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Identifying sites at risk from illicit metal detecting: from CRAVED to HOPPER

Louise Grove
Department of Social Sciences, Loughborough University, Loughborough, UK
l.e.grove@lboro.ac.uk

Dr Louise Grove is Senior Lecturer in Criminology and Social Policy at Loughborough University. Louise’s research interests are in heritage crime and crime prevention. Her current research focuses on exploring the nature and extent of crime at heritage assets.

Adam Daubney
Portable Antiquities Scheme, Lincolnshire County Council, Lincoln, UK

Adam Daubney is the Lincolnshire Finds Liaison Officer for the Portable Antiquities Scheme. Adam’s research interests are in archaeological material culture and the illicit trade in antiquities.

Alasdair Booth
Department of Architecture, Building and Civil Engineering, Loughborough University, Loughborough, UK

Alasdair Booth is currently a Doctoral Student at Loughborough University and also a serving police officer in the Lincolnshire Police. Alasdair led the force's response to heritage crime involving the theft of artefacts through illicit metal detecting. Alasdair's interests are in the illicit trade in antiquities and organised crime.
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Abstract

Archaeological sites are at risk from acquisitive crime: this paper focuses in particular on illicit metal detecting. The effects of theft in this context are not merely financial, but have devastating impact on our knowledge and understanding of the site. Even where items are later recovered, we lose the vital clues about the precise context of an object. We therefore need to reduce the risk of theft occurring in the first place.

This paper draws on case studies from England and presents a new methodology to assess which archaeological sites may be at risk from illicit metal detecting: ‘HOPPER’ identifies the characteristics of sites likely to be targeted by offenders looking for antiquities. In brief: History (a history of finds at the site); Open (the site has physical public access, and/or is documented in the public domain); Protection (protected status can act as a beacon for offenders); Publicity (site is known about or receiving new attention); Evasion (there are known ways to escape apprehension); and Repeat victimisation (The site has been a target before). The impact of HOPPER will be its use in the field to develop a pragmatic risk assessment applicable both in a local and international context.

Keywords

Heritage crime, illicit metal detecting, portable antiquities, crime prevention, archaeology

Introduction
Heritage crime is an international problem, defined as ‘any activity that is prohibited by law that causes loss of, damage to, or other harm to places, monuments or objects considered to be heritage’ (Thomas and Grove 2014, 5). The range of assets considered to be heritage is broad, and can include: listed buildings, scheduled monuments, world heritage sites, protected marine wreck sites; conservation areas, registered parks and gardens, registered battlefields, protected military remains, and undesignated, but acknowledged heritage buildings and sites (English Heritage 2011). There are also many intangible aspects to cultural heritage, such as skills, rituals and traditions (UNESCO n.d.). Although our focus for the present paper is physical heritage, due to the diverse and rich history of England we are privileged to have an extensive range of both tangible and intangible heritage preserved across the country. However, such a range of historic assets can present significant challenges from a crime and security point of view. Many heritage sites are remote and rurally located, often isolated from extant settlements. This isolation may be perceived as presenting an attractive opportunity to offenders, as acquisitive crime may be carried out with a relatively low risk of apprehension.

One particular aspect of heritage crime in England is illicit metal detecting, defined elsewhere as an 'illegal activity, whether it is unlicensed metal detecting in protected places or on designated sites such as scheduled monuments, or detecting on undesignated land without the landowner's permission' (Wilson and Harrison 2013, Section 2). This form of heritage crime is often reported on in the media, frequently employing emotive terms such as 'nighthawking' and 'looting', though in reality these terms group together a range of activities that present a threat to heritage (Hart and Chilton 2015). All activities do, however, involve the illicit search for, and extraction of, archaeological objects, and in this respect all illicit metal detecting can be seen as a form of targeted heritage crime (Grove 2013).
Illicit metal detecting is not, of course, the only threat to the archaeological record; arguably greater threats can come from activities that take place lawfully, such as through arable cultivation (Darvill and Fulton 1998), through permitted development (Flatman and Perring 2013), through management failures and state-sanctioned activities that contravene indigenous customs (Hutchings and La Salle 2017), so called managed coastal retreat (Flatman 2009), and through the non-reporting of antiquities discovered by metal detectorists operating under lawful circumstances (Lewis 2016a; Daubney 2017; Hardy 2017). We recognise these are major threats when compared with illicit metal detecting; however, for the purposes of the present article our focus is solely on those activities that involve metal detecting and which are against the law in England – although the risk factors we discuss are applicable across international contexts. Illicit metal detecting is unique in its threat type in that unlike vandalism or heritage metal theft, where the damage is obvious, even where illicit metal detecting has been identified the nature of the loss is unknown (unless the perpetrator is discovered, and perhaps not even then). This lack of clarity can also result in a lack of willingness to prosecute: police may see the damage as minimal and be reluctant to process a site as a crime scene when it is “only a hole in a field” (Shelbourn 2014, 192). This illicit metal detecting is an issue impacting on heritage about which we still know relatively little. Nonetheless it has received greater attention especially following the so-called ‘Nighthawking Survey’ – a survey commissioned by English Heritage (now Historic England), and which attempted to assess the extent of illegal searching and removal of antiquities from archaeological sites (Oxford Archaeology 2009). In spite of methodological issues and a general reluctance from the hobbyist metal detecting community to provide data, the survey was able to broadly comment on crime patterns (Oxford Archaeology 2009). The survey established that illicit metal detecting is a national problem but which was more acute in the
Eastern counties of England; it established that Scheduled Monuments were occasionally attacked; it established that Roman sites were more likely to be targets, and that illicit metal detecting is a contributor to the trade in illicit antiquities (Oxford Archaeology 2009).

As with the Nighthawking Survey, much of the existing literature on illicit metal detecting in England has, understandably, been written by archaeologists in an attempt to better understand the problem and thereby better protect the resource (see for example Dobinson and Denison 1995; Bland 2009; Gill 2010; Moshenska 2010; Bailie 2017; Hardy 2017). While the literature has advanced our understanding of the impact that illicit metal detecting has on the archaeological resource, there are many other stakeholders with an interest in preserving heritage. This joint paper, written by a criminologist, an archaeologist, and a police practitioner, takes an interdisciplinary approach to the heritage crime problem of illicit metal detecting in England and the subsequent trade in illicit antiquities. The structure of the paper is as follows. First, an existing structure of understanding targets of acquisitive crime is explored. Second, we discuss the limitations of this approach in relation to illicit metal detecting. Third, we propose a new way of identifying at-risk assets.

**Acquisitive crime and opportunity**

Acquisitive crime is a form of ‘deviant consumption’ and involves the theft of material goods or possessions (Martin, Cullen, and Martin 2013, 141). Acquisitive crime can come in many forms of theft, including shoplifting, burglary and robbery (Stewart et al. 2000, 11) and will include the theft of historic artefacts. What is clear is that acquisitive crime is not random. It clusters by space, time, target, and offender. These patterns of clustering allow us to predict, with a reasonable degree of accuracy, where there is a higher risk of crime occurring. A root cause of
acquisitive crime is opportunity (Mayhew et al. 1976). Offenders become adept at searching for and identifying opportunities to steal items of value. These may be cars, mobile phones, laptops, cigarettes, razors - but also paintings, rare books, lead from church roofs, and antiquities, to name but a few. This latter grouping - that of objet d'art - arguably requires a different skill set from the offender than that of the shoplifter or car thief. Whilst broadly consistent with Cohen and Felson’s (1979) routine activities theory (there still needs to be a suitable target, a lack of a capable guardian, and a motivated offender) the identification of a suitable antiquities target requires a specialist knowledge of what may be of value. By understanding how offenders may identify these items and the archaeological sites on which they are likely to be found, we can begin to draw together a plan to target limited crime prevention resources in the most appropriate manner.

**Identifying target characteristics**

In situational crime prevention, there is a need to move from examining the causes of criminality to examining the crime event. In this way we can develop an understanding of the characteristics of objects that are most likely to be stolen. This helps us to understand trends and patterns in thefts, and thus enables us to start targeting limited crime prevention resources at those places that are most in need. The way we begin to do this here is by using an acronym – in this case ‘CRAVED’.

CRAVED items are the most likely to be stolen, because they are desirable in a number of ways – so-called ‘hot products’ (Clarke 1999). CRAVED breaks down this desirability into six characteristics: items that are concealable, removable, available, valuable, enjoyable, and disposable. This is a way to identify those items most at risk of being stolen. For example, a high
end sports car like a Bugatti Veyron is certainly valuable and enjoyable - but it is so unusual to see on the road that it is not particularly concealable; it requires special skills (or a stolen set of keys) to be removable; there are very few of them, so the chances of stumbling across one by accident is low - they are not widely available; and the market for them is limited, because of the cost and the attention they draw. That is not to say Bugatti Veyrons are never stolen, nor that offenders would not try to steal them - but with only 405 in the world, there is limited opportunity to do so. At the other end of the spectrum is cash. It is easily hidden - both physically but also because it is rarely identifiably unique to an individual. It is small and easily removed from a table, wallet or pocket. Cash is (despite the rise in cashless payments) still ubiquitous, so easily available to a potential thief. Cash has an intrinsic value, and is enjoyable not for its own worth, but for the items and experiences purchased. Finally, it is disposable - with the possible exception of large quantities of cash, few are going to question its usage. For this reason, cash is often known as the ultimate CRAVED item. The CRAVED acronym has been applied to develop an understanding of multiple types of 'products' from bicycles (Johnson, Sidebottom, and Thorpe 2008), domestic burglary (Wellsmith and Burrell 2005), parrot poaching in Bolivia (Pires and Clarke 2012), to illegal commercial fishing (Petrossian and Clarke 2013), and livestock theft in Malawi (Sidebottom 2013). More recently, Moreto and Lemieux (2015) used CRAVED as a base to develop a new approach to illegal wildlife markets: CAPTURED.

The identification of hot products is important for two reasons. First, if we are able to identify what the offender is likely to steal, we can aim to prevent the crime from happening. Second, we can also set up a safety net in which there is a greater likelihood of the offender being caught. We see this, for example, in the case of money stolen from banks, where some of the security forms a dual purpose. For example, security cameras raise the risk to the offender of
being caught in the middle of a theft - but they also increase the chance of being identified in the aftermath. Red dye explodes onto notes, making the target unusable (and therefore no longer enjoyable or disposable) but also is indelible, so links the offender clearly to the theft.

**CRAVED antiquities**

CRAVED fits the antiquities market in much the same way as it applies to other hot products:

*Concealable*

Concealable refers to the ease in which stolen property can be concealed and hidden in order to avoid the stolen articles being found in the event of the police conducting a search for stolen property, either on the person or at a property. So for example, stolen items can be secreted either on a suspect, in a vehicle or at a particular location or property. In terms of heritage crime, many artefacts found through illicit metal detecting tend to be 'portable antiquities' - small items such as coins and jewellery which can be easily hidden by offenders both on themselves, in items of clothing or concealed in a vehicle or at the location of the offence. These may also be items that are concealed in plain sight – for example as part of a larger legitimately obtained collection.

*Removable*

Removable refers to how transportable stolen property can be. Stolen items generally have to be moved from the location they have been stolen from to the location they are either going to be stored, or sold from. Some stolen items may be too large to be removed by a single offender, and therefore they may require help from another offender or need a vehicle to help transport the stolen property. As illicitly obtained historic artefacts tend to be small and often quite effortless
to remove once found, they are therefore going to be easily removed and transported from the identified site, and therefore attracting little attention, and raising little suspicion. Furthermore, owing to the nature of archaeological finds (especially those recovered from cultivated land), it is extremely difficult to prove which site a find has come from once it has been removed. Sampling of soil traces that adhere to unwashed artefacts may in a limited number of instances allow broad observations to be made about the source-site; nonetheless, in most cases all the evidence that ties a find to its provenance is easily removed once it has been transported from site. Usually, only the finder that knows where any object was found. This is a major problem with pursuing prosecutions as it is almost impossible using currently available techniques to prove where a find was discovered.

Available

This relates to the availability of the artefact or item in question. Often, illicit metal detectorists will target particular areas where they know certain types of artefacts are likely to be located, and this is often through research carried out prior to the commission of the offence of theft. The Portable Antiquities Scheme (a scheme to record archaeological objects discovered by the public) has established that small finds are ubiquitous across the rural landscape, with certain objects such as coins, strap fittings, and brooches being relatively abundant (Lewis 2016b). Such types of artefact may, therefore, be deemed to be of higher risk through constant attrition, even if these artefacts are not necessarily what illicit metal detectorists are looking for. Conversely, desirable objects such as late Iron Age gold coins – while relatively rare – are more readily available on certain types of archaeological sites (for instance, late Iron Age shrines or temples), and therefore may become more 'available' through careful site-selection. Accordingly, artefacts
sourced in counties which contain large numbers of archaeological sites and which are under cultivation are naturally more at risk due to the greater chances of discovery (Oxford Archaeology 2009, 43).

**Valuable**

Metal detecting is, by its very nature, a rather 'pot-luck' activity; illicit metal detectorists rarely hit the 'big one' even on the most enticing of sites. However, as seen in recent cases, particularly Operation Totem (see below), suspects do utilise ordnance survey maps to research locations and will often use the internet to identify potential artefact rich sites. Nonetheless, many archaeological sites produce enough artefacts of lower-value that cumulatively make the crime worth the investment of time; such is the market for low-value British antiquities, which can be illustrated by the 4000 or so items offered on eBay at any given time. Cumulative value may therefore be a key factor consider when exploring the 'valuable' part of CRAVED acronym (see for example Hollowell-Zimmer 2003). However, only 7.7% of metal detector users were attracted to the hobby because of monetary value of finds, whilst the vast majority were motivated by an ‘interest in the past’ (Thomas 2012). Whilst we cannot directly extrapolate this to the illicit market, there is an indication here that a found object may also be valuable to an individual in terms of pride, sentiment or rarity, and to further their own personal collection

**Enjoyable**

While stealing-to-sell is one motivation for illicit detecting (Proulx 2013, 121), it is now clear that many individuals engaged in illicit metal detecting are also collectors. In 2011, a heritage crime policing operation, called ‘Operation Totem’ was launched in Lincolnshire to combat a
rise in the reporting of illicit metal detecting in the force area, particularly the Horncastle area (Booth and Hanson 2013). The illicit metal detecting was being reported by landowners. As a result of Operation Totem, it was revealed that a suspect was travelling to the Horncastle area from outside of Lincolnshire to participate in illegal metal detecting activities, and as a result, a search warrant was executed under the Theft Act. The search warrant revealed a collection of more than 500 historic artefacts, with numerous items displayed in the form of a personal collection. The evidence seized during the warrant lead to a lengthy investigation to identify the artefacts seized, and also their provenance, and where and how the suspect may have acquired the artefacts. Operation Totem revealed a picture of an individual who was engaged in illicit metal detecting, in the sale of antiquities, and also in private collecting. Yet, none of the artefacts for which the culprit was convicted of were of any notable monetary value. This complements the emerging trend regarding antiquities sourced from England and Wales (Daubney 2017, 790-2); licit and illicitly gained artefacts can be 'enjoyable' even if they have little financial value. The picture gained through Operation Totem furthermore complements Thomas's recent work, which has shown that the stages in the criminal market for low-value stolen cultural objects are often different to that for high-value objects. The latter is usually characterised by multiple individuals operating different specialists tasks in the trafficking chain; in the former, however, it is often possible to see the same individuals operating at all stages of the process (Thomas 2015). This observation is important not only for understanding the motivations for illicit metal detecting, but also in understanding how objects reach the disposal stage and – crucially – whether the person disposing of the object might also be involved in its discovery.

_Disposable_
Recent prosecutions demonstrate the key conduits through which illicit antiquities move: online auction houses, antiquities dealers, the so-called 'invisible' market in which antiquities are trafficked, metal detecting rallies, and indeed, remaining in the finder's private collection (Thomas 2016, 146; Daubney 2017, 795). In spite of greater academic and professional attention been given to the illicit market for antiquities (Wilson and Harrison 2013), disposing of stolen cultural material is still, on the whole, easily done regardless of value or type of artefact. Prosecutions are, unfortunately, still relatively rare in comparison to reports of illicit activity (Daubney 2017, 792), but they do help to illustrate the range of ways in which artefacts of different legal status are disposed. In 2017 a serving police officer was jailed for 16 months after being convicted of stealing 10 Merovingian gold coins in West Norfolk, and selling them to a dealer for £15,000 (Crown Prosecution Service 2017). The detectorist had permission from a local landowner to use a metal detector, but had failed to notify the landowner and proper authorities of the find (Crown Prosecution Service 2017). The Manchester Evening News reported that the detectorist in this case sold the coins in smaller batches to try and disguise the fact that the coins would qualify as Treasure (Manchester Evening News, March 8, 2017). In another incident, the finder of a gold post-medieval ring worth £1200 pleaded guilty to theft after failing to report it under the Treasure Act 1996 (Sittingbourne Reporter, October 31, 2016).

The theft of artefacts is not exclusive to land. In 2011 Kent Police launched an investigation into a diver who was believed to have been involved in the theft of artefacts from a shipwreck near to Southend in the Thames Estuary. It was alleged that a suspect had been involved in the theft of items from an historic warship which sank in 1665. Among the items stolen and subsequently sold were the battleships cannons were cannons which the suspect sold for £50,000 (BBC News, September 4, 2015). The finder admitted fraud after originally claiming
the weapons were found in international waters, and was jailed for two years and ordered to pay £35,000 costs.

From CRAVED to HOPPER

Our core areas of interest here are not just what makes products appealing, but also the sites at which they are located. The exploration of crime concentration at places is nothing new - as well as hot products we have hot dots and hot spots. CRAVED alone focuses on the prediction of likely products that are at risk of being targeted. This is useful, so that we can identify sites that have a multitude of such items. However, it would be naive to suggest that the quantity of items alone is sufficient to understand the risk posed to different sites - otherwise we would see far more events like the Hatton Garden jewellery heist, and far fewer speculative illegal metal detecting incidents. With these latter, it is a potential for hot products, informed by other locational and contextual information which make it a target. In other words, whilst relevant antiquities may be identified using CRAVED, this is of limited use in helping us to identify a site that may or may not contain hot products but is nonetheless a likely target. This paper therefore suggests that a risk assessment of sites could be undertaken using the acronym HOPPER (Table 1). We use HOPPER to describe the characteristics of a site that is likely to be targeted by offenders looking for antiquities. The longer term aim is to develop a toolkit so that sites could be categorised using the Red Amber Green (RAG) rating to target crime prevention and policing resources appropriately.

[INSERT TABLE 1 NEAR HERE]
**History**

The 'history' of an archaeological site – that is, whether it has produced CRAVED antiquities in the past – is arguably the most crucial aspect of the HOPPER acronym. Broadly speaking, sites that have produced CRAVED items in the past have a greater chance of becoming the targets of illicit metal detecting in the future, owing primarily to the perception there may be further finds. This phenomenon is generally, although not exclusively, related to licitly discovered finds. Yet, while the History of an archaeological site can serve as useful indicator of its potential vulnerability, it is clear that not all archaeological sites and finds appeal equally to illicit metal detectorists; there are many caveats that are specific to time, place, and indeed the character of the archaeological site that would stimulate greater or lesser attention. It must be stressed that many of the nuances that will be discussed below are difficult to prove by citing case studies; information on illicit metal detecting is still hard to obtain, and prosecutions are still relatively rare (Wilson and Harrison 2013). Nonetheless, hearsay and common sense indicate they are important factors to consider.

The word 'site', when applied to archaeology naturally covers a wide range of places within a landscape that have attracted human activity. The temporal depth of these sites can vary greatly and this can, of course, make a site more or less rich in artefacts (Daubney 2016, Chapter 1). In some instances this deposition may have occurred over minutes or hours; the battle between Royalist and Parliamentarians which occurred at Winceby, Lincolnshire in 1643 is recorded to have taken just 30 minutes, yet the site on which it occurred is now a registered battlefield (Historic England List entry Number 1000041). In other instances human activity may have occurred over much longer periods of time, resulting in a rich palimpsest of material deriving from multiple episodes of craft, industry, settlement, and burial. Understanding the
character of any given archaeological site is, therefore, a key aspect of understanding whether it holds appeal to the illicit metal detectorist as a productive site for CRAVED objects. It is beyond the scope of this paper – and perhaps an unrealistic task – to present a full discussion of the different types of archaeological 'sites' in England; however, some broad observations can be made.

First, it is well known within both professional and criminal circles that there exists in England particular 'types' or 'periods' of archaeological sites which are generally perceived as being 'artefact rich'. Turning to chronology first of all, it is clear that particular periods are more productive than others in terms of metal artefacts; Roman and medieval archaeological sites tend to produce the most metal artefacts, for instance (Lewis 2016b, Table 2). Logically, sites of these periods may be of greater interest to illicit metal detectorist in terms of making the crime worth the investment in time; in other words, the 'hit-rate' per hour is likely to be greater. Indeed, the aforementioned 'Nighthawking Survey' found a clear bias towards stealing from Romano-British sites (Oxford Archaeology 2009, 6.2.22). However, it must be borne in mind that this may simply reflect the relative abundance of sites of this period in England and Wales (Oxford Archaeology 2009, 6.2.23).

This is, however, a rather 'novice' approach to illicit metal detecting; those with more sophisticated knowledge would likely refine their efforts towards certain sites that are, by their very nature, more likely to produce CRAVED objects. For the Roman period this would include temples and shrines, rural markets and settlements, military installations, and villas. Site-selection is especially exercised by illicit metal detectorists who focus on the Early Medieval period (410-1065). Early Anglo-Saxon inhumation cemeteries of the mid-5th to late 6th century, of which there are many in the Eastern counties of England, often contain vast numbers of richly
furnished graves, reflecting the general belief that status – as expressed through material culture – was an important factor in the afterlife. Christian inhumation cemeteries of the 8th and 9th centuries, by way of contrast, rarely contain grave goods owing to them being deemed unnecessary in the afterlife. Accordingly, these latter graves offer low potential for thieves. It is the combination of the knowledge about a site's character and knowledge that it has produced a CRAVED object in the past that makes it a vulnerable target, therefore.

Just as the character of an archaeological site can make it more or less appealing to an illicit metal detectorist, the character of the CRAVED object can also act in the same way. In other words, not all CRAVED objects appeal the same to offenders, and a History of valuable discoveries might not automatically infer that the site is vulnerable to theft in the future. Put simply, a gold sword pommel from a plough-damaged Anglo-Saxon cemetery might well attract further attention owing to the likelihood of there being other high status furnished burials. Yet, the same might not always be true of finds such as coin hoards, which for the most part are one-off events – single episodes of deposition – and often made away from settlements. When found in context (that is, still buried within its archaeological layer) by a metal-detectorist, the hoard is usually removed in its entirety either through clandestine recovery by the finder, or subsequently through professional excavation. Either way, this form of CRAVED object usually signals to the potential offender that there is little point in visiting the site; once the pot and its contents are out the ground there is little if anything left to discover. The caveat to this is when a coin hoard has been dispersed into the plough-zone through arable cultivation such as ploughing. In this instance, coins may be dispersed over wide areas, making the recovery of the hoard in its entirety rather difficult (Daubney 2016, 84-6). Accordingly, a media article regarding a dispersed coin
hoard might, to the sophisticated offender, signal a site that offers the potential for unrecovered coins.

Unwanted interest may also accompany coin hoards from particular periods, should a potential offender have sufficient specialist knowledge. Open-air sanctuaries or shrines are a distinctive feature of the late Iron Age, on which multiple episodes of votive deposition were often made. One such site at Hallaton, Leicestershire, initially came to light on discovery of a hoard of late Iron Age gold coins. Further spectacular finds came to light over the subsequent years, and it was not long before the site became the target of illicit metal detectorists, with one individual convicted of going ‘equipped to steal’ in 2004 (Lewis 2004). An awareness of the history of finds at a site is a key part of any risk assessment, and should be developed in partnership with a broad range of stakeholders who may have specific informal knowledge which is of use in this context.

Open

Many archaeological sites in England can be accessed by the public. Access might be possible because the site is within a Public Park, or perhaps because it is managed by an organisation who desire the public to enjoy the site. Access might also be possible across a limited part of an archaeological site, for example, via public footpaths or beaches. In all instances, the open physical nature of the site allows a potential illicit metal detectorist to legitimately make reconnaissance visits prior to offending. However, Open does not just relate to the physical properties of an archaeological site. Sites might also be Open to the public through online mapping services such as Google Earth which may show archaeological sites as cropmarks, or through Street View which can help an individual to understand the surrounding landscape as
seen from the roadside. Sites might also be *Open* through online archaeological databases that help facilitate research. Either way, these facilities which were designed for public enjoyment can be used to aid illicit activities. The digital footprint left by the potential offender when searching for information on a site may, however, be useful to law enforcement agencies after the event when forensically examining seized computers, laptops and phones.

Although Google Earth can be a powerful tool for criminals researching historic sites, the use of Ordnance Survey maps can also help criminals to identify potential sites of significant historic interest. Many maps list the locations of deserted medieval villages, and other places of historic importance, such as the sites, or remains of, Roman villas, castles, monasteries and priories. The use of Ordnance Survey maps was seen in the Operation Totem investigation in which police seized a number of annotated maps containing references which were used by the offender. Map books can be used to initially identify historic sites of interest, with online mapping services such as Google Earth being subsequently used to further research the site, including making an assessment of the surrounding area of the site and topography to enable offenders to plan either criminal activities. Risk assessment for the openness of a site therefore relies on an awareness of what information is available alongside a careful consideration of how this may be used for illicit purposes.

*Protected*

We suggest that protected sites may act as a flag to indicate where there is likely to be the presence of further archaeological finds. The system of legal protection of archaeological sites in England largely circles around the designation of sites under the Ancient Monuments and Archaeological Areas Act 1979 – so-called 'Scheduled Monuments’ (SMs). Historic England
maintains a list of SMs, and this list is disseminated widely, including online. There are around 20,000 entries on the list of SMs (DCMS 2010), and these range from sites under the plough, through to sites that would be unattractive to metal-detecting, such as extant churches and pumping stations (Oxford Archaeology 2009, 7.5.3). Nonetheless, common to all SMs is that they are deemed to be of national importance (DCMS 2010).

While it would appear logical that SMs under cultivation may be perceived by potential offenders to be prime targets, in reality there is little data to support the argument one way or another. A slight decrease in the number of illicit metal detector incidents at SMs was suggested by Oxford Archaeology (2009), from 1.3% of the resource in 1995 to 0.41% of the resource in 2008. Notwithstanding several issues in methodology and potential underreporting, the decrease is so small as to be statistically insignificant. That said, it might well be the case that SMs are increasingly not seen as the beacons as they once were; twenty years of recording by the Portable Antiquities Scheme has demonstrated that the rural landscape contains many more sites than previously known (Brindle 2014, 14; Daubney 2016, 98-100). These 'new' and non-designated sites may now be perceived as more fruitful targets. It may also be the case that a greater awareness of the law results in areas adjacent to SMs being targeted, rather than the protected site itself (see for example Shields Gazette 2004).

Nonetheless, it is certain that some SMs are targeted (East Anglia Daily Times, September 5, 2012), although how frequently and how extensively remains unknown. The reasons for SMs being the target of illicit metal detecting are equally elusive, but some comment might be made about the possible political perception of SMs as beacons of State authority. Given that protected status in England is conferred onto particular parts of the landscape by the Secretary of State for Digital, Culture, Media and Sport (DCMS) on recommendation by Historic
England, it could be that in some instances looters target SMs not just because of their archaeological potential, but also because of their status. Illicit metal detecting, in effect, might be a form of political or ideological protest or trophy-hunting – perhaps a form of easily executed attack on what might be seen as a symbol of authority. In this respect attention might be drawn to the relationship between designation and damage seen at protected archaeological sites elsewhere, where attacks have sometimes been interpreted as explicit protests against the particular 'values' (Williams 2012). In the English context, the restriction of metal detecting on SMs is seen by some as an infringement on their access to archaeological sites, which in turn 'encourages' illicit metal detecting (Oxford Archaeology 2009, 9.5.2, 11.2.31). Archaeologists and detectorists may have different views on the legitimacy of their respective activities, regardless of the legalities involved. In this respect attention might be drawn to the relationship between designation and damage seen at protected archaeological sites elsewhere, where attacks have sometimes been interpreted as explicit protests against Western, elitist, or expert values and practices (Williams 2012; Hart and Chilton 2015). For others designated sites may act as a barrier to accessing the landscapes to which they feel a strong connection (c.f. Winkley 2016, fig.3). In such instances the root of the conflict might lie in differing perceptions of the question 'who owns the past'. There may also be an element of trophy-hunting at 'famous' sites.

Yet, the current system of protection can also have the effect of raising awareness of the site among the local community, who may in turn take a more proactive stance in protecting it. The Roman settlement of Durobrivae (Water Newton, Cambridgeshire) has been the target of several episodes of illicit metal detecting. Recently, two individuals illegally searching the site during the day were convicted after a farm worker took photographs of them and reported it to Historic England. Similarly, the local public have been quick to turn to their cameras at Ancaster,
Lincolnshire, when a group of metal-detectorists were spotted searching the earthworks of a Roman fort, designated a Scheduled Monument. Vigilante-photography also occurred on another Roman site further to the north at Navenby, Lincolnshire, though while this site was not protected it still featured heavily in the consciousness of the local villagers. In terms of risk, therefore, we should be examining not just whether a site is of formal protected status, but of how protection is perceived in the local community.

**Publicity**

The purpose of publicity is to draw public attention to a particular issue, person, or place. Naturally, publicity is widely used in archaeology to promote the resource to the public; historic buildings, archaeological sites, new discoveries, and new research all feature regularly in the press. Just as publicity attracts public attention, it can also attract the attention of those who would seek to harm the resource. This has, of course, been occurring ever since archaeological sites were first publicised via media channels. Indeed, just one year after excavations at the Romano-British settlement of Dragonby, Lincolnshire began in 1964, collectors had begun arriving at the site following reports in the press and on the radio (May 1996, 217). Substantial publicity has also been given to the Roman site at Icklingham, Suffolk, after an important hoard of Roman bronzes was discovered in 1982 (Oxford Archaeology 2009, 57-58). Several of the bronzes appeared for sale by galleries and museums in the USA, and this resulted in a high profile campaign by the landowner to have the items returned (Browning 1995). Since the discovery of the hoard between 45 and 50 individuals have been prosecuted for illicit metal detecting at the site, but in spite of this the problem persists (Oxford Archaeology 2009, 58; Gill 2010, 4-5). Clearly the cause of the problem is not solely publicity – 'history' is of importance
here – but it has helped to raise the status and prestige of the site in the consciousness of those who would wish to target it. Indeed, as Gill remarked about the site: 'are known archaeological sites, often marked on maps such as those on the Ordnance Survey, seen as focal points for artefact hunting?' (Gill 2010, 4). Publicity can also arise from informal sources rather than press releases; detectorists often use online forums and social media to share pictures and information about their latest finds. The risk of this is that a finder can inadvertently release too much information, essentially helping unscrupulous individuals identify new sites. Knowledge of archaeological sites can come from professional sources of publicity – for example, records placed online intentionally for the benefit of the general public, or press releases – and from clandestine sources – specifically, from within the illicit metal detecting community itself. The latter characteristically includes knowledge that the archaeological community is unaware of, or knowledge which stems from rumour (e.g. Daubney 2016, 256).

Not all publicity is bad. For example, Laycock (1991) discovered that the promotion of the success of a burglary prevention initiative caused a further reduction in burglary. Similar effects have been seen elsewhere, for example in reducing speed with the use of speed camera signs but no speed cameras (Corbett and Simon 1999). The mechanism by which this is thought to work is that of increasing the perception of risk (Bowers and Johnson 2005). The implication for archaeological sites is that if publicity is not done with care it merely serves to alert offenders to a likely high yield target. Publicity may play a part in either increasing or decreasing risk of offending at archaeological sites, and further investigation of this premise is warranted. For the purposes of risk assessment, it is important to be aware of the type and sources of publicity. A carefully worded press release is unlikely to be a cause for concern. In contrast, rumours of multiple finds being shared on social media would be considered to place a site at heightened
risk. This is a case for working closely with all stakeholders to understand what information they are sharing, and with whom.

**Evasion**

Owing to the rural nature of many archaeological sites, it is relatively easy to search a site during the night without detection. Nonetheless, escape routes are of vital importance should the offender be disturbed. While it is still sometimes the case that an offender will park their car somewhere near the site and then walk the rest of the journey, the risk of that vehicle being reported as suspicious is relatively high, particularly when parked in isolated areas where historic sites are located. In addition to this, an illicit metal detectorist may also arrange to be dropped off and picked up by a third party, thus making detection all the more difficult, and often requiring the police to adopt different tactics. Methods available to the police can involve the use of surveillance, the use of electronic data records, and the use of intelligence systems such as Automatic Number Plate Recognition (ANPR). The use of ANPR can be used to help detect and disrupt criminality at a local, regional and national level, and can be utilised to target travelling criminals and organised crime groups (Police UK 2016). ANPR is used for a range of purposes, such as to ‘identify vehicle used to commit crime; research the movements of possible suspects; identify witnesses; and research alibis’ (Monckton-Smith et al. 2013, 127). Due to the challenges in tracing and apprehending illicit metal detectorists, the use of ANPR can be a critical tool for the police to utilise in investigations.

Of vital import here is the perception of risk. Precautions are only taken where there is a perceived notion of being apprehended. We know that what deters offenders is the risk of being caught, rather than the slim chance of a custodial sentence in the unlikely event of arrest (Felson
and Boba 2010). In more isolated sites, the offender might predict a low risk of routine police patrols, and a long response time in the event of a call for service. Therefore, we predict that isolated rural sites with several routes of escape away from the asset are at greatest risk. Similarly, sites located close to major road networks may also be vulnerable owing to the relative ease of access and departure. Domestic burglary risk is increased where there is proximity to footpaths and busy road junctions (Armitage 2004) and we expect similar patterns to be true for illicit metal detecting risk. The Yorkshire region, for instance, was found to have the highest incident of illicit metal detecting – a trend which was thought to be attributable in part to the ease of access provided by the M1 and A1M (Oxford Archaeology 2009, 6.2.14). To assess risk, therefore, we should be examining the access routes around a site and considering how easy it is for an offender to evade apprehension.

**Repeat victimisation**

Where a crime has already occurred is one of the best predictors of where crime will happen again: the most effective way of predicting future risk to an asset is to examine the previous offending at the site. We see this across all types of victimisation, from bicycle and car theft, to burglary, and even violent offences (Grove and Farrell 2012). There are two reasons this is thought to happen. These are the state heterogeneity and the event dependence models (Farrell, Phillips and Pease 1995). The state heterogeneity model states that there is something inherent about the site that makes it vulnerable to crime. We have already covered many of these issues in this paper, but in brief this may be because it is a likely site for high value finds. In contrast, the event dependence model says that one victimisation 'boosts' the risk of another. This happens, for example, when an offender returns to a site because they think there is more to be found (repeat
offending), or they tell other potential offenders about their finds which encourages more individuals to try the same location. One of the ways detectorists learn about where to search is seeing other detectorists searching, or over-listening at events, and there is no reason to expect illicit metal detectorists to act differently in this context. This phenomenon can be demonstrated by illicit activity at the late Iron Age site near Market Harborough, Leicestershire (Lewis 2004), at Icklingham, Suffolk (Oxford Archaeology 2009, 57-58), and over a much longer period at Romano-British temple at Nettleton Top, Lincolnshire, which owing to presence of hundreds of gold Iron Age coins known as *staters*, has been extensively targeted by thieves both by day and by night since the 1980s (Willis 2013). Indeed, such was the rate at which they were being found in the 80s and 90s that one individual even confessed to having moved house from the North West of England in order to be nearer the site (Willis 2013, 24).

There are other important factors to bear in mind with repeat victimisation. For example, a second victimisation is most likely to happen within quick succession of the first - in burglary, this is within the first 48 hours (Polvi et al. 1990). We also know that nearby sites are also heightened in risk in the near future (Bowers and Johnson 2005) as too are sites with similar features - known as virtual repeats. This enables us to develop a time sensitive risk profile of locations after an initial offence has occurred, so increased security measures can be put into place at select locations on a temporary (and therefore more cost-effective) basis. This does not help us recover that which is lost, but allows us to minimise the impact from offending by identifying the highest risk locations. It is therefore important for people looking after a site to be aware of activity in the vicinity, not just by illicit metal detectorists but also other offences such as thefts from sites and vandalism. This is known as multiple victimisation and can reflect that the site is on the radar of offenders, and is thus at a heightened risk.
Conclusions

This paper has presented an initial foray into the development of an innovative and pragmatic risk assessment strategy for sites at risk of illicit metal detecting. This is not the first time a risk assessment has been attempted for archaeological sites: a selection of scheduled monuments in Greater London was surveyed in 2012, and a list of high risk sites distributed to Safer Neighbourhood Teams (Lewis 2012). This paper has built on that project by breaking down the specific issues that can be used to risk assess sites. In the first instance, the methodology developed here provides a more systematic and strategic way of risk-assessing heritage assets which may be targeted by illicit metal detectorists. This can be used to produce a list of high risk sites, ranked using HOPPER, and then combined with a RAG (red, amber, green) rating. This list may be distributed to heritage crime officers within the police, to allow them to target their limited crime prevention resources accordingly, or to other individuals interested in the protection of sites such as owners, managers, tenants, or specific interest groups and voluntary organisations.

HOPPER can also be easily adapted to risk-assess other heritage assets at risk of being targeted for illegal activities. There is a great deal of overlap between illicit metal detecting and the risk of acquisitive crime of other types such as heritage metal theft, and even vandalism of physical assets. Many of the same principles apply. We need to look at the history of the site, with a particular awareness around anniversaries and celebrations, to consider which assets may be at greater risk (and when). Whether a site is publicly or privately owned, and the knowledge about the site that is in the public domain, can affect whether an asset is in the knowledge sphere of potential offenders. In the same way archaeological sites with a protected status may flag the
potential for finds to be illicitly detected, a protected heritage asset highlights its importance and symbol of State authority. Publicity can be a force for good or ill for heritage assets – but caution should be taken with high-profile assets and discoveries. Heritage assets with easy access to escape routes may also be at greater risk. Finally, and perhaps most importantly, heritage assets which have been targeted by offenders in the recent past, or are geographically close to other targeted assets are likely to be at heightened risk.

Whilst this paper has focused on the English context, there is no reason why these risk assessment principles could not also be used in an international context. We may in the future also wish to consider a measure for harm assessment – a broader issue which could incorporate the risk posed by state-sanctioned activities, and which affects both tangible and intangible cultural heritage.

References


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http://doi.org/10.5334/pia.333.


http://www.piajournal.co.uk/articles/10.5334/pia.496/

<table>
<thead>
<tr>
<th>History</th>
<th>A history of CRAVED artefacts at the site</th>
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<tbody>
<tr>
<td>Open</td>
<td>The site has physical public access, and/or is documented in the public domain</td>
</tr>
<tr>
<td>Protection</td>
<td>Protected status can act as a beacon for offenders</td>
</tr>
<tr>
<td>Publicity</td>
<td>Site is known about or receiving new attention</td>
</tr>
<tr>
<td>Evasion</td>
<td>There are known ways to escape apprehension</td>
</tr>
<tr>
<td>Repeat victimisation</td>
<td>The site has been a target before</td>
</tr>
</tbody>
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Table 1. The HOPPER acronym.