University of Sistan and Baluchestan

Iranian Journal of Archaeological Studies

Print ISSN: 2251-743X Online ISSN: 2676-2919

Archaeological Sciences Research Centre

The Archaeological Capacity of the Eastern (Lower) Zāyandeh-Rud Basin: An Outline

Ali Shojaee-Esfahani[*,1], Yaser Jebreili[2], Payam Entekhabi[2], Mehran Kakavand[2], and Kourosh Mohammadkhani[3]

[*]*Corresponding Author,* [1]*Department of Archaeology, Art University of Isfahan, Isfahan, Iran.*
E- mail: a.shojaei@aui.ac.ir

[2] *Independent Researcher. Iran.*

[3] *Department of Archaeology, Shahid Beheshti University, Tehran, Iran.*

Received: 03/ 07/ 2022; Received in Revised form: 18/ 10/ 2022; Accepted: 10/ 12/ 2022; Published: 20/ 12/ 2022

Abstract

Since 2018, Art University of Isfahan's Department of Archeology has focused on the Zāyandehrud River basin, particularly its eastern and western parts, to better understand the archaeological landscape of the region and its changes through time. Field studies in the eastern part of the basin near Varzaneh have identified large numbers of new sites from different periods. Due to its geographical location at the center of Iran, the region could act as a hub between the four corners of the Iranian plateau in different periods. The similarities between the material cultures from the studied region and those from other parts of the Iranian plateau, particularly during the Early Bronze Age (EBA), also bear witness to the linking character of the region.

The identification of over 200 sites spanning the EBA to the Timurid period and excavations at two EBA (013, 051) and a probable Iron Age site (006) indicates an auspicious environment and prosperity at the time for the lower part of the Zāyandeh-Rud basin, which today has been transformed into a desert or semi-desert landscape. The diversity of sites, including settlements, cemeteries, and architectural remains, as well as evidence of industrial activities such as pottery production, mining, metallurgical activities, and production of semi-precious stone artifacts, highlight different aspects of human life in the surveyed area..

Keywords: Isfahan, Zāyandeh-Rud Basin, Varzaneh, Archaeological Survey, Archaeological Excavation.

Article Type: Short Article

Introduction

From 2018 to 2021, the Department of Archeology of the Art University of Isfahan concentrated part of its research studies on the lower Zāyandeh-Rud basin and west of the Gāvkhūni wetland. While the Covid19 pandemic slowed down the progress, the three seasons of surveys and excavations resulted in the identification of a previously unknown area at the center of Iran that served as an intermediate link between the eastern and western parts of the Iranian plateau and played an active role in the regional and trans-regional interactions from the EBA up to the Timurid era (Figure. 1).

Archaeological Surveys

The survey area was defined based on the subdivisions of the Zāyandeh-Rud River basin. The survey was carried out in the plains west of the Gāvkhūni, namely the Mahyar-e Jonobi, Kuhpayeh, and Esfandarān sub-basins (Shojaee-Esfahani *et al*. 2020; Jebreili, 2023) (Figure. 1). The sites are generally flat, rarely exceeding 2 m in height and mostly measure 0.5 to 1 hectare in extent.

© The Author(s):

DOI: 10.22111/IJAS.2022.44913.1254

Publisher: University of Sistan and Baluchestan

Recent climatic conditions have led to soil salinity and heavy wind erosion, hence scant discernible surface finds at archaeological sites. In most cases, it was only clandestine excavations that had disclosed archaeological evidence (Figure. 2).

our survey shows a significantly dense distribution pattern for the EBAII sites, dating between 2800 to 2200 BCE. For example, the major sites in Mahyar-e Jonobi sub-basins can be categorized into two groups. The first group is located along both sides of an old unpaved road of ca. 11 km in length that connects the two main villages of Kafarved (Kafrūd) and Hassanābād. The second group consists of those along the old watercourses, an observation highlighting the role of water and irrigation in forming settlements (Figure.1). Interestingly, just a few sites are located near today's watercourse of Zāyandeh-Rud. Most

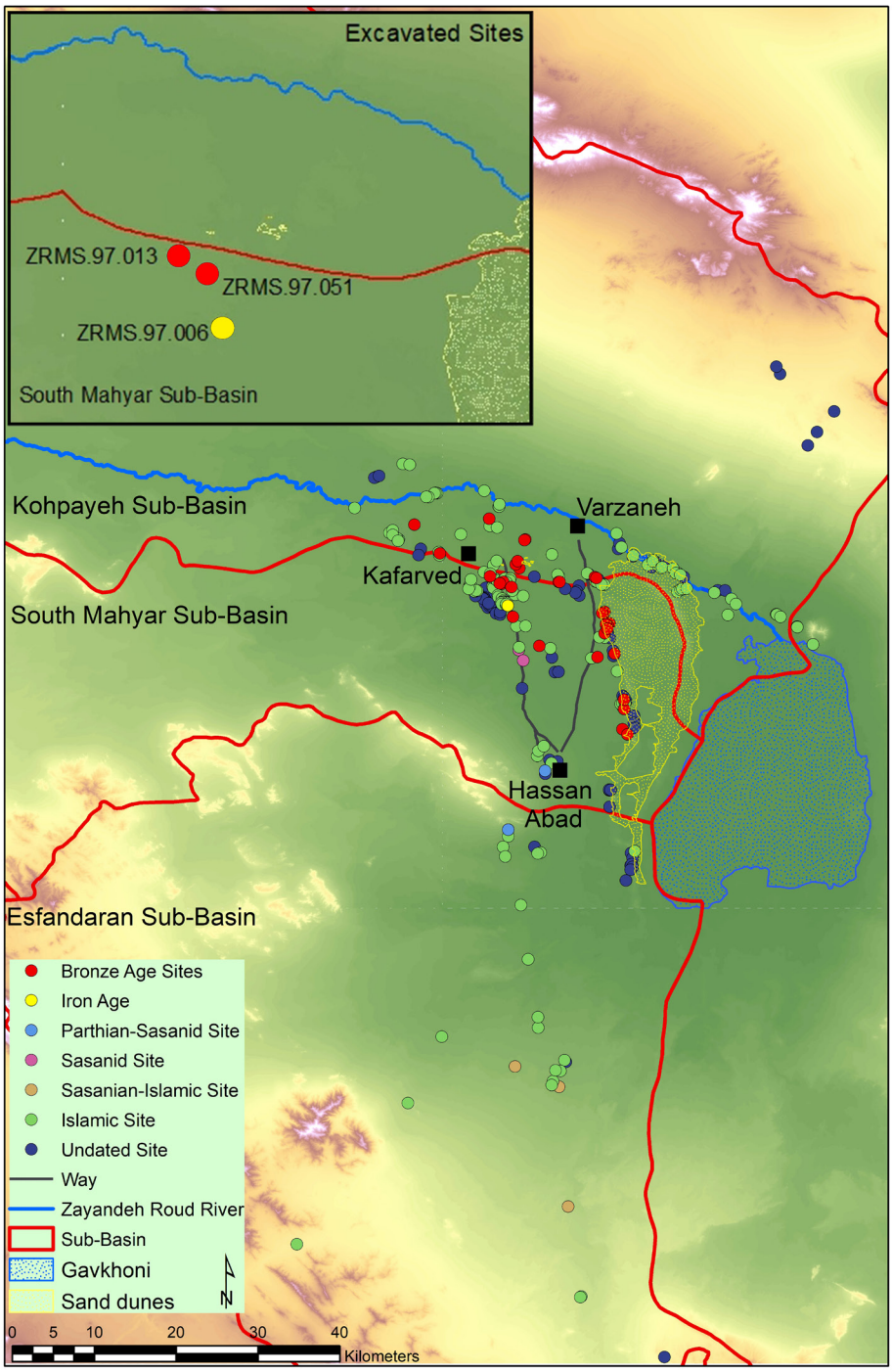


Figure. 1: *Distribution of identified and excavated sites in the eastern part of Zāyandeh-Rud River.*

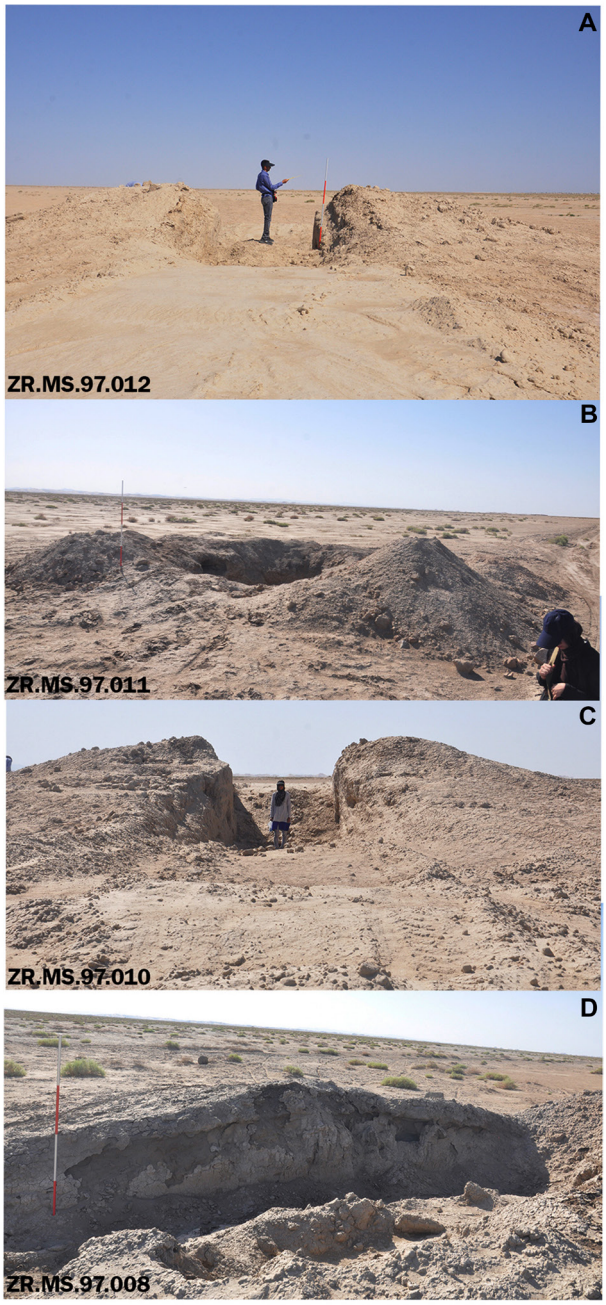


Figure. 2: *Examples of illegal digging in identified Sites; A: Eastern View of Site 012, B: North View of Site 011 C: North View of Site 010, D: Western View of Site 008 (After:Shojaee-Esfahani and Rafiei Alavi, 2020).*

sites are located in the southern plains of Zāyandeh-Rud and are further than 5 kilometers from the riverbank.

A further group of sites consists of those with evidence of metallurgical activities, including metal shards in the form of copper alloys and slag fragments, which enabled us to conduct an extra archaeometallurgical survey during which several extracting and smelting sites were identified (Kakavand 2021) (Figure. 3).

In addition to the sites identified in our field survey, understating the topography and morphology of sites helped us to recognize dozens of other sites based on Corona Satellite imagery, old aerial photos and an aerial survey with drones that covered an area of 900 hectares (Figure. 4). The presence of pottery kiln tripods and pottery shards belonging to the 13th and 14th century BCE led to a geomagnetic survey as the third method in our survey, through which three possible pottery kilns were located. The density and diversity of the materials belonging to this timespan reflect the importance of the region in the Ilkhanid and Teimurid period, also testified by numerous written sources and the extant archaeological evidence like the lost city of Fārfān (Figure. 5).

Archaeological Excavations

To understand the material culture and chronology of the region, three sites have been excavated in two seasons (Figures. 1, 6). Site 006 (ZR.MS.97.006), the highest mound across the plain, was a nearly 5 meters high mud-brick structure. More than half of the structure had been destroyed by illegal digging with heavy machinery, resulting in us not being able to determine its exact dimensions and forms. During the excavation, the exposed parts of the mud-brick structure were cleaned, revealing that the original building consisted of two floors. The lower level was a ca. 30 to 30-meter mudbrick terrace, while the upper floor included rooms with plastered walls which had later been filled with mudbricks (Rafiei-Alavi *et al*. 2020) (Figure. 6). This structure was possibly a religious or memorial building. The lack of diagnostic types of pottery and other material culture makes any comparative analysis and commenting on the site's chronology rather difficult. Nonetheless, similar mudbrick terraces in the central Iranian plateau (such as Sialk) have been dated to the first half of the first millennium BCE (Fazeli Nashli, *et al*., 2022).

Another excavated site is named site 051 (ZR. MS.98.051) has a total area of about 1.5 hectares and a maximum height of 1 m above the ground level. The architectural structures were identified in two trenches; however, the heavy natural erosion in the plain has caused considerable destruction of most of the architectural remains (Figure. 6). The

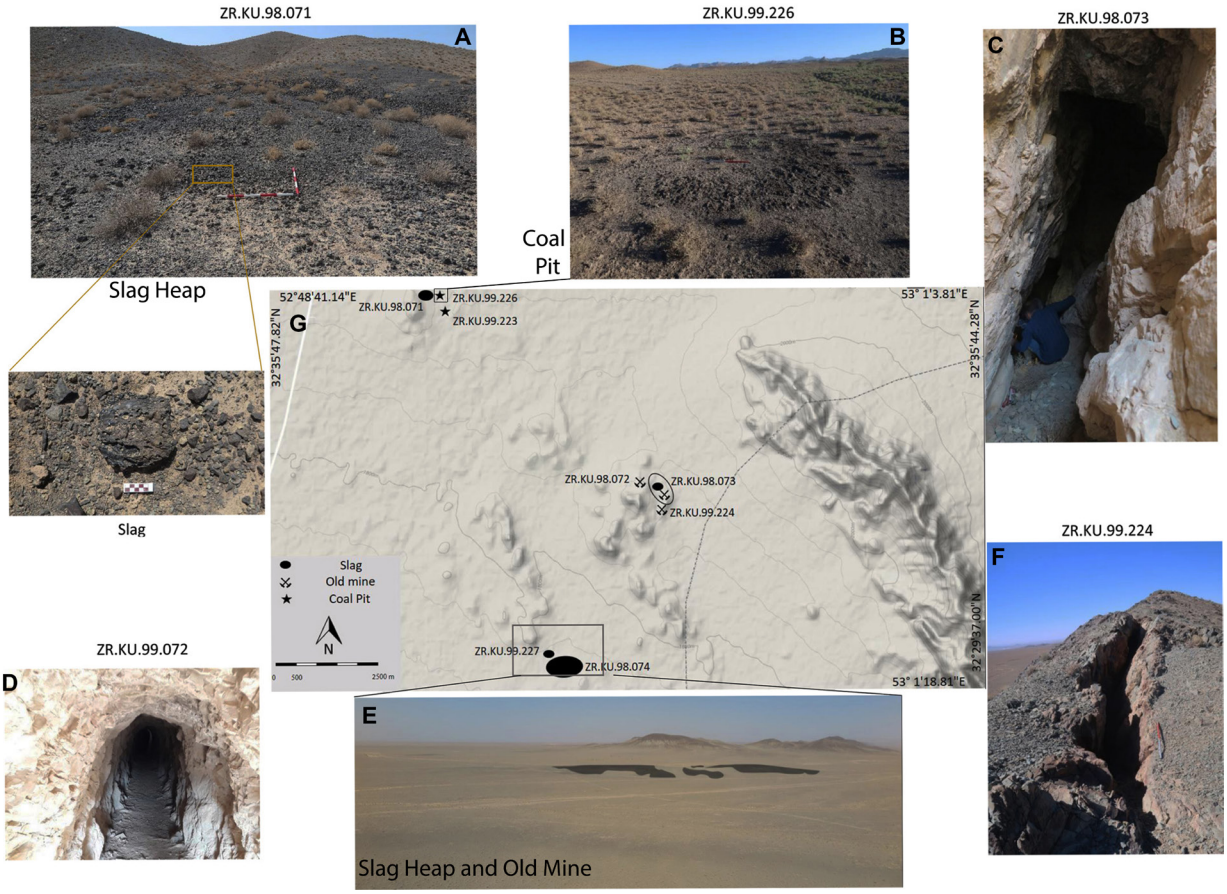


Figure. 3*: Examples of identified sites with archaeometallurgical remains; A: The heap of ore smelting slag in site 071,B: Coal pit (site 226), C: Copper ore extraction mine (Site 073), D: Copper ore extraction mine (Site 072), E: The heap of ore smelting slag in site 074 and 227, F: Copper ore extraction mine (Site 224), G: Map of old Mines, Slag heap and Coal Pit indentified (After:Kakavand, 2021).*

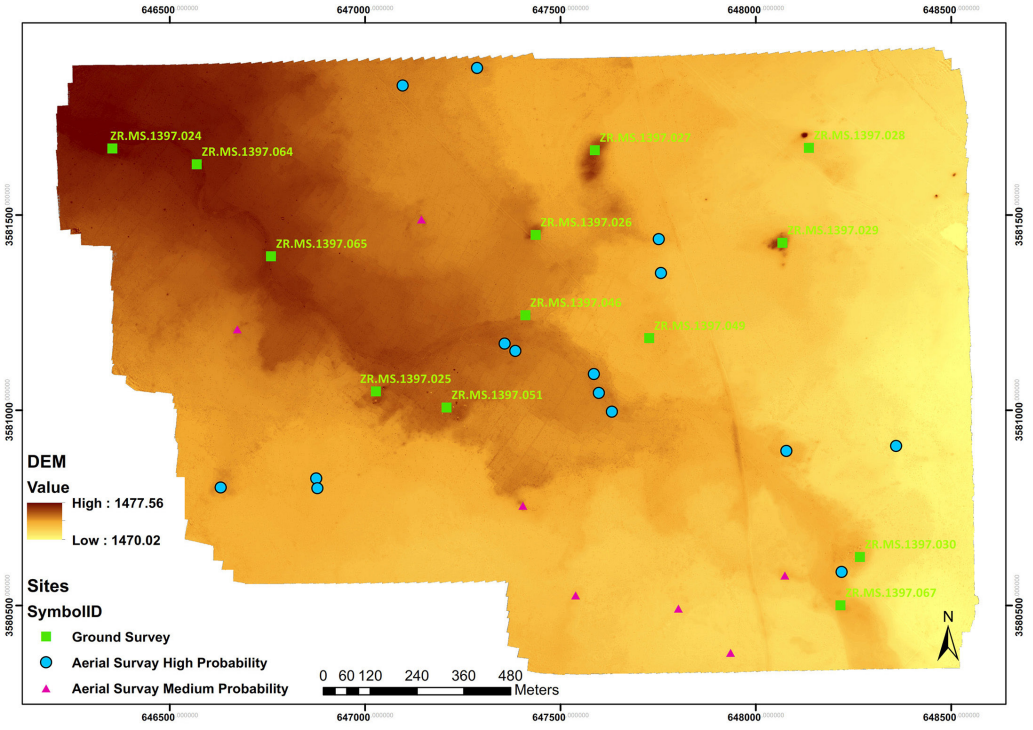


Figure. 4: *Examples of identified Sites by Aerial Survey .*

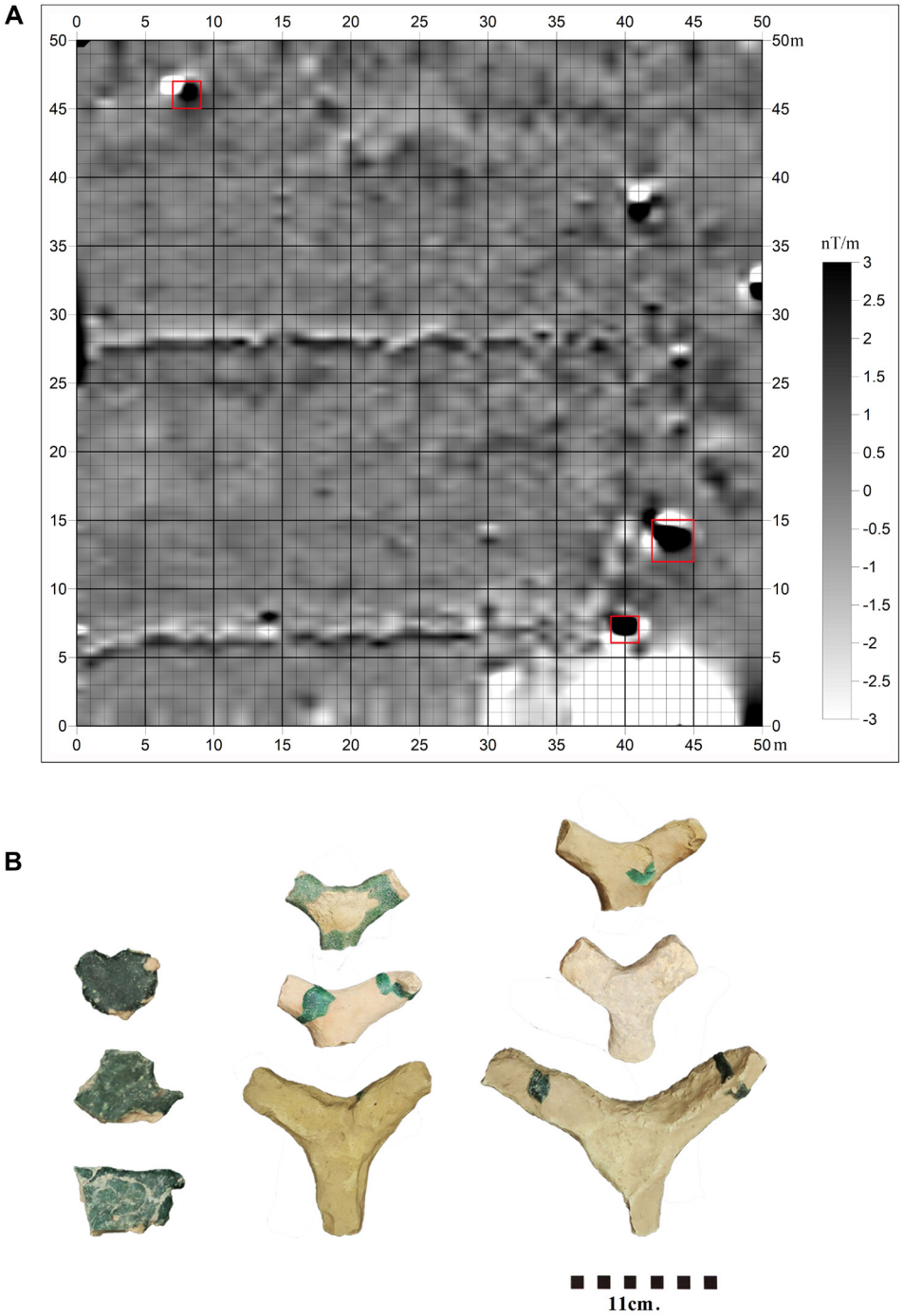


Figure. 5: *A: Evidence of possible Pottery Kilns in Geophysics Survey, B: Tripod and Wasters of Pottery (After:Shojaee-Esfahani and Rafiei Alavi, 2020).*

apparent homogeneity in the pottery assemblage and others finds all through the recorded stratigraphic sequence, from the topmost to the lowest levels, indicate cultural continuity and a relatively short, uninterrupted occupation at the site. With a maximum deposit thickness of 2.5 m, the site had been occupied for ca. 3 or 4 centuries from ca. 2600 to 2200 BCE.

During the survey of the site, skeletal remains from 40 human individuals alongside pottery sherds, exposed as a result of illegal excavations, were recorded, bearing witness to the existence of human burials at the site. Two undisturbed graves were found, one of which contained a 27-year-old male accompanied by an infant with rich grave goods (Ilkhan *et al*. 2019).

Two painted pottery jars with animal and human figures, which could be categorized as the Scarlet Ware type, and a bronze axe head with a strong resemblance with finds from Pusht-i Kuh and Susa's examples, were particularly helpful in dating the site to the ca 2600 to 2200 BCE. This relative chronology was also confirmed by C14 age determinations (at two-sigma level) of two bone specimens and a charcoal sample from the lowest levels of the site, which gave dates between 2600 to 2300 BCE (Rafiei-Alavi *et al*. 2021a, b).

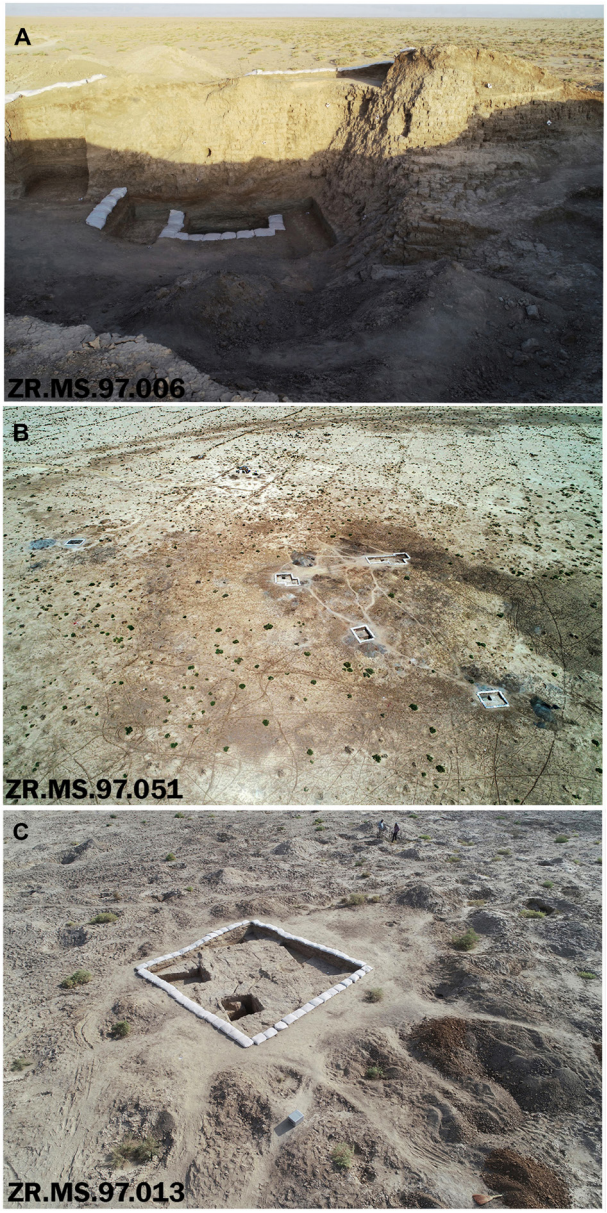


Figure.6: A general View of the three excavated Sites; A: Eastern View of Site 006, B: Aerial View of Site 051, C: Aerial View of Site 013 (Tappeh Gabri) (After:Shojaee-Esfahani and Rafiei Alavi, 2020).

The third excavated site, Site 013 (ZR. MS.97.013), is 1200 m west of Site 051. The proximity of the site to the Kafarved village caused huge clandestine activities in recent decades. The site, locally named Tappeh Gabri, has a total area of about 3.5 hectares and is about 2 m high (Figure. 6).

While no evidence of burial was attested during the excavation, the presence of skeletal remains from more than 10 individuals in the surface collections speaks for the existence of burials at the site, as was the case with Site 051. The presence of kiln ash, metal remains, stone tools, architecture, and several types of potteries all pointed to a settlement site with a human occupational character. Judging from their nearly identical material cultures, sites 013 and 051 appear to have been concomitant (Rafiei-Alavi *et al*. 2020).

Conclusions

As the only permanent freshwater resource in central Iran, the Zāyandeh-Rud and the Gāvkhūni wetland furnished proper conditions for living in different periods. Yet, their basins have received little archaeological attention. Our preliminary investigation of the eastern part of this region indicates a sequence of flourishing periods, which judging from the preserved material culture, encompasses the EBA II, the Iron Age, the Parthian and Sasanian periods, and the Islamic centuries, especially the Ilkhānid and Timurid eras. Recovery of Islamic sites next to a large number of existing structures and buildings is important evidence for occupations and activities that requires in-depth studies.

Acknowledgment

This research was founded by the Art University of Isfahan, Iran. The authors would like to thank the respected referees of the publication, as well as Dr. Babak Rafiei, a member of the Faculty of Archeology Department of Art University of Isfahan, Mr. Ahmad Shahbaz, the cultural heritage manager of Jolgeh and Bon Rood, and the students who were present in our archaeological surveys and excavations.

References

Fazeli Nashli, H.; S. Sarlak; J. Hussainzadeh; S.Yazdani; B. Rafi'i Alavi & S. Carolin. 2022. The North and South Central Plateau of Iran during the Third and Second Millennium BCE (3200–1500 BCE).

(In Persian), *Journal of Archaeological Studies* 14: 153–180. DOI:10.22059/jarcs.2022.348692.143160.https:// doi:10.22059/jarcs.2022.348692.143160

Jebreili, Y. 2023. Landscape Archaeology of the Western Gavkhoni Plains: Settlement System and its Changes during the Early Bronze Age II, (In Persian), Ph.D. Thesis. Art University of Isfahan. Department of Archaeology. Unpublished.

Ilkhan, T.; B. Rafiei-Alavi ; A. Shojaee-Esfahani & A. Sołtysiak. 2019. Human remains from Kafarved-Varzaneh survey, Iran, 2018-2019, *Bioarchaeology of the Near East* 13: 105–117.

Kakavand, M. 2021. Archaeological Survey on Metalogenic Zone in Anarak Area for the Possible Connection with Metal Artifacts and Slag from Kafrud -Varzaneh, (In Persian), Master Thesis. Art University of Isfahan. Department of Archaeology.

Rafiei-Alavi, B. & A. Shojaee-Esfahani. 2020. Short Report on the Excavation in two Sites at the Eastern Part of the Zāyandeh-Rud Basin, Kafarved Varzaneh Plain, Summer 2018, (In Persian), In: R. Shirazi and Sh. Hurshid (eds.). *Proceedings of 17th Annual Symposium on the Iranian Archaeology* 2018 – 2019, RICHT, Tehran, Vol. 2: 517-526.

Rafiei-Alavi, B.; A. Shojaee-Esfahani; Y. Jebreili; H. Alahyari. 2021a. Short Report on the Archaeological Excavation at ZR. MS. 051 site in the Eastern Part of the Zāyandeh-Rud River Basin, (In Persian), In: 18th Proceeding of the international symposium on Iranian archaeology, R. Shirazi (ed.), RICHT, Tehran: 353-362.

Rafiei-Alavi, B.; A. Shojaee-Esfahani; Y. Jebreili & H. Alahyari. 2021b. Description of Finds from Excavation at the Site of ZR.MS.051 at Kafrud Plain, Varzaneh, Iran, (In Persian), In: A Collection of Archaeological Finds of Iran in 2019-2020, M. Mosala (ed.), RICHT, Tehran: 53-62.

Shojaee-Esfahani, A. & B. Rafiei-Alavi. 2020. A Short Report on the Survey at the Eastern Part of the Zāyandeh-Rud Basin, Kafarved Varzaneh, (In Persian), In: R. Shirazi and Sh. Hurshid (eds.). Proceedings of 17th Annual Symposium on the Iranian Archaeology 2018 – 2019, RI CHT, Tehran, Vol. 2: 722-731.