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# Beyond dots with dates: A landscape approach to the Sohar hinterlands

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## Abstract

Landscape archaeology, as a type of research based on a systemic surface survey and that results in quantifiable datasets of high quality, has started to be practiced in southeastern Arabia only in recent years. In this paper, I will briefly review the short history of landscape archaeology in the area and its relevance. I will then present the approach and methods used in the Wadi al Jizzi Archaeological Project and discuss some of the results obtained to discuss both the potential and problems of the data that the project generated. In particular, I will focus on ephemeral sites and assemblages, data quality and data representativity.

## KEYWORDS

cairns, data representativity, ephemeral sites, heritage, landscape archaeology, Sohar hinterlands

## 1 | INTRODUCTION

The archaeology of southeastern Arabia is a fast dwindling resource. The ongoing urbanisation and industrialisation of the landscapes of the United Arab Emirates and northeastern Oman have occurred over the course of only a few decades and have profoundly transformed the landscapes in these areas at a speed that is hard to fathom (Janardhan, 2011). These ongoing developments are most pronounced along the coast and have often resulted in the wholesale destruction of complete landscapes including their archaeological heritage (Al-Belushi, 2015). Given the continuing pace of development, the documentation of that heritage has acquired great urgency, as archaeological sites and structures disappear on an almost daily basis through a multitude of processes.

The survey of our Wadi Al-Jizzi Archaeological Project (WAJAP) was chosen with these concerns in mind. First, the Batinah part of Oman, although the main area of agricultural production and most densely occupied of the country throughout known history (e.g., Jones & Ridout, 2015; Lorimer, 1915), has been relatively little investigated by archaeologists, in contrast

to the interior of Oman, where the preservation of sites with monumental architecture has attracted much archaeological work (Avanzini & Degli Esposti, 2018; Cable & Thornton, 2012). Only in recent years has research in the Batinah picked up speed, with survey work in the Rustaq area (Kennet et al., 2016), our work in the Sohar area (Düring & Olijdam, 2015; Düring et al., 2017, 2019; De Vreeze et al., 2020), excavations at Dahwa (Al-Jahwari, Douglas, et al., 2018; Douglas et al., 2021) and at Al-Falaj (Al-Jahwari, Kennet, et al., 2018). Despite these studies, however, the Batinah as a whole remains poorly investigated. Second, the region of Sohar (like Duqm more recently) has been selected for the transformation into an industrial centre of Oman, with the development of the Sohar Port and a large conglomerate of factories in the Sohar Free Zone, and alongside processes of urbanisation and infrastructural development (such as the Batinah Express Way, new pipelines, a new airport), the transformation of the Sohar hinterlands has been especially fast in recent years.

While some good-quality work has been previously carried out in the wider Sohar region, including excavations in the historic town (Kervran, 2004),

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small-scale excavations at Wadi Suq (Frifelt, 1975) and Hawrat Bargha (Kervran, 2011), and survey and excavation work by Costa and Wilkinson (1987), none of these studies was undertaken to obtain a representative record of the archaeological sites, structures and assemblages present in the Sohar hinterlands. While in recent years some rescue excavations have been undertaken to document archaeological remains ahead of development (Van de Geer et al., 2016; Laurenza, 2019), these projects have documented only a small subset of the sites and structures that are disappearing in the Sohar hinterlands. Thus, if some scholar of a future generation wanted to gain an idea on what numbers and types of archaeological sites, structures and assemblages were present in this landscape, that scholar would have little to work with. It is therefore with this concern in mind that our survey work in this region was set up.

## 2 | LANDSCAPE ARCHAEOLOGY IN SOUTHEASTERN ARABIA

Landscape archaeology, defined as a type of research based on systemic surface survey and that results in quantifiable datasets of high quality (Banning, 2002, 2021), has started to be practiced in southeastern Arabia only in recent years. While in other parts of Western Asia landscape archaeology has established itself as an important method for mapping archaeological remains from the 1960s onwards and analysis has shifted to the *longue durée* changes in particular landscapes and the comparative assessment of trajectories or (de)urbanisation across regions (Barker et al., 2007; Wilkinson et al., 2014), the situation in southeastern Arabia is markedly different.

Of course, many surveys have taken place in Arabia, but with a few recent exceptions, these are not systematic and have not produced quantifiable data that can be used to reconstruct what types and numbers of sites, structures and assemblages were present in particular landscapes, and many can be characterised as ‘dots on the map’ that were assigned to a particular period with no or only very limited data on what was present at these localities. The early surveys, such as those of the Harvard Expedition (Humphries, 1974) and Frifelt (1975), can be classified as ‘hyper extensive’, in which very large regions were explored in a cursory manner. Subsequently, a number of regionally based surveys were undertaken, for example, in the Ja‘alan (Giraud, 2009) on Masirah island (Weisgerber, 2012) and in Wadi Adam (Gernez & Giraud, 2017). Further, a number of targeted surveys have taken place, in which, for example, Paleolithic scatters (Rose et al., 2018), Neolithic shell middens and cave sites (Charpentier, 2008), Hafit cairns (Al-Jahwari, 2013) or trilith structures (Garba, 2019) were identified. All of these survey projects have resulted in ‘dots on the map’, that is, localities were identified in

which assemblages or structures dated to specific period were identified. Although these projects have resulted in marked advances of our knowledge, especially when they were combined with excavations of selected sites, the information available about specific survey sites is often very limited and it is impossible to understand these sites in a quantitative manner or in their landscape context.

What I would call ‘systematic survey’, in which remains of all periods are investigated and recorded systematically and that produces qualitative and quantitative data that can be used by future generations of researchers, is relatively recent in the archaeology of southeastern Arabia: examples (in chronological order and nonexhaustive) include the work in the Dubai Desert (Casana et al., 2009), Buraimi (Power et al., 2015), Rustaq (Kennet et al., 2016), Wadi al-Hijr (Cable & Al-Jabri, 2019), at Al-Mudaibhi (Döpfer, 2020) and in Dhofar (McCorriston et al., 2020) and Yanqul (Harrower et al., 2021). So far, none of these systematic surveys has been published in a final publication presenting the data in full, which would allow other researchers to reanalyse the data obtained.

Thus, survey archaeology in southeastern Arabia is in a very different situation than in other parts of West Asia, and we have a long way to go if we want to produce data sets of similar quality that would allow for *longue durée* studies of particular landscapes or cross-regional assessments of developmental trajectories. This lack of high-quality survey data across much of southeastern Arabia is all the more relevant because of the enormous transformation that the region is undergoing in terms of urbanisation and industrialisation, a process that initially impacted mostly the United Arab Emirates, but is now felt across the region. The discussion of the work provided here is offered as one example of how we could improve this situation.

## 3 | SURVEYING THE SOHAR HINTERLANDS

As has been mentioned, a large proportion of the inhabitable area of the Sohar hinterlands has been completely redeveloped, especially along the coast, resulting in the rapid destruction of ecosystems and rich archaeological landscapes, which have been bulldozed, buried or dug through. Given the speed of these developments, we do not have the luxury to follow the example of colleagues in the Mediterranean, who, from the 1970s onwards, have generally set up survey projects in areas that are less than 50 square kilometres in size (Cherry, 1994; Knodell et al., 2022). However, as has been demonstrated by Wilkinson and colleagues (2004, pp. 189–191), the density and degree of concentration of archaeological remains differ dramatically between temperate regions and more arid landscapes, and these

differences in part determine the scale of landscape archaeology projects and the methods used.

The landscapes of southeastern Arabia are a case in point. In most parts of the landscape, archaeological remains are highly discrete, with well-preserved settlements, field systems and burial clusters that occur in relative isolation in an otherwise more or less empty landscape, in which only small campsites can be found in low densities.<sup>1</sup> Thus, neither the continuous carpets of archaeological assemblages typical for the Mediterranean nor the linked problem of how to distinguish sites within such spreads are pertinent in southeastern Arabia. An obvious exception to this consists of oasis gardens, which were, in some cases, in the same location over millennia of history and where earlier remains get churned up, reworked and obliterated, and the landscape can become a complex palimpsest of partial remains from various periods (Al-Jahwari, 2009).

The discrete and clustered distribution of archaeological remains in southeast Arabian landscapes makes it possible and sensible to investigate large areas, especially when considering the urgency of documenting these remains before they disappear. Thus, in our survey, we selected a large research area on purpose, because we wanted to obtain a representative data set of the sites, structures and assemblages present in the Sohar hinterlands. Our segment of the Batinah therefore includes both the coast and the foothills, as well as various corridors in between. Only by casting the net wide can one hope to gain an understanding of how sites and structures are distributed across various landscapes.

One of our main results is in fact that particular types of archaeological remains are indeed located in specific landscapes, and a smaller research area would have produced a much less complete record of past activities in the Sohar hinterlands. The main locations in our landscapes where archaeological remains are clustered are first, the coast; second, low-energy wadi corridors connecting the coast and the hinterlands; and, third, the wadi valleys within the Al-Hajar mountains. In our area, the coastal landscape has been either built up or is used for cultivation in garden plots and survey work in this landscape is complicated, as one has to obtain permission to enter from the owners, who are often difficult to find.<sup>2</sup> For reasons of expediency, we, therefore, did little work along the coast. Fortunately, earlier survey work by Costa and Wilkinson (1987) has documented many sites and assemblages in this coastal landscape, many of which are no longer extant today. The mountain valleys were located at considerably more than an hour's travel from

our base at the outskirts of Sohar and could not be surveyed for that reason. Therefore, we decided to focus our investigation on two wadi corridors in our region: the Wadi Suq/upper Wadi al-Jizzi in the south and the Wadi Fizh/Wadi al-Zuhaimi in the north (Figure 1). Both these wadi systems are routes that can be travelled with ease and have relatively abundant water resources.

Along these two corridors, we have systematically documented all sites and structures accessible to us. Both wadi corridors have rich assemblages of archaeological remains, but they also differ in many respects. For example, almost all our prehistoric settlements are located along the Wadi Fizh/Wadi al-Zuhaimi, whereas our best window into the archaeology of Late Antique and Islamic periods is along the Wadi Suq/Wadi al-Jizzi. Such differences clearly demonstrate that by choosing a small research region, one might obtain an incomplete understanding of the archaeological remains in a broader landscape.

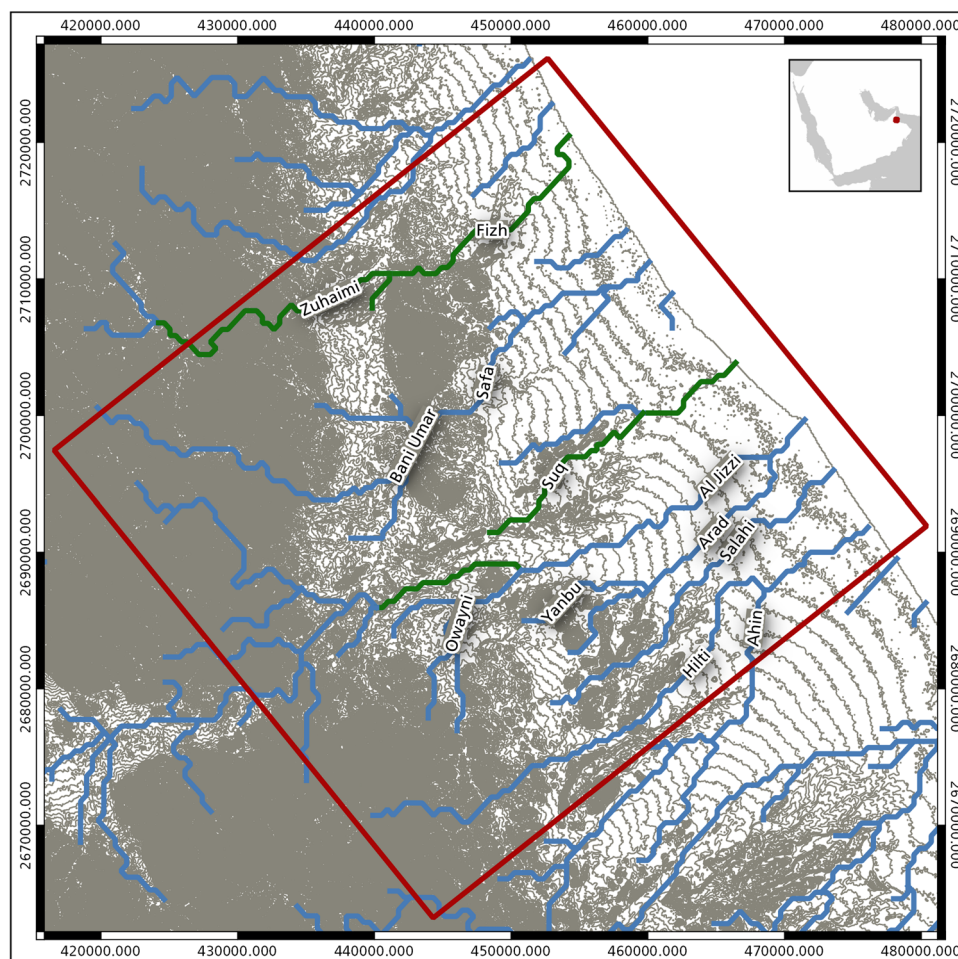
Typically, our surveys began by scouting for locations with archaeological remains. These took the form of a combination of the inspection of satellite images and car-based and pedestrian exploration. This was then followed up by pedestrian survey, which occurred in two modes. The first mode is interval tract walking to record artefact densities on the surface and collect diagnostic artefacts for further analysis. Depending on the circumstances, we adjusted the interval distance, for example, in small rooms, we usually did a complete count, and in some cases, we created artificial grids to map clusters of finds or slag concentrations. The second mode consisted of recording upstanding structures such as buildings, canals or cairns. In most cases, we applied a combination of these two modes and recorded both artefact densities and the characteristics of structures. By mapping all structures, sites and assemblages in such a manner, we have produced a dataset that is of good quality (future researchers can retrieve considerable information from our databases and supplementary files such as photographs, 3D models and site maps) and is quantifiable (one can, e.g., establish the variability in room sizes in a settlement or the interval spaces between tombs). In the following, I will present some examples to highlight the potential and limitations of our data set for understanding what happened in the Sohar hinterlands.

## 4 | EPHEMERAL ARCHAEOLOGY

The archaeology of southeastern Arabia has periods that have been relatively well investigated (such as the Umm an-Nar, Early Iron Age and Islamic period) and others that are less well known (such as the Late Bronze Age and Late Iron Age). In many cases, the reason why such periods are less well known is because their sites and the associated assemblages are less easy to recognise in the field, or in other words, more ephemeral.

<sup>1</sup>This assumption was tested on a regular basis during the survey work by walking transects away from the landscapes in which we had located archaeological remains and into adjacent parts of the landscape.

<sup>2</sup>The Rustaq-Batinah Archaeological Survey did survey these coastal garden plots near Suwaih, in a less urbanised area with larger garden plots, and obtained good results from these (see Kennet 2016).



**FIGURE 1** The two wadi corridors investigated in the Sohar hinterlands by WAJAP. Produced by Jordy Aal.

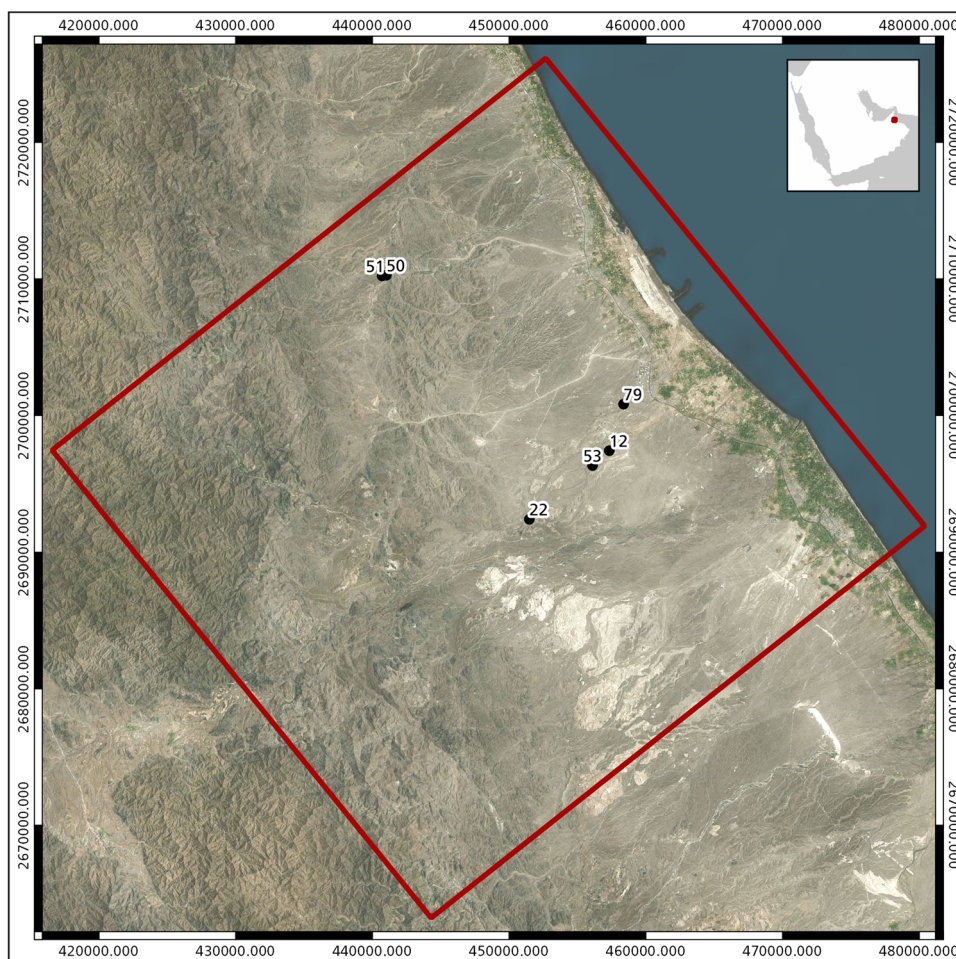
One clear advantage of doing a systematic pedestrian survey is that it allows you to pick up sites and assemblages that you could not possibly detect in any other way, for example, by looking at satellite imagery and maps or by driving around the landscape. Instead, they can only be found by a surveyor with boots on the ground with a keen eye for surface structures and assemblages. An example of this is the Neolithic period, sites of which occur in the form of limited size clusters of chipped stone artefacts. In a map produced by Charpentier some 15 years ago, the Batinah is spectacularly empty of Neolithic sites (Charpentier, 2008).

In recent years, however, both the Rustaq (see Bretzke et al., 2018) and the WAJAP surveys have started to find Neolithic sites. In the Sohar hinterlands, we now have six locations where we have Neolithic finds (Figure 2). In most cases, these are a few arrowheads—which are the most diagnostic pieces—but at one site, we have a significant collection including tools dating to the Middle and Late Neolithic and considerable amounts of debitage. Importantly, such finds could not have been possibly discovered in other ways than by fieldwalking, and even then it requires experience and knowledge to

find these chipped stone artefacts, as even a good Neolithic site consists of no more than a scatter of chipped stone spread over a relatively small area.

In part due to our new results—and assuming that the find of small numbers of arrowheads at various locations represents larger collections that have yet to be detected, it seems clear that there is a good presence of Middle and Late Neolithic (triangular and fusiform assemblages, Figure 3) across our region and not only along the coast—as has been argued for the Late Neolithic (Uerpmann, 2002). Thus, arguably, our results, along with those from the Rustaq survey, are changing our understanding of the Neolithic, as sites appear more common and diversely situated than previously known for the Batinah.

Apart from these Neolithic assemblages, we encountered further ephemeral sites and assemblages that one would not have encountered without a pedestrian engagement with the landscape. Thus, we have found multiple Wadi Suq sites, apart from the many cemeteries that occur in many places of our research region. There are two settlement sites, at Sites 2 and 73, and one Wadi Suq site that is situated on a very steep and secluded



**FIGURE 2** Sites with Neolithic finds in the Sohar hinterlands by WAJAP. Produced by Jordy Aal.



**FIGURE 3** A selection of Middle and Late Neolithic arrowheads from Site 79 (near Falaj al Qaba'il).

hillside at the back end of a hill next to a wadi. The site is covered in poorly built and collapsed terraces and large amounts of pottery, and it would not have been possible to detect it in any other way than by fieldwalking (De Vreeze et al., 2020).

Thus, a systematic pedestrian survey can detect ephemeral sites and assemblages that are easily overlooked

in more extensive survey methods and can provide crucial information on periods that are poorly known.

## 5 | REPRESENTATIVITY

Apart from the detection of ephemeral assemblages, there is a second important benefit of systematic surveying and that is the creation of data that are reliable both qualitatively and quantitatively and are representative of the archaeological remains in a specific area. For example, consider a (future) researcher who would like to know how many cairns there are/were in a specific area of the Sohar hinterlands and what their characteristics are/were. For example, while various projects have focused on funerary remains, often through a combination of analysing satellite imagery and a limited amount of ground truthing (e.g., Al-Jahwari, 2013; Deadman, 2017; Giraud, 2009, 2010), the representativity of data acquired with such methods is limited. First, only some burial structures are visible on satellite imagery. In our research region, funerary structures dating to Hafit, Umm an Nar

and Late Antique periods can be well spotted on satellite imagery: structures dating to other periods, such as for example, the Wadi Suq, Iron Age or Islamic periods cannot be discerned on these images. Furthermore, even for periods for which cairns are well visible in general from space, there are many more partially preserved cairns that can be found only on the ground. Second, satellite imagery can supply almost exclusively quantitative data, that is, data on cairn numbers and distribution, but it cannot provide qualitative data on grave construction,

characteristics and associated finds. Thus, if one is interested in how graves can be dated, and whether graves of particular types are situated in particular locations in the landscape, systematic survey and recording of these structures are essential.

In our survey project, the systematic investigation and recording of cairns were therefore undertaken. We have about 3300 in our documentation system, all measured, photographed and described in detail. When undertaking this study, it became apparent that contrary to earlier views in which cairns on elevated spots in southeastern Arabia were often dated to either the Hafit or the Iron Age (Frifelt, 1975), a large proportion of our cairns actually date to the Late Antique period, between about 300 and 900 AD, as is demonstrated by the find of glass beads, glass vessels, turquoise glazed ceramics and Sasanian seals (Düring & Olijdam, 2015). Of course, we cannot exclude that some of these structure originated in previous periods, but the complete lack of finds that would support this, both in our surveys and in rescue excavations (Van de Geer et al., 2016; Laurenza, 2019), does not support such a view.

Further, we have been able to distinguish a series of grave types, and to date these provisionally, usually through the associated finds (Figure 4). This sort of work is therefore starting to reveal a much more diachronic and varied funerary landscape than previously acknowledged. Importantly, our datasets can be used by other

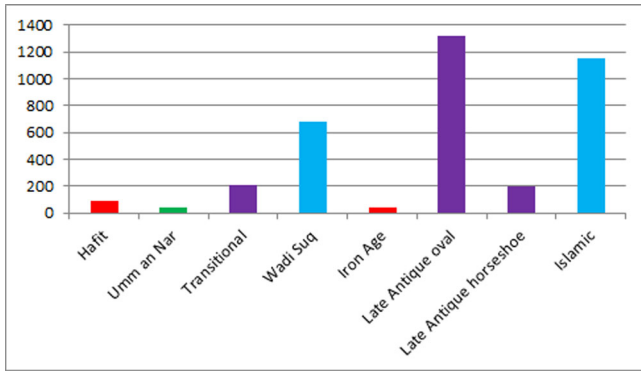


FIGURE 4 Numbers of burial types in the Sohar hinterlands surveyed in the WAJAP project.

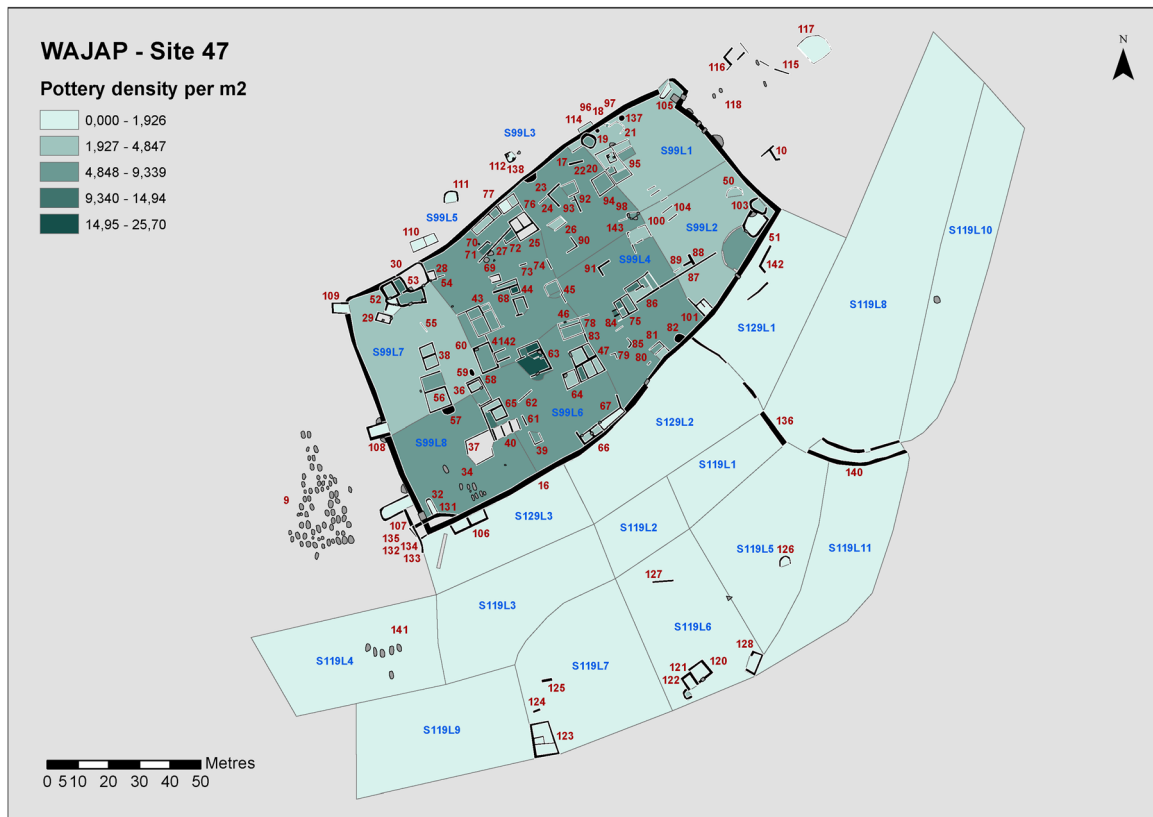


FIGURE 5 The walled Iron Age settlement Site 47 in the Wadi Fizh. Figure produced by Jordy Aal.

researchers to investigate the population of burial structures in the Sohar hinterlands in a quantitative and qualitative manner. One can also compare how the number of burials compares to our settlement evidence or the number of artefacts retrieved and assess how and why particular periods are well represented in particular types of archaeological remains. We can also better bring to the fore the fact that some periods, such as the Late Bronze Age, are almost completely absent (and try to understand such gaps in our data).

As an illustration of the difference that survey data can make, I would like to end with a site that has become iconic in the archaeology of Oman. In the Wadi Fizh, Costa and Wilkinson discovered a walled Iron Age II site, and published an areal photograph that has widely circulated. We resurveyed this site and found many additional buildings and structures, dating to both the Iron Age and Islamic periods, mapped out the field systems, and counted and sampled the surface assemblages (Figure 5). We also documented a series of further Iron Age sites, including both settlements, field systems and a cemetery, along the Wadi Fizh and Wadi al Zuhaimi (Düring et al., 2017, 2019), and we can now contextualise this site within this cultural landscape dating to the Iron Age and so can other scholars on the basis of our data.

## 6 | CONCLUSION

Landscape archaeology has only recently become important in the archaeology of southeastern Arabia. I argue, on the one hand, that the nature of the archaeological remains in this area is excellent for achieving outstanding results, given the fact that archaeological remains are often well preserved and situated in highly discrete parts of the landscape, allowing archaeologists to investigate large regions in highly efficient ways. On the other hand, the rapid development of infrastructure, industry and urbanisation of southeastern Arabia add great urgency to survey work, as many of the archaeological sites, structures and assemblages are disappearing rapidly. Further, I have argued that survey work has the potential to provide crucial data on periods in which sites, structures and assemblages are more ephemeral, and can provide datasets that are useful in both quantitative and qualitative research for researchers interested in the variabilities and characteristics of the archaeological remains documented in survey work.

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## DATA AVAILABILITY STATEMENT

Data are available on request from the authors. The data that support the findings of this study are available from the corresponding author upon reasonable request.

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