Regional Survey in the Hinterland of Uronarti and the Middle Kingdom Fortresses of the 2nd Cataract (Sudan)

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Introduction

The *Batn el-Hagar* (Belly of Stone) is a 160 km stretch of the Nile Valley above the Second Nile Cataract where the river churns through rapids and around islands as it passes over a shallow bed in the exposed granite basal complex. Characterized by difficult communication, hyper-aridity, a dearth of arable land and a very low carrying capacity, it appears to have always been a challenging environment for human habitation, especially since the introduction of agricultural subsistence strategies (i.e. Hewes 1966: 42-43). In the area of the Semna Cataract, where our work is focused, larger populations are limited to the Nubian Christian Period (641-1400 CE), when new irrigation technology and cultural factors favored settlement; and the Egyptian Middle Kingdom (2010-1685 BCE) when the cataract itself became Egypt's southern border with the state of Kush (Kerma).

Since 2012, the Uronarti Regional Archaeological Project (URAP) has been excavating the Middle Kingdom fortress of Uronarti (e.g., Knoblauch, Bestock, and Makovics 2013; Bestock 2017), one of five built by Senwosret III to consolidate direct economic and military control of the new border zone (Knoblauch 2019). Based on an earlier survey by Mills (1965, 1973; Edwards and Mills 2013), it is widely believed that this zone was sparsely populated with Egyptian activity largely restricted to the formal fortress structures. During the 2019 field season, URAP implemented a program of systematic extensive regional survey of the Western Desert near Uronarti (Figure 1) in order to test this "minimalist model" of the Egyptian presence and to develop a survey methodology appropriate to the topography and archaeology encountered. Over the course of 7 afternoons, a small team documented over 100 distinct archaeological features, including several sites of Middle Kingdom occupation.

(Figure 1: Survey and Major Sites of Interest)

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Methods

The URAP survey team employed a systematic extensive approach toward locating and documenting a wide range of archaeological features and artifacts, including satellite remote sensing analysis, pedestrian survey, artifact analysis, photogrammetric documentation, and architectural recording. This research was focalized through the use of a bespoke paperless recording system, developed on-site and continually modified throughout the season in response to user feedback.

Areas of potential interest were identified through visual analysis of pansharpened WorldView 2 satellite imagery[4]. The high spatial resolution of this imagery (46 cm) allowed for visual detection of several identifiable sites and offered recent data on Nile water level and landscape change in the past year (Figure 5). The results of this analysis were compared with longer-term data from Google Earth and published data from the results of previous survey work in the area by Steindorff (Felber et al. 2000), Vercoutter (1957), and Mills (1965, 1973; Edwards and Mills 2013). However, while previous surveys were primarily concerned with low-elevation features close to the pre-dammed route of the Nile, our attention necessarily focused on features residing above 180m asl, providing complementary coverage to these earlier projects.

Survey data was collected using a SQL-based paperless recording system, accessed through a FileMaker Go user interface and facilitating multimedia data collection and evaluation (Figure 2). This was constructed as a module within the framework of the broader URAP recording system (http://blogs.brown.edu/archaeology/fieldwork/uronarti/technology/), streamlining artifact registration and analysis and allowing for easy comparison with excavated material culture and architectural features. The dramatic topography and low surface artifact density of this landscape required a locally-based methodology focused on visible features as the primary means of locating cultural material. Once sites were identified on the ground, we employed feature documentation and localized surface exploration to quantify, collect, and document surface ceramics, lithics, and other cultural material. This information was entered into the paperless database in real time, while ceramics were photographed and diagnostic sherds were collected for analysis.

(Figure 2: Paperless recording example)

[4] Two mosaicked image series were obtained for this step: 24 May 2018 and 6 June 2018.

In addition to surface collection, architectural documentation, and select episodes of detail cleaning, select features were recorded through a combination of photogrammetry and topographic survey: aerial photographs were collected through the use of a kite-mounted Olympus TG-4 camera, alongside pedestrian handheld photography using the same camera. These 16-megapixel photographs were processed into three-dimensional models, DEMs, and orthophotographic meshes with high metric accuracy (Sapirstein and Murray 2017). Ground control points provided spatial reference, utilizing Emlid Reach RS+ RTK DGPS units, with the base remaining in place at the URAP campsite and the rover collecting corrected data with sub-centimeter accuracy from a distance of up to 6km.

Results

In total, we documented 115 features in nine survey units, initially selected based on satellite imagery analysis. The majority of archaeological features were either small dry-stone constructions ("huts"), often circular or semicircular (n=95), or monumental walls likely associated with the Middle Kingdom fortifications (n=3). However, these were not discrete, often being found in close physical association with one another. Other documented features included graves, cleared areas, a mortared stone building of uncertain date, modern ephemeral reed-and-wood huts used by local fishermen, and at least one area that had been heavily modified by manual surface mining for gold. The water level of Lake Nubia was exceptionally high during the dates of the survey (January 2019), and many features that had been previously identified by URAP (Knoblauch et al. 2013) were inundated, alongside all areas normally under intensive cultivation and pasture.

Of note is the rediscovery and documentation of two sections of a monumental defensive wall that ran for 5 km along the West bank between the now-submerged fortress of Semna and Uronarti (i.e. Edwards and Mills 2013). Like a comparable Middle Kingdom wall at the First Cataract that ran between Elephantine and Shellal (Von Pilgrim et al. 2011: 135-137), the Semna wall was probably intended to protect a heavily utilized land route that bypassed a poorly navigable stretch of the river. Mills (1973: 206, pl. 2) cleaned and documented a section of the Semna-Uronarti wall during his fieldwork, and Knoblauch et al. (2013: 138) recorded a segment that consisted of mud bricks built directly onto the bedrock. At the two sections of wall currently above water, URAP noted both mudbrick and stone, the latter of which included both dry fieldstones above ground and cut foundation blocks. The northern section of the wall (fig. 4, F050, stretching

some 303 m along a ridge) is primarily preserved as a series of parallel dry-stone linear features with occasional exposed mudbrick, whereas the southern section of the wall (fig. 5, F103, stretching some 106 m) consists of a mudbrick superstructure atop regularized and well-built stone foundations. The heterogeneity of construction techniques presumably reflects adaptations by the Egyptian architects to local topography and other variables, for example, the nature of the subsurface, and the distance to locally available resources.

(Figure 3: F050, Semna Wall North)

(Figure 4: F103, Semna Wall South)

Other unassociated stretches of dry-stone walling were also noted, often in the form of piled stones stretching along ridgelines and saddles. Surface pottery was found at each of these wall features. Interestingly, the dateable surface ceramic assemblage was entirely of *Egyptian* Middle Kingdom date and dry-stone circular constructions ("huts") were often located in the immediate vicinity. Significantly, earlier surveys (Edwards and Mills 2013: 10; Borchardt 1923: 24) found a much longer (3km) wall of the same type on the eastern bank near Kumma. Whether such walls were simply a means of regularizing or augmenting the topography during the Middle Kingdom or were related to hunting activities, as in Middle Nubia where such walls are common (Edwards and Mills 2013: 10), is difficult to determine on current evidence.

URAP also recorded several ridgetop clusters of dry-stone features, along with numerous additional constructions dotting the landscape, built from local bedrock. When surface artifacts were found in association with these features—rarely—they, too, were exclusively of Middle Kingdom date, and occasional chipped-stone and ground stone tools. Artifacts identifiable to other periods were notably absent other than traces of contemporary local lifeways.

(Figure 5: S005 and other features detected with WV2 Imagery)

(Figure 6: F082, a 'typical' stone circle)

Implications

Perhaps the most important trend in our survey results is the proliferation of Egyptian pottery beyond the immediate environs of the Uronarti fortress, in association with dry-stone architecture at elevations far removed from the Nile's ancient course. In combination with the extra-mural stone settlement that URAP has documented on Uronarti island (Bestock and Knoblauch 2015), these finds suggest that the Egyptian presence in this inhospitable border region was diverse and certainly not confined to the formal fortress structures as hitherto believed.

Determining what types of activities these remains represent is difficult to answer without excavation, but this might eventually shed light on the decision to found settlements here and to continue to supply them. Future field seasons will focus on the dry-stone features and their associated materials in the eastern and western deserts, including excavation to test the preliminary observations and interpretations offered above.

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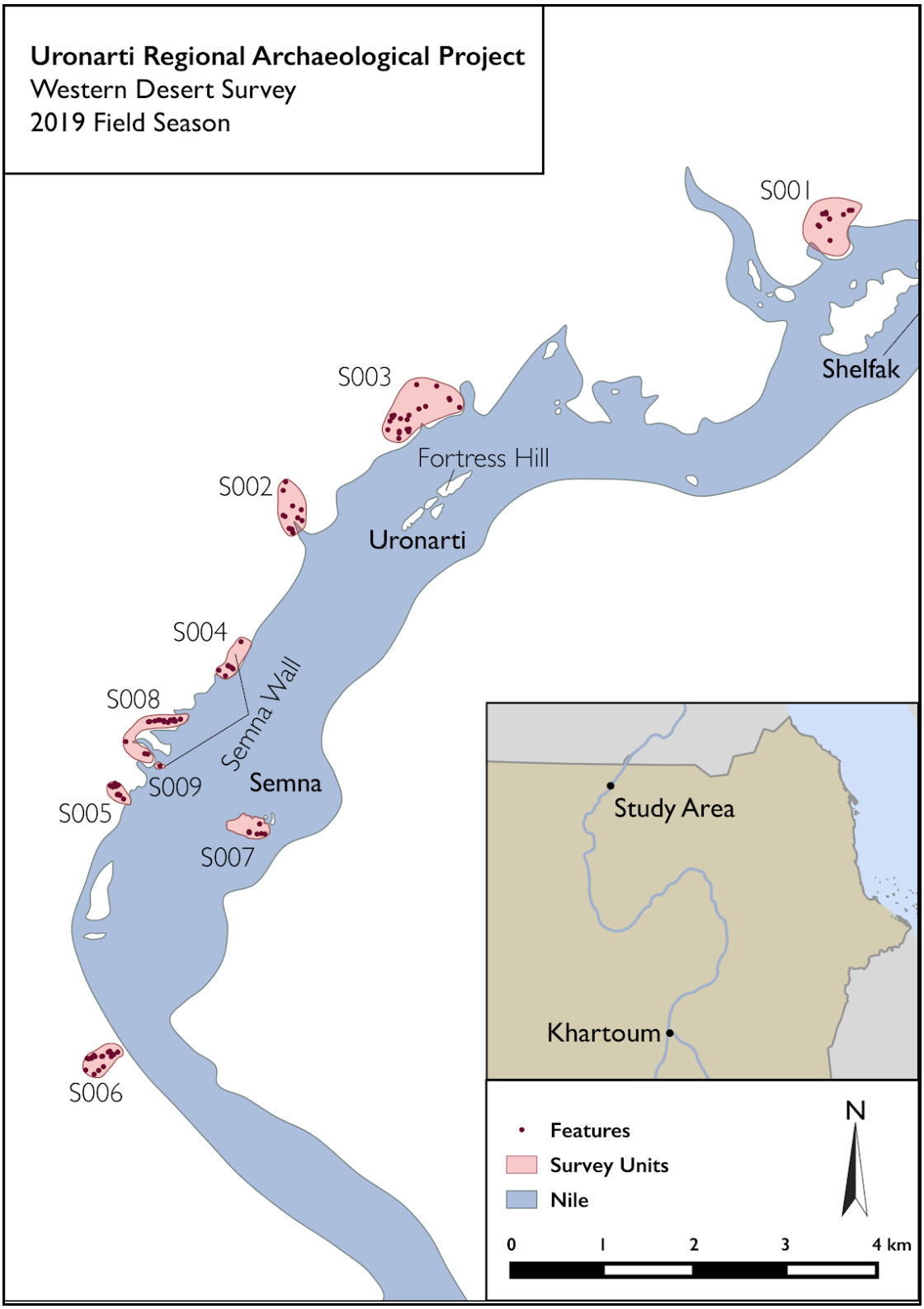
Uronarti Regional Archaeological Project
Western Desert Survey
2019 Field Season
S001
Shelfak
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Fortress Hill
S002
Uronarti
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Semna Wall
S008
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Figure 2:

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Uronarti Regional Archaeological Project

feature

site Western

Unit F103

You are ldb

Feature | description / photos | collected material | unit relations

plans and photos

27 images

- Deep looters pit into bedrock at west side of island
- Deep looters pit into bedrock at west side of island
- Pottery reverse
- Mudbricks in situ and rubble
- Pottery
- Blocks running e-w

Feature facing e

18 I 2019

purpose / description / notes

Mudbrick stretch of the Semna fortress desert wall. Currently on a small island separated from the shore by maybe 10m of water. Current inhabitants are two very health looking donkeys.

There is a significant chunk of mudbrick architecture still intact, but it is mostly buried or relatively low. Fragmentary and cannot be traced to the water. There may be some ashlar as well. The in situ architecture is mostly on the top of the hill, and is hard to trace lower down.

Unfortunately, the site seems to have been heavily looted, with large trenches dug down to or into the bedrock, including an especially large one dug into the wall at the top of the hill.

Ceramics are scattered across the island, and are most concentrated on and near the wall fragments.

revisit this feature one day because:

Obviously.

Figure 3:

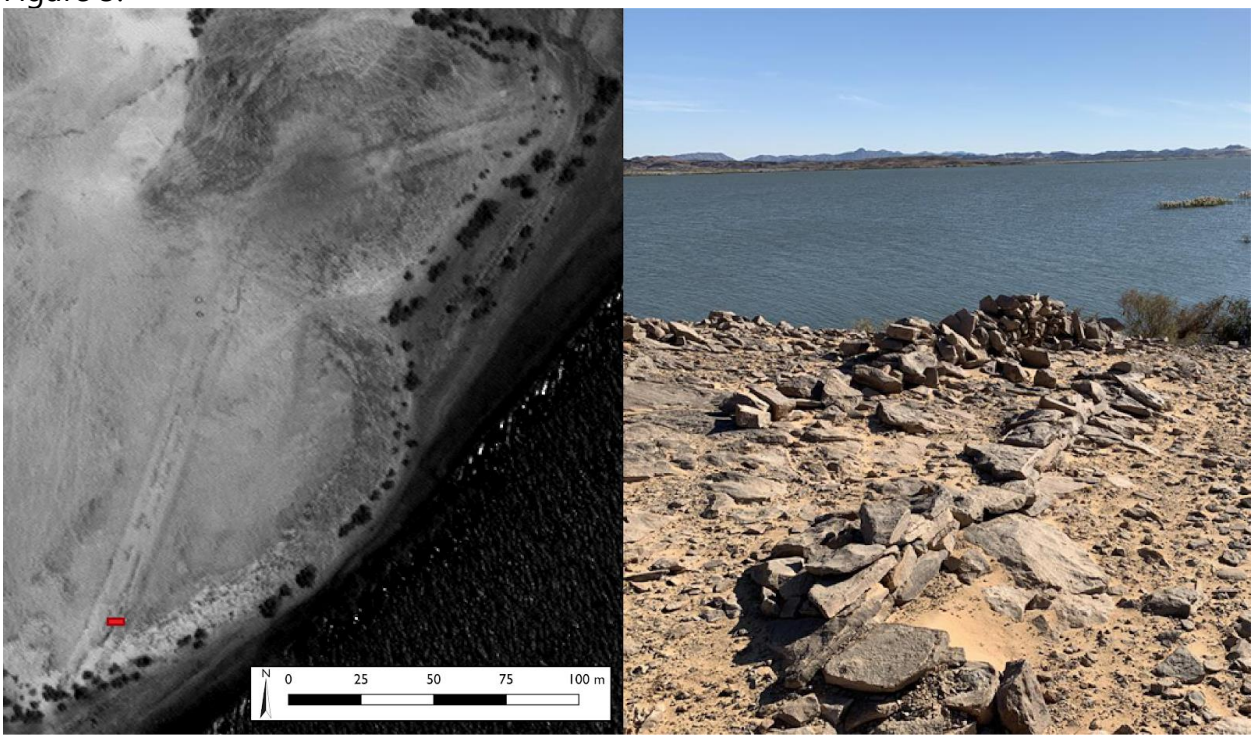

Figure 4:

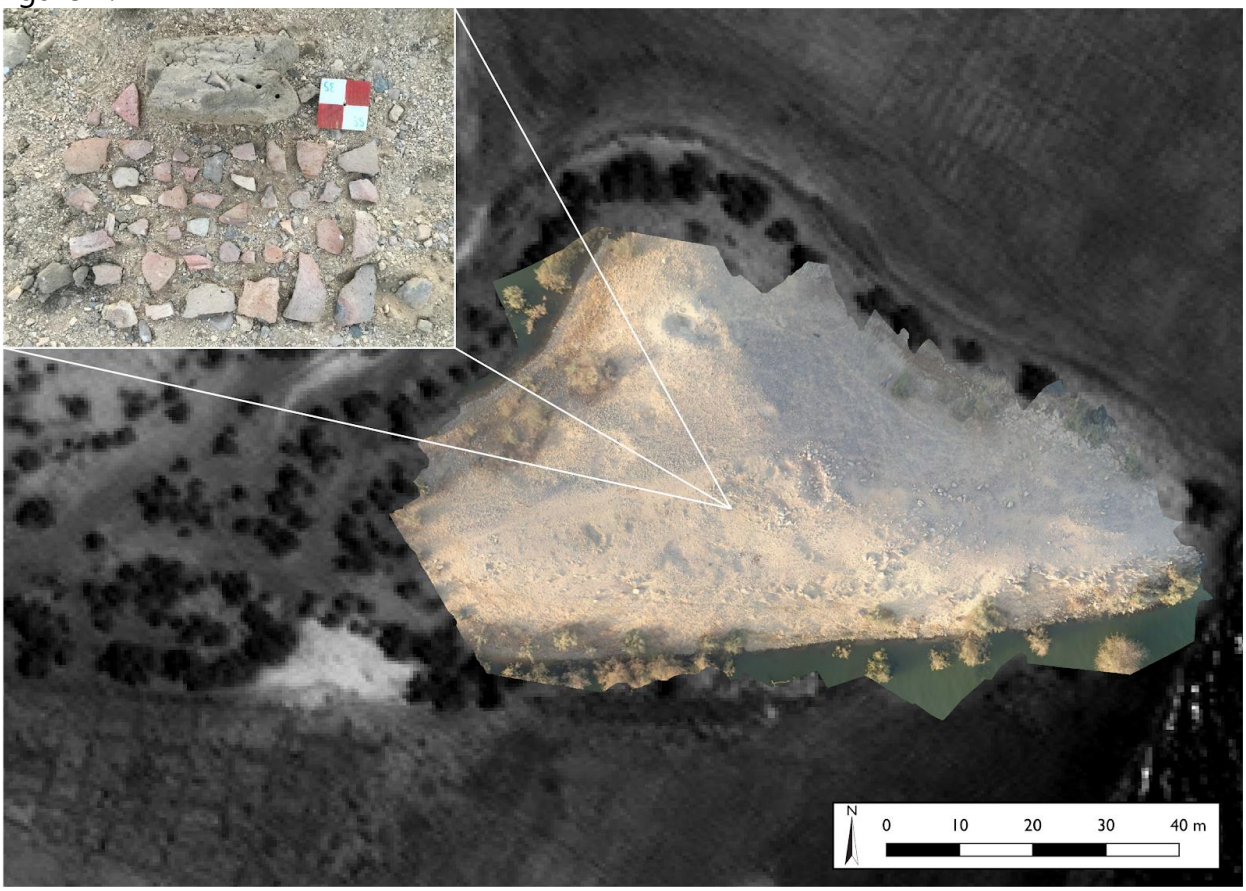

Figure 5:

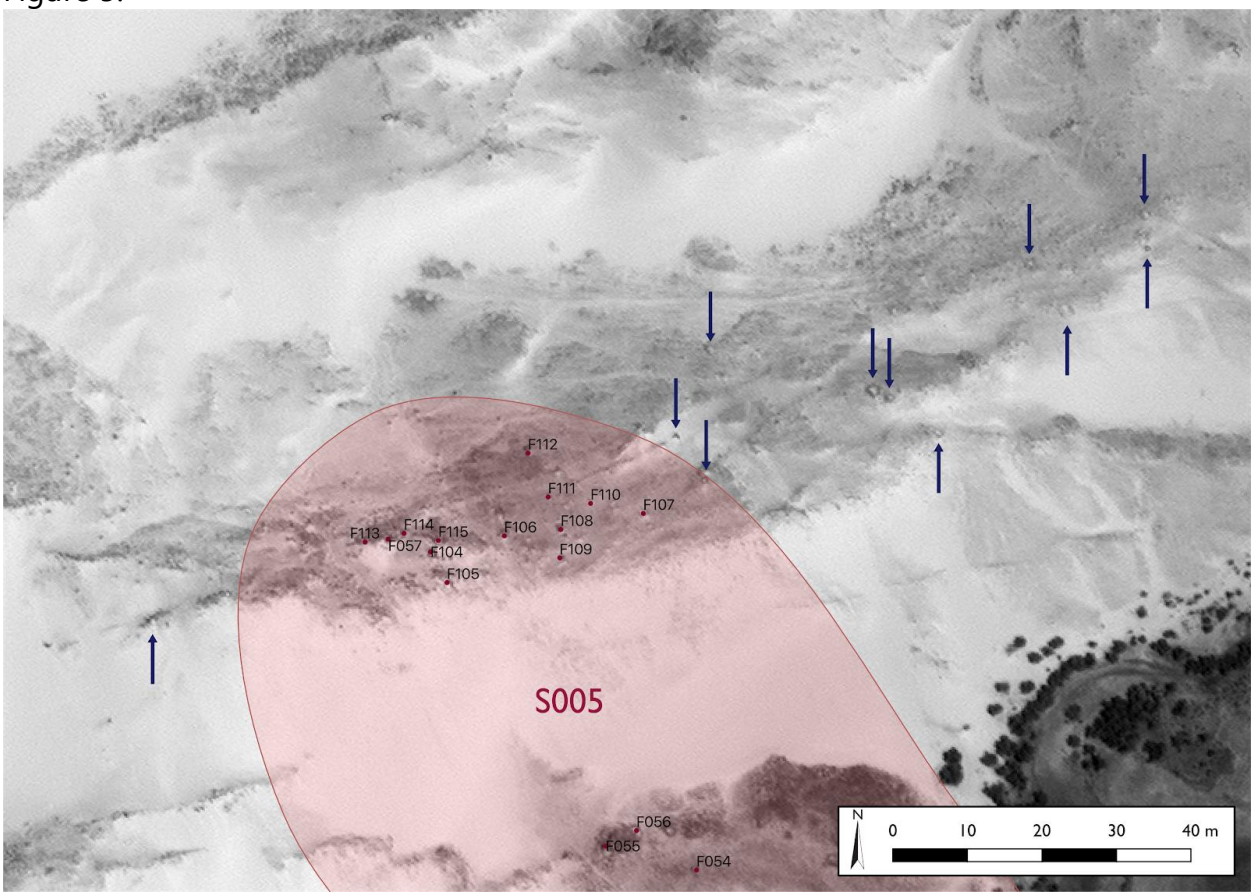
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Figure 6: