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Interactions and New Directions in Near Eastern Archaeology

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The Tell Gomel archaeological survey. Preliminary results of the 2015-2016 campaigns

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Abstract

This paper presents the methodology, goals and preliminary results of the Tell Gomel Archaeological Survey. The project has its origins in the wider 'Land of Nineveh Archaeological Project' (LoNAP) which has been conducted since 2012 by the University of Udine in the northern Region of Iraqi Kurdistan. The area examined by the project is the heart of the Navkur Plain, an alluvial plain that covers the eastern hinterland of the Assyrian capital of Nineveh. The focus of settlement throughout the entire Navkur Plain was the site of Tell Gomel, where a preliminary survey documented the existence of a settlement sequence ranging from the Chalcolithic to the Ottoman period. Due to its large size and position in the centre of the plain, Gomel must have played an important role in this region, presumably as its political and economic centre. The area around Gomel is also of great interest because of its position in the heart of the Navkur Plain, a trade route hub from the Late Chalcolithic onwards, and the main focus of settlement for a much wider region. The project therefore aims to investigate the archaeological landscapes of this crucial and still unknown area.

Keywords

Iraqi Kurdistan; Upper Mesopotamia; Landscape Archaeology; Intensive Survey

1. Introduction

This paper aims at illustrating the activities and the preliminary results of an intensive survey carried out in the Navkur Plain during summer 2015 and 2016.[1] The Tell Gomel Archaeological Survey is part of the wider 'Land of Nineveh Archaeological Project' (LoNAP) which has been conducted since 2012 by the University of Udine under the direction of Prof. Morandi Bonacossi in the northern part of the autonomous region of Kurdistan, Iraq. The LoNAP investigates an area of 3000 km^2 in a region embracing large parts of the governorates of Ninawa and Duhok and aims at understanding the transformation of the cultural and natural landscapes of a key region of Northern Mesopotamia located in the hinterland of the Assyrian capital of Nineveh.[2]

The LoNAP is itself one of four international archaeological projects that focus on the area of north-eastern Iraqi Kurdistan, called the Assyrian Landscape Research Group (ALRG, fig. 1).[3]

Due to the vast size of the region the researchers decided to adopt a strategy based on a combination of motor-vehicle and pedestrian field survey

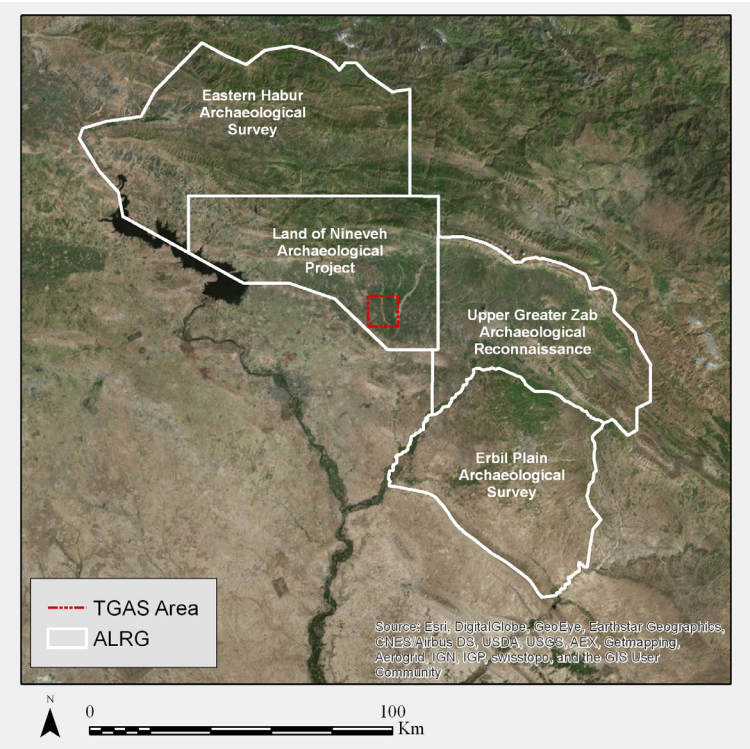


Figure 1
Location of the various projects working in Northern Iraqi Kurdistan, namely, the Erbil Plain Archaeological Survey (directed by Jason Ur), the Upper Greater Zab Reconnaissance Project (directed by Rafał Koliński), and the Eastern Ḫabur Archaeological Survey (directed by Peter Pfälzner)

[1] This article is an outcome of the PRIN 2015 project "Archaeological Landscapes of Ancient Iraq from Prehistory to the Islamic period: formation, transformation, protection, and management" funded by the Italian Ministry of Education, University and Research (Grant no. 20154X49JT).

[2] For a preliminary overview see: Morandi Bonacossi 2012-2013, 2016; Morandi Bonacossi, Iamoni 2015.

[3] For the preliminary reports of the other ALRG projects see: Pfälzner, Sconzo 2015, 2016; Pfälzner et al. 2016; Koliński 2016a, 2018; Ur et al. 2013.

of sites previously identified as possible settlements through remote-sensing analysis. Therefore, until the summer of 2015 no small-scale intensive survey had been carried out in the Navkur Plain, although a large number of sites were identified by the extensive survey.[4]

The area examined by the Tell Gomel Archaeological Survey (henceforth TGAS) is located in the the heart of the Navkur Plain (fig. 2), and extends south of the Erbil-Duhok road, between the Jebel Maqloub and the Bardarash region to the south and the River Al-Khazir to the east. The limits of the survey area have been (arbitrarily) defined as a square centred on Gomel, measuring 10 km on each side and covering a total area of 100 km^2. The TGAS applies a systematic and intensive survey system that follows a tradiy tion well established in the Mediterranean and Near Eastern landscape archaeology. It aims at testing the accuracy and the advantages of the system to an area already investigated with an extensive strategy.

The intensive field survey is crucial in order to establish the presence of possible sites not recognized through the remote sensing analysis, or the extensive survey, and to explore ancient land-use, in particular, with the field scatters recording.

Furthermore, we were interested in understanding whether the intensification of the survey might confirm, or perhaps deny, the diachronic patterns of settlement already obtained by the more extensive investigation.

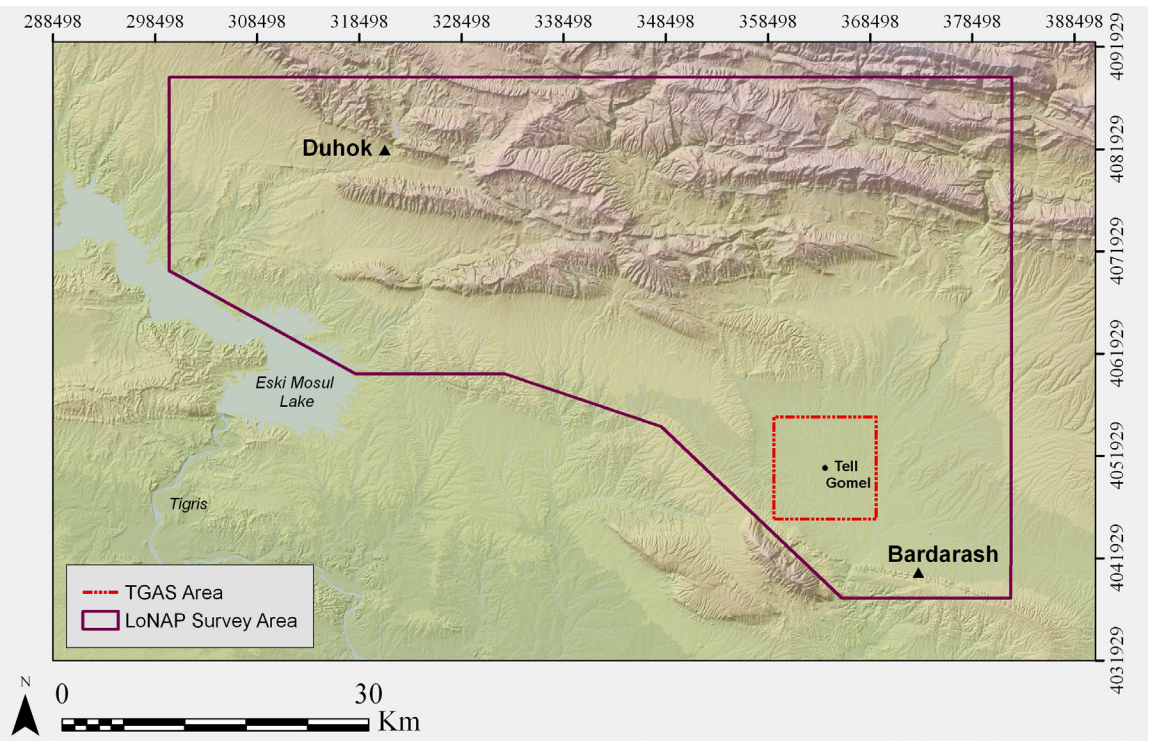


Figure 2
The Tell Gomel Archaeological Survey location within the LoNAP licensed area

[4] For an extensive discussion of the survey methodology and preliminary results see Morandi Bonacossi, Iamoni 2015.

Figure 3
The archaeological site of Gomel

2. Gomel and its region

The Navkur is a 30-kilometre wide and roughly triangular plain in front of the Zagros foothills, it is crossed by the River Al-Khazir, a major tributary of the Greater Zab, and the minor Nardush and Gomel rivers that join the Al-Khazir at the southern end of the Navkur Plain. Numerous wadis and ephemeral water streams feed the main watercourses, however the plain is not only extremely rich in surface waters but also in ground waters thanks to many springs, sustained by the aquifers located in the Zagros Range.[5]

The plain it is also characterised by deep and fertile agricultural soils, mainly "Brown Soils (Deep Phase)" developed on alluvial sediments.[6] Mean annual rainfall in this area is around 643 mm per year,[7] this means that today the region is located north of the so called "zone of uncertainty" and is part of the stable rain-fed zone of Upper Mesopotamia.[8]

The abundancy of available water and the presence of deep fertile soils offer ideal conditions for high productivity agriculture. It is therefore not surprising that the largest archaeological site in the entire region is situated in this plain.

This is the site of Gir-e Gomel (in local Kurdish) or Tell Gomel (in Arabic),[9] located on the River Gomel near the modern town of Kalakchi. Gomel possibly corresponds with the Assyrian Gammagara mentioned in the Jerwan B Inscription of Sennacherib.[10] Furthermore, Sir Aurel Stein in his Limes Report (1938-1939, published in 1985) proposed that the battle of Gaugamela took place in the plain surrounding Gomel, where in 331 BC Alexander the Great defeated Darius III, thus definitively conquering the Achaemenid Empire.[11]

The site features an elevated upper town (about 40 m above the surrounding plain) that dominates an extensive lower town (fig. 3). Due to its large size and position in the centre of the plain, Gomel must have played an important role in this region – presumably as its political and economic centre.

The preliminary survey of the Gomel archaeological site conducted by LoNAP in 2012 was able to recognize the existence of a continuous settlement sequence ranging from the Chalcolithic to the Ottoman period (c. 5000 BC-early twentieth

5 For a first geoarchaeological assessment of the Navkur Plain see Morandi Bonacossi 2018.

6 Buring 1960.

7 The rainfall data are acquired from the climatic records of the meteorological station of Bardarash and they are freely accessible at www.Climate-Data.org.

8 Wilkinson 2004: 14; Wilkinson et Al. 2014.

9 Site n. 52 in Salman 1970, 280; 1976, Map 128.

10 Reade, Anderson 2013, 74; Fales, Del Fabbro 2014.

11 See Stein, Kennedy and Gregory 1985.

century AD). However, the site could have possibly been occupied already in the Ubaid period since Frankfort published an Ubaid stamp seal found at Gomel in the '30s, now preserved in the Oriental Institute Museum of Chicago.[12]

It is now widely recognized that no ancient site, especially an "urban" site, can be really understood without considering its hinterland,[13] for this reason the TGAS was conceived as an intensive reconnaissance with a special interest in off-site investigation.

3. The fieldwork methodology

The fieldwork was preceded by the analysis and interpretation of the available cartographic material and the satellite and aerial images.[14] The images that until now have produced the most information are the declassified CORONA satellite images, but the newly acquired U2 images,[15] which have a better resolution and are slightly older than the CORONA, provided new interesting data.[16] This is especially true for the site of Gomel, where the U2 images provided new insights regarding the shape and dimension of the ancient settlement.

In the field, the team used a handheld Global Positioning System (GPS) receiver[17] to record all the information and observations. Back home, all these data were eventually included into a Geographic Information System (GIS) spatial database.

The collection and survey strategy in Gomel was different from that adopted for the off-site survey, and for the investigation of new sites discovered and the re-reconnaissance of the sites already identified by the LoNAP team in the area. Regarding the latter, the methodology was quite common and widespread. The materials were collected from all the identified sites using a strategy of complete coverage throughout collection areas (ca 1 ha) selected according to the site topography.[18] The corners and the significant points on the boundaries of each unit were visibly marked and their positions recorded via GPS; only the diagnostic sherds were collected.

Concerning the off-site,[19] the methodology used consists of fieldwalking through long transects. These transects were covered by four surveyors positioned at a distance of 25 m from each other. While walking along these predetermined transects, team members counted the number of pottery sherds visible on the surface with a tally counter and collected diagnostic artefacts.[20] Every hundred metres the team stopped, and the data and ground observations were recorded in a standard form. Due to the variable visibility conditions, due mainly to different landuse, 10 × 10 m collection units were positioned along the transects at a hundred metre intervals. These sample units were selected according to the surface visibility and ground conditions and were covered by only one surveyor walking back and forth, trying to maintain the same light conditions. The placement of field scatter collection units was chosen with the aim of selecting homogeneous and high visibility conditions to ensure the compatibility of the data collected, but as result of these requirements some areas were left unrecorded.

In nearly four months of intensive survey (2015-2016) we completed 58 transects and covered a total area of 25 km^2. The aim was to investigate a quarter of the entire TGAS area reaching an almost complete coverage (fig. 4). In only two campaigns a total of 1183 squares of 100 × 100 m were surveyed and data from 632 sample units was recorded. Unfortunately, several areas remained not investigated due to the thick straw layer covering the field sur-

[12] Frankfort 1935, pp. 29-31, fig. 31 (A12466).

[13] Wilkinson 2003: 100; Ur 2010: 1.

[14] The project used declassified U2 aerial photographs and CORONA, Hexagon, Aster and OrbView-3 satellite imagery.

[15] I would like to thank Professor J. Ur who shared with me the U2 images in his possession.

[16] Hammer, Ur 2019.

[17] A Garmin Oregon 650 was used in the field.

[18] Many Near Eastern surveys have already employed these methods, see: Ball, Tucker and Wilkinson 1989; Lyonnet 1990; Wilkinson, Tucker 1995; Wilkinson 2000; Ur 2010.

[19] Similar sampling techniques have already been used in several North Mesopotamian surveys: Wilkinson, Tucker 1995; Ur, Karsgaard and Oates 2011; Ur 2010.

[20] Rims, bases, handles and decorated body sherds are considered diagnostic.

Figure 4
The transects area within the TGAS project limits

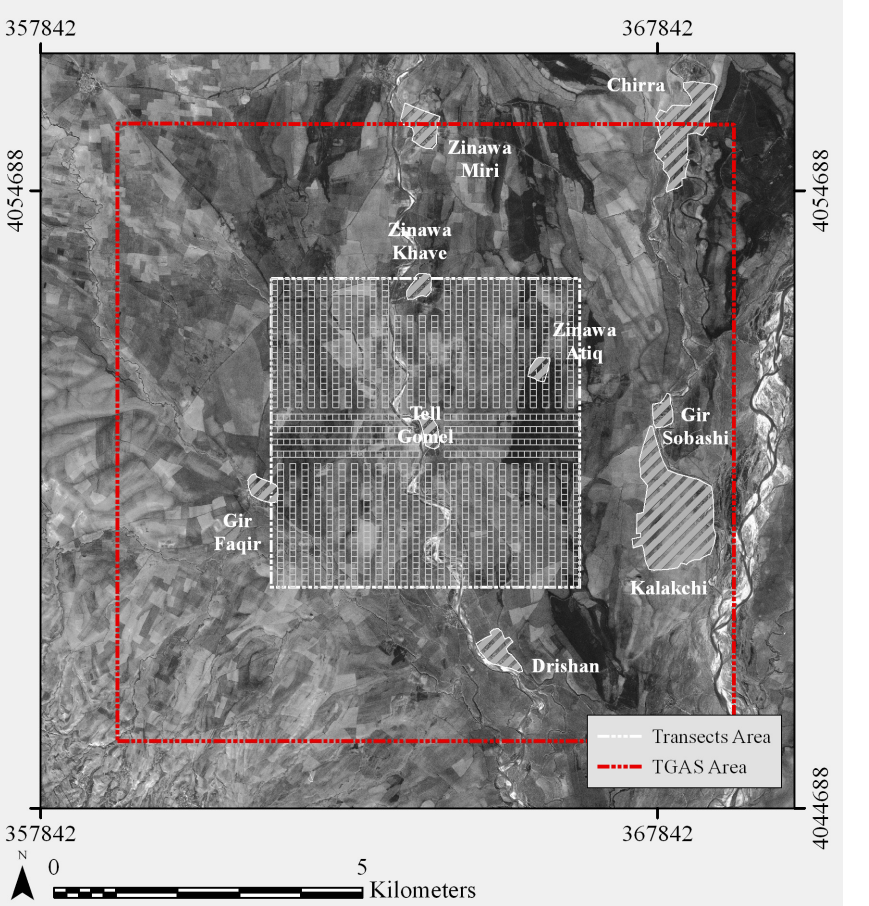


Figure 5
Gomel in a CORONA image (A – Corona 1039, 28 Feb 1967) and in a U2 image (B – U2 1554, 29 Jan 1960)

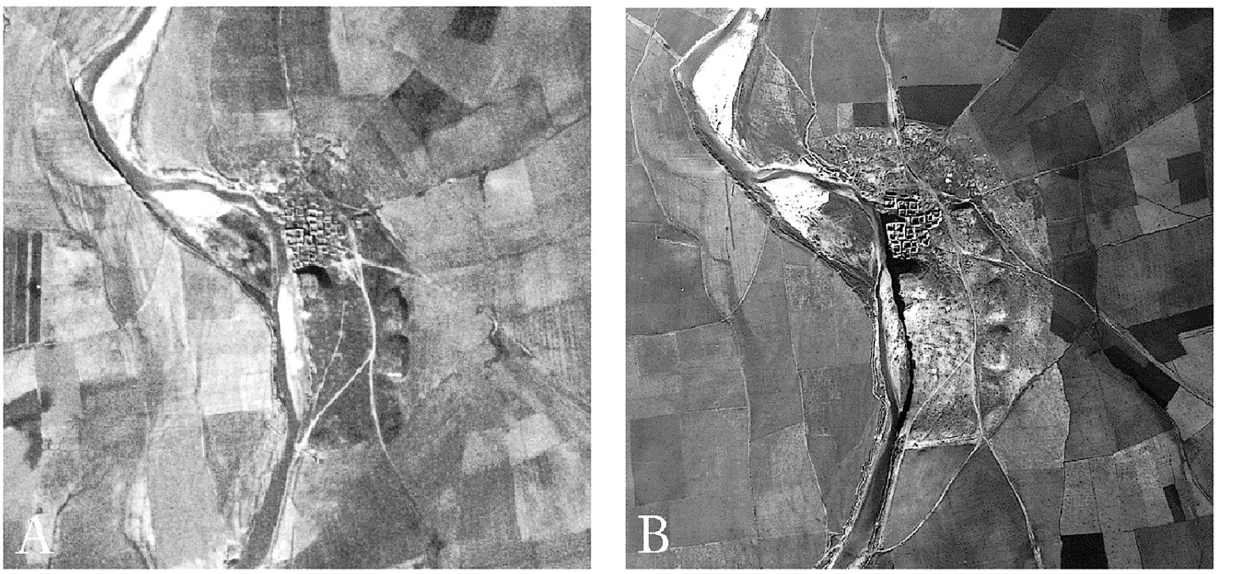
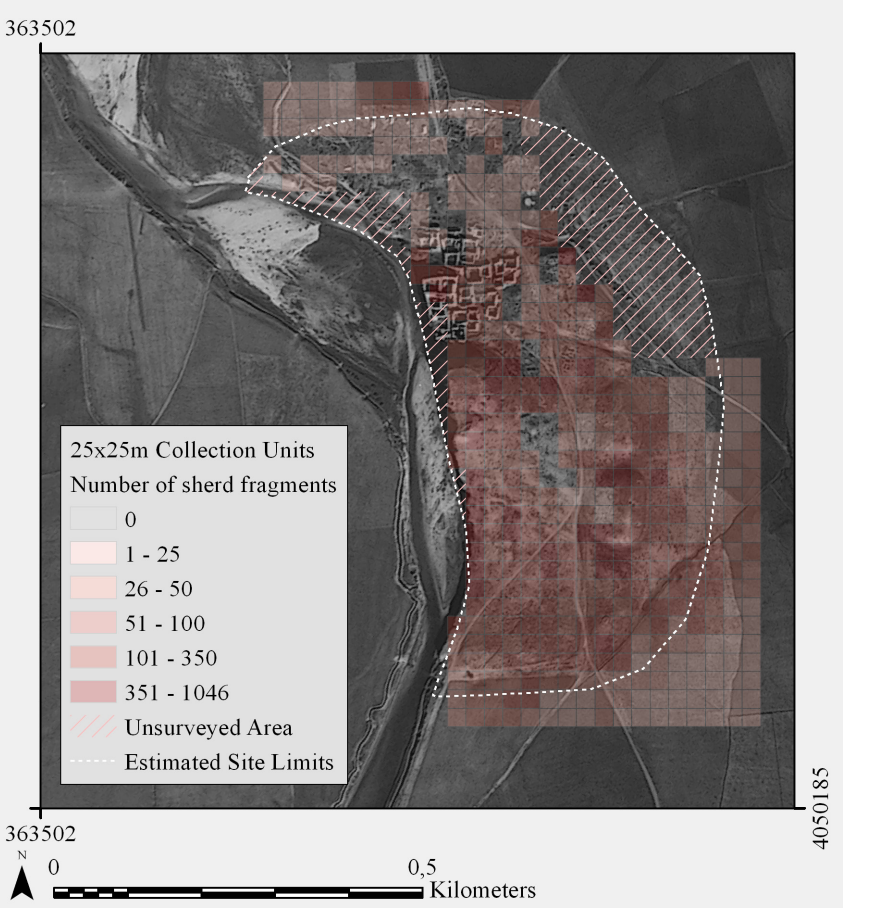


Figure 6
The intensive survey in Gomel



face as the result of harvesting activities.[21] This occurred especially in the south-western sector.

Coming to the investigation of Gomel, one of the goals of TGAS 2016 campaign was the intensive and full coverage survey of the site. The aim was also to cover a "halo", probably evidence of the presence of anthrosols,[22] visible in the U2 images immediately east of the previously estimated limits of the site (fig. 5). The presence of the anthrosols could be related to the existence of an extended "outer town", and it would consequently modify our interpretation of the site's dimensions.

For the intensive survey a grid of 25×25m squares was positioned over the site. Each surveyor collected data from a single square walking back and forth counting the number of fragments visible on the surface and collecting only the diagnostic ones. Overall, we examined a total of 496 squares (fig. 6).

All the pottery collected during the two fieldwork campaigns was analysed, counting and dividing all the potsherds on the basis of chronological and typological classification.[23] The typological classification was based upon the Working Ceramic Typology (2013 version) developed from several surveys of North Mesopotamia, originally developed for the Tell al-Hawa survey (Ball, Tucker, and Wilkinson 1989), later updated by T. Wilkinson and D. J. Tucker (1995) and by J. Ur (2010), and

[21] Both TGAS survey campaigns was conducted between mid-August and mid-October.

[22] On anthrosols detection on satellite image see Savioli (forthcoming), Koliński 2016b and Menze, Ur 2012.

[23] I am grateful and really indebted to the pottery specialists of LoNAP team for their help in the preliminary processing of the TGAS pottery. In particular, I have to thank: C. Coppini, K. Gavagnin, M. Iamoni, R. Palermo, C. Tonghini and V. Vezzoli.

at present used and adapted by all the four ALRG projects.

4. The Gomel intensive survey results

The intensive survey of Gomel helped us to propose a more accurate estimated area of the site and it will help us to define with more precision the limits of urban expansion in the different phases of its history. The results presented here are still preliminary, but from the new data it is possible to suggest that the site of Gomel covered a total area of ca. 35 ha, substantially more than the 16 ha previously estimated.

5. The off-site survey results

In Near Eastern Archaeology, sites have sometimes been considered as synonymous with mounds, with these tells simply floating in the landscape surrounded by an archaeological void. However, there exists a continuum of artefacts and other evidence distributed on the ground surface as a sort of carpet of archaeological data, and one of my goals in the field was to recognize and interpret this evidence. The very small and battered pottery fragments that are dispersed throughout the landscape between sites are called "field scatters". They were recognized initially in Western Europe and then studied in association with sites of different chronological periods, such as for instance on the Islamic Iranian coast or in Classical Greece. [24]

Below, I summarise the different explanations given for the formation of field scatters:

- the first, defined by Bintliff and Snodgrass as "a feature of archaeological folklore", concerns a mythical donkey fom whose back pots have fallen, leaving these pottery fragments in the landscape. [25] In other word, as the results of a combination of chance events;
- in the second hypothesis, off-site scatters represent the traces of non-habitation activity areas (such as storage sheds, field buildings and other similar non-permanent occupation features);
- the third model relates the presence of field scatters on the surface of modern fields to natural transport and post-depositional activities. In this interpretation, the pottery fragments were removed from their original location, a site, by rain, wind and human activity, especially ploughing, and thus spread over the areas between sites;[26]
- ephemeral pastoral or nomadic occupation is another proposed explanation for the phenomenon; in fact, campsite remains may have been broken up and then spread in the fields by ploughing.[27]
- in the last case scholars argue that organic rubbish (including small fragments of pottery) was dumped in the field as fertilizer. The so-called "manuring hypothesis" was sustained in Near Eastern archaeology by Tony Wilkinson, who was the first who attempted to verify this theory in our field of studies. He linked the explosion of urbanization in third- millennium north Mesopotamia with the development of intensive agriculture; in this model the practice of manuring was related to the need to improve crop yields. According to this interpretation, the presence of sherds in the fields is explained by the dumping of the village rubbish (including small fragments of pottery) rich in organic matter in the field as fertilizer.[28]

Although all these factors may have contributed to the creation of field scatters, only the last model could really explain the density and uniform distribution of these fragments in off-site areas and it seems to be the most accepted at present.

Coming back to the results of TGAS survey, as it is possible to observe from the distribution of the fragments registered while walking through the transects, there is a continuity in the dispersion of these sherds, not only around sites, but also in areas not close to any known archaeological site.

[24] For a short outline of the field scatters see Wilkinson 2003, pp. 55-57.

[25] Bintliff, Snodgrass 1988, 507.

[26] See Alcock et Al. 1994 for a good review of the evidences.

[27] UR 2010, 74.

[28] Wilkinson 1982, 1988, 1989, 1994, 2003; Ur 2010; for some criticisms see Alcock et Al. 1994 and the comments in Wilkinson 1994.

From the results obtained from the data recorded in the sample units, it is possible to observe that the quantity of the fragments in the TGAS area, although consistent, is much lower than those provided by other surveys in neighbouring regions. In fact, the mean in the TGAS-area is of 6 sherds per 100 m^2 compared to an average of over 30 sherds per 100 m^2 recorded by other North-Mesopotamian surveys, such as the Tell Hamoukar Survey (average of 38 sherds per 100 m^2) and the North Jazira Project (average of 20-39 sherds per 100 m^2).[29] Only a few areas present more than 30 fragments and generally many areas yielded only up to 10 fragments and there are even areas where the sample units have not recovered any ceramics.

This quantitative difference between the number of sherds recorded in the Gomel area and in the North Jazira could be possibly put in relation with the environmental conditions. In fact, a higher annual rainfall can lead to the burial of the potsherds beneath the fields surface.[30] On the other hand, a lower density of fragments could correspond to a lower necessity of systematic manuring.

The dating of these potsherds is difficult due to their poor state of preservation: they are often very small and abraded. We collected ca. 800 diagnostic fragments and when diagnostic types were recognized among them, they appear to date mainly to the mid-late third millennium or, to a lesser extent, to the first half of the second millennium BC. A similar trend was recorded in the North Jazira Project[31] and in the Tell Hamoukar Archaeological Survey[32] where the majority of the field scatters date to the second half of third millennium.

To conclude, the collected field scatters data seem to suggest that even in the Gomel area, albeit on a smaller scale, manuring was practiced in the second part of the third millennium and at the beginning of the second. However, off-site surface pottery densities are still not regularly recorded in Near Eastern field surveys and until now it is difficult to recognize a consistent pattern outside the Jazira region, hence new data sets are necessary to gain a proper inter-regional perspective.

6. Site detection: intensive vs extensive

Regarding site detection, TGAS surveyed a total of 112 archaeological sites (fig. 7). The two field campaigns led to the identification of 63 new archaeological sites, which may be added to the previous 49 archaeological sites already identified by the LoNAP team in the 2012 and 2013 seasons. Thus far, in the TGAS area the site density per square kilometre is 1.12 sites/km^2, positioning the Tell Gomel Archaeological Survey in first place with regard to site discovery densities among other Mesopotamian surveys.[33]

Almost a quarter of the archaeological sites discovered was found trough the transect fieldwalking. If we consider the site morphology of the new sites discovered by TGAS, it is interesting to note that most of the sites detected through the intensification of the survey methodology are low-mounded sites. This is interesting because it shows how the intensification of the survey strategy could record not only flat sites but also small mounded sites unnoticed during the previous surveys.

The preliminary results from the TGAS demonstrate how the intensification of the methodology applied in an already investigated area can change the interpretation of settlement distribution and dating (fig. 8). This is especially true for the pre- and proto-historic periods. In fact, as shown in the chart, the LoNAP team recorded, for instance only 4 Early Pottery Neolithic and 1 Halaf sites in the region later studied by TGAS project, whereas the TGAS team found 17 Early Pottery Neolithic sites and 15 Halaf sites. This change in the data collected is due not only to the discovery of new sites, but also to the recording of phases previously not observed in sites already investigated by LoNAP. Other periods in which the intensification of the survey had a huge impact are the second part of the third millennium, the Parthian and the Islamic periods. In those cases, we detected dozens of small flat or low

[29] Wilkinson, Tucker 1995, pp. 20-22; Ur 2010, pp. 68-69.

[30] Bintliff, Snodgrass 1988.

[31] Wilkinson, Tucker 1995, pp. 22-23.

[32] Ur 2010, p. 73.

[33] Ur et Al. 2013, p. 112, fig. 16.

Figure 7
Distribution map of the archaeological sites discovered in the TGAS area

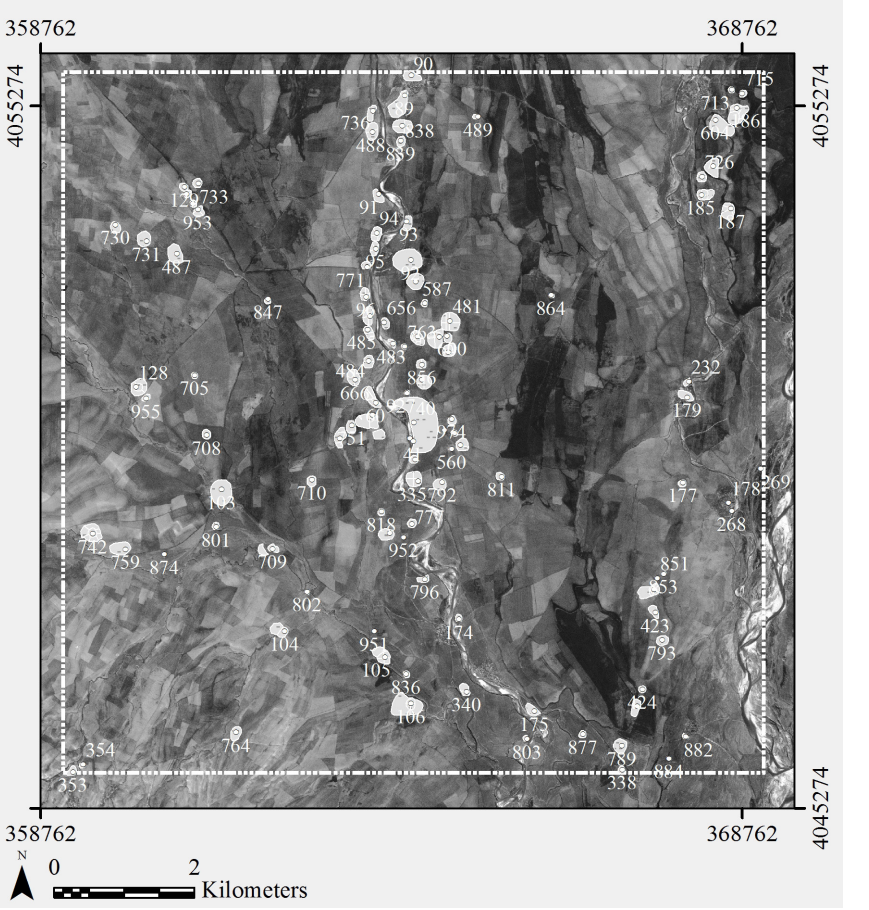
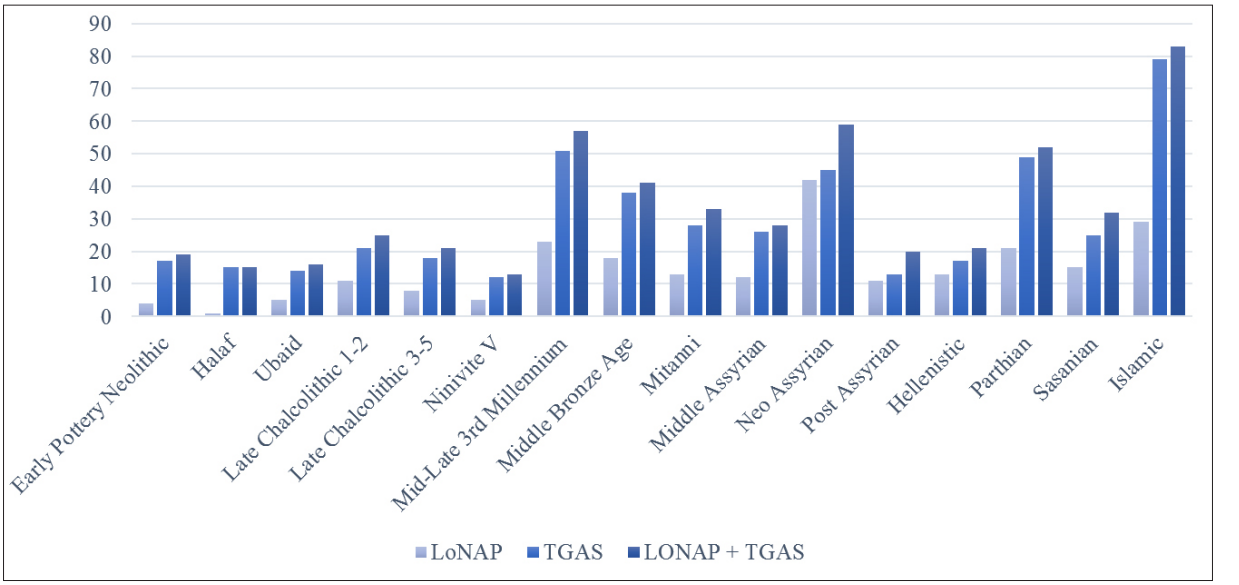


Figure 8
The chart illustrates the results, in terms of identified sites per chronological period, from the LoNAP and TGAS surveys, and the two combined



mounded one-period sites previously undetected by the extensive survey. Concerning the other periods, in the majority of the cases the survey intensification seems simply to have increased the number of sites for each epoch, almost without modifying the general trend documented by the extensive survey.

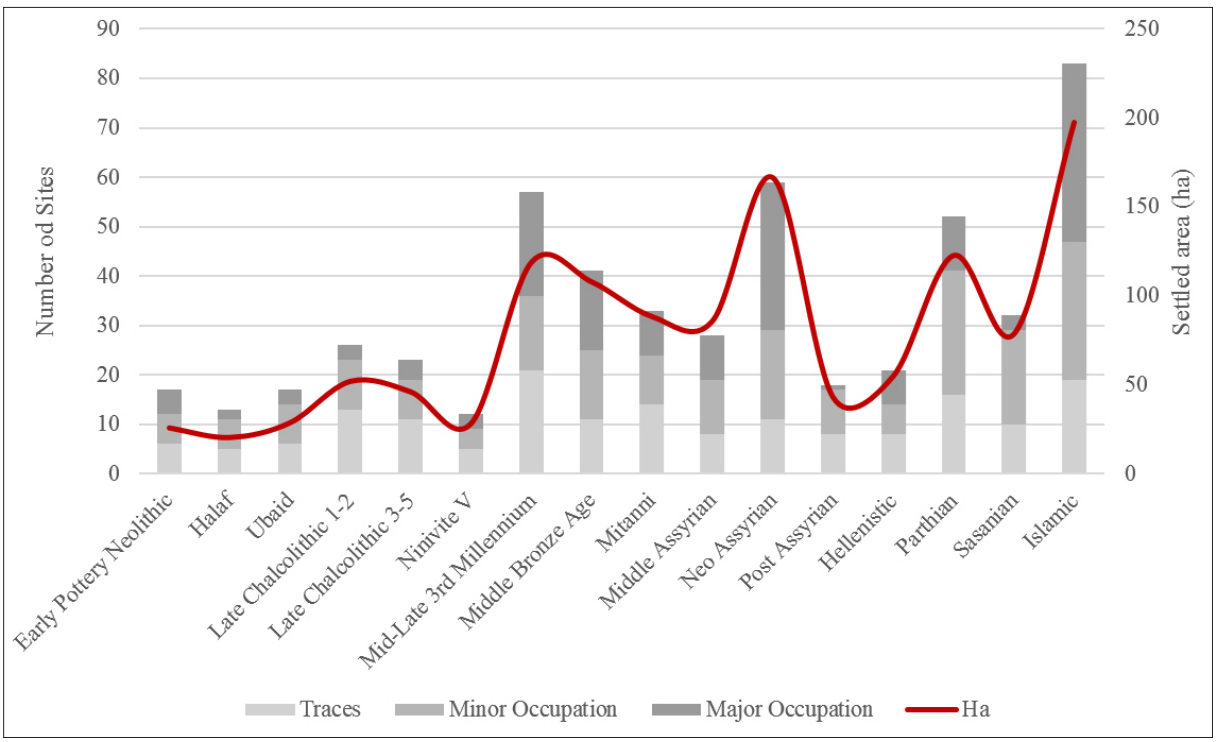
7. The settlement development

Regarding the study of settlement development, the survey results reveal a complex and multi-layered landscape (fig. 9).

The preliminary data shows a limited occupation of the area during prehistoric and protohistoric times. Actually, the first strong development of settlement took place in the Late Chalcolithic with also a distinctive grow of the total settled area. But the emergence of a dense rural landscape, with small-sized villages scattered throughout the plain, occurred only in the second half of the third millennium BC. The following period of thriving occupation was the Middle Bronze Age. Afterwards, the Mitanni and the Middle Assyrian occupation patterns laid the foundation for the later Neo-Assyrian period that represents the first-maximum expansion of human settlement in the region. After the collapse of the Assyrian Empire there is clear evidence of settlement reduction, until the Parthian period, which corresponds to the third-highest settlement density in the TGAS research area. Finally, the long period defined as Islamic is attested on 83 settlements, thus representing the absolute peak in the occupation of the plain, but in this huge period are squeezed together all the sites dating to the Early, Middle and Late Islamic periods. Further work on the pottery materials is needed in order to obtain a better chronological sequence for this period.

The data collected shows how the Navkur Plain is culturally strictly related to the Jazirah cultural con-

Figure 9
Preliminary chart of the sites discovered in the TGAS area during the 2015 and 2016 campaigns according to their chronology



text, especially the Khabur Triangle and the North Iraqi Jazirah. This strong relation is not only related to the affinity in the material culture but also to the similar socio-political dynamics. In the Navkur Plain it is possible to recognize, even if with some differences, a settlement development close to the pattern recorded by other Upper Mesopotamian surveys.[34]

The Navkur Plain can be included among the "Agricultural Plains" of the Northern Fertile Crescent, as defined by Wilkinson et Al. (2014, 50), and it forms as well a classic "Landscape of Tells" (Wilkinson 2003: 100) characterized by a dry-farming staple economy. The peculiar settlement trajectory of the Navkur Plain is related to its favourable environmental conditions (high average annual rainfall, deep soils and abundance of water resources) but also its distance and peripheric position in relation to well-known communication routes and marginal lands (the steppe).

8. Conclusions

The TGAS project was the first project, in the field of Near Eastern Archaeology, designed to test how the use of two different methodological approaches on the same territory could lead to two substantially different results in the understanding and interpretation of settlement development and land-use.

From the methodological point of view, the result of the combination of three different strategies to investigate the site of Gomel, the other archaeological sites in the TGAS area and the off-site was very effective. Such intensive approaches allowed to: 1) obtain a high-resolution reconstruction of Gomel settlement's development and limits; 2) detect sites which would not have been found otherwise; 3) record ancient field scatters in the off-site areas.

One of the main accomplishments of TGAS project was the demonstration how an extensive methodology, strongly based on remote sensing analysis, could skew our understanding of settlement development and landuse. These results have profound implications not only in the study of pre- and proto-historic periods but also in the reconstruction of long-term population dynamics, nucleation and dispersal phenomena and land exploitation.

Acknowledgements

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[34] North Jazira Project: Wilkinson, Tucker 1995; Tell Hamoukar Survey: Ur 2010; Tell Beydar Survey: Ur, Wilkinson 2008; Tell Brak Suburban Survey: Ur et Al. 2011.

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