 http://www.publications.parliament.uk/pa/ld200203/ldhansrd/vo030917/text/30917-02.htm
[37] Information from Tim Sutherland

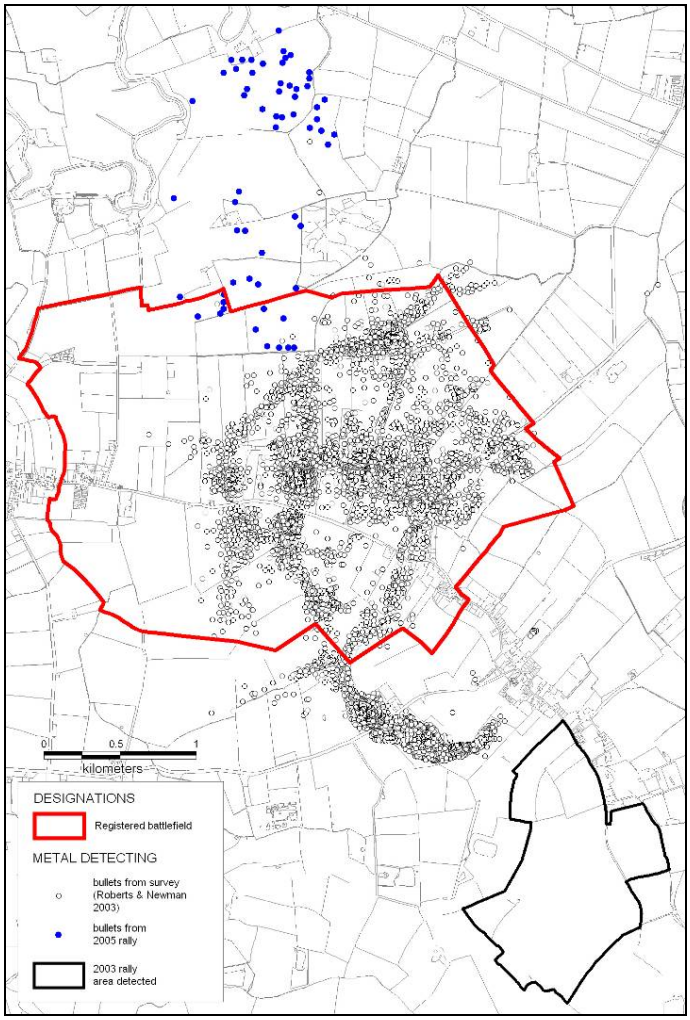

Figure 108: Marston Moor detecting rallies compared to published battlefield finds and Registered area

A rally took place at Newbury in 2004, on the north part of the battlefield, without any awareness by battlefield archaeologists and with no recording because the involvement of the Finds Liaison Officer was rejected by the organisers.[38]

On 5 August 2007 a rally was held at Nantwich in the heart of the Registered area, again without the knowledge of battlefield archaeologists and the event went ahead with no concerns expressed, although the Finds Liaison Officer was able to undertake recording.[39] Another two rallies are reported to have been held outside the Registered area but close to Acton church, where a battle-related fire-fight is demonstrated by the impact scars on the structure (see below). Unreported rallies on

[38] Information from Sally Worrell, paper to Battlefield Archaeology seminar held by the Battlefields Trust at the Royal Armouries, Leeds, 2005
[39] Information from Frances McIntosh, FLO for Cheshire

other battlefields may have taken place.[40] The main reason for archaeological awareness of the Marston Moor rallies was coincidence – a battlefield archaeologist lived nearby.

In the absence of any national consultation mechanism for battlefield issues, and with no general guidance available for archaeologists, variable response to this large threat it is not surprising.

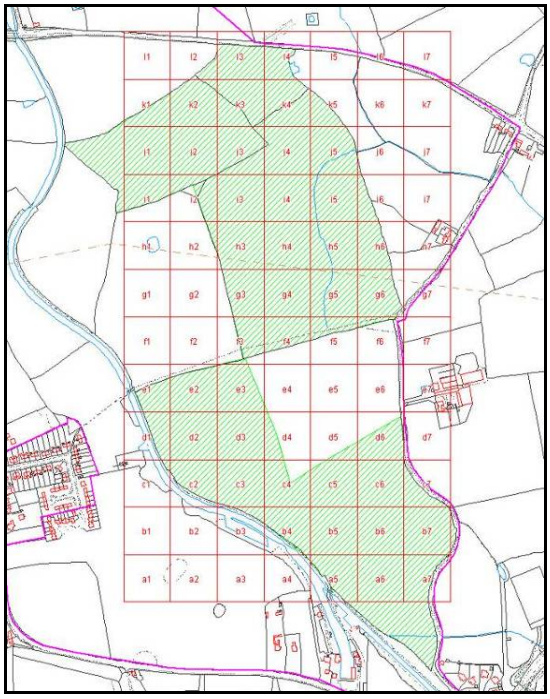

Figure 109: Nantwich: Registered Battlefield outlined in pink, extent of 2007 metal detecting rally shaded green and the recording grid in red

Other treasure hunting threats

Most detectorists have a genuine interest in finds, and some who detect on battlefields do so for the thrill of discovery and to build up personal collections. What usually is missing is an understanding of the significance and potential of spatial context. A few detectorists retrieve material to sell for profit. Whatever the motive, the archaeological impact will almost always be loss of evidence, even if the finds are reported to the Portable Antiquities Scheme.

Detectorists have been developing collections from battlefields for several decades,[41] but in recent years sale of artefacts has increased, or at least become more obvious, with the advent of eBay where English battlefield finds are now regularly on sale. For example: on 17 September 2003 a search of eBay returned

[40] Evidence for the rallies reported here comes from consultation with the Portable Antiquities Scheme and with English Heritage Regional Inspectors. None was identified in the HER consultation

[41] E.g.: Bailey, 1992a; Bailey, 1992b

four lots: five bullets and six bullets from 'near' unnamed Civil War battlefields; five from Newark and three from Naseby. On 29 January 2008 another search returned 14 lots comprising 'musket balls' in groups up to 20 bullets, and one including a half pound iron cannonball. These included finds specified as coming from Cheriton battlefield and the siege sites of Newark and Pontefract Castle.

There is online encouragement for such activities in various forms. This example reproduced information from the Battlefield Trust online Resource Centre:

> 'Posted by ricey on December 22, 2006 11:54 pm: I continue my blog on famous battlefields in England. Although as I have explained previously it is often illegal to Metal Detect on these fields, there is absolutely nothing wrong in contacting land owners in the vicinity and ask if you can detect on their land.'[42]

Battlefields form part of the portfolio of sites used by commercial business that run metal detecting holidays[43] and related events, occasionally advertised on the internet.[44] Battlefield detecting is also occasionally organised by metal detecting clubs as 'club sites', as for example with the baggage train area at Marston Moor where a Manchester metal detecting club detected with about a dozen people at a time in the late 1990s and early 2000s.[45]

Most often, however, battlefield detecting is undertaken by an individual or several friends working together. Some detect on a battlefield without realising the significance of the land or their finds and most collect the material with little or no understanding of the archaeological evidence that they are destroying. Indeed discussion with detectorists often reveals the 'bullet bucket' where they collect their 'musket balls', for though they are treated largely as junk they are normally still collected, and while most are probably not from military contexts, some are.

Battlefield investigation

We argue that metal detecting below standards of best practice is a serious problem. A small number of detectorists have developed a special affinity for certain sites, in some cases detecting on them years or decades. The cumulative impact of such activity is far greater than a single rally. Published evidence for Marston Moor shows that the scale of removal can be very substantial.[46]

The greatest losses of information occur when little or no record other than a sketch plan is produced. Although in the 1990s such an approach could be argued to

[42] http://detecting.merseyblogs.co.uk/english_battlef/
[43] E.g.: www.metaldetectingholidays.co.uk
[44] E.g.: 'Hands on History' tours where groups pay to detect on 500 acres of Lansdown battlefield: http://website.lineone.net/-handsonhistory, 14 December 1999
[45] Information from Paul Roberts
[46] Newman and Roberts, 2003; Foard, 2007b

have been beneficial in raising awareness of the potential of battle archaeology, there is no longer any justification for such collecting.[47] Subsequently several detectorists have adopted GPS to record the location of each find, and where this is combined with individual bagging and submission for specialist analysis the resultant increase in information is substantial. However, this still does address the full problem, for the removal of some artefacts from the ground will affect the populations of artefacts that remain, and thereby impinge on the fine detail of patterning which is critical to interpretation.

Further loss of information occurs if the collection method is not consistent or systematic, and where the recovery process itself is not recorded. This is because a significant proportion of the evidence relates to the relative density of artefacts, which in turn is influenced by the relative intensity of survey. An impression of the way in which this can distort distribution patterns can be generated from the Edgehill 2004-07 survey by comparing the density pattern for lead ball recovered in the consistent base survey at 10m transects, with that from all survey work, which includes intensive re-survey of specific areas. The latter create false concentrations and relative densities are heavily distorted.

Figure 110: Edgehill Survey 2004-7: lead ball from base survey at 10m transects only

[47] E.g.: Foard, 1995, esp. 275-279

Figure 111: Edgehill Survey 2004-7: lead ball from all survey work

The published data for Towton are of great value, not least because a lot of them derives from GPS-recorded find locations. Equally, they provide a further example of the difficulties which can arise from non-systematic data collection.[48]

There is clear patterning within the published artefact scatter, but the extent of the scatter is not related to a survey boundary. Hence, it is not possible to tell blank areas representing an absence of evidence from blank areas that represent absence of survey. There are no data on the intensity of survey in different areas of the site, so it is not possible to determine the degree to which the intensity of the scatters is related to the actual density in the ground as opposed to the intensity of survey. The problems this poses can be seen when interpretation of the distribution is attempted. For example, the absence of material on the eastern part of the site could represent important information about the character of the deployments and the distribution of the action. On the eastern periphery, where the evidence of open field furlongs is absent, the ground was undoubtedly boggy and probably partly under trees, for here the area of silts and clays is associated with several carr names where woods existed in the 19th century.[49] However, the intermediate area between the carr and the easternmost extent of the published artefact scatter is more problematic. It seems inconceivable that the two armies would deploy leaving their flanks unprotected, especially with a major road present, for they would be vulnerable to an outflanking manoeuvre. If this is a genuine gap in the scatter then it is probably where cavalry

[48] The artefact distribution presented here is compiled from plans in Sutherland, 2005 and Sutherland, 2007

[49] Saxton cum Scarthingwell, 1849 Tithe map (Borthwick Institute) and Enclosure award and map (West Yorkshire Archives Service QE 2/6) and; Ordnance Survey 1st edition 6 inch

were deployed, for a cavalry action on one flank is documented in which with the Lancastrian army (on the north) drove off and pursued the Yorkist cavalry to the south. Such a quick cavalry clash is unlikely to have deposited a significant number of finds compared to the intense and sustained infantry engagement further west. In contrast, on the west there is no such gap until the steep scarp down to the Cock beck which would have provided the Lancastrians, who deployed first, with protection for their right flank. The gap in the scatter on the western spur has been suggested as the location of a wood, but Hall's reconstruction of the open field system suggests that the only woodland here will have been on the steep scarps and that the absence of finds could simply be an absence of action due to the nature of the deployments, not the terrain.

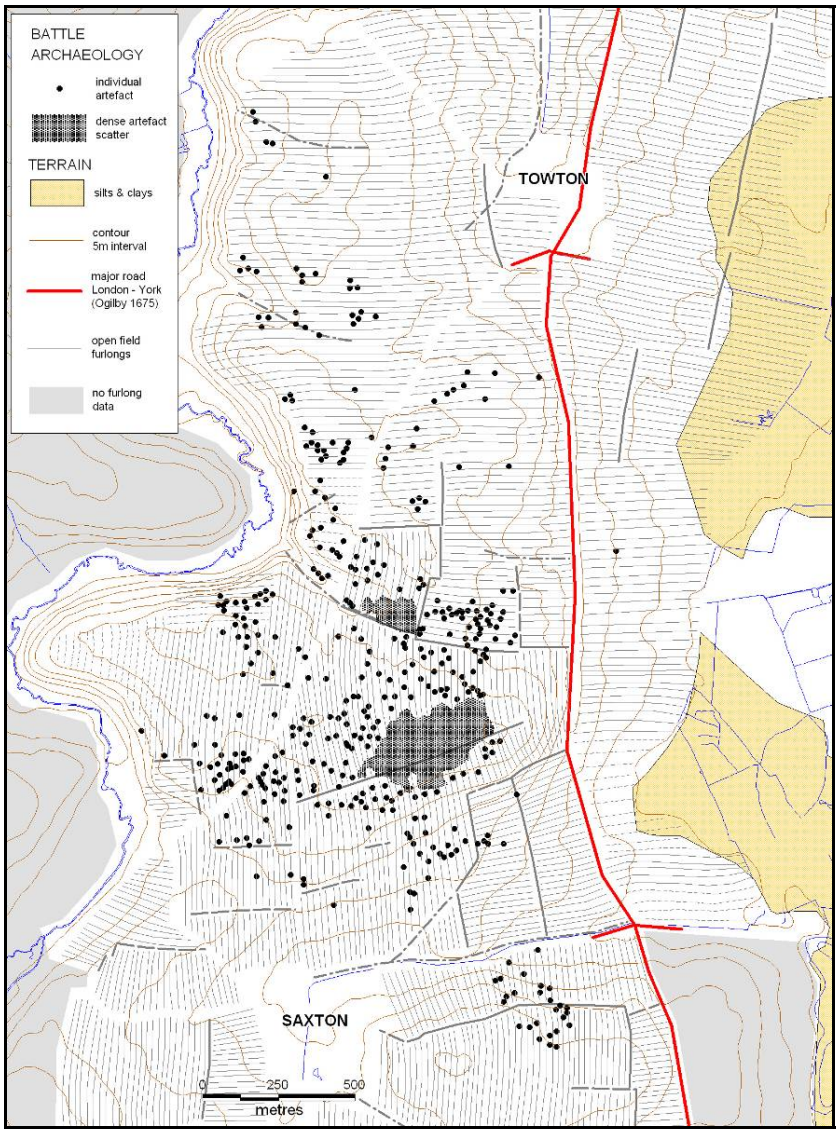

Figure 22: Towton: published artefact scatter with terrain evidence (furlong data from D Hall survey 2008)

Research is required to quantify the scale of loss from treasure hunting and non systematic survey, and to determine how to assess what information can be salvaged from sites that have been affected. This work would need to establish, on a site that has not seen unrecorded detecting such as Edgehill, the total population of artefacts in a sample area of soil relative to the numbers recovered from that area.

Such data would have far-reaching implications for the wider interpretation of battlefield survey data. There is also the need for further fieldwork on sites which have suffered large scale artefact removal, to assess likely loss rates by comparing densities and distribution patterns between contiguous areas that have and have not suffered artefact removal.

The Portable Antiquities Scheme is doing valuable work in recording battlefield finds, undertaking recording at some rallies and working with individual detectorists as well as assisting in several battlefield surveys.[50] However, this is just a small element of the Scheme's wide remit, and it is not surprising that many battlefield collections have not been seen or recorded by them, or that, where they have, the FLOs do not always have the specialist knowledge needed to get the most from them.

Before it is too late, therefore, a record should be compiled of finds from past metal detecting on battlefields. It is now over 40 years since metal detecting became a significant hobby, and as time passes some collections will be dispersed or farmers change such that all memory or record of removal will be lost. There is, therefore, an urgent need for a programme to establish what metal detecting has already happened on and around each battlefield, its intensity, extent and, as far as possible the character of the assemblages removed. The value of this information is not simply in knowing what has been removed or from where, but also to assess the degree to which the population of what survives on the battlefield has been biased.

It is sometimes argued that metal detected assemblages from battlefields are of no value if each object is not accurately and individually located.[51] This is wrong, for it has been clearly demonstrated that assessments of such assemblages to show the relative proportions of different calibres of bullet, as recorded on a calibre graph, together with the relative proportions of different types of bullet and ancillary artefact such as powder box caps, yield important information when interpreted with care.

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[50] Report by Sally Worrell of the Portable Antiquities Scheme to a seminar on battlefield archaeology held by the Battlefields Trust at the Royal Armouries, February 2006; and information from Sally Worrell, 2008

[51] Comments by Bo Knaarstrom, Swedish National Heritage Board, at ESTOC seminar on battlefield archaeology, Oudenaarde, November 2007

Information and guidance

Information on fields of conflict is at resent provided in two main ways: through the Battlefields Register and through inclusion in an Historic Environment Record. If a site is not on the record, if the location is wrong or if its extent is unknown or inaccurately delineated, then capacity for effective response to threats will be poor.

The Battlefields Register

The English Register of Historic Battlefields was published in 1995. It remains unique in Europe in identifying battlefields of national importance which should be managed to secure their research and interpretive value.[52] Building upon this pioneering initiative, a new generation of battlefield conservation measures is being developed in Scotland and Ireland. In England the Register has raised awareness, and has had notable successes in the conservation of particular battlefields, as for example at Tewkesbury.[53] But its non-statutory status has meant that some of threats, already identified in 1995, have not been effectively countered. This is particularly true of metal detecting, which as we have already seen remains the greatest threat to the archaeology of medieval and early modern battlefields. Other threats that did not seem significant in 1995, like pipeline construction, can now be seen as problematic (above, p.211ff).

The Register is about to be integrated with other historic environment designations into a single Heritage Register for England. Given the major advances that have taken place in understanding of battlefields since the Battlefields Register's publication, it is thus timely, as well as urgent, for registration criteria to be reviewed. Updated guidance about the Register should be issued which takes account of advances in understanding of archaeological and terrain evidence, and clarifies the limitations in current knowledge. While the licensing of metal detecting on battlefields is the main provision needed, there are other specific resources that would benefit from systematic identification and better stewardship through the new framework. The mass grave at East Stoke and the bullet impact scars on Action church are examples.

The need for review was predicted in the original publication.[54] Advances made since, especially in relation to the early modern period, demonstrate both the potential and need to enhance and expand the Register. For earlier periods the

[52] English Heritage, 1995. Registered Battlefield reports are available online at: http://www.english-heritage.org.uk/

[53] Public inquiry heard March 1998, result announced March 1999

[54] 'The Register will evolve over time as new evidence emerges or as circumstances change on Registered battlefields. Our advisory panel will review the situation periodically and, when appropriate, we will issue revisions or supplements to the Register.'

implications of recent work are less definite, suggesting the need (for instance) to be more cautious with regard to the sites and delineation of medieval battlefields. The absence of adequate baseline data against which to monitor both short term change and long term trends in the condition of the battlefield resources should also be noted.

Scope of Register

In 1994-5 a total of 71 actions was assessed for inclusion on the Register. Of these 43 fulfilled the criteria and were Registered; a further 13 were classified as battle sites, 8 of them being considered in too poor a condition to justify inclusion on the Register, while a further 5, although located in general terms, could not be defined with sufficient accuracy to enable inclusion. The remaining 15 were discarded as it was not considered that they could be classified as battles and the primary objective of the Register was to conserve battlefields. For inclusion on the Register the battles had to meet key criteria:

- Political significance: its impact should be traceable nationwide
- Military historical significance: it saw the use of tactics of particular note
- Biographical significance: it was the crowning glory of a military career, or where a famous leader was killed or captured

Advances in understanding and the consequent potential for more effective management argue for re-assessment of some of the battles that were excluded from the Register, of which Lostwithiel represents only the most important example. However, given the character and scale of the evidence demonstrated above for siege sites, and to be expected for skirmish sites of the early modern period there is a strong case for a review of the Register to ensure that it includes a representative sample of all significant types of field of conflict which have an archaeological dimension.

Skirmishes and other lesser engagements were to be excluded in 1995 although Powick Bridge and Chalgrove, which are generally agreed to have been skirmishes, were included. While the current work has not indicated that there is a priority for the registration of further skirmishes, it is possible that exceptional preservation of evidence may be found on some skirmish sites in the future, and that this might warrant their inclusion.

Engagements which did not include recognised military units and incidents of civil unrest were also excluded; nothing in the present study suggests that this should be reconsidered.

In 1995 sieges were recognised as potentially of national importance but were excluded from the Register because, at that time, it was believed that 'they are usually associated with physical remains which can be conserved through existing statutory mechanisms such as scheduling or listing'.[55] This report shows, at least with regard to early modern sites, that sieges have many characteristics in common with battlefields and require similar conservation measures, in addition to what can be achieved by scheduling and listing. Moreover, while bullet impact scars could be embraced by Listing or Scheduling, they can only be so on the basis of a clear recognition of their presence and significance. (Straightforward like-for-like stone repair, for instance does not call for Listed Building Consent.) Defensive works, siege-works and related evidence, most particularly the scatters of impacted and unimpacted bullets and other munitions within or close to the defensive works, may effectively be taken in by a Scheduled area, but only with practical effect if their presence is catered for in schemes of management (cf Kenilworth: chapter 5). Evidence in the ground beyond the defences, however, is both vulnerable and unprotected, except occasionally where there are siege works. Here there are the same issues of visibility as occur on battlefields, though in this case between batteries or siege-lines and the defences, fields of fire and so forth.

Most in need of protection, again as on battlefields, are the bullet scatters that are to be expected to extend out to 500m or more from the defences, as demonstrated at Grafton Regis. Following the discussion of Morton Corbet (chapter 5) it is recommended that the character of archaeological assets of sieges be adequately defined so that a nationally important sample can be selected for inclusion on the Register.

[55] English Heritage, 1995

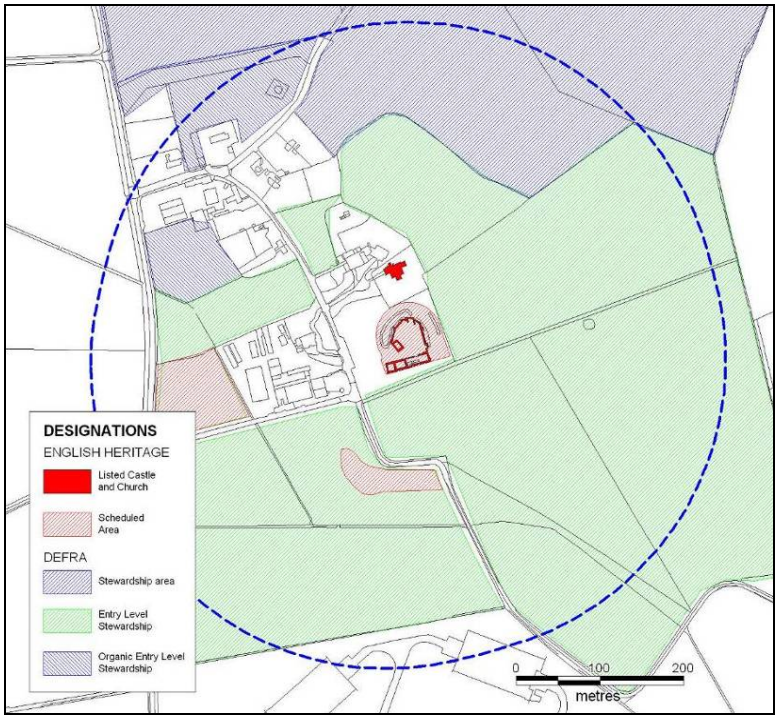

Figure 3: Scheduled and Stewardship areas at Morton Corbet relative to the probable maximum final range of a musket fired point blank from ground level from the castle (350m based on the Ashdown 2007 firing experiment: Foard, forthcoming)

Accuracy of Register boundaries

The boundaries drawn in 1995 were delineated on the basis of 'evidence of documentary, archaeological and topographical and landscape history' that was then available, to encompass 'the outer reasonable limit to the area within which the bulk of the fighting took place'.

We have visited all 43 Registered battlefields, in each case re-examining the evidence presented in the National Army Museum battle reports and the CEI landscape reports. For some, we have supplemented the terrain evidence with additional historic map data, and use has been made of archaeological data where this is now available. In a number of cases the evidence indicates a need for revision of the Register boundaries.[56]

Redefinition calls for effective methodology, which will vary according to period. For reasons already discussed, only terrain analysis has been demonstrated as effective on earlier battlefields: the validation and enhancement of boundaries of medieval battles will thus require further methodological development. For early

[56] A subtle but important point is that after revision, the boundaries of a given battlefield, while improved, will not be definitive

modern battles, on the other hand, an integrated method of analysis of historic terrain and battle archaeology works successfully.[57]

For Sedgemoor, analysis of the terrain appears to confirm the general accuracy of the Register boundary, and this is supported by the limited archaeological information that is currently available. However, it can be seen that the important crossing of the Langmore rhyne is excluded from the Registered area. This is a key feature, for it was the problems caused by the narrowness and invisibility of the crossing in the darkness that disrupted the rebels' clandestine night attack. Also, it would appear from results of as-yet unpublished metal detecting that some action from the rout of the rebel forces may lie beyond the boundary to the north west.[58]

It is unclear how many other Registered areas are similarly near-accurate, but the majority of the examples for which good evidence has been obtained appear at least to call for partial review. In some cases, while the great part of a battlefield is inside the Register boundary, limited but potentially very significant exclusions have been identified. Edgehill provides the most secure example as it has the most comprehensive data set for any English battlefield.[59] Here, based on the new analysis, it would appear that the Registered boundary includes all the core cavalry and infantry action and much of both royalist and parliamentarian rout, the latter including various subsidiary actions. However, only part of the attack on the parliamentarian baggage train in Little Kineton has been included within the boundary. Although the full extent cannot be defined today because survey here is incomplete, it is important that the whole area should be included on a precautionary basis, as village infill presents a significant threat. On the northern edge of the battlefield the probable extent of the royalist dragoon action, taking the hedgerows at the beginning of the battle to facilitate Rupert's attack, may be partly excluded, although, again, incomplete survey makes it impossible at present to determine the extent. On the south the boundary seems likely to take in all the action on that flank, while on the south east it is likely to include most of the royalist infantry rout as well as the meadow area where their army initially assembled. Uncertainties over the exact definition of boundaries, even in such a well studied battle as this, are highlighted by the recent find of isolated case shot, made further to the south east on

[57] Foard, 2008a; ascertaining battlefield extent through low level sampling still requires further pilot work

58 Information from John Pettet. A detailed study of this wider distribution of battle archaeology, based on Pettet's non-archaeological metal detecting survey, is in preparation by Natasha Ferguson as part of her PhD at the University of Glasgow

[59] Foard, 2008a

the lower slopes of Edgehill, suggesting close-quarter action involving artillery beyond the Register and survey boundaries.

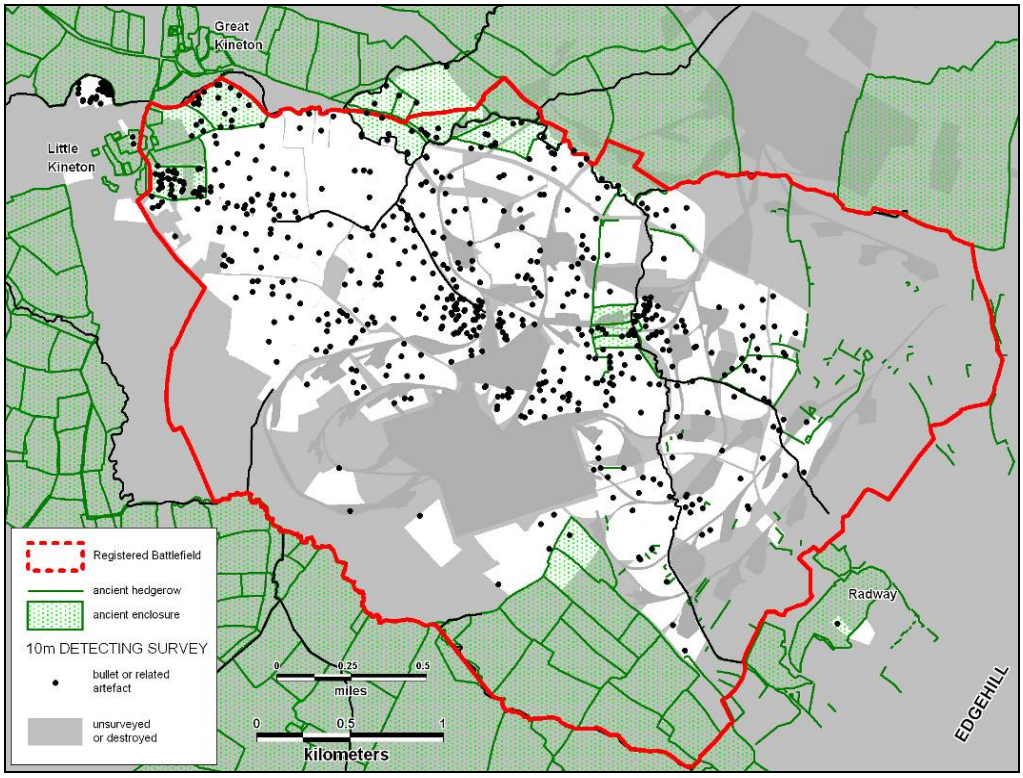

Figure 14: Edgehill: Registered Battlefield boundary compared to the historic terrain and the 10m transect base survey of the battle archaeology (Foard 2008)

Several other battlefields also have extensive battle archaeology which demonstrates that substantial action extended well beyond the Registered area. In these cases, however, the data are less reliable than those from Edgehill, and while they show that the boundaries require adjustment, they are not sufficient to show exactly where the new delineations should run. At Naseby the Registered area includes the initial action and the attack on the parliamentarian baggage train. However, the bullet scatter runs for over a mile further to the north and, supported by terrain analysis and reinterpretation of the primary written sources for the battle, suggests that the destruction of the royalist infantry, including the plundering of the royalist baggage train, took place over a much wider area.[60] This destruction was a critical outcome of the battle. While the detail, particularly the narrow width of the spread and the lack of pistol and carbine calibre bullets, raises questions as to the precision of the definition, the length and significance of the spread are not in doubt.

[60] Foard, 1995

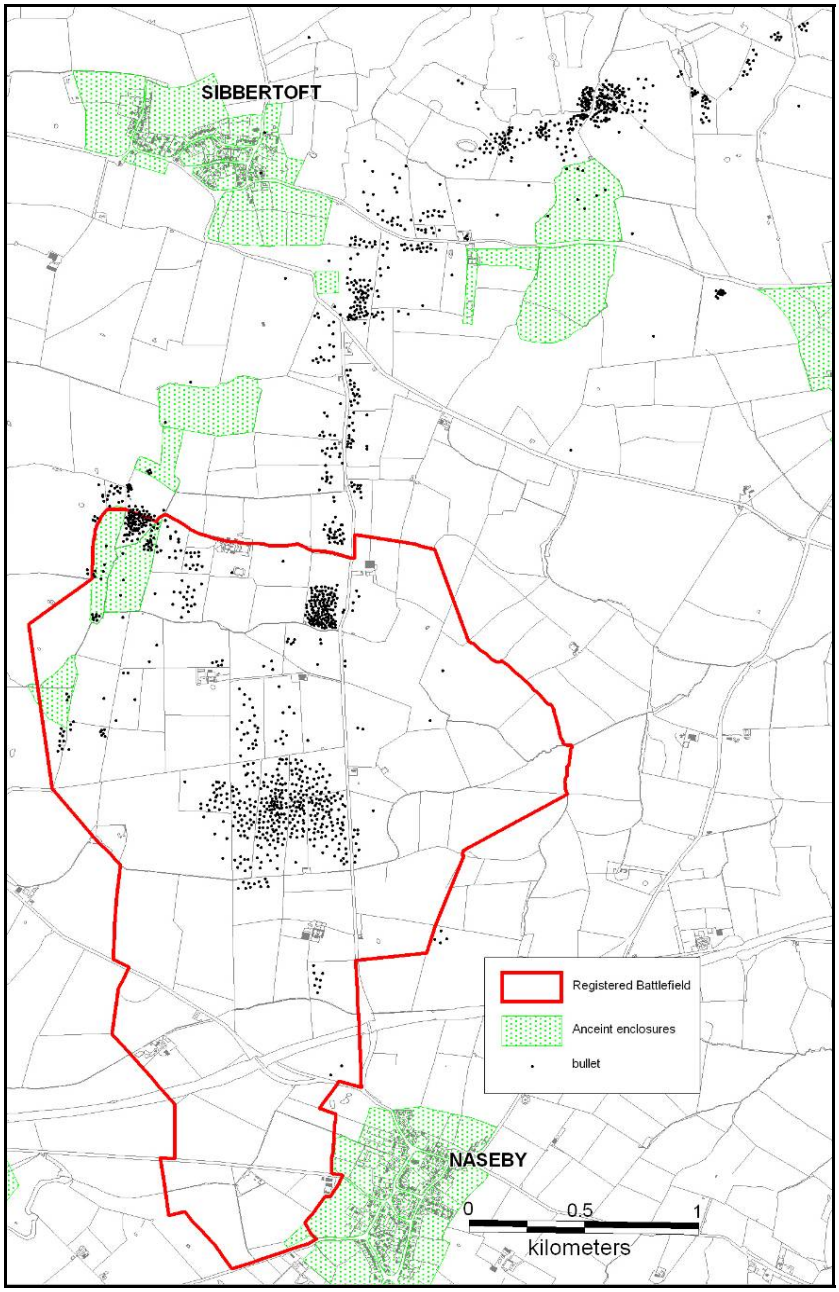

Figure 4: Naseby: Registered area compared with the terrain reconstruction and battle archaeology

At Marston Moor substantial battle archaeology again extends well beyond the Registered area, indicating that the main action was more extensive than previously believed and seemingly incorporating the attack on the parliamentarian train.[61] However, as has been seen, the accuracy of detail in these data is in far greater doubt than at Naseby. The terrain reconstruction presented above suggests a far wider frontage than the published battle archaeology, close in extent to that defined in the Register boundary. The complications here are compounded by the

[61] Newman and Roberts, 2003, with additional data for the 2005 rally from the Portable Antiquities Scheme and Newman's survey data from Foard, 2007b

evidence from the detecting rally of 2005, which extends more than a kilometre to the north, though for reasons already explained these data are in their turn unreliable as a guide to the extent and nature of the action.

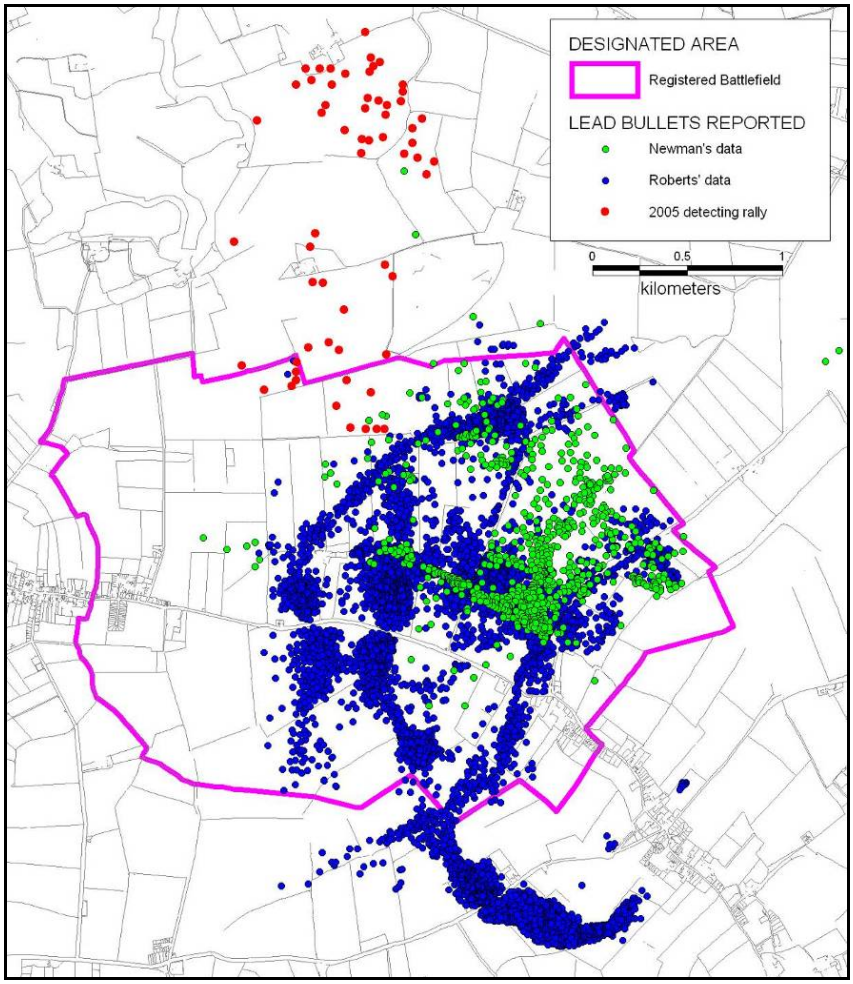

Figure 5: Marston Moor: comparison of Registered area with reported distributions of bullets (Sources: Foard, 2007b; Newman and Roberts, 2003; Portable Antiquities Database)

The evidence from Towton is far more reliable. The mass grave excavated in 1996 lay just beyond the Registered area, while the scatter of battle archaeology, though wholly in the centre and north, extends beyond the Registered area to the south, a scatter which is interpreted as the immediately preceding subsidiary action in Dintingdale.[62]

[62] Fiorato *et al*, 2000; Sutherland, 2005; Sutherland, 2007

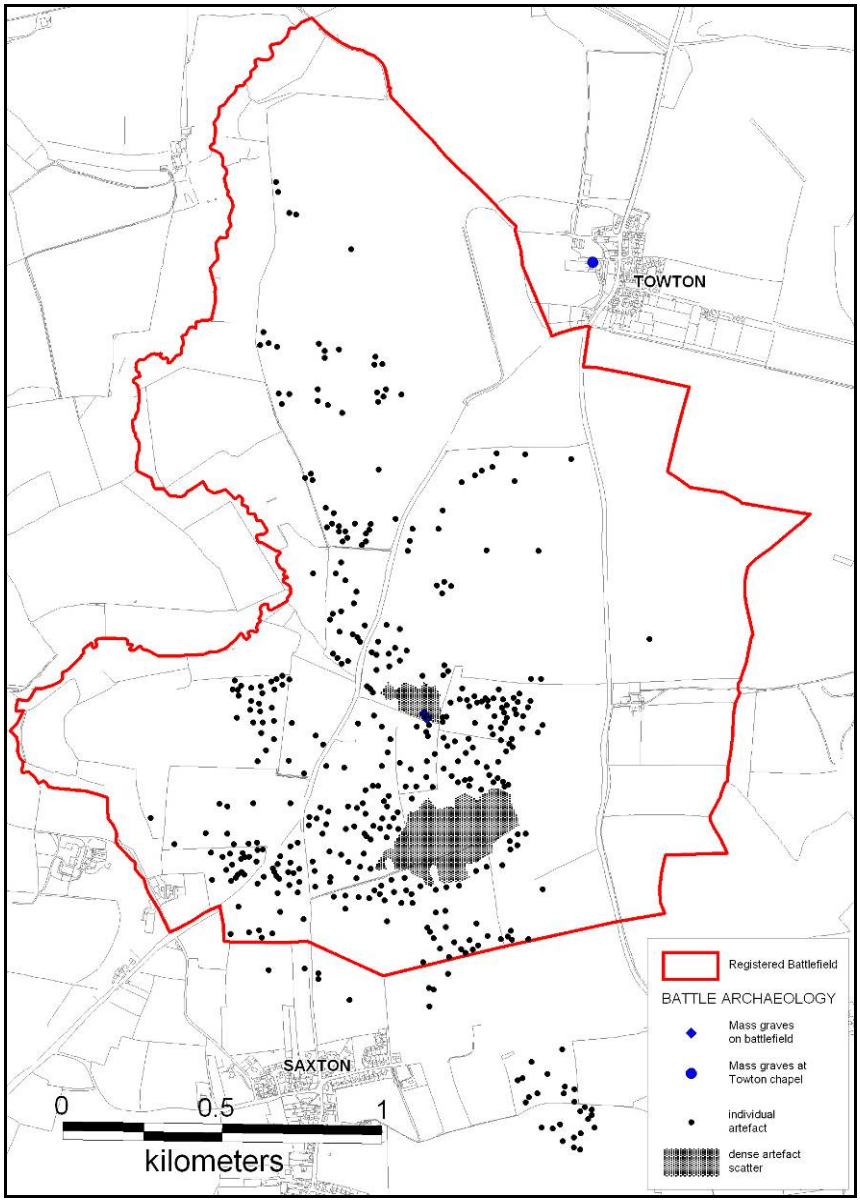

Figure 6: Towton: Registered area and battle archaeology compared (sources: Sutherland 2005 and 2007)

At Barnet the Registered area is focused some distance to the south of the traditional site of the battle, of which the monument seems to represent the southern edge. Research by Warren has subsequently located the chapel which was built in memory of the dead of the battle, and sited on South Mimms common.[63] This, combined with terrain reconstruction, has led to a re-interpretation of the possible location of the deployments and action.[64] However, subsequent collection of information on the battle archaeology, particularly that collected by metal detectorists,

[63] Smith, map of Hertfordshire, 1602; Rocque, map of Middlesex, 1754; information from Brian Warren and Jonathan Smith
[64] Foard, 2004, http://www.battlefieldstrust.com/media/573.pdf

indicates that the least favoured other site, yet further to the north in the location reported to the Battlefields Trust, may be the actual area of deployment and action.[65] In the absence of extensive systematic survey it is currently impossible securely to define the exact location and extent of Barnet battlefield. Other battlefields where the review suggests even greater doubt include Maldon, where the lack of clear terrain evidence in the Old English poem epitomises wider problems of locating medieval battlefields.

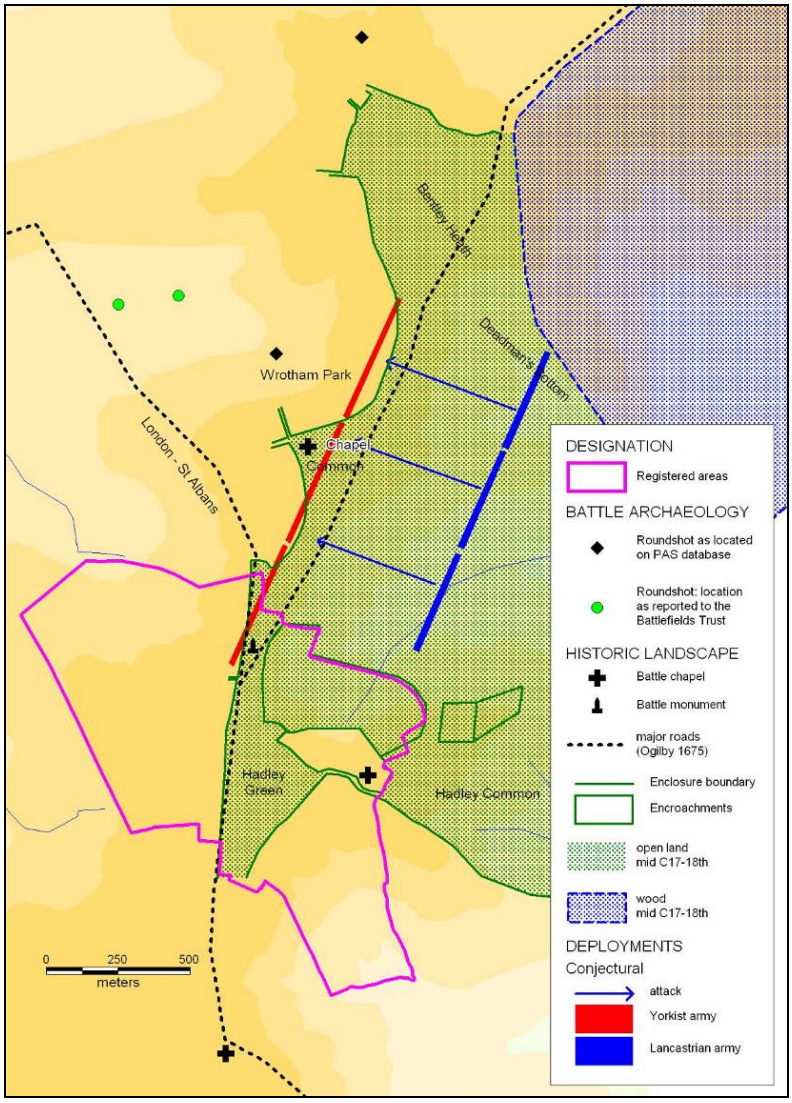

Figure 7: Barnet: conflicting evidence for location and extent

Adwalton shows that battlefield boundaries can have an unintended influence on perception of the extent of potential archaeological interest, with the result that no

[65] Information from Andrew Coulston, Hendon & District Archaeological Society. The metal detectorist states that the incorrect locations were reported to the Portable Antiquities Scheme.

action taken may be taken when threats arise beyond the boundary, even though important archaeology exists. Moreover, while the solid boundary of a Registered area gives an impression of certainty, enough evidence has been produced to demonstrate that there is often a high degree of uncertainty about the exact extent of action. Where there are good reasons for not redrawing the Register boundary to encompass poorly preserved or uncertain areas, then a logical response would be to have an outer zone with a broken line where the presence of battle and terrain archaeology is probable. This should be a supplement to, *not* an alternative for, the redefinition of the inner boundary to take in resources that are reasonably defined, for the latter will be required to protect the battle archaeology from metal detecting threats. The 1995 Register tentatively pioneered this approach on seven Registered Battlefields where the map defines an outer, additional. This approach has been further developed in the research undertaken to underpin the planned Inventory of Scottish Battlefields, with an outer zone encompassing areas which cannot be accurately defined and the text providing information on the resources that may lie within them.[66] In most English cases, the outer line appears to encompass an area which was partially or largely developed, though as the Adwalton case study has shown there may be important evidence within the outer zone that may argue for its inclusion within the main boundary.[67] Beyond the outer zone there will be potential for battle archaeology from disparate skirmishing, but this cannot realistically be predicted or areas defined.

Battlefield coverage by HERs

There are many battlefields excluded from the Register that nevertheless require management. They should be identified in the relevant HERs and managed through the Planning process, bearing in mind that for reasons of preservation or quality of written record they may have an archaeological potential which outweighs their military or political significance. Even where part of a battlefield is poorly preserved, its survival may still have long-term value. Unregistered areas of Registered battlefields should also be dealt with in on this inclusive basis.

[66] E.g.: Foard, 2007a
[67] Adwalton, Boroughbridge, Neville's Cross, Newbury I, Stamford Bridge and Tewkesbury

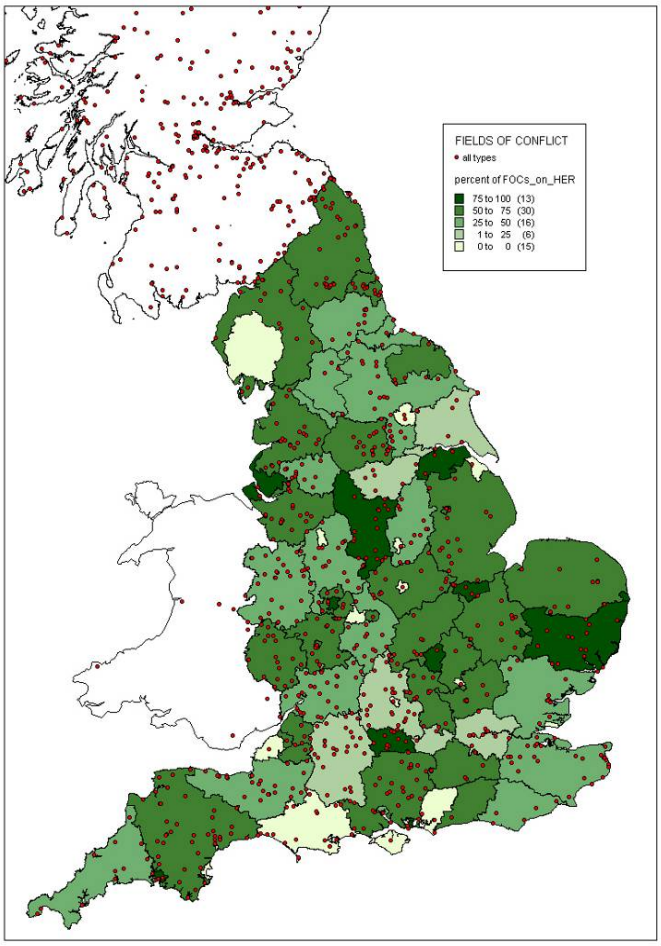

Figure 8: Percentage of fields of conflict on UKFOC that are also recorded on HERs

The database enhancement part of this project included consultation with all HERs. Comparison of the returns with records on the UK Fields of Conflict database enables a rough assessment of the completeness of each HER's information about presence/absence, though not of the quality of the data.

Most HERs reported difficulties in selecting data because of inadequacies in the terms relating to fields of conflict in the national thesaurus. A first and helpful step towards enhancement of HERs in this area would be the introduction of appropriate terms to enable more effective classification of battle, siege and skirmish sites.

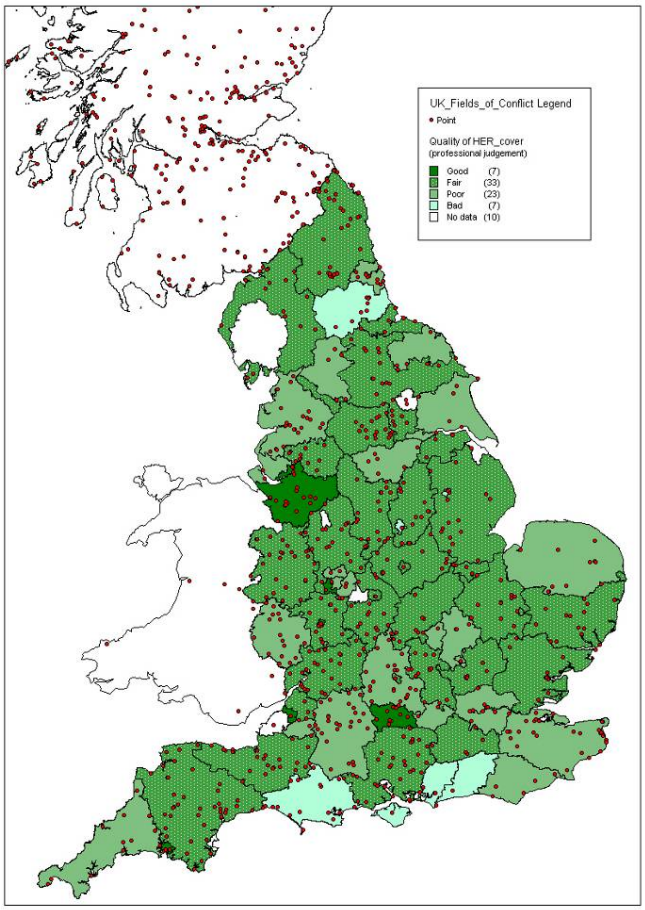

Figure 9: Assessment of battlefield data quality on HERs

Guidance

At present there is no comprehensive guidance as to the appropriate management approaches for particular types of threat, no examples of good practice in evaluation and recording, and no model Conservation Statements for different kinds of field of conflict. Model conservation plans should be prepared for several battlefields to take in different periods, types of battle and terrain, and to reflect the main types of potential and threat.

Equally helpful would be clearer understanding as to the current state of knowledge of each battlefield, and of the uncertainties that remain. Guidance would assist the harnessing of agri-environment schemes to battlefield conservation, whilst a mechanism whereby specific advice could be obtained would be valuable: at present, such matters lie outside the remit of the English Heritage Battlefields Panel and there is no recognised equivalent of a ‘period society’ which receives support for the provision of such specialist advice.

Valuable advice and guidance is given to metal detectorists by the Finds Liaison Officers of the Portable Antiquities Scheme. FLOs are well placed to encourage detectorists to report finds from non-Registered fields of conflict and to promote best practice in battlefield detecting, including the use of GPS for recording locations and separate bagging of finds. To facilitate this, FLOs and others involved in management need access to appropriate guidance on survey methodology and analysis of finds. This would complement the *Code of Practice for Responsible Metal Detecting*, the voluntary agreement in which the National Council for Metal Detecting, the Federation of Independent Detectorists, National Farmers' Union and various heritage organisations joined together to promote good practice.[68]

[68] http://www.finds.org.uk/documents/CofP1.pdf