



## Project Gallery

# A lost campaign? New evidence of Roman temporary camps in northern Arabia

Michael Fradley<sup>1,\*</sup>, Andrew Wilson<sup>1</sup>, Bill Finlayson<sup>1</sup> & Robert Bewley<sup>1</sup>

<sup>1</sup> School of Archaeology, University of Oxford, UK

\* Author for correspondence ✉ [Michael.Fradley@arch.ox.ac.uk](mailto:Michael.Fradley@arch.ox.ac.uk)

Remote sensing survey in southern Jordan has identified at least three Roman temporary camps that indicate a probable undocumented military campaign into what is today Saudi Arabia, and which we conjecture is linked to the Roman annexation of the Nabataean kingdom in AD 106.

## Introduction

Analysis of satellite imagery in southern Jordan by the *Endangered Archaeology in the Middle East and North Africa* (EAMENA) project has identified a series of three Roman marching camps to the east of Bayir. These are probable evidence of a military expedition toward Dûmat al-Jandal in the Jawf region of Saudi Arabia. Although it is not currently possible to date these structures more accurately or connect them to any documented Roman military campaigns in the region, we conjecture that they may relate to the annexation of the Nabataean kingdom that began in AD 106.

## Methodology and results

The EAMENA project systematically analyses open-source satellite imagery through platforms such as Google Earth to identify and document the form and condition of archaeological sites. During survey of the Jordan-Saudi Arabia border region the slight trace of a rectangular enclosure was identified, exhibiting the classic playing-card shape of a Roman fort or camp. Further investigation identified two additional enclosures to the west (Figure 1). These images showed clearly the form, symmetrical entrances, and the *titulus* outworks in front of the entrances that confirmed these were temporary camps built by the Roman army. On 23 November 2022 the *Aerial Archaeology in Jordan* (AAJ) project photographed the western and central camps (for all AAJ photographs, see [www.apaame.org](http://www.apaame.org)).

The western camp (EAMENA-0216152) is approximately 43.5km (27.05 miles) east-southeast of Bayir and measures approximately 125 × 105 m, with an internal area of around 1.291ha (3.189 acres). Oblique aerial photographs show possible rectilinear internal divisions (Figures 2 & 3). This western site had been registered on the MEGA-Jordan platform (NN/SITE 3501.004), but the site is not identified as a Roman camp.

The central camp (EAMENA-0216151) lies around 44.2km (27.05 miles) east-southeast of the western camp and measures approximately 95 × 65m, with a smaller internal area of

---

Received: 6 January 2023; Revised: 3 March 2023; Accepted: 9 March 2023

© The Author(s), 2023. Published by Cambridge University Press on behalf of Antiquity Publications Ltd.

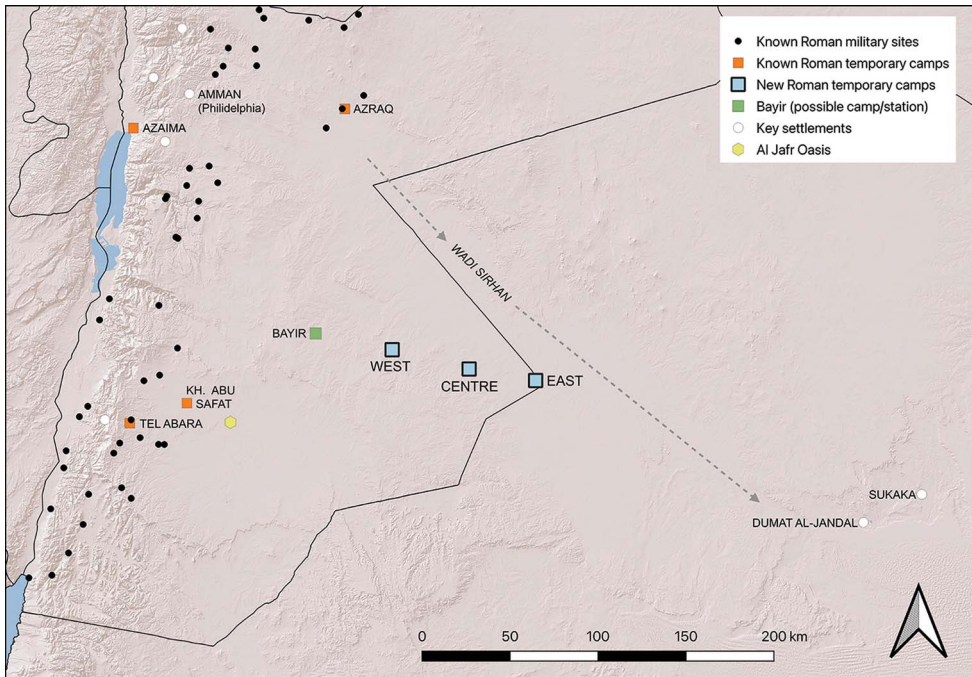
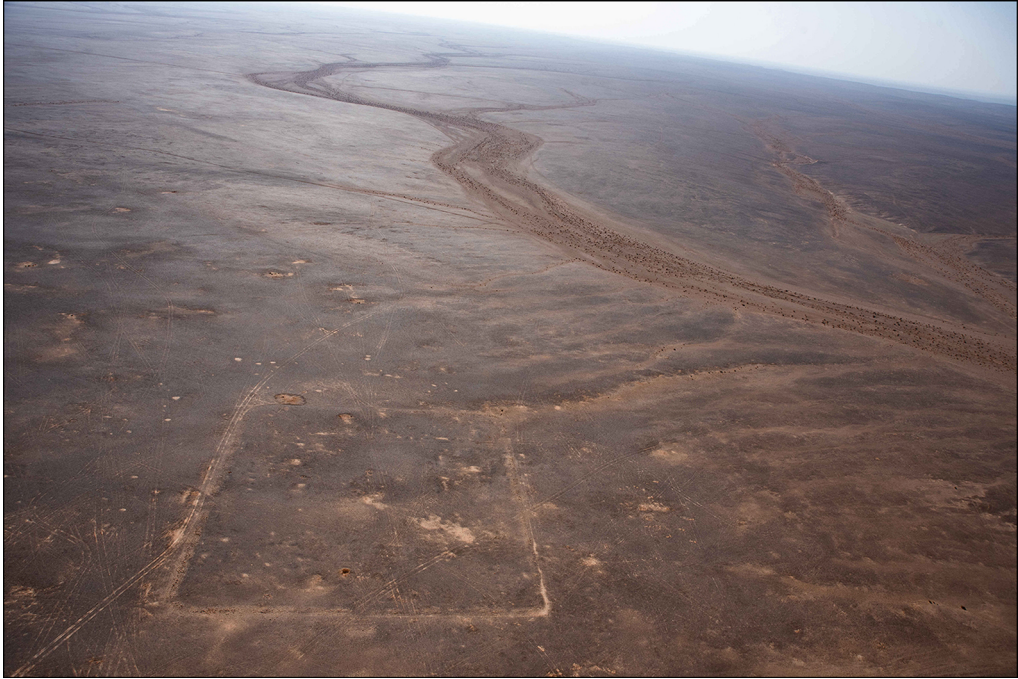


Figure 1. Distribution map, showing location of the temporary camps (figure by the authors using QGIS).



Figure 2. Oblique view of the western camp from the south-west. Possible rectilinear internal divisions are visible on the bottom and left of the enclosure (APAAME\_20221123\_RHB-0055, taken by R. Bewley).



*Figure 3. Oblique aerial landscape view of the western camp, from the north-east (APAAME\_20221123\_FB-0087, taken by F. Bqa'in).*

some 0.691ha (1.709 acres). Oblique aerial photographs again suggest rectilinear internal divisions (Figures 4 & 5). Finally, the eastern camp (EAMENA-0216150) is located around 37.7km (23.42 miles) east-southeast of the central camp, and again measures approximately 95 × 65m (Figure 6).

Neither the central nor the eastern camp is recorded on the MEGA-Jordan platform, and they appear not to have been previously documented. In terms of condition, all three sites are relatively stable, but have been affected by modern vehicle tracks. The three camps are located on the barren limestone and chalk formations on the west side of Wadi Sirhan, while the oasis and possible Roman installation of Bayir is situated on the Belqa group limestones of central Jordan. The near-complete absence of other structural remains of any period on the satellite imagery is in contrast to surrounding regions and suggests that the landscape was relatively uninhabited for millennia.

The area along the southern end of Wadi Sirhan, to the east of this line of camps, was also examined. As this area is today largely covered by recent central-pivot irrigation systems, Kh9 Hexagon images taken on 24 August 1982 were analysed, but no further potential camps were identified. On current evidence, the eastern camp is the final station in the line, but camps to the east may have been lost under wind-blown sands.

## **Discussion**

This line of camps is a remarkable survival of Roman military activity in northern Arabia. Temporary camps built by the Roman army are rarely identified in the region, and in Jordan



Figure 4. Oblique aerial view of the central camp, from the east. Possible rectilinear internal divisions are visible on the left side of the enclosure (APAAME\_20221123\_FAB-0154, taken by F. Bewley).

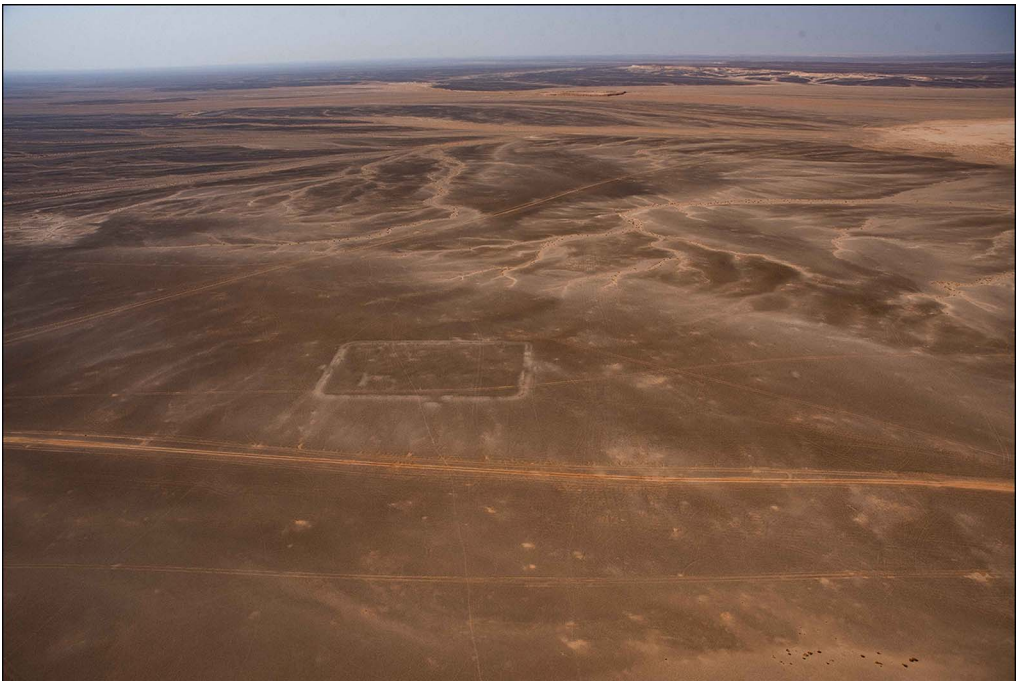


Figure 5. Oblique landscape view of the central camp, from the east (APAAME\_20221123\_FB-0166, taken by F. Bqā'im).



Figure 6. Satellite image of the eastern camp, 26 February 2017 (Source: Google Earth; Maxar).

only four possible examples are listed in Kennedy's (2004) overview. These include a large example at Azaima to the north of the Dead Sea, a possible camp underlying the later fort at Azraq, and two camps (see Figure 1) to the south-west from Bayir: Tell Abara, near Udruh, and Kh. Abu Safat.

The trajectory indicated by these new camps suggests an expedition toward Dûmat al-Jandal and Sakaka in the Jawf region at the eastern extent of the Nabataean kingdom. Charloux and Loreto (2013) suggest the existence of a minor caravan route linking Bayir and Dûmat al-Jandal, which would mirror the route implied by the camps. The use of such a peripheral route could have been part of a strategy to bypass the more obvious route down the Wadi Sirhan, adding an element of surprise to any attack on the Jawf region, or as a flanking manoeuvre as part of a broader campaign, with a second force in the Wadi Sirhan possibly responsible for the camp built at Azraq.

The distance between the camps across barren terrain is arguably too far to be crossed by infantry in a day and supports the alternative that the camps were for mounted troops—perhaps with camels. Based on the models developed by Richardson (2002) on Roman camp capacity, we conjecture that the western camp could have held two notional mounted cohorts, while the smaller central and western camps held a single mounted cohort.

The reduction in camp size from the western to the central camp raises an important question about what happened to the expedition. One possible scenario is that half of the force was lost before reaching the central station, but it is more likely that half of the force only advanced as far as one day's ride from the wells at Bayir and was possibly involved in ferrying water to the eastward advancing units until they could reach water stops on the Wadi Sirhan. On this route and with such a small force, speed was presumably the priority. A final option is

that the force split and advanced in different directions on leaving the western camp, and we have not identified the second route.

The spacing of the camps provides more evidence that the well station at Bayir may also have been occupied by the Roman military, whether in a temporary or more permanent capacity. A fort at Bayir was demolished in the early 1930s and has been interpreted as an Islamic structure (Field 1960: 99–101), but lacks detailed study. The identification of Latin, Greek and Nabatean inscriptions in the vicinity of Bayir suggests earlier activity in the area (Calzini & Ruffo 1995), now further supported by its position within the alignment of camps under discussion.

The campaign against the Nabataean kingdom by Marcus Aemilius Scaurus in 62 BC focused on Petra, far to the west (Josephus, *Antiquities of the Jews* 14.80–81; *Jewish War* 1.159; trans. Whiston 1850). The most probable context for the newly identified camps is the annexation of the Nabataean kingdom following AD 106, potentially supporting views that the process may have been more violent than previously understood (Cimadomo 2018). The Roman army was present as far south as Hegra by AD 175 (Fiema & Villeneuve 2018) and Dûmat al-Jandal by the third century AD (Bowersock 1982: 158; Charloux & Loreto 2013: 31). By this time, however, control had long been established over the area and it is therefore a less convincing context for a military campaign; the annexation period under Trajan after AD 106 offers the most likely setting for this expedition.

Future fieldwork could potentially confirm some of these initial interpretations, particularly if material could indicate the period in which the camps were built and occupied. Further investigation in the southern Wadi Sirhan and in the vicinity of Dûmat al-Jandal might also add to our understanding of the Roman army operating in this region.

### Funding statement

We would like to thank our funders at Arcadia Fund, a charitable fund of Lisbet Rausing and Peter Baldwin (grant no. 4178). The *Aerial Archaeology in Jordan* project is grateful to the Augustus Foundation for its continued funding.

### References

- BOWERSOCK, G.W. 1982. *Roman Arabia*. Cambridge (MA): Harvard University Press.
- CALZINI, J.G. & G. RUFFO. 1995. A preliminary report on a reconnaissance survey in southeast Jordan (region of Wādī Bāyir). *East and West* 45: 23–44.
- CHARLOUX, G. & R. LORETO. 2013. *Dûmat al-Jandal: 2800 years of history in the Kingdom of Saudi Arabia*. Riyadh: Saudi Commission for Tourism and Antiquities.
- CIMADOMO, P. 2018. The controversial annexation of the Nabataean kingdom. *Levant* 50: 258–66. <https://doi.org/10.1080/00758914.2019.1614769>
- FIELD, H. 1960. *North Arabian Desert Archaeological Survey, 1925–1950*. Cambridge (MA): Peabody Museum.
- FIEMA, Z.T. & F. VILLENEUVE. 2018. The Roman military camp in ancient Hegra, in C.S. Sommer & S. Matešić (ed.) *Limes 23: proceedings of the 23<sup>rd</sup> International Congress of Roman Frontier Studies, Ingolstadt 2015*: 702–11. Mainz: Nünnerich-Asmus.
- KENNEDY, D.L. 2004. *The Roman army in Jordan*. London: CBRL.
- RICHARDSON, A. 2002. Camps and forts of units and formations of the Roman army. *Oxford Journal of Archaeology* 21: 93–107. <https://doi.org/10.1111/1468-0092.00151>
- WHISTON, W. 1850. *The works of Flavius Josephus*. London: Lea.