Landscapes of the Past: Creation of Persistent Places in Hunter-gatherer Landscapes of Southwest Asia and Japan

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ABSTRACT
The archaeology of hunter-gatherers has much to tell us about how humans engaged with the world around them in complex and knowledgeable ways throughout prehistory. The advent of agriculture, often seen as a monolithic and monumentally new way of life, is used as a cultural and chronological marker for when humans began to have notable and lasting impacts on the environment. Some archaeologists suggest that the far-reaching and widespread effects of farming on local habitats, from landscape clearance to the domestication of plants and animals, should mark the beginning of the Anthropocene. Here, I explore some of the ways that we can approach and detect human-environment dynamics among prehistoric hunter-gatherers, using case studies from Southwest Asia and Japan, to explore the transformation of landscapes into social places that a) represent an early expression of behaviors thought to be novel to or typify a 'Neolithic way of life' and b) have remained detectable in the archaeological record for the last 20 000 years. These landscape practices highlight that the focus on 'Neolithization' is somewhat misleading as they were enacted within a hunter-gatherer world and worldview.

KEYWORDS: geoarchaeology, landscape, Epipalaeolithic, Jomon, hunter-gatherer archaeology

1. Introduction

The archaeology of hunter-gatherers has much to tell us about how humans engaged with the world around them in complex and knowledgeable ways throughout prehistory. The advent of agriculture, often seen as a monolithic and monumental new way of life, is used as a cultural and chronological marker for when humans began to have notable and lasting impacts on the environment. Some archaeologists suggest that the far-reaching and widespread effects of farming on local habitats, from landscape clearance to the domestication of plants and animals, should mark the beginning of the Anthropocene (e.g., Smith & Zeder 2013). Here, I explore some of the ways that we can approach and detect human-environment dynamics among prehistoric hunter-gatherers, using case studies from Southwest Asia and Japan, to explore the transformation of landscapes into social places that a) represent an early expression of *hunter-gatherer* behaviors thought to be novel to

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or typify a 'Neolithic way of life' and b) have remained detectable in the archaeological record for the last 20 000 years. These landscape practices highlight that the focus on 'Neolithization' is somewhat misleading as they were enacted within a hunter-gatherer world and worldview (see also Veth *et al.* 2008). The knowledgeable engagements with landscape evidenced in the Epipalaeolithic of Southwest Asia—with a regional focus on identifying the origins of agriculture and sedentism—and the Jomon of Japan—with a regional focus on identifying evidence for hunter-gatherer complexity—emphasizes the value of considering hunter-gatherer actions and lifeways without any comparison to 'impending' Neolithization.

Ethnographic studies of hunter-gatherer societies reveal a richness of lifeways that weave together interrelated aspects of society, economy, technology and symbolism. Yet, reconstruction of the lifeways of prehistoric hunter-gatherers often involves working from a highly fragmented and only partially preserved archaeological record. Here, I assess our current understandings of prehistoric landscapes, as more than mere adaptations to a past environment, with a specific focus on two case studies from Jordan and Japan (Figure 1) employing a combination of micro- and macro-scale datasets. Micromorphology has proven particularly useful for identifying the signatures of particular activities, reconstructing the structured use of space, and, importantly, to help resolve what is knowable and what is not in the archaeological record (Maher 2019; Shahack-Gross 2017; Goldberg and Berna 2010). Micromorphology is a microscale technique employed to analyze anthropogenic (and non-anthropogenic) deposits, with the aim of linking the formation of specific residues to specific human activities preserved in the archaeological record (see

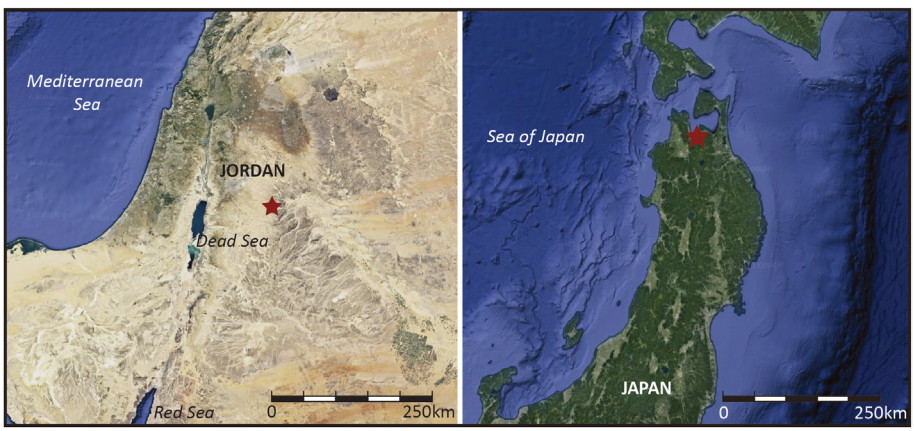

Figure 1. Google Earth images of the Southern Levant (left) showing the location of Kharaneh IV in eastern Jordan, and northern Japan (right) showing the location of Goshizawa Matsumori in the Aomori Prefecture.

Maher 2019, and references therein). Examination of these residues for the information they contain on human behaviors and the natural and cultural processes involved in the deposition, modification, and destruction of archaeological deposits, including taphonomy and site-formation processes, provides valuable insights into intentional and unintentional prehistoric activities.

At Epipalaeolithic (*c.* 23–11.5 kya) Kharaneh IV, Jordan, and Jomon (*c.* 16–2.5 kya) Goshizawa Matsumori No. 4, Japan, microscale analysis of on-site deposits sheds insights into the construction of place and structured use of space at these substantial hunter-gatherer villages. Pairing these on-site datasets with landscape-scale reconstructions of land use highlights the diversity of landscape practices and food diversity enacted by both groups. Repeated and prolonged occupation of Kharaneh IV—as one of many sites dotting the larger Epipalaeolithic landscape—help us to conceptualize hunter-gatherer aggregation and persistence and impact on the landscape. In Southwest Asia, aggregation sites stand out as places of dwelling and interaction used by multiple groups and persisting on the landscape for generations (Maher & Conkey 2019). Although Epipalaeolithic aggregation sites remain little explored[1)], their potential to mark increases in social interaction and symbolic practices have been noted (Maher 2019; Maher & Conkey 2019). Similarly, Goshizawa Matsumori No. 4 typifies the well-established Jomon pattern of building semi-sedentary residential bases (or, as I would suggest, persistent places) supported by a wide diversity of plant (including nut) and animal resources. In other words, we see a 'settling in' to the site, making it a 'place' in the landscape filled with collective social meaning, and modifying this place for a variety of subsistence-based and social purposes.

2. Approaches to Landscape & Hunter-Gatherer Place-Making

In this paper, the term landscape incorporates this holistic approach to spaces and places and includes the notion that culturally and socially contingent actions and practices leave traces or residues in the physical environment. The landscape is, as Carole Crumley (1994) suggests, an array of lived experiences made manifest. The tangible expression of these experiences as a range of anthropogenic deposits makes them detectible to archaeologists and emphasizes the importance of geoarchaeological methods of detection and analysis. Landscapes are cumulative but never complete—they preserve traces of activities past and present, but usually these traces represent windows or snapshots into these activities, perhaps even accumulations of human activity and modification, or taskscapes (Ingold 1993). As a result, we must come up with ways to deal with the fact that we will only

[1)] This is in large part a result of their rarity and the incredibly time-consuming scale of research needed to excavate and analyze the material from these sites using standard high-resolution Palaeolithic excavation techniques.

ever be able to reconstruct parts of these landscapes, best analysed by combining multiple methods and best interpreted through multiple lines of evidence and multiple social narratives or lenses. These interpretations can change with new data, new ways to see old data, and new methods to recover and analyze data. Understanding patterns of movement, distributions of material culture, uses of plant and animal and inanimate materials provide clues into the ways in which landscape features are transformed into meaningful places. As such, we could view material traces of landscapes, and the objects they contain, more broadly, as knowledges, or flows of knowledge, communicated from one generation to the next (Rockman 2013; McBryde 2000). The question becomes how to do this within the context of the archaeological record of prehistoric hunter-gatherers.

Landscapes have spatial and temporal dimensions, but changes are ongoing, fragmented, and accretionary, and are they not necessarily linear or progressive. Landscapes are created and experienced through shared knowledge, practices and memory and, as such, they are culturally constituted. In sum, "landscapes emerge as investments in location with meanings that link people, places and things together. The seemingly intangible aspects of landscape are made tangible—are manifested—through the material culture and geoarchaeological contexts left as traces in the archaeological record of these social relationships" (Maher 2019, pp. 1001–1002). Geoarchaeological approaches are thus well-suited to tackle these human-landscape dynamics, recognizing the social construction of landscape while also upholding the value of tracing these relationships in the physical world through the integration of archaeological and palaeoenvironmental records (Jusseret 2010; Walsh 2004, 2008; Wilson 2011; Butzer 2008; Hill 2005).

3. Hunter-Gatherer Place-Making: Persistent Places as a Window into Prehistoric Landscapes

A place is any location that is structured and given meaning through human experience(s), at both individual and group levels. Places are created through repeated human action and made tangible in the landscape by material culture. As places are both physical and socially constructed spaces, one can unravel the 'life history of a place' (Ashmore 2002) just as we do for the life history, biography or itinerary of a stone tool, a pot, or a house (Hendon 2009; Joyce 2015; Hoskins 1998; Appadurai 1988; Kopytoff 1986). Yet, the identification of 'places' within a palaeolandscape is admittedly a challenging endeavor, and several researchers have suggested the best way to do this is to look for persistent places (Schlanger 1992; Shaw *et al.* 2016), or what M. Conkey refers to as 'places of many generations' (Conkey *et al.* 2003). These are sites that document repeated re-use and re-visitation over long, inter-generational, periods of time. While these are certainly not the only types of landscape 'places,' they are more obtrusive and, as their name suggests, *persistent* or

durable in the landscape, offering the opportunity for examining the *longue durée* of human behavior here. Ideally, as suggested above, one would integrate knowledge about these persistent places with the landscape spaces in between, also presumably imbued with social meaning, but that is beyond the scope of this paper.

According to Schlanger (1992), persistent places feature prolonged and repeated use, structured use of space, and strategic use of location and local resources for particular activities. This provides archaeologists with a basis for reconstructing the life history of these places through high-resolution examination of anthropogenic deposits and the material culture they contain (Maher 2019). As sites with long, well-stratified sequences of occupation, these persistent places (including aggregation sites) are key to reconstructing prehistoric hunter-gatherer activities as they result from the repeated accumulation of material culture and, thus, document spatial and temporal patterns of change that we commonly label as traditions, industries and techno-complexes (Maher 2019; Shaw *et al.* 2016). Place-making, thus, involves persistent and active maintenance of a landscape. One could even argue that the very use of these places, especially when compounded over time, is a form of landscape modification where the physical environment is 'built' or structured and becomes culturally meaningful. Further, since landscapes change in response to human (and other) actions, the fact that prehistoric groups create fixed or 'persistent' places in a changing landscape is what allows us to explore culturally constructed landscapes in deep time and recreate a life history of place.

Reconstructing a Life History of Place Through Micromorphology

Geoarchaeology is multi-scalar and particularly well-suited to reconstructing landscapes that are cumulative, yet fragmentary, and sites that preserve evidences of human activities, yet are also perpetually subjected to a variety of human and non-human site formation processes (Maher 2017). Occupation deposits at archaeological sites themselves can be seen as artifacts that capture evidence of human activity. Micromorphology is a contextual technique, where blocks of anthropogenic sediment are removed *in situ*, prepared into thin sections, and examined under varying levels of magnification and polarized microscope in order to identify and reconstruct traces of human activity that make up the microstratigraphic record of anthropogenic deposits (Courty *et al.* 1989; Goldberg and Aldeias 2016; Karkanas and Goldberg 2008; Macphail & Goldberg 2018; Friesem 2016; Maher 2017; Shahack-Gross 2017). We can tease out of these anthropogenic traces of the practices of everyday life, providing evidence for activities related to construction, food preparation, discard or waste disposal patterns, combustion features, and differentiating high- and low-traffic areas such as those related to trampling (e.g., streets, floors, pathways between sites), sleeping (e.g., bedding), or storage (Friesem 2016; Maher 2019). Micromorphology can be used to identify and examine activity areas to get at

daily practices, especially amongst those societies whose activities leave few obtrusive traces (e.g., hut floors, cooking areas), and to reconstruct past landscapes to understand the complex and nuanced way people created, used and 'lived-in' places—itself a form of landscape modification.

4. Case Study 1: Place-Making in the Epipalaeolithic of Southwest Asia—Kharaneh IV

The Epipalaeolithic period (23–11.5 kya) spans the last 10 000 years or so of the Pleistocene. Archaeologically, Epipalaeolithic sites are identified by variations in microlithic chipped stone tool production, alongside intensified uses of plants and animals, elaborated art and burial practices, the appearance of architecture, and the establishment of long-distance social networks (Maher, Richter & Stock 2012). A distinction is often made between the Early and Middle phases of the Epipalaeolithic (*c.* 23–14.5 kya) and Late Epipalaeolithic Natufian (*c.* 14.5–11.5 kya), with the latter foreshadowing Neolithic lifeways (Goring-Morris & Belfer-Cohen 2002, 2010; Bar-Yosef 1998). However, recent work has shown these earlier sites to exhibit equally as complex relationships with plants and animals, funerary traditions, and the creation of a built environment (Maher *et al.* 2021; Nadel 2000; Yaroshevich *et al.* 2016).

Perhaps the most-studied aspect of Epipalaeolithic behavior in Southwest Asia relates to identifying cultural features through to indicate nascent Neolithization (e.g., Richter & Maher 2013; Maher, Richter & Stock 2012; Belfer-Cohen & Goring-Morris 2011; Goring-Morris & Belfer-Cohen 2010, 2011). There are, indeed, several archaeological correlates of Neolithization, features traditionally used to define the process of becoming Neolithic. These correlates are generally thought to be interrelated and thus models of culture change focus on the sudden, late appearance of social complexity, sedentism and large-scale interaction networks at very end of Pleistocene linked strongly to changing environments (Jones *et al.* 2019). These include: 1) The intensified use, management and domestication of plants and animals accompanied by significant changes in landscape use and modification (overgrazing), 2) Sedentism and the construction of a built environment as seen through architecture, site organization and the construction of houses and villages as homes and communities. These are generally represented in the archaeological record as large and dense sites exhibiting a high diversity of material culture. 3) Increasing evidence for elaborate art and symbolic behavior, usually in the form of decorative bone, shell, or wood, carved figurines or statuary, and elaborate mortuary practices and grave goods. 4) Evidence for long-distance trade networks documented through the movement of artifacts (raw materials and finished products) across substantial distances as indicative of social interaction. While this latter feature does not explicitly focus on the movement of

knowledges, I would suggest this can also be documented as an aspect of social interaction evident in the movement of objects and material expressions of these knowledges.

As I will discuss here, all of these features appear much earlier (and independently) in the 'world' of hunter-gatherers (Figure 2). Notably, they also all feature landscape modification and transformation to varying degrees that are visible in the archaeological record. In addition, recent work suggests the picture is much more complex; these features do not appear suddenly together at the beginning of the Neolithic—at least in Southwest Asia, there is little evidence for a Neolithic "Revolution" that clearly marks people changing from 'being hunter-gatherers' to 'being farmers.' There is no such thing as a single defining 'moment' in the processes of these transitions. In fact, when we examine

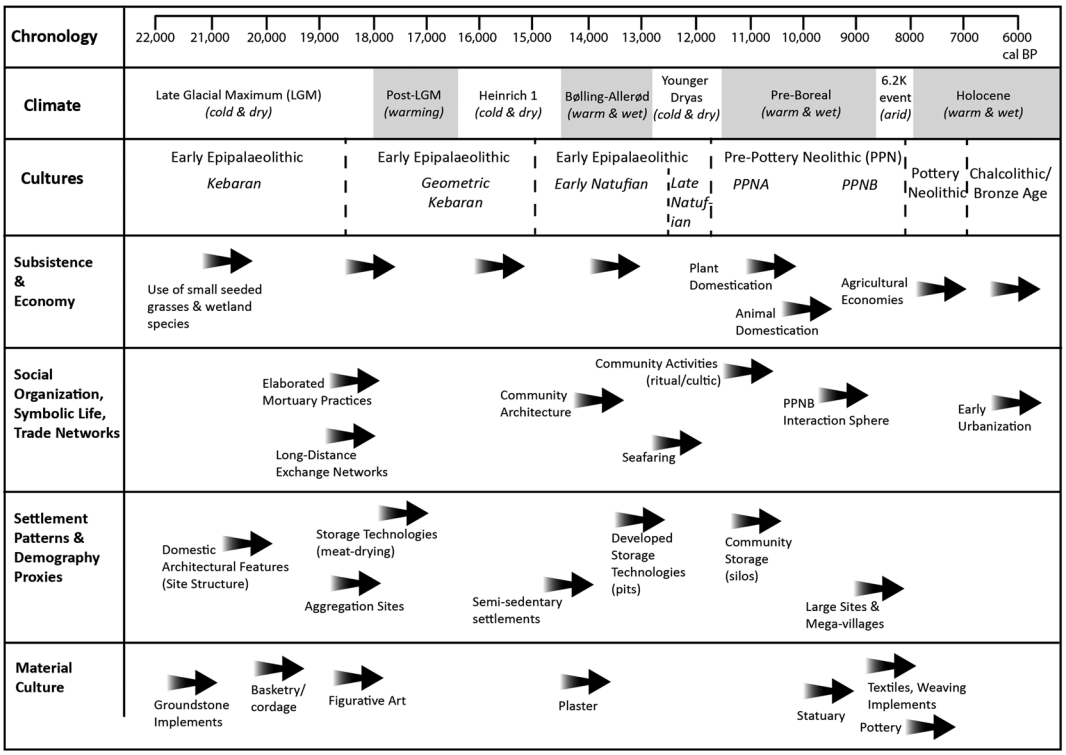

Figure 2. Schematic for the gradual and independent appearance of numerous features often used to mark or define the Neolithic and thought to be archaeological correlates for Neolithization (adapted and modified from Finlayson 2013), spanning over the Epipalaeolithic and Neolithic periods, and noted alongside major changes in regional climate regimes. Note that a) there is no clear correlation between changes in climate and identified changes in cultural periods, and b) the features listed here each appear on their own timeline and with their own trajectory, with no clear 'package' of Neolithic behaviors.

each of these features, we see that they each have their own complex, independent trajectory of development (Finlayson 2013; Finlayson & Makarewicz 2013; Finlayson & Warren 2017), none clearly correlate with environmental change (Maher *et al.* 2011), and most appear prior to the appearance of Neolithic farmers, even plant domestication (Arranz-Otaegui *et al.* 2018; Ramsey *et al.* 2017). Instead, these features highlight the complicated and nuanced relationships linking hunter-gatherers and their landscapes (see also Finlayson and Warren 2010; Finlayson & Warren 2017). If we want to understand their emergence, we must see their emergence as a long and windy path, with lots of stops and starts, and one that was not linear or inevitable. And, importantly, these lifeways were enacted within a hunter-gatherer world and worldview.

Kharaneh IV is a large Epipalaeolithic site located in the Azraq Basin of eastern Jordan (Figure 3). The Azraq Basin, a large drainage basin covering much of eastern Jordan, southern Syria and northern Saudi Arabia, is well-documented as a foci of hunter-gatherer occupation during the Epipalaeolithic (Maher *et al.* In press, and references therein). Surveys and excavations over the last several decades have documented hundreds of sites

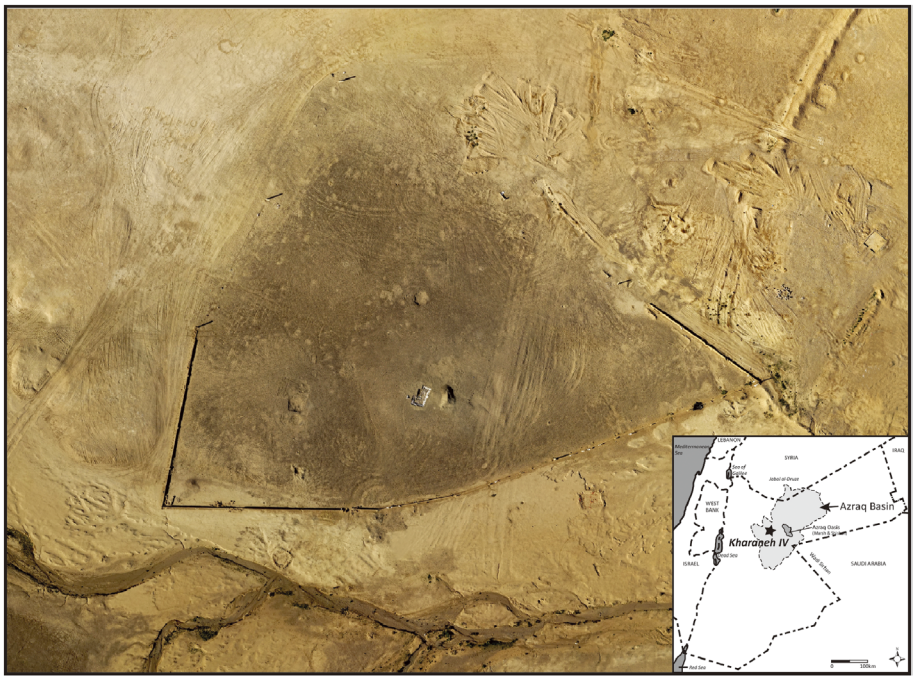

Figure 3. Aerial drone-captured composite image of Kharaneh IV, with the Wadi Kharaneh foregrounded. Note that the surface of the site is demarcated by a dense pavement of artifacts that have preserved the fine-grained stratigraphy of occupation buried below. Inset is a map of the Southern Levant showing the location of Kharaneh IV (starred) in the larger Azraq Basin (shaded).

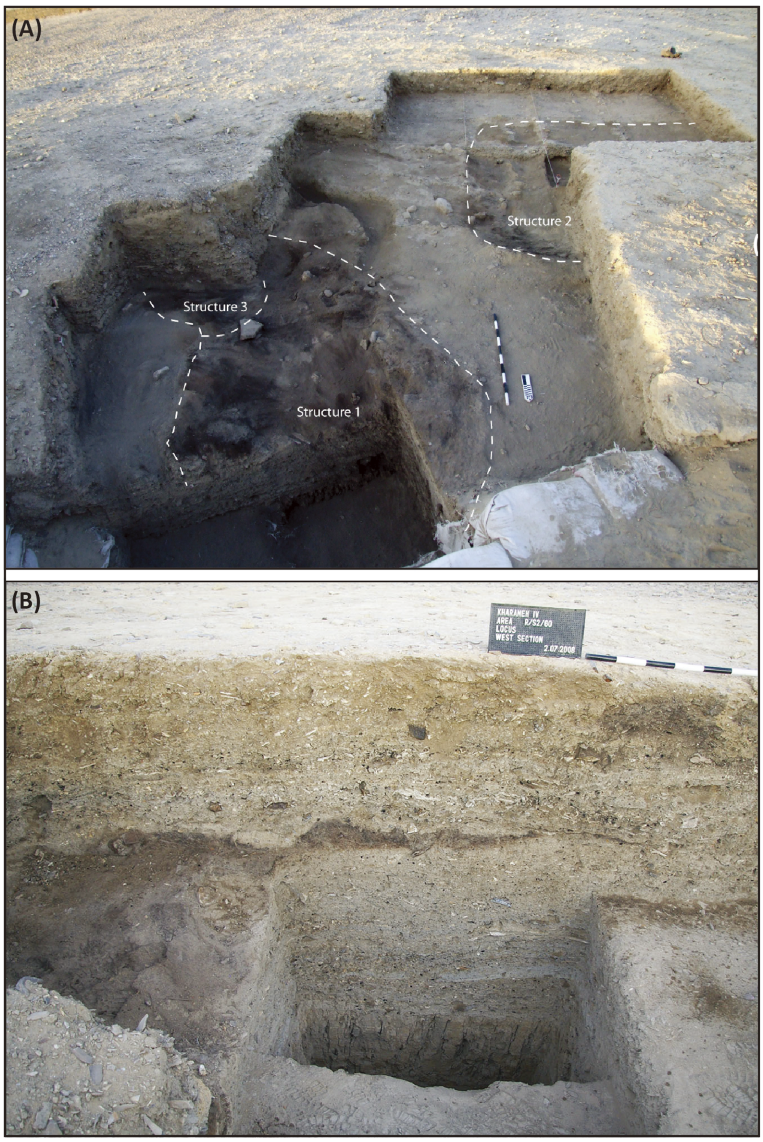

Figure 4. (A) Photograph of the Early Epipalaeolithic (Area B) hut structures prior to excavation, with the dashed lines delineating the boundaries of each hut structure (Photo from EFAP archive). (B) Photograph of the West Section of Area B, excavated in 2008–2009, showing the well-preserved stratigraphy of subsurface deposits at the site. Note the dark layer extending from center to the left side of the section that represents the northernmost extent of the burnt superstructure of Hut Structure 1. The three superimposed floors (discussed in text) are found immediately below this dark, organic-rich layer.

spanning the late Pleistocene and into the early Holocene. Notably, several of these sites represent large aggregation sites and villages, occupied repeatedly and semi-permanently by hunter-gatherers. While much of the basin is characterized as an arid, semi-desert landscape today, palaeoenvironmental reconstructions by EFAP and other projects (Ames *et al.* 2014; Ames & Cordova 2015; Betts 1998; Cordova *et al.* 2013; Garrard and Byrd 2013; Jones, Maher, Richter, *et al.* 2016; Jones & Richter 2011; Jones, Maher, Macdonald, *et al.* 2016; Maher *et al.* In press) indicate that the picture was quite different during the Pleistocene and early Holocene; instead the landscape was a lush grassland and parkland, dotted by rivers, streams, playa lakes, and wetlands. The site of Kharaneh IV sat adjacent to one of these substantial wetlands. Indeed, it is one of up to three large aggregation sites dating back 20 000 years ago to the Early Epipalaeolithic.

Kharaneh IV covers more than 21 000 m^2 and prolonged and repeated occupation over a 1200-year time span led to the formation of an archaeologically-dense, mounded site (Figure 3). While the surface of the site is deflated to create a pavement of flint (and some of the uppermost occupational deposits are thus lost to erosion), this pavement protected the fragile underlying anthropogenic deposits and preserved the site's stratigraphic record as a series of complicated occupational contexts (Figure 4). These deposits provide a high-resolution geoarchaeological dataset containing evidence for hut structures, hearths, postholes, symbolic and mundane caches, flint-knapping activities, food-processing, consumption and disposal areas, and human burials. Radiocarbon samples from throughout the site's stratigraphic record indicate that the site was densely occupied between 19 800 and 18 600 cal. BP (Richter *et al.* 2013; Maher *et al.* 2021), spanning the Early and Middle phases of the Epipalaeolithic, with no clear evidence for substantial hiatuses in occupation[2)]. Details of the excavation results and analyses of fauna, flora, and other material remains have been published extensively elsewhere (Maher 2016, 2019, 2020; Maher & Conkey 2019; Maher & Macdonald 2013; Maher *et al.* 2021; Maher *et al.* 2016; Maher & Macdonald 2020; Maher, Richter, Macdonald, *et al.* 2012; Henton *et al.* 2017; Martin *et al.* 2010; Spyrou 2019; Macdonald & Maher 2020; Macdonald & Maher In press; Macdonald *et al.* 2018) and will not be reviewed here. Instead, I will focus here on summarizing recent results from the excavation of two hut structures from Early Epipalaeolithic contexts. The presence of several hut structures, and other associated activities of place-making, provides a rare opportunity to show how microscale geoarchaeological methods are effectively utilized to investigate the organization of space and hints at emerging behaviors related to 'settling-into' the landscape, economic intensification, and mortuary behaviors associated

[2)] While there is no clear evidence for abandonment of the site during this time frame, we do not claim permanent or fully sedentary occupation of the site. Instead, we assume that, these variably mobile groups likely repeatedly left the site during short-term movements elsewhere within the basin or even more sustained periods of dispersal beyond.

with dwelling almost 9000 years earlier than previously known.

On-Site Activities and Use of the Local Landscape (Landscape Modification?)

Geoarchaeological work on-site and off-site at Kharaneh IV demonstrates that occupation of the site occurred within the context of a lush well-watered environment. Site occupants experienced ready access to numerous freshwater resources, and a wide diversity of flora and fauna related to wetland, grassland and parkland habitats—a landscape very different from that of today (Jones, Maher, Richter, *et al.* 2016; Jones, Maher, Macdonald, *et al.* 2016). The rapid burial of occupational deposits followed by rapid desiccation after abandonment produced extraordinarily well-preserved array of organic features and materials (Maher *et al.* In press). The site, thus, allows us to address nuanced questions of changing hunter-gatherer lifeways and novel human-landscape interactions *prior to* the origins of villages and agriculture.

Intensive use of wetland plants, sedges, grasses, and some arboreal species (e.g., tamarisk, woody chenopods) are well-documented at the site through the macrobotanical record of charcoal (Asouti *et al.* 2015) and, occasionally, seeds and tubers (A. Arranz-Otaegui, personal communication, 2019), as well as through micro-botanical remains of phytoliths (Ramsey *et al.* 2015; Ramsey *et al.* 2018; Ramsey *et al.* 2016; Ramsey & Rosen 2016). Ramsey *et al.* (Ramsey *et al.* 2016) have suggested that the focus on both wetland plants and grasses might suggest an alternative pathway of plant use to the traditional narrative of increasing dependence on grasses as a staple foodstuff leading to their domestication. In this way, these 'reliable' wetland species might even be preferred to more 'riskier' grasses as the former wetland landscapes are often buffered against minor ecological and climatic fluctuations while grasslands are generally considered sensitive to change (Ramsey *et al.* 2016). The species represented in the Kharaneh IV botanical record, and their context, certainly provide clear evidence of the wide variety of plants collected for consumption. They also, however, shed insights into use of the local landscape for construction, fuel and other non-food purposes. Here, analyses of the distributions of different phytoliths within the burnt organic superstructure of two huts (see below), as well as across the floors of these huts, tells us that a combination of sedges and grasses were selected for construction and as matting (Ramsey *et al.* 2018).

Similarly, analyses of the faunal remains from various on-site contexts demonstrates that the site's inhabitants hunted a wide range of prey species, including water-dependent species like boar, aurochs, tortoise, and waterfowl, as well as fox, hare, wolf, equids, and ostrich, yet they focused particularly on gazelle (Martin *et al.* 2010; Martin *et al.* 2016; Spyrou 2019; Henton *et al.* 2017; Jones 2012). The intensity of gazelle utilization and insights into hunting practices provided by analyses of cementum (Henton *et al.* 2017) and age and sex profiles suggests that in the latter phases of occupation, communal hunting

strategies that focused on whole herd culls (Martin *et al.* 2010), as well as evidence for scaled-up processing and drying of gazelle meat (Spyrou 2019) tell us that gazelle were integral to everyday food provisions, and very intensively exploited, perhaps to the point of overexploitation. It is clear that the occupants of the site utilized a wide array of plant and animal resources from the local wetlands and surrounding grasslands, and this would have had an impact on the local ecology, the distributions and abundances of these species.

On-Site Activities and the Structured Use of Space

We know that people settled at Kharaneh IV because it was a verdant wetland environment, rich in plants and animals preferred by these groups. We know that they abandoned the site when this wetland dried up, and the resources it supported disappeared (Maher *et al.* In press). But what were people doing at the site to create such a dense record of occupation? Excavations since 2008 have documented a wide range of activities on-site, activities which changed in nature from the Early to Middle Epipalaeolithic (Maher 2019; Maher *et al.* 2021; Maher, Richter, Macdonald, *et al.* 2012; Macdonald & Maher 2020; Macdonald *et al.* 2018). Where Early Epipalaeolithic (*c.* 19.8–18.9 kya) occupations are discrete and spatially-bounded, characterized by hut structures and associated hearths and caches, Middle Epipalaeolithic (*c.* 18.9–18.6 kya) occupations are spatially continuous and unbounded, characterized by thick horizontally-extensive compact earthen surfaces hearths and post holes. The former are interpreted as representing small groups invested in domestic, perhaps household-level, activities who made clear delineations of space for specific tasks, caches objects, and conducted some activities in 'private' indoor spaces (e.g., hide processing) and other in more public 'outdoor' spaces (cooking) (Macdonald & Maher 2020; Maher 2020; Maher & Macdonald 2020). The latter are interpreted as more communal, group activities related to large scale processing and preservation of gazelle through drying or smoking (Spyrou 2019).

Recent work at the site has revealed evidence for at least four hut structures. Structures 1 and 2, the only huts fully excavated to-date (Figure 4), are both just over 2 m×3 m in size and show a complex sequence of construction, maintenance, use, and destruction events, where each hut was burnt and buried after use (Maher *et al.* 2021; Maher, Richter, Macdonald, *et al.* 2012). In fact, the similarities (and some differences) in the structured spaces and, thus, the 'life history' of these two huts is remarkable.

Structure 1: Early Epipalaeolithic

Structure 1 is semi-subterranean, and kidney-shaped and composed of several different strata (Figure 5). The lowest deposits represent three superimposed compact floor deposits. Although the structure is small, its floors were re-constructed and re-surfaced, and the hut was re-used on several occasions (Maher 2019). The deposit above these floors is a

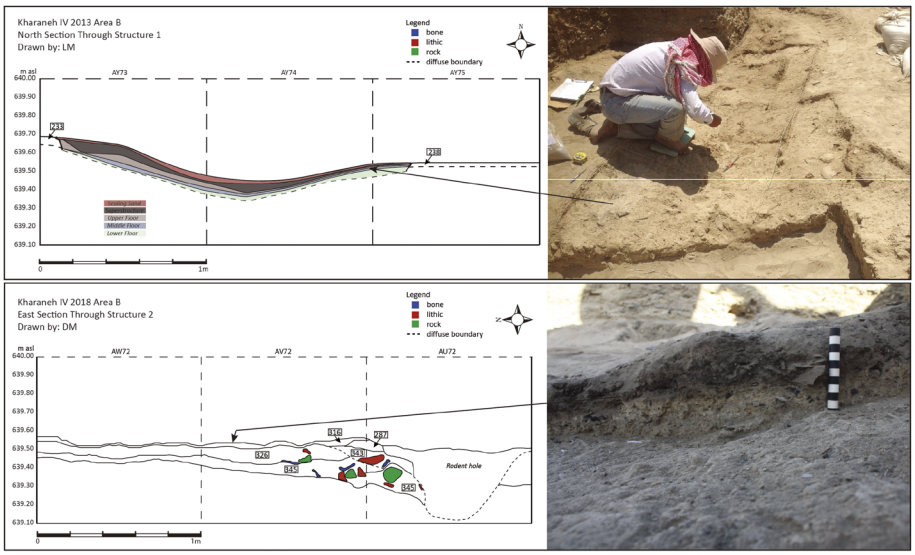

Figure 5. Top: Section of Hut Structure 1, showing the stratigraphic relationships between the burnt superstructure and superimposed floors discussed in the text. A photograph of the Middle Floor during excavation is on the right. Bottom: Section of Hut Structure 2, showing the stratigraphic relationships between the burnt superstructure, the human burial and the superimposed floors discussed in the text. A photograph of the detail of hut's stratigraphy is on the right, with the dark top layer representing the remains of the burnt superstructure.

thicker fill deposit. The final hut deposit is an organic-rich burnt sediment, interpreted to be the burnt superstructure. Once the occupants of the structure decided to abandon it, they burned the hut down, thus terminating the cycle of reuse. Near the center of the structure, deliberately placed on the burnt superstructure immediately after its destruction, we found three distinct caches of pierced, ochre-stained marine shells imported from both the Mediterranean and Red Seas and locally-collected fist-sized chunks of red ochre. After the placement of these objects around a large flat anvil stone, a deposit of sterile orange sand was placed over the burnt deposits, suggesting it was intentionally destroyed and sealed after abandonment, 'ceremoniously' closing the structure's life history.

Reconstructing the beginning of the life-history of the hut—the construction—comes from phytolith analysis (Ramsey *et al.* 2018). Phytoliths from the various strata show that the superstructure was composed of a variety of plant materials that would have been available in the local wetland, including grasses, sedges, and reeds. *Phragmites* sp. was found in high concentrations in the superstructure, suggesting that this plant played an important role in construction. There is also evidence for woody dicot plants, suggesting a wooden frame over which reeds and grasses were woven to create the thatched

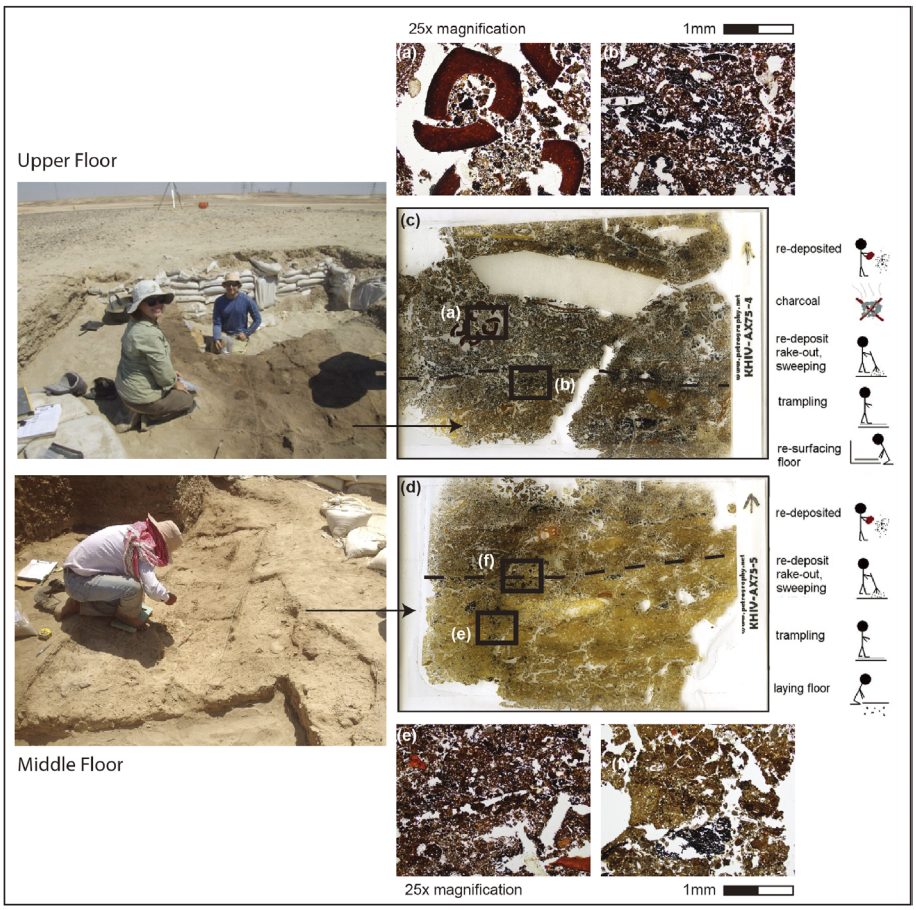

Figure 6. Photographs of the upper and middle floors of Structure 1 during excavation (left), with scans of the micromorphological slides from these deposits, as well as the burnt superstructure (center) and interpretations of the sequence of events based on microstratigraphic and macro-artifact analyses (right). The upper and lower center images are images from these slides at 25 × magnification, showing burnt bone beads (upper left) and charcoal (upper right) and the compact, clayey and 'clean' floors (lower).

superstructure. The floors were covered with a layer of grasses and sedges that represent matting or bedding placed on the compact earthen floors.

Micromorphological analysis of the hut's stratigraphy shows that the first few centimeters of each floor context are thinly laminated, highly compact and remarkably clean of large objects (larger than a small pebble) (Figure 6). However, they are extremely dense in highly fragmented anthropogenic materials like charcoal, bone, flint microflakes, and even small crushed bone beads—the type and size of material that often escapes

Figure 7. Photographs of artifacts found in the deposits of Hut Structures 1 and 2. (A) Articulated aurochs vertebrae, worked bone and a fragment of groundstone from the top of the Upper Floor. Other faunal remains from the floor contexts included (B) an articulated tortoise carapace, (C) several burnt and unburnt articulated fox paws, and (D) several polished bone points. (E) Several caches of marine shell and red ochre were found placed on top of the burnt superstructure. (F) Caches of cores and bladelet manufacturing debris and tools were found in between structures 1 and 2. (G) An overview of Structure 2 with the burnt superstructure layer visible, and the partially burnt human burial (inset) found along the western margins of the structure on top of the uppermost floor.

sweeping or gets trapped underneath matting. The overlapping floors suggest that there no major interruptions in occupation; one floor was built on top of another within a relatively short period of time and, as such, the building of a new floor may mark either necessary maintenance of the floor or even a rejuvenation of space, perhaps linked to an important life event for its occupants, or to important seasonal milestones.

Detailed typo-technological and use-wear analyses of the distributions of macroartifacts on each floor, especially in relation to spaces outside the hut, show clear differences in the use of inside and outside spaces. For example, microlith production occurred outside while some butchery and hide processing occurred inside, the matted floors would have provided cushioned spaces to sit and sleep, and the type and distribution of articulated animals remains suggests gazelle and fox hides either hung from the superstructure, or were part of its construction (Macdonald & Maher 2020). Marine shells occur in caches and as the still-strung remains of clothing (Figure 7). An abundance of highly polished bone tools and caches of endscrapers with hide working polish suggest hide working was a common inside activity.

Further alluding to the repeated re-use and ongoing maintenance of this structure, on each of the hut's three distinct floors, as well as the burnt superstructure, we excavated several *in situ* caches of groundstone, bone points, macrolithic flint tools, ochre, and articulated remains of fox, hare and tortoise intentionally placed on these otherwise notably 'clean' floors (Figure 7). All of these items are notably less common outside of these structures and indicate a clear spatial organization to the use of space within and between the huts and the performance of specific activities between these well-defined spaces (Macdonald & Maher 2020). Specific animals remains were stored inside (fox, tortoise, hare), larger curated tools such as scrapers were kept within the structure, and the hut was periodically swept or cleaned, with a new floor laid down. The presence of marine shell beads and red ochre indicates that the structure was also involved in symbolic life beyond everyday activities.

Structure 2: Early Epipalaeolithic

Like Structure 1, preliminary phytolith analysis suggests that Structure 2 was composed of wetland grasses and reeds, with some wooden support poles (M. Ramsey, personal communication, 2018). There are other notable similarities between these two structures (Maher *et al.* 2021). Structure 2 has multiple superimposed compact floor deposits, each with large artifacts and faunal remains sitting on the surface (Figure 5). In comparison to the outside deposits, there are few macro-artifacts within the structure but, unlike Structure 1, there were no caches of pierced marine shell. It was also burnt after abandonment.

However, directly below the burnt superstructure we uncovered a human skeleton immediately underneath, lying directly on the uppermost floor of the structure (Figure 7),

indicating it was placed within the structure just prior to burning (Maher *et al.* 2021). The interred individual is a woman, approximately 50 years old. She was carefully placed in a fetal position, with her head turned to the side and facing down and one hand resting on her face. She suffered from arthritis, as evidenced on her vertebra, and had suffered a fall, resulting in a fractured wrist that fully healed before she passed away. Her partially burnt skeleton shows evidence of exposure to fire, forensically consistent with patterns seen when a body is encased in a protective layer prior to conflagration. It is likely that she was wrapped in a hide blanket or even covered in a thin layer of sediment before the hut structure was burnt around her, partially protecting her body from the intense heat of this fire. Experimental research indicates the fire would have been intense, but short-lived, destroying the structure in the eyes of the occupants, but preserving evidence of these events (see discussion in Maher *et al.* 2021). The burial of this woman inside Structure 2 foreshadows a well-noted association between human burials and houses in the Neolithic, where people were often carefully positioned, wrapped and buried below floors. It has long been thought that these associations represent the symbolic marking of connections between specific individuals and houses, reinforcing the construction of and connection to a built environment (Bar-Yosef & Valla 2013; Baird *et al.* 2017; Watkins 2012; Croucher 2012). I argue here that it is likely the burial in Structure 2 also indicates an intentional, long-term connection to the site as a 'built environment,' marked through mutual end of life of the structure and the person interred within it.

Structured Use of Space in the Middle Epipalaeolithic

Excavations in the Middle Epipalaeolithic component of the site have unearthed a series of horizontally-extensive and poorly-bounded occupation surfaces, each associated with hearths (sometimes overlapping) and multiple postholes, all of which are artifact-rich (Maher 2019). These surfaces are interpreted as outdoor activity areas and are identifiable on the basis of their compact, clayey texture, associated hearths and postholes, flat-lying artifacts, and articulated animal remains. The posthole features are primarily concentrated around hearths and are very small in diameter, suggesting that they were ephemeral structures around or beside fireplaces, such as meat-drying or smoking racks. Analyses of the food processing remains here indicates intensive processing of gazelle, where meat was either stored or eaten in mass consumption events (Spyrou 2019). There is a notable increase in the occurrence of marine shell, sometimes decorated, and incised bone and stone, here. Patterns in the markings of bone and stone objects may indicate the keeping of time, production of maps, or marking of repeatedly performed activities (Macdonald & Maher In press). Refits of gazelle processing tools across these extensive compact outdoor surfaces corroborates the idea of communal activities taking place here.

In addition, an increase in the diversity of microlith tool types here exhibits a 'blending'

of lithic traditions documented across the larger region (Maher & Macdonald 2020). The tools at Kharaneh IV—all made on locally-available flint—have clear parallels to many clustered distributions of sites elsewhere and indicate that the site became integrated into—perhaps even as a focus of—large-scale social networks of interaction documented by both material culture and knowledge exchange in how to make particular types of tools.

Changes in the Structured Use of Space

There are notable differences in the use of space documented between the Early and Middle phases of occupation at the site. Early occupations exhibit a complicated stratigraphy of numerous, thin, discrete deposits and the establishment of 'place' through the demarcation of space: the building of structures that separated publicly-visible and private spaces, clearly bounded spaces for preparing food, processing plants and animals, eating, sleeping, flintknapping, hide processing, and the burial of the dead. Middle occupations show fewer, thick, horizontally-extensive deposits related to repeated activities involving the participation of many people. Community and connections between Kharaneh IV and other sites in the larger landscape are highlighted by the long-distance movements of marine shell, marking of bone and stone in abstract ways presumably understood by the larger community, and sharing of technological knowledge, or traditions, for stone tool production. In both phases, a combination of macro- and microscale analyses demonstrate evidence for place-making, suggest its inhabitants engaged in local landscape transformation of the surrounding wetlands through (sometimes very intensive) use of particular resources and emphasizes that KHIV was a part of a larger socially mediated Epipalaeolithic landscape.

5. Case Study 2: Place-Making in the Jomon of Japan—Goshizawa Matsumori No. 4

While connections between Late Pleistocene hunter-gatherers of Southwest Asia and Japan might not be immediately apparent, I intend here to demonstrate that a) the same theoretical approach to landscape and place-making are as illuminating here as they were in Southwest Asia, and b) there are similarities in how these different hunter-gatherers leave traces of place-making in the archaeological record. I will focus on the Early to Middle Jomon (*c.* 3300–3200 BCE), which is not directly comparable to the Early and Middle Epipalaeolithic on the basis of chronology, but instead is, I argue, comparable in terms of how these hunter-gatherer groups were increasingly engaged in behaviors related to settling into the landscape, creating a built environment and engaged in place-making to create a 'storied' landscape (Langley 2013). Indeed, the same list of features I noted above used to define Neolithization—and how they appear earlier in the archaeological record

than previously thought—applies as equally to the Jomon as it does to the Epipalaeolithic. I trace here the well-documented macro-scale evidences for landscape use and place making in the Early to Middle Jomon, as well as present new evidence for microscale traces of site structure through micromorphological examination of deposits from two sites.

Extending my focus on place-making documented through anthropogenic deposits outside of Southwest Asia, as part of the Small-Scale Economies Project directed by Dr. Junko Habu through the Research Institute for Humanity and Nature, Kyoto, and University of California, Berkeley, I am currently exploring hunter-gatherer landscape construction through examination of the anthropogenic deposits from the Jomon site of Goshizawa Matsumori No. 4 (Figure 1). This research is ongoing and preliminary in nature, and I refer to reader to extensive publications by Junko Habu on this site, and the Jomon in general (Habu 2004, 2002, 2018, 2010; Matsumoto *et al.* 2017; Underhill & Habu 2006; Habu 2008, 2014; Habu & Hall 2013; Heron *et al.* 2016; Habu *et al.* 2016). Excavations at Goshizawa Matsumori No. 4 have produced a rich record of hunter-gatherer activities and demonstrate that this Early and Middle Jomon site was a significant focus of place-making activities.

The transition from the Palaeolithic to Jomon Periods begins around 16 000 cal. BP and is marked by pottery and the intensification of certain settlement and subsistence practices that culminate at the end of the Middle Jomon (*c.* 2400 BCE) with extraordinarily large, planned villages supported by intensive use of particular resources like chestnut, alongside a diversity of other plant and animal foodstuffs (Kitagawa & Yasuda 2008; Yasuda *et al.* 2004). Starting in the Early Jomon, specific evidences for place-making include highly structured sites with (often hundreds of) pit-houses, hearths inside and outside of houses, storage pits, and burials (Habu 2004); often these features occur within sites in patterns that indicate a striking degree of planning (Kobayashi *et al.* 2004, Figure 6.4). Into the Middle Jomon, sites get larger and more elaborately laid-out concentrically around central plazas with raised-platform and ceremonial structures (Kobayashi *et al.* 2004, pp. 102–103). These Early and Middle Jomon sites, thus, demonstrate clearly structured use of space, where activities related to storage, cooking, sleeping, tool preparation, and burial of the dead are delineated from each other, as well as organized with respect to each other. The repetition of this structuring at multiple sites suggests connections and interactions between these hunter-gatherer villages, where there is a shared tradition in how to structure daily life, or 'way to do things.'

Archaeobotanical remains and faunal assemblages from Early and Middle Jomon sites highlight food diversity—a broad spectrum approach to subsistence, yet also document changes over time that lead to increasingly more intensified use of preferred plants and animals into the Middle Jomon, without a trajectory towards agriculture *per se* (Bleed & Matsui 2010; Habu 2010; Habu *et al.* 2011; Matsumoto *et al.* 2017). Sites preserving

a rich array of organic remains also highlight the richness of woodworking and textile technologies. In the larger landscape surrounding these Jomon villages, evidence for landscape management and modification comes in the form of sites surrounded by stands of trees, such as chestnut, often occurring in dense, single species concentrations (Kobayashi *et al.* 2004), as well as pit-traps, sometimes occurring in the thousands and tens of the thousands around sites (Imamura 1996, p. 84). These earthen pits, placed along known animal paths (Kobayashi *et al.* 2004), are part of a larger landscape-scale hunting strategy for maneuvering and capturing wild pigs and deer.

The evidence for complex and elaborate use and shaping of the landscape by these Jomon hunter-gatherers has served to focus current research on two central issues: Why did some people settle down into large, dense villages, and how do these relate to smaller residential bases (like Goshizawa Matsumori No. 4)? What was the nature of subsistence practices supporting these different sites? In other words, why did people become sedentary (and what happened after the Middle Jomon when sites decline, although beyond the scope of this paper) and were they actively managing/cultivating/domesticating nuts and other plants, engaged in highly diverse food-related practices, through niche construction? Bleed and Matsui (2010) provide a range of specific examples for the management of plant and animal communities, such as chestnut and lacquer trees, if not outright cultivation of several species. Yet, at the same time, it seems that diversity characterized Jomon subsistence strategies, with planned, systematic and predictable food-procuring strategies' (Kobayashi *et al.* 2004, p. 73) and active manipulation of the distribution, reproduction, and productivity of plant and animal communities that allowed Jomon people to develop large, relatively permanent settlements by the Middle Jomon period.

Located in Aomori Prefecture, Goshizawa Matsumori No. 4 is an Early to Middle Jomon site (dated around 3300–3200 BCE) situated at an elevation of 95 m asl on a gentle, north-facing slope of a volcanic terrace that extends from Mt. Hakkoda. Notably, the site is found at a higher elevation, facing away from the Aomori Plain, than other typical Early and Middle Jomon settlements found at the northern edge of this volcanic terrace. The site was occupied at the transitional period from the end of the Early Jomon to the beginning of the Middle Jomon, *c.* 3300–3200 BCE, and likely functioned as a small village or seasonal residential basecamp for intensive exploitation of mountain resources (J. Habu, personal communication, Figure 1). Excavation of the site from 2008 to 2010 were led by J. Habu and focused on a Jomon pit-dwelling (House 1, dated to 3300–3200 BCE) and two storage pits, Storage Pit 1 (Feature 13) and Storage Pit 2 (Feature 19), all of which are dated to the end of the Early Jomon (Lower Ento-d phase) and beginning of the Middle Jomon (Upper Ento-a phase) (Habu *et al.* 2016) (Figure 8). Compared to nearby Sannai Maruyama (13 m asl), Goshizawa Matsumori No. 4 was probably occupied less intensively (either for a shorter period, or more intermittently), but can still be considered a small village

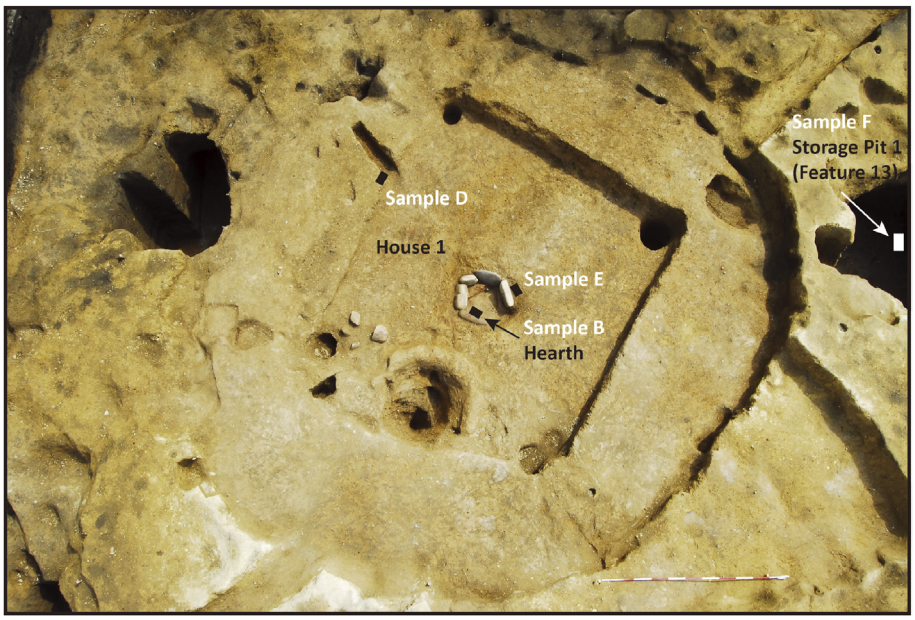

Figure 8. Overview of the main excavation area at Goshizawa Matsumori, showing a close-up of Pit House 1 and Storage Pit 1 (Feature 13). Samples D and E (from the southern section of the pit house floor and its fill, and central area of the pit house floor and fill, respectively) and Sample B (from the central hearth feature) are noted, as is Sample F from Storage Feature 1 marked to the right of the house. Photograph courtesy of J. Habu.

occupied by sedentary or semi-sedentary hunter-gatherers. Systematic soil sampling and collection of flotation samples illuminate an array of well-preserved macro-scale remains of plant seeds, nut shells, and charred wood, as well as several microstratigraphic features. In particular, flotation is producing a rich diversity of arboreal species utilized at the site, including lacquer tree (*Toxicodendron*), dogwood (*Cornus*), and Japanese Angelica-tree (*Aralia*), as well as other plants like elderberry (*Sambucus*) and knotweed (Polygonaceae) (Habu *et al.* 2016, p. 47).

Four intact columns of sediment were collected and processed into thin section slides from the site (Figure 9). Sample D (slides D1: 94.82–94.89 m asl and D2: 94.89–94.96 m asl) comes from the House 1 floor and fill below the floor, near the southeastern edge of the square house depression (Figures 8, 9a). At this area, the sediment below the house floor was disturbed and refilled, suggesting the house builders may initially have over-excavated and patched the area to make a flat floor surface. Sample E (slides E1: 94.9–94.97 m asl floor, E2: 94.97–95.04 m asl, E3: 95.11–95.18 m asl, E4: 95.2–95.27 m asl) represents the House 1 floor and associated overlying fill from the center of the house feature (Figures 8, 9b). Sample B (slides B1: 94.82–94.89 m asl, B2: 94.92–94.99 m asl) comes from a hearth

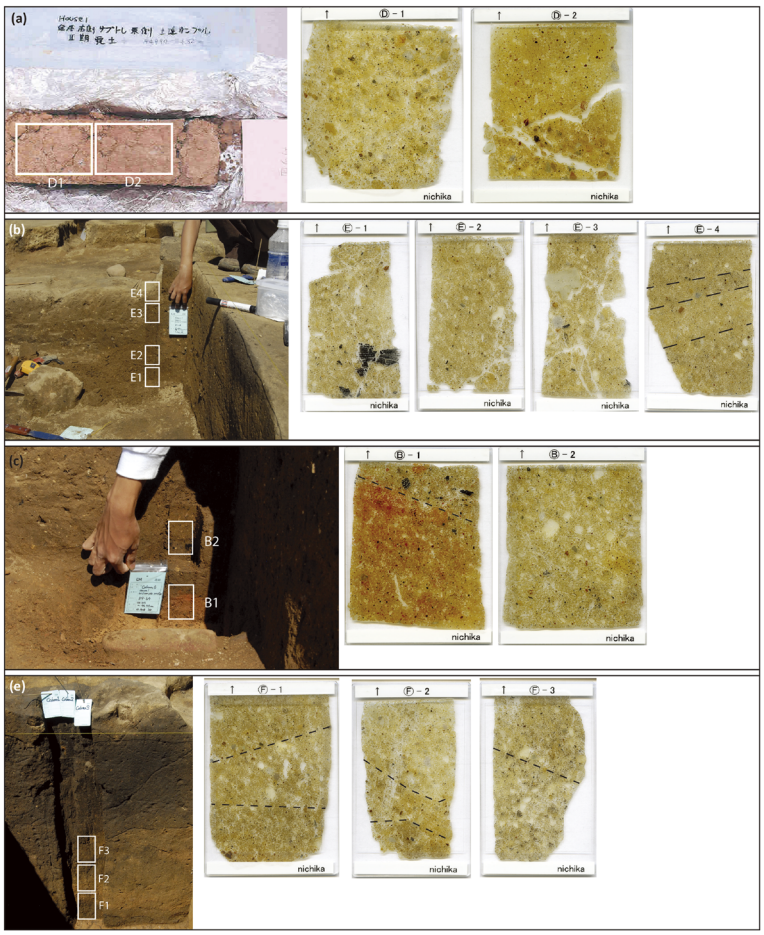

Figure 9. Micromorphology samples from pit-dwelling House 1: (a) Sample D column from the southern edge of the pit house floor and associated fill, (b) Sample E from the central portion of the pit house floor and associated fill, and (c), and a stone-lined hearth feature located in the central portion of the house. Storage Pit 1 (Feature 13) is shown at the bottom of the image (d). Beside each excavated section is a scanned image of each thin section slide from these columns. Details of each slide are provided in the text; however, in summary, examination of pit house floors and related combustion, pit fill and storage features indicate ongoing use, maintenance and re-use of the accretionary floor(s), alongside evidence for a complex history of multiple episodes of re-use of the hearth and storage pit. Excavation section photographs courtesy of J. Habu.

feature inside Pit House 1 (Figures 8, 9c). Sample F (slides F1: 94.3–94.37 m asl floor, F2: 94.45–94.52 m asl, F3: 94.55–94.62 m asl) comes from the bottom and fill of Storage Pit 1 (Feature 13, Figures 8, 9d).

Sample D is extremely dense and clay-rich, typical of a compact, trampled earthen floor.

In both samples, the deposits are notably 'clean' of large fragments of bone, charcoal, ash accumulations, and rock fragments that are common to the other fill, hearth and storage pit deposits from the site. Slides D1 and D2 represent floor samples, overlain by associated fill (Figure 9a). The floor in the top part of slide D2 exhibits a very dense groundmass with planar voids parallel to the surface, and some fragments of amorphous organic material, charcoal, clay aggregates and rock fragments, albeit not in the same density as the hearth discussed below. There is evidence of iron staining on some of the rocks and clay aggregates, but no iron nodule formation or concentrations within the groundmass. The other sample, D1, is the patched floor sediment below the floor surface. It shows a gradual transition from more compact and denser groundmass in the upper part of slide to looser and crumbly sediment in the lower part with a crumbly microstructure; the compaction of the upper areas likely the result of trampling from use of the overlying floor. This sample also shows small rock fragments and aggregated with iron staining. The lack of large components of charcoal and bone, compactness and fine-grained size of the sediment and, in sample D2, presence of only large planar voids parallel and subparallel to the ground surface are indicative of a well-maintained floor context. There are no clear layers or laminations within these samples that would suggest individual, successive floor constructions in the form of superimposed multiple floors. Instead, the thickness of the floor context and its continuity over its depth represent either the intentional preparation of a thick earthen floor, or, less likely, continued use and sweeping contemporaneous with occupation so that the floor is, in essence, accretionary (the accumulation of fine-grained sediment and only larger anthropogenic materials that escaped cleaning) and its thickness has built up over time through use and episodic cleaning. Further examination of this context for phytoliths or other microscale archaeobotanical remains may help address whether this floor was covered in any kind of matting that would also contribute to the lack of larger anthropogenic material.

Four micromorphology slides were prepared from Sample E, collected from the central portion of House 1, near to the edge of the hearth (see below) (Figures 8, 9b). Slide E1, from the bottom of the feature, contains several large charcoal fragments and is very heterogenous in comparison to other samples from site. It exhibits a relatively compact, subangular blocky microstructure, with randomly oriented and distributed anthropogenic and non-anthropogenic components. Aside from its compaction, these features are all characteristic of fill sediment, and likely represents trampled occupation or fill material immediately on top of the floor. Slides E2 and E3 come from the middle of the feature and are extremely similar to E1 in terms of their mottled color and density of anthropogenic material (charcoal and bone, especially), microstructure and the random orientation of its constituents, albeit with much less anthropogenic material (especially charcoal). However, E2 contains only highly fragmented anthropogenic material, whereas E3 (like E1) contains

larger fragments of charcoal (much of it extensively burned) and bone. These slides likely include refuse from when the house was abandoned and re-used as a garbage pit (Habu, personal communication). Slide E4 comes from the top of the column and is extremely similar to slide D2 in terms of its compaction and clay-rich, fine-grained groundmass. There is little visible macro-scale anthropogenic material here, and what is present is highly fragmented, suggesting the feature, like seen in Sample D, was kept clean or well-maintained. Here, however, several sub-horizontal layers (marked by dashed lines) represent subtle changes in color, heterogeneity and density and likely result from multiple episodes of re-use or re-surfacing. It is possible that the feature captured in this slide comes from a higher-traffic area that required more maintenance or represents multiple episodes of re-use (i.e., successive accumulations). In sum, this sample shows several slides (E1, probably E2–E3) typical of a house fill deposit; they are heterogenous and mixed, with a variety of anthropogenic material of varying sizes, orientations and distributions. While E1 was thought to represent a house floor, it is more likely that a) the floor was disturbed through use of the hearth, b) there was no floor, *per se*, here, or c) the column was not excavated deep enough to catch the floor deposit. The density and compaction of E4, alongside the overall lack of coarse-grained additions, suggests a fragment of trampled earth, or floor, with the layering visible resulting from multiple episodes of re-surfacing. Interestingly, this slide exemplifies the importance of articulating microstratigraphic and microstratigraphic observations; while this sample looks much like the floor contexts from elsewhere within the house, it is not *in situ* and, instead, represents a fragment of another feature dislodged during digging elsewhere (perhaps in Feature 19 or Storage Pit 2) and dumped into the then-abandoned house. The layering here was not noted with other floor samples from House 1 and represents multiple episodes of re-use of the original feature—this slide tells us valuable information about the nature of re-use of a feature, just not about the House 1 floor it was found upon.

A hearth feature from Pit House 1 was also sampled for micromorphology (Figure 9c). Slide B1 comes from the lower portion of the identified hearth and shows a dense and clay-rich sediment, rich in charcoal fragment and ash and, below that, localized areas of iron oxidation that look like the boundary between the cleaned out part of a hearth (with some remaining charcoal and organic-rich content and ash above and the underlying fire-reddened soil representing the base of the hearth). A large horizontal stone, perhaps marking the bottom of the fire pit, is visible in the section photograph. Fire-reddening of the sediment and burnt soil and burnt rock fragments within indicate *in situ* burning. Slide B2 comes from the upper part of the hearth feature shows a dense groundmass similar to the compact earthen floor context discussed above suggesting it is possible that a floor was constructed over the hearth after its dis-use. Slide B2 also contains notable densities of highly fragmented charcoal, highly burnt rock fragments and ash. It is likely

that this overlying deposit (fill to cover the hearth and serve as a new floor foundation?) is somewhat mixed with underlying hearth fill debris and this area of the house was simply re-used to cover an abandoned hearth and construct a new/renewed floor.

One storage pit was also sampled for micromorphological examination. Storage Pit 1 (Feature 13) is a deep storage pit whose contents and base were sampled as column Sample F (Figure 9d). Three slides, F1–3, were processed and analyzed from this context. Slide F3 comes from a relatively upper portion of this feature; it is a very dense, clay-rich and darker brown color than the other samples, containing weathered rock fragments, bone fragments and iron staining on soil aggregates and rocks. It likely represents part of the collapsed storage pit ceiling (a yellowish loamy-clay) mixed with fill sediment. Slide F2 is lighter in color with a crumbly structure in the upper portion of the slide, while the lower portion is darker in color and resembles underlying sample F1. It is rich in ash and charcoal, with a large void running perpendicular to the ground surface and infilled with granular sediment. Slide F1 comes from the bottom of the feature and displays the mottling and heterogeneity characteristic of pit fill contexts; charcoal, ash, bone fragments are found throughout the slide with the upper portion of the slide exhibiting a denser clay groundmass and finer fragmentation of charcoal and soil aggregates (Figure 9d). Overall, these slides are heterogeneous, with discernible layers visible throughout the column that represent multiple pit fill episodes representing an accumulated debris of regular use. This pit was likely used and re-used, possibly contemporary with the occupation of adjacent House 1 such that the pit may have served as both a storage facility and refuse deposit throughout its life history. The pit is a flask-shaped pit dug deep into a yellowish clay that starts to collapse on itself after a period of use and re-use; the pit then appears to have been used solely for refuse disposal. Further examination of each of these layers will help resolve this complex history of use.

Identifying possible stands of cultivated trees or caches of food on-site are important clues to Jomon landscape modification and place-making. However, reconstructing Jomon daily activities at the microscale within individual features, including understanding methods of construction, maintenance and use of houses and the contents and use of storage features, yields invaluable data on the structured use of space within these villages, sometimes even at the individual household level, and highlights the longevity of these occupational features. An examination of pit house floors and related combustion, pit fill and storage features at Goshizawa Matsumori No. 4 indicates complex life histories of ongoing use, maintenance and re-use of these features. In short, this type of approach emphasizes the value of microscale datasets for providing a nuanced understanding of the often-ephemeral repeated daily activities of these hunter-gatherers and, thus, contributing to knowledge on Jomon place-making. It also sheds light onto local landscape and resource use, food preferences, food-processing behaviors, consumption areas and behaviors, and

economic and technological practices. When paired with other lines of evidence from this sites, and other Jomon sites, such as macro-scale faunal and floral datasets, robust interpretations of subsistence diversity within these small-scale communities emerge. These microscale analyses have the potential to provide valuable insights into Jomon social landscapes, such as the knowledgeable use of local landscape resources (identifying charcoal, phytoliths as preserved on house floors and within hearths and pit fills) and associated technologies and the intentional management of particular food and non-food resources that includes intergenerational landscape learning and the persistence of place-based ecological knowledge (see also Habu 2018). These latter goals are currently underway at Goshizawa Matsumori No. 4 through ongoing geoarchaeological and paleoethnobotanical analyses. Comparative studies with other types of Jomon sites, including larger settlements, will be invaluable to better understanding the structured use of space at these sites, as well as broader landscape practices of the Jomon.

6. Discussion: A Landscape Full of Places

Prehistoric hunter-gatherer landscapes include communal sites, structures, elaborate systems of exchange/trade, and symbolic use of space, among others. A landscape is created and transformed over time by those who dwelt in these places and sites are connected to others across dynamic social spaces. I suggest here that both case studies, from Southwest Asia and Japan, are excellent example of these place-making activities. The archaeological records from both locations reveal many 'signposts' of place-making, including architecture, storage pits, caches, hearths and other features that indicate the highly structured organization and use of space, complex and knowledgeable relationships with plants and animals that indicate both social, technological, economic and ideological engagement with the landscape and its components, a rich symbolic life marked by the treatment and burial of the dead within sites and other aspects of art and decoration. Kharaneh IV exemplifies how these signposts can fruitfully shed insights into the nuanced and complex nature of Epipalaeolithic place-making; this approach is beginning to prove productive for reconstructing Jomon activities at Goshizawa Matsumori No. 4. These features, in essence, exhibit a complex history of place-making at both sites. These are, taken together, the traces of both daily activities and symbolic practices associated with markings places. Importantly, these sites are one of many from each region that show these 'signs.'

The occupants of the sites from both 'places' spatially structured activities, and some of these structured spaces may well have been imbued with cultural or symbolic meaning. Taken further, each site was clearly connected to others across a dynamic landscape. The creation of what Michelle Langley and others call 'storied landscapes' remind us that sites

are not only culturally-meaningful places in a landscape, they are nodes of interaction connected to each other by pathways and trails that were meandering (to us), variable, and complicated by kinship, alliances, resource distributions, and social contracts (Gamble 1993). These interactions with landscape are not entirely intangible to us today; but many of these behaviors can be traced through micro- and macro-scale attention to the use of space, identifying activity areas within sites and tracing material connections between sites. They provide a glimpse into the lives woven into and around these places as integral to the construction of hunter-gatherer communities.

The case studies presented here also remind us that the place-making and other landscape-altering activities hunter-gatherers undertake (i.e., through prolonged and repeated occupation, even aggregation, at the same place over time, and all the activities entailed in 'living' in these places) have the potential to make great impacts on the environment, shaping biodiversity and enacting landscape change; thus, any archaeological exploration into human-environment dynamics, for any time and place, must incorporate a long term perspective and extend deep into prehistory. Indeed, recent applications of TEK (traditional ecological knowledge) to archaeological contexts demonstrate its utility for identifying and interpreting landscape management practices and remind us that living memory and deep prehistory can be deeply connected, especially when it comes to landscape-based knowledge (Nicholas & Markey 2014; Lepofsky 2009). This is proving particularly useful in studies of specialization versus diversification, resilience to climate and societal changes, and sustainability (e.g., Habu *et al.* 2018). Contemporary ecosystems are clearly the product of millennia of co-evolution between environmental components and human activities, making archaeology particularly well-suited to study these dynamics (Butzer 1996).

Furthermore, microscale approaches are necessary to identify the traces of these landscape modifications that are detectable, even at microscopic scales, because the daily practices of hunter-gatherer life leave tangible traces in the archaeological record. These daily practices involve reconstructing patterns of movement (including within a site from house to house, from house to storage pit, etc.), aggregation and dispersal of people and things engaged in the processes of making a landscape a series of socialized places. This can include, for example, the transmission of ecological knowledge or landscape learning that occurs on intra- and inter-generational levels within one community (Rockman 2013), the discovery and sharing of new landscape knowledge in newly encountered locations (Rockman & Steele 2003), and the 'making familiar' of a new place through the creation of transported landscapes (Anderson 1952) that leads to the import of new species and formation of new ecologies. With these in mind it seems clear that hunter-gatherer archaeology has the potential to contribute greatly to our long-term understandings of the creation, maintenance and transformation of landscapes at multiple scales.

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過去の景観について—アジア南西部と日本の事例から見た、狩猟採集民の景観における継続的な場所利用—

リサ・マハー

和文要旨

狩猟採集民考古学は、先史時代の人々がいかにして自分たちの周囲の環境と関わったか、そして、環境についてどれほど豊富な知識を持っていたかを考える機会を、私たちに与えてくれる。これまでの研究の多くは、「農耕のはじまりは革新的な新しい生活様式をもたらした」という前提のもとに、それを文化史上の画期と捉え、「環境に対する人間活動の永続的な影響が顕著になるのは農耕の開始以降である」と解釈してきた。この問題をさらに検討するために、本稿では、狩猟採集民における人間 - 景観間の相互関係について、どのような考古学的なアプローチが可能かを考える。具体的には、人々の日常生活が人間 – 環境間の相互作用に残した痕跡について、ミクロなの視点（土壌微細形態学）を中心としたヨルダンと日本の事例研究を通じて、狩猟採集民の世界と世界観、そして環境知に基づいた、景観に関わる人間の諸活動（landscape practices）について考察する。分析の結果、終末期旧石器時代（Epipalaeolithic）のアジア南西部と縄文時代の日本のいずれの事例においても、豊富な知識にもとづいた景観との関わりが確認できた。特に重要なのは、狩猟採集民のコミュニティが、特定の場所を継続的に利用していた痕跡が認められたことである。これらの二つの事例研究から考えると、狩猟採集民の行動とその日々の生活について、「新石器化前夜」あるいは「農業前夜」（‘impending’ Neolithization or farming）という観点から考察する必要はないことがわかる。つまり、本稿で扱った更新世末期および完新世前半期の狩猟採集民研究の成果から考えると、「新石器化」の概念には問題がある。その理由は、新石器時代を特徴づけると考えられてきた行動様式の多くは、新石器時代が始まる以前から認められるからである。

狩猟採集民社会に関する民族誌研究の成果からは、社会・経済・技術・象徴体系が分かちがたく結びついた豊かな暮らしぶりが明らかである。しかし、旧石器時代をはじめとする狩猟採集民生活の復元では、多くの場合、保存状態が不良な断片的考古資料に依存せざるを得ない。土壌微細形態学は、人為的（および非人為的）な堆積物について、フィールドでの肉眼観察よりも高精度でミクロな視点から分析する技法である。この分析技法によって、考古資料に保存されている特定の人間活動とその痕跡を直接つなぐことが可能になる。これらの痕跡を調べることによって得られる、考古学的堆積物の堆積、攪乱、廃絶に関するデータは、先史時代の人々の活動を復元する際に重要である。特に、本稿では、先史時代の景観における「場所作り」と「継続的な場所利用」（place making and the creation of persistent places）を検討する際に土壌微細形態学が果し得る役割を強調する。考古遺跡における居住をはじめとする人間活動の結果としての人為的堆積物（anthropogenic deposits）は、人間活動の証拠を捉えた「人工遺物（artifacts）」と考えることが可能である。これらの堆積物には、日々の反復的な人々の営み（practices）と、より瞬間的な人間活動の痕跡の両者が保存されており、それらを同定、分析、解釈することが可能である。このようなミクロな視点からの「場所作り」へのアプローチによって、建築、調理、廃棄パターン、燃焼、人の行き来の多寡（道、床、遺跡間の通路など）、睡眠（寝場所）、貯蔵を含む人々の日々の暮らしの痕跡を、徐々に解明することが

可能である。

本稿で取り扱う事例研究は、終末期旧石器時代（約23 000〜11 500 年前）のハラナ IV（Kharaneh IV）遺跡と、縄文時代前期末〜中期初頭（約5300〜5200 年前）の合子沢松森（4）遺跡の堆積物についてのミクロ・スケールの分析である。どちらの分析結果も、狩猟採集民の居住地における場所作りと空間の秩序立った利用を考える際、示唆に富む。ハラナ IV 遺跡における反復的・長期的な居住の証拠を見出すことによって、狩猟採集民の集住（aggregation）と永続的な土地利用の結果として生じた環境への影響を概念化することが可能になる。同遺跡は、居住と交流の場として複数の集団によって使用され、何世代にもわたって景観の中で永続する場となっていた。合子沢松森（4）遺跡では、縄文時代定住的集落の典型的なパターンに合致する、住居と貯蔵穴の継続的な利用と維持の証拠が確認された。これらの分析結果から、私たちは、先史時代の狩猟採集民が、その場所に腰を据えて落ち着き、それぞれの集団に共通の社会的意味を持った景観の中にその場所を位置づけ、さまざまな生業や社会的活動のためにその場所を改変していった痕跡を見出すことができる。

キーワード：地質考古学（ジオアーケオロジー）、景観、旧石器時代終末期、縄文、狩猟採集民考古学