

RESEARCH ARTICLE

ANCIENT ARCHITECTURAL WALLS OF JORDAN IN THE SOUTHERN LEVANT

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ABSTRACT. *Aerial photography techniques have received increasing attention in the field of archaeology, and Jordan has become one of the countries in the Middle East that is increasingly interested in this field, as survey studies and archaeological excavations have shown the rapid use of these techniques, especially by foreign and local missions operating in Jordan. These techniques effectively help the documentation process, particularly aerial photography, which has gained increasing attention and is used to document all the Great Walls in Jordan. Aerial photography techniques are present at Hashemite University, where they contribute to project work and provide research facilities. By applying them, it was possible to obtain distinctive digital images and to extract valuable data regarding the route that these Jordan Walls take throughout the surrounding area, which has contributed effectively to the success of field operations, especially the documentation work of the Jordan Walls.*

KEYWORDS. *Jordan Walls, aerial photography techniques, archaeology, Islamic periods.*

INTRODUCTION

The Great Wall of Jordan, which the locals call Shabib Lines (*Khat Shabib*), is unknown to many researchers and even to members of the local communities who reside next to them.

The initial pictures taken of the walls in 1948 were insufficient to understand the significance of these walls, their extension, height, length, and the function for which they were built. Although more than 72 years have passed since the first images of the Jordan Walls

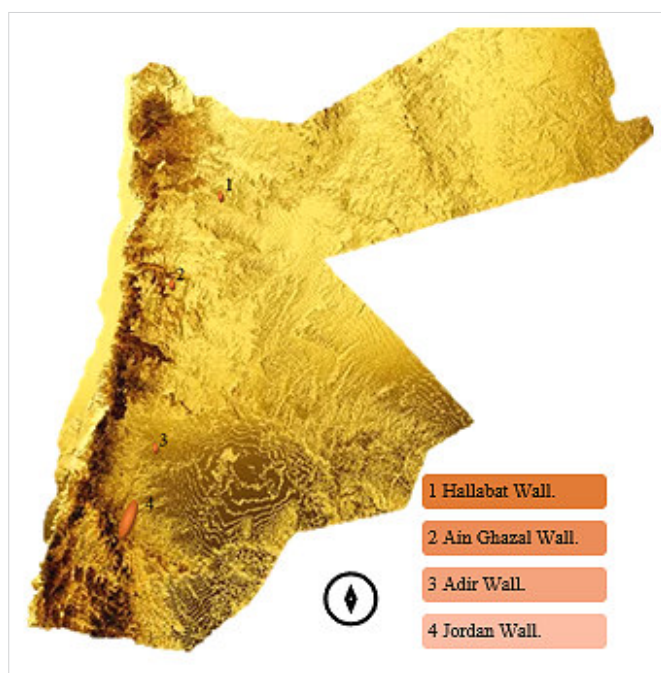


Figure 1. Map of Jordan showing the location of the Jordan Walls from north to south (by Abu Shawish, 2023).

appeared, no scientific research, surveys, or archaeological excavations have emerged. Thus, no maintenance or restoration work has been conducted on these walls, which run through Wadi al-Hasa in the north, the Ras an-Naqab highlands in the south, Halabat in the Zarqa District, Ader in the Kerak District, as well as in Ain Ghazal in Amman. Several years before the documentation work for our current project began, the Jordan Walls were still shrouded in mystery and information about them still scarce.

There is no documentation asserting the hypothetical or real function of their construction. Then the walls became the subject of discussion and some controversy

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Figure 2. Remains of the Jordan Wall in the Ras an-Naqab Area, South Jordan (Waheeb & Tarrad 2023).

among scholars and experts, so it was then agreed to document the walls to clear up the mystery about their function and use.

Some preliminary evidence indicates that one of them is the second longest wall in the world after the Great Wall of China. Thus, scientific research has an effective role in disseminating knowledge and news about it. The walls became well-known to scholars and experts after our documentation and reexamination process (Fry 2018).

STUDY OBJECTIVES

The main project objective determined to document the Jordan Wall (Figure 1) using aerial photography techniques which began in 1992; it was partially recorded in the Ras an-Naqab area and continued documentation until 1996.

The project has also been initiated to the present day (2020–2025), as these successive studies have contributed to supporting the achievements of other scholars towards carrying out more documentation of the walls to reach scientific facts, especially interpreting them, the functions for which they were built, whether it was

a military function or forming a dividing line between agricultural lands and desert lands, and discuss the possibility that the walls represent a trade route guiding merchants and caravans crossing the region from north to south.

The Jordan Walls (Figure 2) were not alone. Many other buildings were uncovered on both sides of them, such as towers, enclosures, shelters, ancient traps or kites, dwellings, villages, and many other structures here and there along the length of the walls from its beginning to the end.

LITERATURE REVIEW

The Great Jordan Wall, mostly known as *Khat Shabib*, has attracted the attention of specialists in the field of archaeology, along with experts in history and heritage and has also fascinated visitors and travellers through southern Jordan (Kirkbride 1948; Abujaber 1992; see also Bishah *et al.* 1993; Waheeb 1994, 1996, 2012; Bikai & Egan 1998).

These walls were noticed through previous studies in Jordan by different scholars. The Jordan Wall is in south Jordan. Another wall was found in the Kerak Dis-

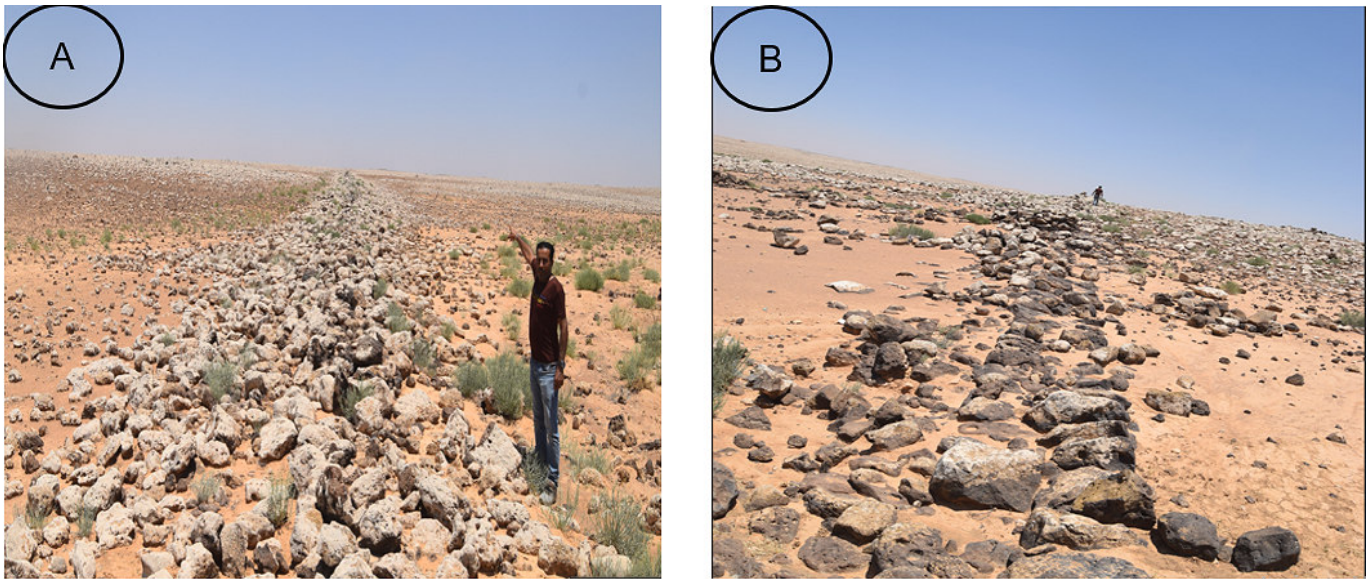


Figure 3. The Hallabat wall in Zarqa Governorate. A: The end middle sector of the wall built of limestone. B: The beginning of the wall built of basalt stones (Waheeb 2021).

tract known as the Ader/Adir Wall, which is also located in south Jordan close to the Jordan Valley. This wall was revealed during field operations at the Zarqa district of the Hallabat area in central Jordan. The last wall was discovered in the prehistoric site of Ain Ghazal in Amman (Figure 2).

The English diplomat Alec Kirkbride was the first to notice the remains of the wall in 1948 when he observed it from the air and published limited information about it (Kirkbride 1948). The wall was also mentioned in several articles, such as in a survey of the Tafila-Basira area by MacDonald and others (2005). Findlater (2002) referenced Khirbet al-Qanas during his DAS survey and dated the wall to the Iron Age (Findlater 2002: 142–143). Additionally, Harding mentioned the wall in several of his reports that were published recently in various volumes under the title *Journey with the Past/with Lankester Harding* (Harun & Sayouf 2015).

The Jordan Wall was not the only wall mentioned in Harding memoirs. He also noted another wall that extends into the Wadi Al-Seer area and crosses the town of Naour heading towards Hesban (Harun & Sayouf 2015). Additionally, Harding referenced another wall on the western side of Harrat al-Sham, which he detailed on a map published in 1949. This map indicated that the wall extends in a straight line to the northeast of Qasr al-Hallabat, with a length of no less than 8 km. The wall is associated with several small structures along its sides, believed to have been used for military purposes in the Roman era (Harding 1967).

British researcher David Kennedy conducted a study on the Jordan Wall through aerial surveys while documenting Roman sites in northeast Jordan. He published an article that briefly discusses the wall and referenced a map showing its extension in the southern part of the kingdom after his exploratory visit in collaboration with the Royal Air Force in 1997 (Kennedy & Banks 2015).

In 1992, Mohammad Waheeb led a survey of the Ras an-Naqab–Aqaba area. He pointed out the existence of the wall and described several structures around it (Waheeb 1993, 1996; Bikai & Egan 1998). Waheeb also discussed the Jordan Wall and its significance, in addition to field operations and investigations of many adjacent sites in the Ras an-Naqab area—see the book *The Jordan Wall—Shabib Line, Archaeological Excavations in Ras An-Naqab* (Waheeb 2021).

Raouf S. Abujaber mentioned the Jordan Wall in his study on water harvesting in arid communities (Abujaber 1992). The wall was cited in the book *Ancient Jordan from the Air*, where Kennedy and Bewley photographed it from the air in 2004 (Kennedy & Banks 2015). McDonald noted the wall during his survey of the Ras an-Naqab area in southern Jordan and described several adjacent sites (McDonald 2005), while the researcher Sahar Al-Khasawneh dated the wall to the Iron Age (539–332 BC) following a surface study conducted in collaboration with other researchers (Al-Khasawneh *et al.* 2019).

In 2022, Waheeb with Mohannad Tarrad, from Al al-Bayt University, achieved a detailed study of the Jor-

dan Wall using aerial photography techniques. This work was supported by the Scientific Research Fund of the Jordanian Ministry of Higher Education. The study provided a detailed description of the wall, indicating that its length ranged between 20–150 km and identifying its various extents. Though it was not an exhaustive research, it documented how the wall was far longer and had a more organized structure than previously understood. This highlights the need for a detailed study of the wall that will determine its length and the various structures associated with it hence, as well as the importance of using modern documentation methods such as aerial photography.

LIMITATIONS

The walls face many challenges like rapid settlement expansion, housing projects, construction of paved asphalt roads, and lasting ignorance. The noted degradation of several cultural heritage sites in south Jordan, along with the shortage of information and limited research on archaeological and cultural heritage associated with the wall, a limitation of this study, reflects how economic development overshadows the importance of heritage as a vehicle of sustainable development, social integrity and welfare both for present and future generations. For several reasons, the value of this wall has not always been recognized and as a result, some heritage assets have depreciated, and the owners and holders of these assets have sometimes been encouraged to abandon or demolish them. Thus, some portions of the wall heritage have been lost, and those which have been protected are often threatened by the impact of natural, physical, and social conditions.

METHODOLOGY AND WALL ASSESSMENT

Fieldwork constituted rapid diagnosis of the wall and nearby sites identified based on literature, validating collected data, gathering photo documentation of the sites, collecting site coordinates, and characterizing sensitive sites based on expert visual observations. The identification of sites for diagnostic visits took into consideration existing (apparent) resources, in addition to sites with a potential presence of archaeological remains or heritage artefacts, based on information available regarding the history of the Jordan Wall and on travelers' observations and records.



Figure 4. Aerial photo of the Hallabat straight wall (Kennedy & Banks 2015).

Reconnaissance work included aerial photography followed by a walkover of the wall and its immediate surroundings (an average of 500 meters visual observation range from each side of the wall), an in-depth search of monuments and artefacts within the identified sites, a photo survey of identified features and landscape character, and recording coordinates of the site using GPS. The adopted methodology concentrates on conducting aerial photography, which documents the remains of the walls and the associated buildings from the Wadi Al-Hasa to the Ras an-Naqab area.

Field operations were initiated in 2020 to conduct comprehensive documentation of these walls by using aerial photography, field investigations, data analysis, and publishing the gained information. All these walls (Figure 2) represent a historical sequence from the Neolithic, through the Nabatean, Classical (Roman Byzantine) and even Islamic periods.

HALLABAT WALL

The Hallabat wall (Figure 3) was built on the western side of Haret al-Shaam. It was recorded the first time on a map published in 1949 (Kennedy & Banks 2015); then Harding reported the wall and described it as a very straight line running to the northeast of Qasr al-Hallabat and in a northeast alignment (Harding 1967).

The aerial photographs of AD 1953 showed that the wall was extended to 8 km. It is interspersed with some circles and kites which intersect with it in multiple areas (Figure 4).



Figure 5. Missing or destroyed parts of the Hallabat straight wall (by Abu Shawish, 2023).

This is an example of one of the buildings built along the wall. This building consists of five rectangular rooms. The builder used the Hallabat wall as a main part of its construction. As we can see, this wall represents the middle line between these rooms, and it shows part of every room, which was built to the east and west of the wall.

In 1967 Harding dated the wall to the Roman period, and he thought the wall was used to impede enemy cavalry. But his theory was implausible for two reasons, firstly the height of the wall was not more than half a meter; secondly the location of the wall is built in a basalt area (Harun & Sayouf 2015). And this despite the discovery of the remains of Nabataean, Roman, and Ghassanid artefacts at Qasr al-Hallabat and the relationship of these civilizations with the Umayyad period. However, the archaeological remains that were found around the wall are only a limited number of poorly preserved tools and a small piece from the Roman age.

Destroyed Sections of the Hallabat Wall

This wall is distinguished from others in Jordan by its straight extension. It goes straight from south to north and does not bend with the terrain as is the case with other walls. On the other hand, we are losing parts of this wall by a range of natural conditions and human practices, such as flash floods, the building of agricultural facilities, and the construction of dirt or paved roads. Figure 5 shows the destroyed parts of the wall.

The following table (1) displays the numbers of the plots of land through which the wall passes, as shown in the city’s organizational chart.

AIN GHAZAL WALL

The Great Wall in Ain Ghazal, “Spring of the Gazelles,” was mentioned by Rollefson as a major Neolithic settlement. The site is situated on the foot slopes of the Zarqa River valley, the second largest tributary of the Jordan

Table 1. Plots of land through which the Hallabat wall passes (Waheeb 2023).

No.	Plots No.	No.	Plots No.	No.	Plots No.	No.	Plots No.	No.	Plots No.
1	411	9	525	17	202	25	414	33	1053
2	654	10	523	18	203	26	426	34	156
3	686	11	522	19	204	27	428	35	155
4	712	12	520	20	205	28	429		
5	556	13	518	21	392	29	430		
6	583	14	199	22	393	30	431		
7	582	15	200	23	394	31	431		
8	527	16	201	24	426	32	480		

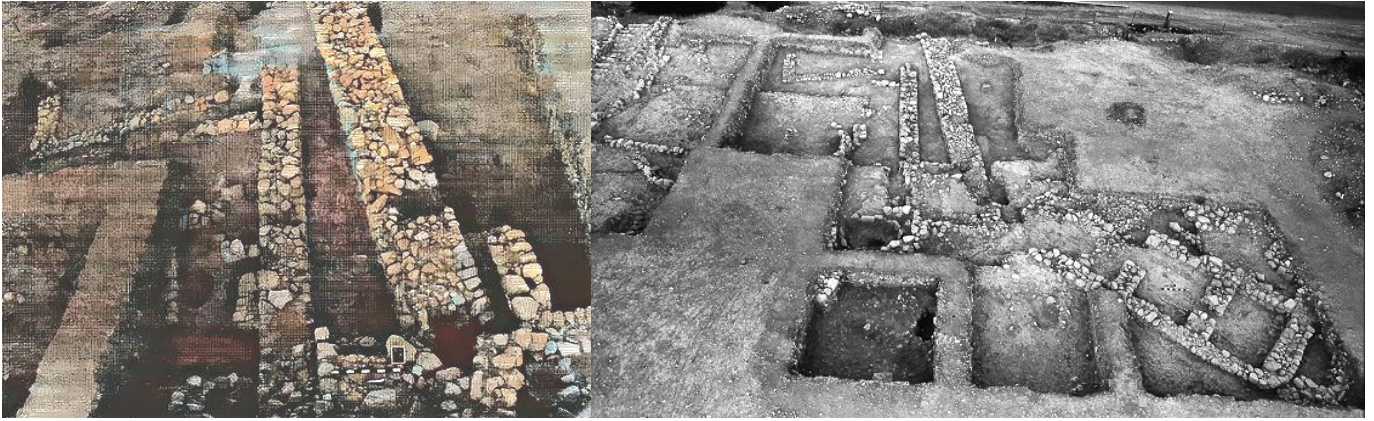


Figure 6. A unique prehistoric wall at Ain Ghazal in Amman (Rollefson *et al.* 1989).

River. Archaeological excavations were conducted at Ain Ghazal during seasons beginning in 1982. Although a relatively small portion of the site has been excavated, the findings were remarkable and have brought about the reevaluation of some basic assumptions regarding Neolithic life (Rollefson *et al.* 1989). The wall is one of the most significant discoveries at the site (Figure 6); relates to chronology, size and population, economy, ritual and artistic life, ecological adaptation, and the ultimate abandonment of the site. It is 11 m long and 1 m wide built of large, trimmed stones. The excavators believe this wall forms an external wall of one of the buildings.

ADIR WALL

Adir Wall is located a few kilometers east of Kerak city and is crossed by King Hussein bin Abdullah II Indus-

trial Zone. This wall extends from north to south for more than 3 km. The wall was mostly destroyed except for the remaining foundations and built of small to medium sized undressed basalt stones. The current situation shows that the wall faces increasing natural and human threats and needs urgent intervention (Figure 7). The table in Figure 8 shows the areas in which the wall was destroyed, through natural factors (valley floods) or human factors (construction of buildings and roads).

AERIAL DOCUMENTATION OF THE JORDAN WALL

Aerial photography as a type of documentation has received great attention during the past decade in Jordan through experiments and archaeologists, during



Figure 7. A: Current situation of Adir Wall in Kerak Governorate (Waheeb 2023).
B: Aerial photo of the wall extension (Kennedy & Banks 2015)

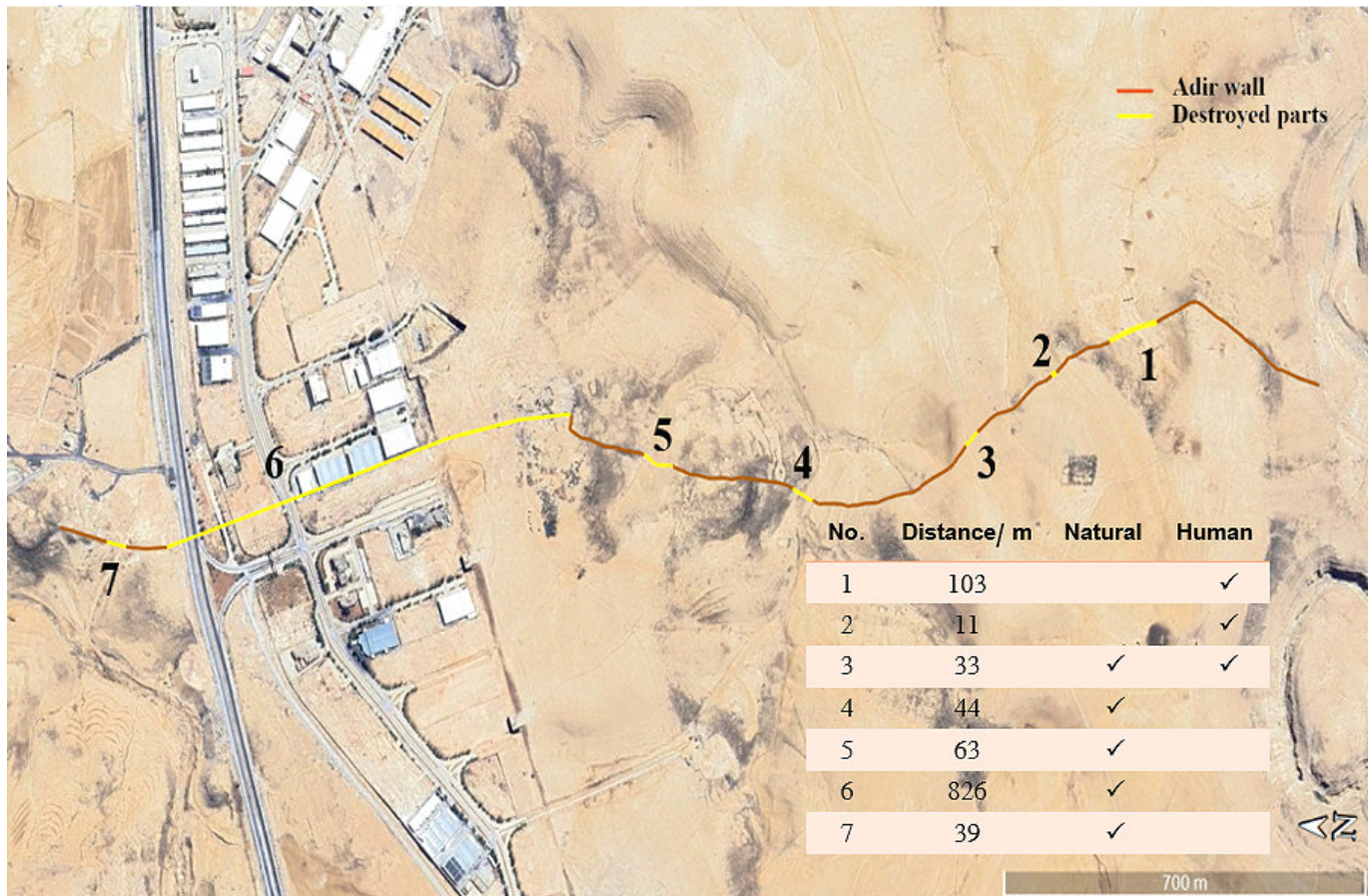


Figure 8. The Adir Wall extension through the Industrial Zone (by Abu Shawish, 2023).

their field study to document terrestrial antiquities from the air. The current project is considered a special study to narrow down this type of documentation that aims to photograph archaeological sites from the air. Here, the target is the Jordan Wall as phase one, while Hallabat and Adir are the second phase of this study and will be not addressed in this article. The means of photography is done using short-range unmanned drones, and such a type is known as documentation in the name of aerial photography by video, accordingly, platforms or means of aerial photographic documentation can be classified into categories.

The filming process takes place after installing the designated cameras, fixing them tightly, operating the filming control tools, and choosing the appropriate times to carry out the documentation work.

Accordingly, the aerial photography of the Jordan Wall focused on the following matters:

1. Photography of all parts of the targeted wall and its branches, from Wadi Al-Hasa to Ras an-Naqab,

2. Accurate and detailed depiction of buildings and urban facilities, especially watchtowers, residences, and historic villages (Figure 2).

3. The filming was done at 500 meters on both sides of the fence and directly connected to it.

A methodology (Figure 9) has been implemented to segment the wall based on the presence of key sites along the wall's extension from south to north. This methodology aims to facilitate the process of detailing the field study and the results obtained, particularly through documentation via aerial and ground photography, as well as the analysis of samples examined either on-site or in laboratory settings. It is imperative to note that this methodology is solely intended for academic study, and it is not associated with the various historical construction phases of the wall over time. The sites located along the wall have been categorized into eight stages from south to north as delineated below:

1) The commencement point from Al-Daouk to Umm Al-Qusayr, 2) from Umm Al-Qusayr to Mureigha, 3) from Al-Mureigha to Laika, 4) from Laika to Al-Jarba, 5) from Al-Jarba to Al-Qannas, 6) from Al-Qannas to Al-Husseiniyah, 7) from Al-Husseiniyah to Al-Hala, 8) from Al-Hala to Al-Faridiyya, near Wadi Al-Hasa. The wall stopped here at the southern edge of Wadi Al-Hasa.

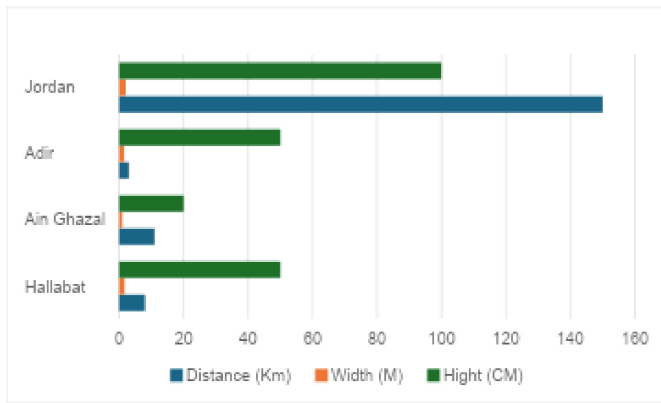


Figure 9. Matrix shows distance, width, and height direction of the Jordan Walls (Waheeb & Tarrad 2023).

ADVERSE IMPACTS ON THE JORDAN WALL

The classifications presented in the subsequent table (2) and Figure 10 correspond to the categories employed for characterizing disruptions affecting the Jordan Wall. It is important to highlight that these categorizations were applied within the context of the Jordan Wall project investigation for the explicit aim of conducting focused on-site research. This systematic framework aims to monitor and analyze disruptions thoroughly and meticulously.

CONCLUSION

It is clear through the study of the Jordan Wall in southern Jordan, which extends from Ras an-Naqab to the town of Hassa, that it has been receiving attention since the beginning of the last century, especially in the field of aerial photography. And that field studies have confirmed many facts through continuous scientific research in serious attempts to interpret the function of the wall and the goals for which it was established, and

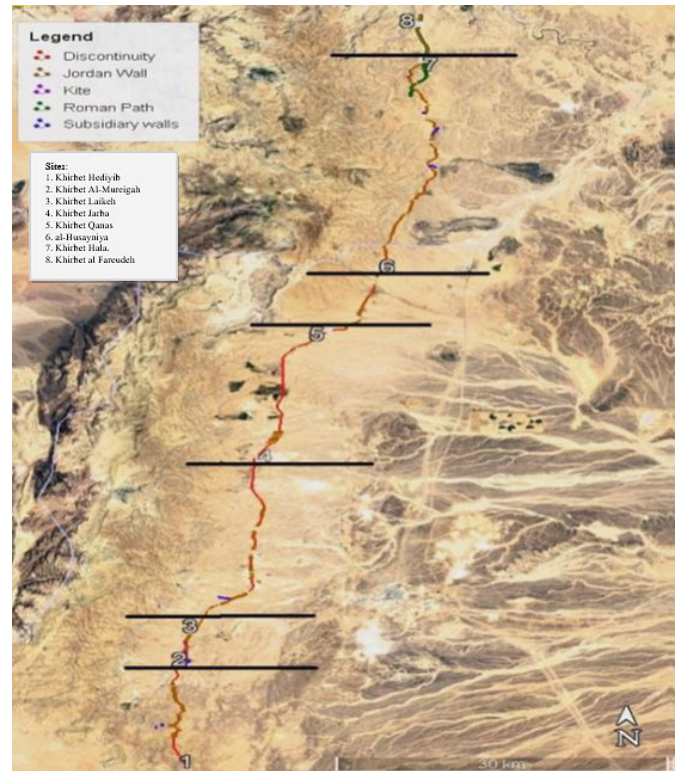


Figure 10. Jordan Wall subdivision according to the adopted methodology (Waheeb & Tarrad 2023).

the historical events associated with it, in addition to the Nabataeans’ association with the construction of the wall through their progress in the field of architecture and arts. Perhaps the discovery of more walls in Jordan indicates the importance of wall architecture in Jordan throughout the ages. The results of studies in the wall of Halabat to the east of Zarqa Governorate confirmed that the straightening of the wall across the plains indicates another method of architecture during the classical ages, in addition to the wall of Adir in Karak Governorate.

We find that the wall of Jordan and the wall of Adir are similar in terms of architecture, especially the method of building stones, and the curves used by the builders to overcome geographical features such as

Table 2. Comprehensive assessment and illustration of categories of disruptions (Waheeb & Tarrad 2023).

Type of interruption	Size of interruption	Number of interruptions
Small	1-60m	57
Medium	60-100m	25
Large	< 100	45

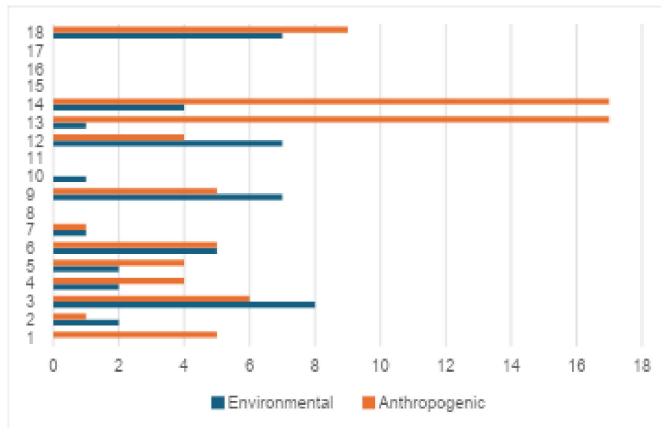


Figure 11. Detailed evaluation characterizing disruptions affecting the Jordan Wall (by Abu Shawish, 2023).

mountains, valleys and heights; so the wall crossed many geographically rugged areas, and sometimes passed next to archaeological sites directly related to it, especially if these sites are on the tops of high mountains such as watchtowers and on the slopes or in the flat plains. We have no doubt that the function of the wall and other fences is still in need of further research and comparative studies.

It is not surprising that most researchers consider that the construction of these walls was aimed at enabling control and security along their length. Since the walls

are considered a new addition to the cultural wealth of the Middle East region, the economies of the communities in their vicinity may benefit, as creating new types of tourism will positively affect the state and those working in the tourism sector and human cultural heritage.

Recommendation

The study is funded by the Ministry of Higher Education and Scientific Research, the Scientific Research and Innovation Support Fund 2022, from 1/1/2022–31/12/2022 in collaboration with Hashemite University & Al al-Bayt University. It recommends launching several tourist steps to enhance the current situation of the walls, like raising awareness of their importance and preserving them in the areas where they are located in southern or central Jordan (Ma'an, Shobak, Tafila, Al-Husseiniya, Jurf Al-Darawish, Al-Hasa, and others). We recommend nominating the Jordan Wall for the National List, and World Heritage List in cooperation with the Ministry of Tourism and Antiquities, the Jordan Tour Guides Association, and other relevant institutions. Encouraging domestic and inbound tourism benefits the local economies of the sites, using modern techniques and artificial intelligence in the documentation process.

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