
Report: Rock mortars of Sar Pol-e Zahab in their archaeological contexts: Evidence of third and second millennium BCE nomad camp sites in western foothills of Zagros Mountain, Iran

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Abstract:

During the 2016 archaeological survey in the Sar Pol-e Zahab region, in the border zone between Mesopotamia lowland and Iranian highland, a number of rock mortars were discovered on the edges of seven ancient sites. Owing to its climate and topography and its winter pastures, this region has long been favoured by nomads, and numerous remains of nomadic activities survive. The sites in question are small settlements that have been attributed to nomadic occupation owing to their small area, thin occupational deposits and extremely limited finds. Most of these sites are located near water sources such as springs and rivers. Furthermore, the associated cultural materials are not of high quality. This is in stark contrast to the settlements of farmers and sedentary settlers in the central range and western foothills of the Zagros, the remains of which formed relatively large mounds with complex stratigraphy representing extended occupations accompanied by cultural materials showing a higher degree of workmanship and artistry. In many cases, these characteristics are enough to distinguish the settlements of sedentary farmers from those of herdsmen and nomads. It appears that the nomads of the region, particularly in the third-second millennium BCE and in the Parthian period, used these permanently located rock mortars to grind grains and cereals during their seasonal occupation of these sites. These mortars are not out of context, they are related to the ancient settlements on whose periphery they are found.

Keywords: rock mortar; Central Zagros; Sar Pol-e Zahab; camp site; nomadism

1. Introduction

Pastoralism, nomadism and seasonal settlement in Near East (Barnard & Wendrich 2008: chapter 1; Cribb 1991: chapter 2) and Iran have a long history stretching back to the prehistoric periods (Abdi 2002: 348, chapter 1 & 12; 2003; 2015; Henrickson 1985; Hole 1978). Apparently, just like sedentism and permanent settlement, nomadism and herd-based lifestyles have also continued as a viable strategy in western Iran to this day (Edelberg 1967;



Feilberg 1944: 86-88; Mortensen 1993: chapter 2). Nomadic tribes are still moving between the highlands and lowlands (Figure 1). Although Potts (2014: chapter 2 & 10) disputes the existence of pre-Achaemenid nomads in Iran, historical sources provide us with important clues. For example, the letters of Mannu-ki-Ninua, the Assyrian governor of Kar-Šarrukin (Harhar), to Sargon II in the late 8th century BCE refer to the migration of the of *Zabgaga* and the *Irtiašaeans* between Bit-Daltâ and Kuluman, all localities in the Central Zagros (Fuchs & Parpola 2001: XXII, No. 90.3, No. 91. rev.9f).



Figure 1. Nomad camps in Western foothills of Zagros mountain, Qasr-e Shirin and Somar.

For millennia the region of Sar Pol-e Zahab, with its rich environmental resources and particularly its winter pastures, has been one of the destinations for nomads and other livestock farmers in the west Central Zagros. The seasonal encampments of nomads and herdsmen are among the settlement types identified throughout the Sar Pol-e Zahab region and the western foothills of the Zagros from the Neolithic period onwards. Most of these sites are located near water sources such as springs and rivers. They are characterised by small areas, very thin occupational deposits and limited distribution of cultural materials. Furthermore, the associated cultural materials are not of high quality. This is in stark contrast to the settlements of farmers and sedentary settlers in the central range and western foothills of the Zagros, the remains of which formed relatively large mounds with complex stratigraphy representing extended occupations accompanied by cultural materials showing a higher degree of workmanship and artistry. In many cases, these characteristics are enough to distinguish the settlements of sedentary farmers from those of herdsmen and nomads. Their mobile lifestyle, characterised by frequent relocation, not dependence on agricultural land, has resulted in nomads and herders only leaving limited material evidence of their presence, with the result that their settlement sites, once located, are easily distinguished from longer-term occupational sites in archaeological surveys. When nomads come back to their seasonal areas, they always return to their former encampments, re-using the implements and other elements

of material culture left in place. The stone mortars are among these, remaining in situ between the yearly migrations, to be used when the nomads return. This pattern of life is still present in parts of Iran, especially in the Central Zagros region, and gives us an appropriate model to investigate the patterns of site formation with regard to the archaeological remains of their settlements.

In 2016, the first author of this article conducted an archaeological survey in the Sar Pol-e Zahab, a region situated in western Iran where the Zagros mountains meet the uplands of eastern Mesopotamia. The survey resulted in the discovery of 193 archaeological sites dating from the Middle Paleolithic to the Qajar period. Seven of the sites located from 433 to 600 meters above sea level identified bore the characteristics of seasonal settlements discussed above, including the presence of large rock mortars (Figure 2, Table 1). This article presents these discoveries and analyses the relationship of these mortars to the sites around them.

Table 1. List of sites with rock mortar in Sar Pol-e Zahāb region.

Site No.	Site name	Size (m)	No. of mortars	ASL	N	E	Period
073	Imam Mohammad	80 × 100	2	600	34°28'34.55"	45°53'28.79"	3rd-2nd Millennium BCE
075	Zala Rash	50 × 50	1	593	34°29'38.53"	45°53'8.02"	3rd-2nd Millennium BCE
079	Naw Kal	60 × 65	1	562	34°28'1.71"	45°52'0.87"	3rd-2nd Millennium BCE
084	Taher	57 × 48	1	574	34°29'48.98"	45°51'57.65"	3rd-2nd Millennium BCE and Parthian Period?
096	Kucheg Derizh	10 × 15	5	450	34°29'40.12"	45°49'22.17"	3rd-2nd Millennium BCE
100	Chia Kuchegina	30 × 30	2	433	34°31'4.13"	45°53'28.79"	Historic Period
102	Chal Zoghal 1	30 × 30	2	468	34°31'2.03"	45°53'8.02"	3rd-2nd Millennium BCE and Parthian Period

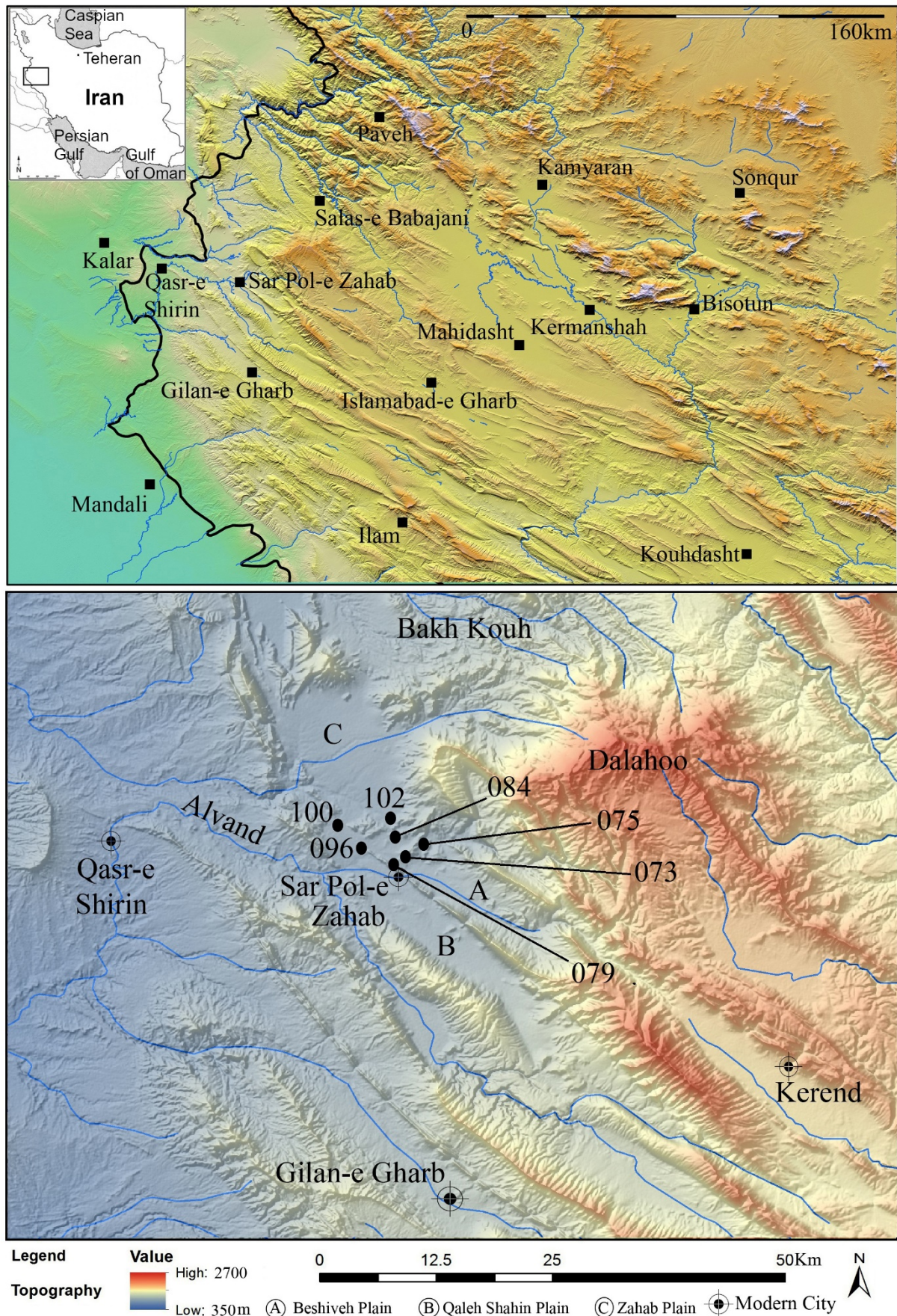


Figure 2. The location of Sar Pol-e Zahab and sites with rock mortars (courtesy of Hamzeh Qubadizadeh and Saman Heydari-Guran).

2. Rock mortars in their archaeological context at the sites

The seven sites in question are Tapeh Imam Mohammad, Zala Rash, Naw Kal, Tapeh Taher, Kucheg Derizh, Chia Kuchegina and Chal Zoghal 1. The remains of mortars have been discovered on the edge of all of these. These mortars are carved into the natural rock or large stones lying on the surface, with a circular hole 20 to 25 cm in diameter and 22 to 30 cm in depth. They are located at the edge of, or near, the ancient settlements and are generally surrounded by very thin occupational deposits. Based on the sherd scatters, the sites themselves span a range of dates from the third-second millennium BCE to the Parthian period (2nd century BCE to 3rd century CE) (Figure 3). In more detail, the sites are as follows:

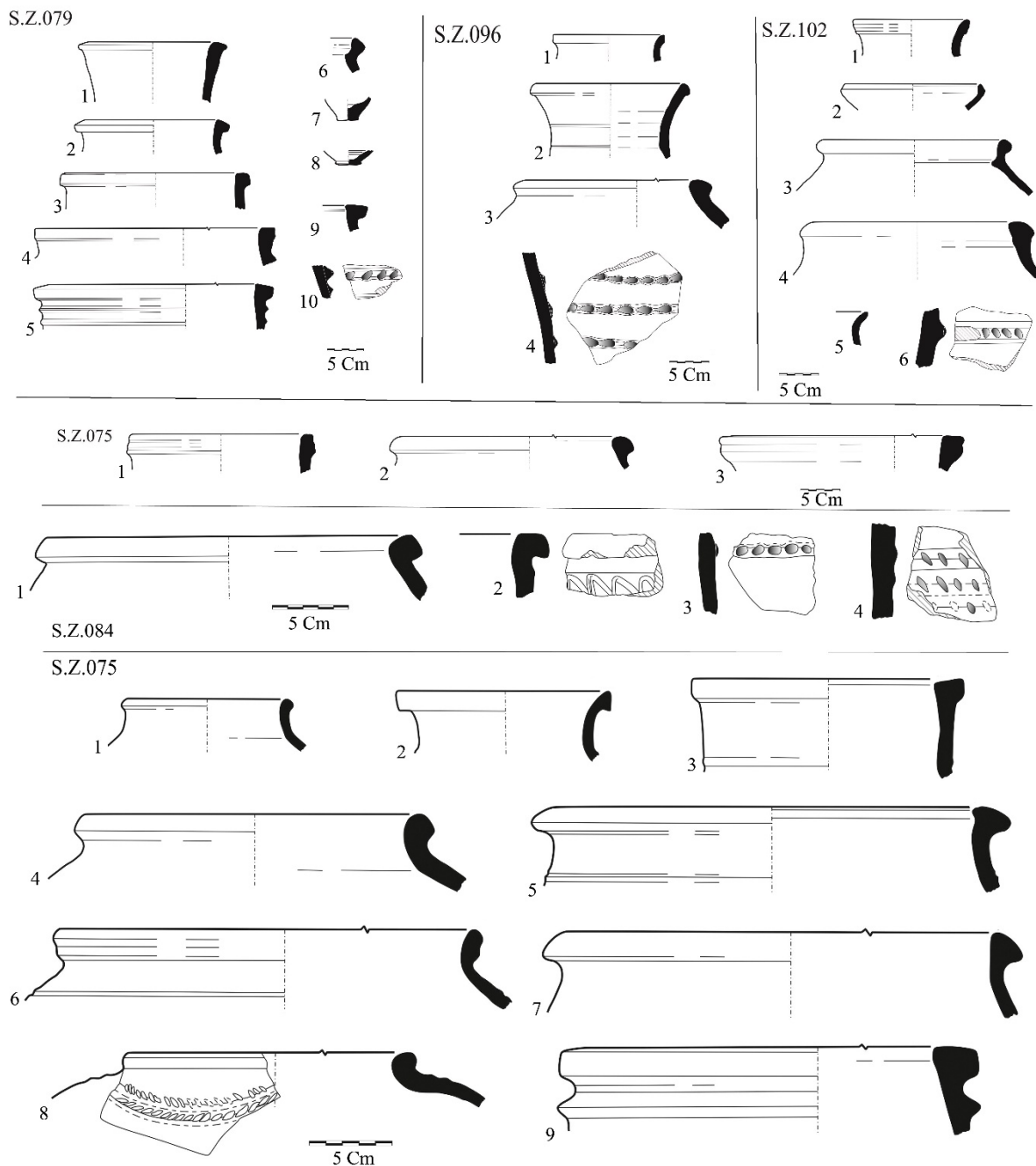


Figure 3 Selected potsherds from the seasonal sites of the Sar Pol-e Zahab with rock mortars (drawing by Somayeh Zeinali).

2.1. Site 073 (Imam Mohammad)

In the hilly northern margin of the Beshiveh plain, 2.25 km north of Sar Pol-e Zahab and on the right bank of the Alvand River, is a rocky outcrop known as Imam Mohammad. The northern and western sides of the outcrop, which measures approximately 775×225 m and rises 35 m above the surrounding plain, are fairly steep, with more moderate slopes on the eastern and southern sides. From a level of around 15 m above ground level, the upper part of the outcrop is marked by the remains of rectangular structures of dry stone walling, a scatter of surface ceramics dating to the 3rd to 2nd millennium BCE, and two stone mortars with holes 22-26 cm in diameter and 25 cm deep cut into the bedrock (Figure 4).



Figure 4. Aerial view of Tapeh Imam Mohammad and its rock mortar (courtesy of Reza Azizi).

2.2. Site 075 (Zala Rash)

A small settlement site located in the north of the Beshiveh plain, dated by surface ceramics to the third to second millennium BCE. At the edge of the site, there is a stone measuring approximately $50 \times 35 \times 20$ cm into the surface of which a mortar in the shape of an incomplete cone has been carved (Figure 5). The inside of this mortar is exceptionally

smooth and polished, and it is clear that it had been used for a protracted period. The hole is 25 cm in diameter and 29 cm deep.



Figure 5. Aerial view of Zala Rash and its rock mortar (courtesy of Reza Azizi).

2.3. Site 084 (Tapeh Taher)

Tapeh Taher is located 3.5 km north of Sar Pol-e Zahab atop a hill measuring approximately 60×50 m on the edge of the Beshiveh plain, at a point where the plain gives way to rolling hills and larger mountains. Some remains of stone walls can be seen in the southern part of the site. In the sections of illegal excavations, it is possible to see a thin stratigraphy of occupational deposits; judging from the sparse scatter of ceramics these are probably to be dated to the third to second millennia BCE, as well as to the Parthian period and possibly also other times in the historical eras. Lying on the surface of the site is a piece of a rock mortar, 60 cm high and 62 cm wide, and with a hole 30 cm in diameter and 25 cm deep (Figure 6).



Figure 6. Aerial view of Tapeh Taher and its rock mortar (courtesy of Reza Azizi).

2.4. Site 096 (Kucheg Derizh)

Seasonal campsite located in the southwest of the Zahab plain. Nine large mortars were identified on the rocky surface of the site, as well as a small distance away (Figure 7). These

mortars vary between 20 and 25 cm in diameter and have an average depth of 25 cm. They are all perfectly smooth and polished, clearly the result of repeated use. Fifty meters east of these mortars are the remains of a small settlement with limited and very thin deposits from the third-second millennium BCE (Figure 3). The obvious implication is that the mortars are associated with this settlement.



Figure 7. Aerial view of Kucheg Derizh and some of its rock mortars (courtesy of Reza Azizi).

2.5. Site 100 (Chia Kuchegina)

Seasonal encampment site located on a small natural hill at the southwestern edge of the Zahab plain, a location giving good access to pastures in the hills beyond. This site lacks cultural materials such as pottery or lithics, and for this reason, is not easy to date. At the edge of the settlement are two mortars carved into large rocks lying on the surface (Figure 8). The mortar holes are 27-30 cm in diameter and 30 cm in depth. The surfaces of the mortars are

smooth and polished, indicating that they were used for some time. In other parts of the site, there is evidence for quarrying stone; how the stone is cut, entailing a series of square holes, is similar to other examples in Iran which date to historic periods. This does not, however, necessarily mean that the mortars date to the same time.

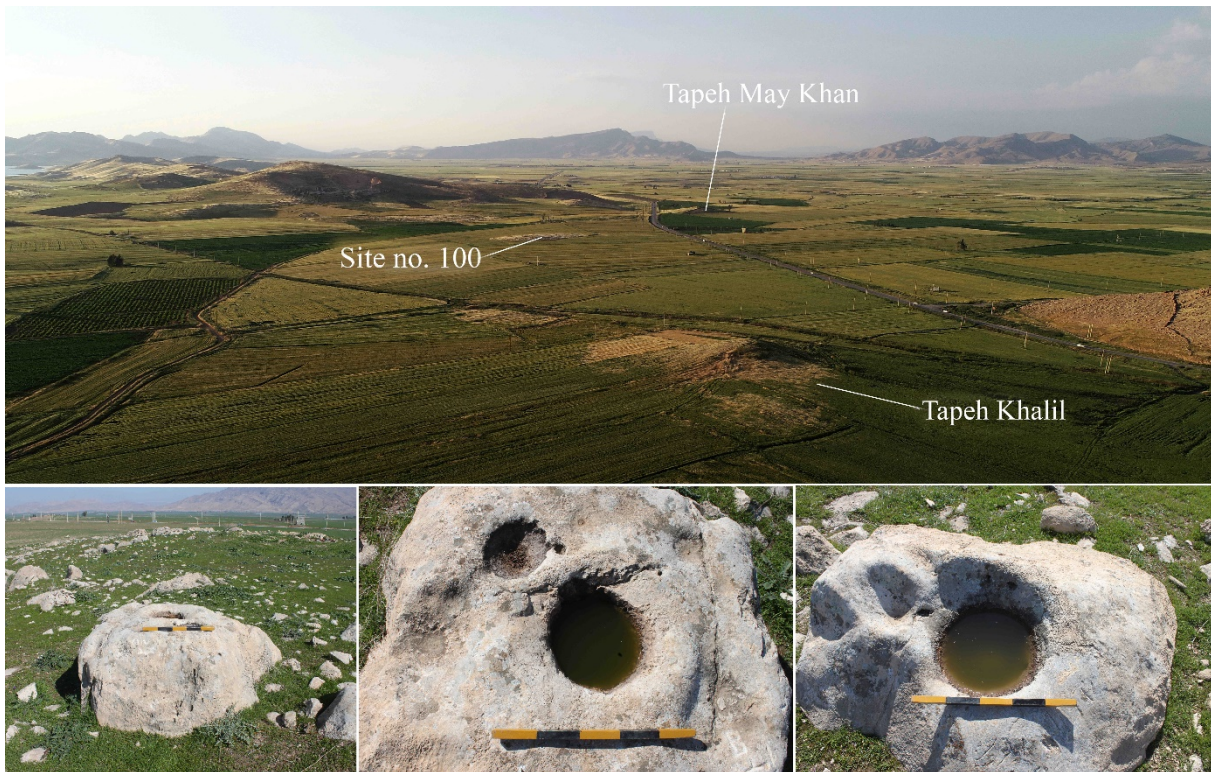


Figure 8. Aerial view of Chia Kuchegina (Site No. 100) and one of its rock mortars (courtesy of Reza Azizi).

2.6. Site 102 (Chal Zoghal 1)

A seasonal settlement site located on a natural hill in the southeast corner of the Zahab plain where it borders mountainous terrain. The site is in an excellent location with good access to both water resources and surrounding pastures. Two mortars are carved into large rocks lying on the surface. The first of these has a hole 30 cm in diameter and 30 cm deep, the other a hole 17 cm in diameter and 15 cm deep (Figure 9). Around the mortars are 37 small cupules. Ceramics recovered from the surface of the hill date to the Parthian period (Figure 3), so this may be when the mortars were carved.



Figure 9. Aerial view of Chal Zoghal 1 and its rock mortars (courtesy of Reza Azizi).

2.7. Site 079 (Naw Kal)

Settlement is located at the foot of a huge and very steep and barren rocky outcrop at the point where the Alvand River flows out from the mountains into the Beshiveh Plain. Surface ceramics suggest a date in the third-second millennium BCE (Figure 3). A short distance from the settlement, halfway up one side of the outcrop, is a large (200 × 140 cm) rock into which has been carved an irregular conical hole 28 cm in diameter and 22 cm deep (Figure 10). This rock was first identified by Prof. Massoud Golzari, who interpreted it as a fire altar. On the basis of this, as well as carvings in the surrounding rock faces, Golzari identified this as a place of worship (Golzari 1977: 116, fig. 166; Golzari & Jalili n.d.: 23).

The location of all of these mortars on the edge of ancient sites associated with nomadic or seasonal settlements, and the fact that they all show signs of wear indicate that these were practical installations that saw extended use.



Figure 10. A view of Naw Kal showing the location of its rock mortar (courtesy of Reza Azizi).

3. Discussion

Nomads and herdsmen, with their knowledge of the environment and their dependence on water and pasture resources, usually return to settle in the same locations each year. Their requirement for mortars for pounding grain, which were too heavy to be transported, led to the solution of making mortars in each location which formed part of the annual cycle of transhumance. Actually, the fact that they could not be moved served the additional purpose that they could not be stolen. This practice of nomads returning to their annual encampments and reusing their abandoned material inventory (structures, fences, mortars) still continues in the region. Owing to the altitude of the Sar Pol-e Zahab region, 500-600 meters above sea level, it appears that these locations, which also have minimal occupational deposits, represent the remains of the seasonal settlements of herdsmen and nomads coming to this region during the cold seasons of the year from antiquity to the present day. They settled in these sites while using the region's winter pastures and used these rock mortars to crush grain. So in fact, these mortars are not found out of archaeological context, they are actually related to their adjacent ancient settlements. This explains why all of these mortars are located exactly at the edge of or near such settlements. Earlier examples of these mortars were reported from Bisotun (Kleiss 1970: figs. 6 & 8, Plate 8.2), Rijab (Golzari & Jalili n.d.: 104), Kurdistan Region (Lahafian 2010: 178, fig. 2), Fars (Shidrang 2004: fig. 7), Ilam (near Parchinah graveyard) (Haerinck & Overlaet 1996: Plate 6), East Chia Sabz (Darabi *et al.* 2013: fig. 5.16) and many other parts of Iran. Earlier archaeologists suggested that these stones with carved holes and depressions, for example at sites such as the Parthian Temple at Bisotun (Kleiss 1970: 140) and Naw Kal in Sar Pol-e Zahab (Golzari & Jalili n.d.: 22-23), were fire altars connected with religious rituals. The difficulty of dating these mortars should be noted. This is particularly the case with regard to the mortars discovered at Chia Sabz (Darabi *et al.* 2013: fig. 5.16) and Tapeh Sarab-e Yavari in Kermanshah plain (Alibaigi 2013: figs. 8-9), where it appears that the use of this type of mortar has been common in the Central Zagros region for a very long period, from at least the Neolithic onwards (for the earliest samples from the Levant, see Hayden 2017; Liu *et al.* 2018; Nadel *et al.* 2015). Overall, a

survey of the rather numerous amounts of ground stone produced in the Central Zagros suggests that these mortars were manufactured in or near settlements, both seasonal and permanent, from the Neolithic into the historic and Islamic periods. Therefore, in order to date these mortars, we have to take into consideration the dating of the associated settlements. According to the findings of the survey in these places, it appears that the mortars in sites such as Zala Rash, Naw Kal and Kucheg Derizh date back to the third-second millennium BCE, while the ones at Chal Zoghal 1 date to the Parthian period and the ones at Chia Kuchegina probably date to the historical era. We do not know what tools and equipment were used to make these mortars, however, considering the considerable antiquity of the phenomenon in the Central Zagros (examples of Sarab-e Yavari, East Chia Sabz, Chogha Golan and Kalek Asad Morad), which predate the beginning of the Neolithic period (Alibaigi 2013: figs. 8-9; Conard & Zeidi 2013: fig. 2; Darabi *et al.* 2013: fig. 5.16; Moradi *et al.* 2016: 10, fig. 10c;), it is probable that these mortars were made by grinding out the stone. In any case, it is important to understand the real purpose of these mortars, their dates, and how they were made, and to preserve these artifacts as part of the archaeological heritage.

4. Conclusion

According to the suitable pastures and location the study area could be used as a destination and winter quarters (*Qeshlagh*) for the nomads, some different sites from different periods have been identified in the area that show the nomads travel to these areas for part of the year. Nowadays, the area is still used by mobile herders and nomads, and nomadic herders come to the area in the winter. We are unaware of the interactions of mobile communities with farming villages in the ancient period in this region, but given the numerous sites from this period that have significant deposits and considerable size, it can be seen that in the third and second millennium BCE, there were both inhabitant farms villages and seasonal settlements in these areas, and each of them used the natural facilities of the region according to their strategies.

Considering that one of the cultural materials in most of the nomadic campsites is rock mortars, in surveys, the existence of these mortars can be used as signs of the presence of nomads. These findings, along with small settlements with very thin occupational deposits, which are often located on the edge of the plain with good access to pastures, are among the features of nomadic camps.

Rock mortars show that these areas and settlements were not used only once and the nomads returned to these areas again and again and used this landscape as well as rock mortars. Due to the fact that archaeological landscapes are often changing according to development activities, seasonal sites and settlements of nomads with little cultural material are rapidly changing and disappearing. Therefore, archaeologists working in Iran and the Middle East will be less likely to encounter remains of nomadic presence in archaeological landscapes, which is why that this direct evidence of nomadic presence is doubly important.

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Data accessibility statement

The authors confirm that the data supporting the findings of this study are available within the article.

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