



## Project Gallery

# The Walled Oases Complex in north-west Arabia: evidence for a long-term settlement model in the desert

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Recent investigations in north-west Arabia have revealed that many major oases in the region were enclosed by a network of monumental walls. Confirmation of four newly identified walled oases demonstrates that this Walled Oases Complex had a substantial impact on long-term socioeconomic development in the region.

Keywords: South-west Asia, longue durée phenomenon, walled oasis, fortifications, desert settlement

## The Walled Oasis Complex in north-west Arabia

The recent identification of a Walled Oases Complex in north-west Saudi Arabia signals a radical shift in our understanding of the socioeconomic evolution of this vast, largely unexplored region (Charloux *et al.* 2021, 2024a). A walled oasis—a term employed in local and distant desert contexts since the early twentieth century at least (e.g. Carruthers 1922: 408; Jonas 1928)—is defined as an oasis that is surrounded by outer walls (Figure 1). These extensive defensive structures enclosed and protected not only settlements but also water sources, livestock (mainly goats and sheep) and crops (including cereals, fruits and, from the second millennium BC, date palms). Outer walls, serving as a display of power as well as a means of protection, required substantial investments from local populations not only for their initial construction but also for maintenance and modification over time.

Six walled oases were recently identified within this north-west Arabian complex (Charloux *et al.* 2021; considered for the UNESCO World Heritage list <https://whc.unesco.org/en/tentativelists/6575/>). The walled oases of Tayma and Qurayyah have been known to archaeologists for a long time, four more were identified through satellite images and needed confirmation: Dumat al-Jandal, Hait, Huwayyit and Khaybar.

Over the past three years, researchers have identified potential smaller walled oases (Al-Ayn, Shayb Suways and al-Wadi; Dalton *et al.* 2021: note 8) and the gradual overlap of funerary avenues by ramparts in the Harrat Khaybar, providing a picture of the evolution of the local protohistoric landscape (Charloux 2024b). In 2024, the walled oasis of Khaybar was also confirmed and dated to approximately 2250–1950 BC (Charloux *et al.* 2024a).

Analysis of Bing and Google Earth satellite images and field visits to the oases of Al-Ayn and al-Tibq in the Harrat Khaybar (Figures 2 & 3) reveals that their surrounding ramparts

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Figure 1. 3D reconstruction of the Late Iron Age western enclosure in Dumat al-Jandal walled oasis (© Dumat al-Jandal Archaeological Project; figure by M. Bussy & G. Charloux).

(2m thick and around 8 and 2km long, respectively, at their initial construction) have typologically comparable bastions to those of Khaybar, suggesting contemporaneity around 2000 BC. This date is further supported by the recovery of similar burnished ware during surface collection at all three oases. Shayb Suways, whose wall is estimated to have been 8km long, may have also been a walled oasis, although it appears very narrow, while the layout of the walls at al-Wadi does not yet permit the reconstruction of a walled oasis (Figure 4).

In-depth examination of the georeferenced 1964 aerial photographs of the Dumat al-Jandal oasis brings to light a vast network of mudbrick walls approximately 2km long in the eastern part of the oasis, near the sabkha (mudflats), complementing a recent reconstruction (Charloux *et al.* 2021) and affirming its identification as a walled oasis (Figure 5).

## The walled oases through time and space

Our research provides evidence for the existence of a dense and long-lasting Walled Oasis Complex in north-west Arabia. Although there is only limited documentation and a preliminary chronological framework, this local phenomenon seems to have emerged in the first half of the third millennium BC at Tayma and Qurayyah (Hausleiter 2018; Lüthgens *et al.* 2023; Figure 6B), possibly inspired by urbanisation concepts in the southern Levant, and spread to the Harrat Khaybar at the end of the third millennium (Khaybar, al-Ayn, al-Tibq and perhaps al-Wadi). The classification of Dadan/al-Ula remains uncertain in the Bronze and Iron Ages, although several thick walls are reported in the wadis and were recently found at Khuraybah (Rohmer *pers. comm.*). Later, the walled oasis of Dumat al-Jandal attests to the construction of vast fortifications at the end of the first millennium BC, while the phenomenon appears to spread to Thaj in eastern Arabia during the third century BC (Rohmer *et al.* 2018).

Although the walled-oasis model was occasionally replaced by less static defensive structures in later periods (e.g. Hegra), the enclosure of several sites persisted and the walls continued to function until the twenty-first century (through restoration work) (Figure 6A). Other types of walled oases, of more modest dimensions and conceptualisation, developed later. Medinah, for example, whose early nineteenth-century plan included vast agricultural zones, may be considered a walled oasis (Burckhardt 1829: 320 map). Confirmations of enclosed agricultural areas that included the old villages at al-Ula and Anaizah also testify to the continued use of this adapted model in the nineteenth–twentieth centuries (Doughty 1888: 146; al-Huwaytir 1999; Charbonnier *et al.* 2022).

## Conclusion

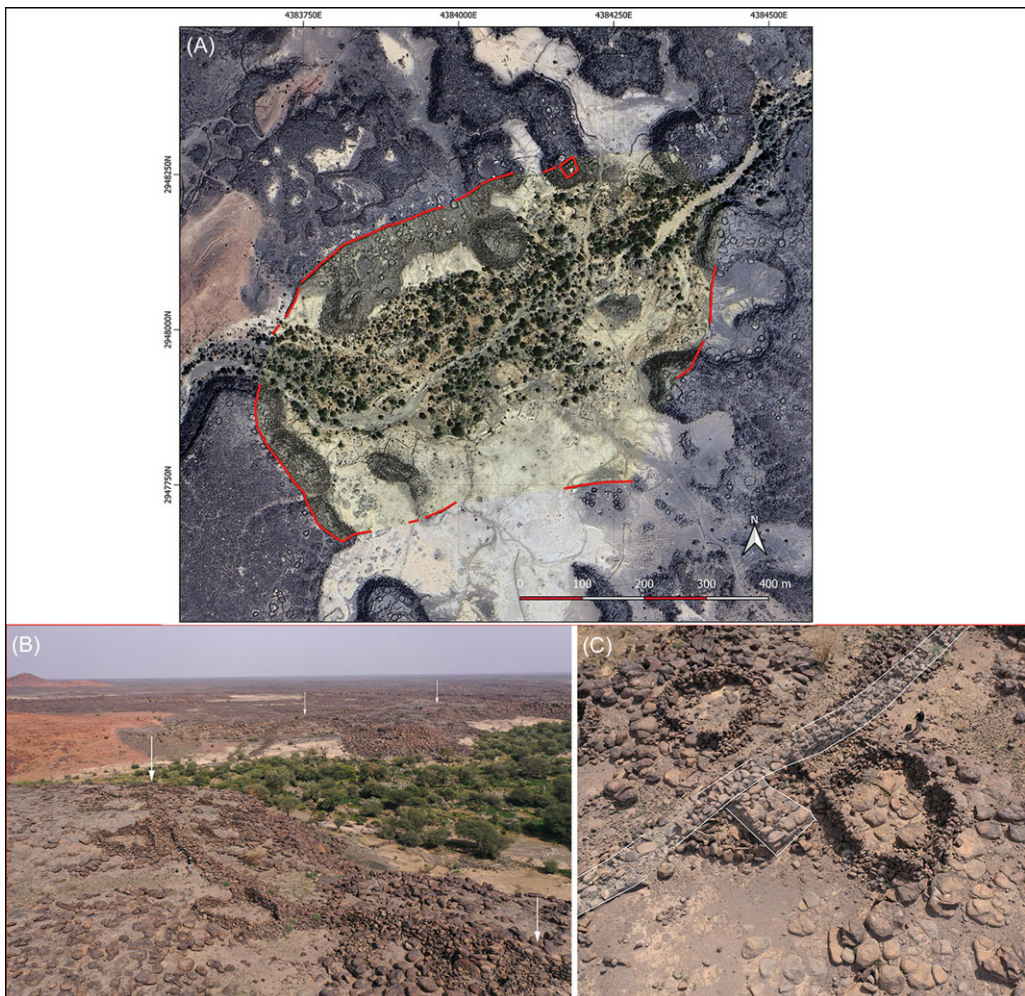
The walled oasis is not merely defensive, but represents a model of socioeconomic development that marks the complete takeover of a well-watered and rural landscape by a political entity. This political authority, installed in a fortified town as early as the Bronze Age, planned, built and managed the imposing outer walls (initially constructed in a single stage). Several walled oases remained standing for centuries and this complex played a crucial role in the rise of north-Arabian caravan kingdoms, enhancing social complexity during the Iron





Figure 2. The walled oasis of al-Ayn reconstructed on Google Earth (A), and aerial views of the rampart (B) with abutted bastion (C) and inner masonry (D) (figure by G. Charloux).





*Figure 3. The walled oasis of al-Tibq reconstructed on Google Earth (A), and aerial views of the rampart (B) with abutted bastion (C) (figure by G. Charloux).*

Age. More recently, the static model of the walled oasis proved particularly effective in protecting rural and settlement landscapes from raids by other tribal entities during the nineteenth and twentieth centuries.

This enduring model of rural occupation in the north-west Arabian desert exhibits notable variations over time and space, reflecting different collective strategies. It was notably affected by multiple factors, including environmental fluctuations, technological and socioeconomic developments, and changes in settlement dynamics, caravan trade and defensive practices. Despite current limitations in the understanding of local fortification systems, including their dating and means of construction, the discovery or confirmation of



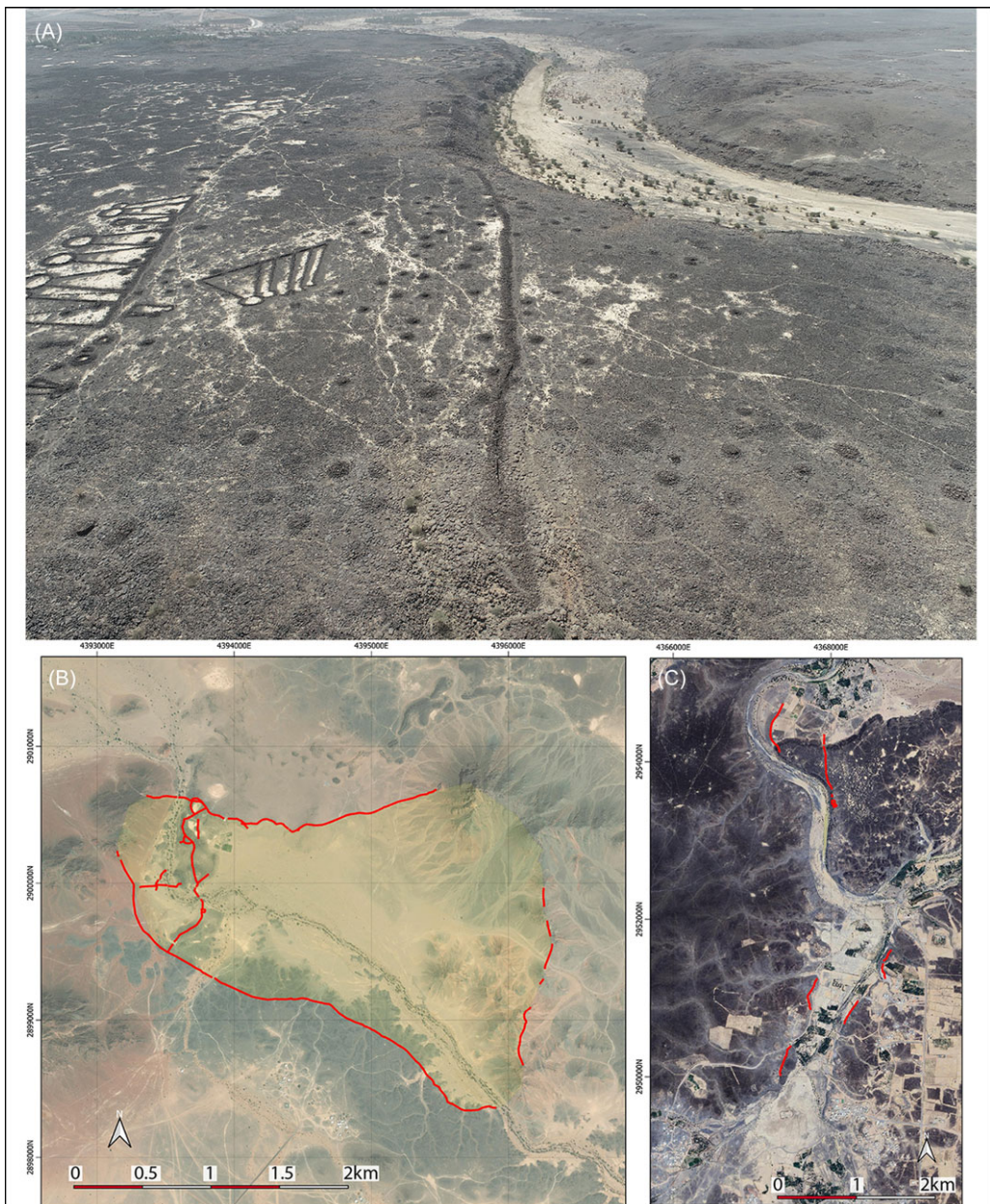


Figure 4. A) Long wall observed in Al-Wadi; B) enclosure wall at Shayb Suways reconstructed on Bing maps; C) walls identified in Al-Wadi on Google Earth (figure by G. Charloux).

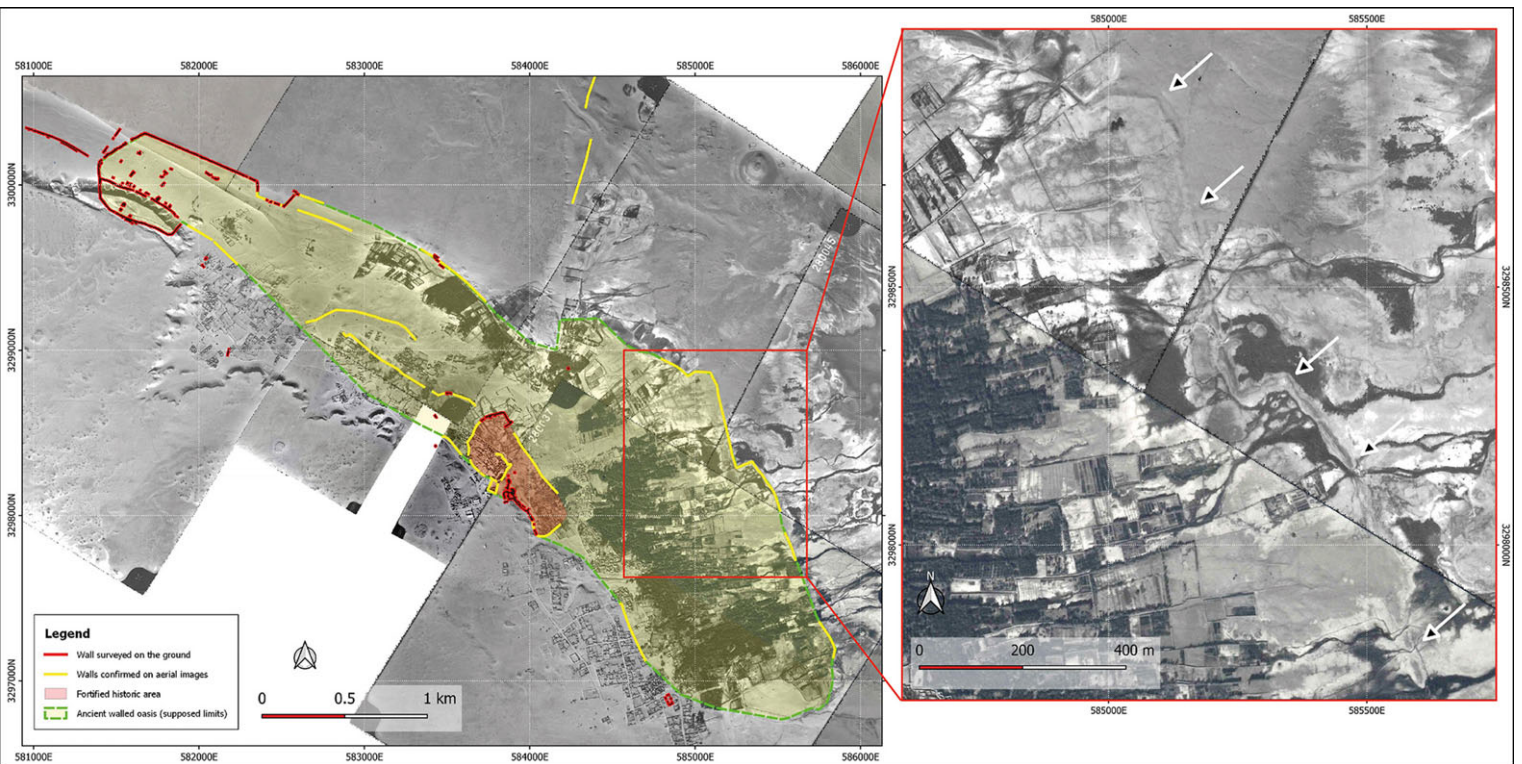


Figure 5. Map of the walled oasis of Dumat al-Jandal, with a focus on the eastern enclosure seen on 1964 aerial photographs (© Dumat al-Jandal Archaeological Project; figure by G. Charloux).



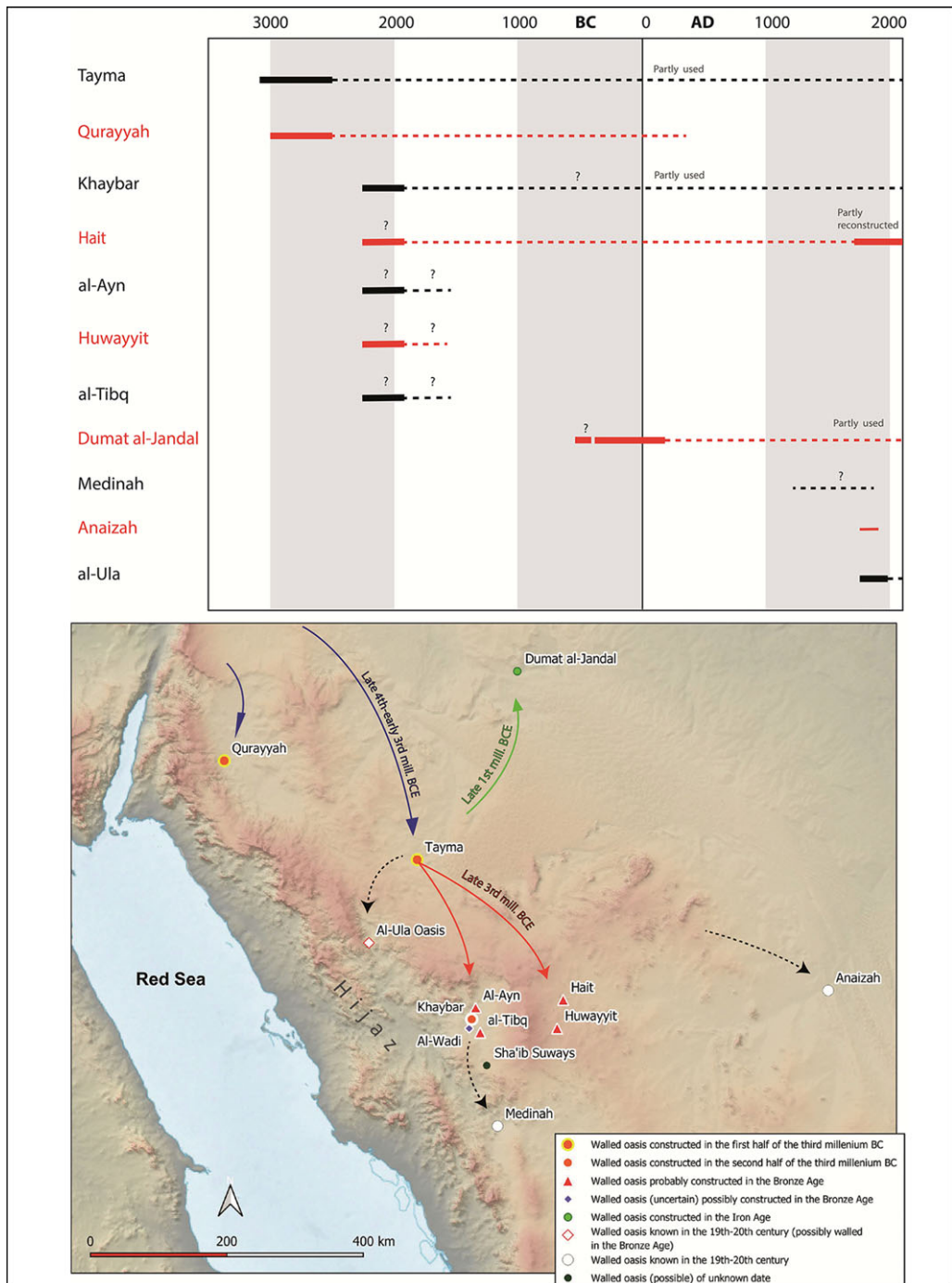


Figure 6. Preliminary chronology and geographic distribution of the Walled Oasis Complex in north-west Arabia (figure by G. Charloux).



new walled oases underscores the need for further archaeological exploration of this millennia-old phenomenon in north-west Arabia and in other desert contexts.

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