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## **Land-use and Settlement Activity around Gadara / Umm Qays**

Research in recent years at Gadara, modern Umm Qays, has been dominated primarily by attempts to clarify the development of the Decapolis city (FIG. 1). More specifically, the intention has been to determine the processes at work during its change from an enclosed, strategically important Seleucid fortress to an expansive Roman - Byzantine city (Bührig 2013c: 243-264; Bührig 2011a: 285-307; Bührig 2008b: 97-113; Hoffmann and Bührig 2000: 175-233. *cf.* the bibliography of Gadara in Bührig 2013a: 153-169). In the latter period, the planning behind the city's development was aimed much more at commerce and monumentality than had hitherto been the case.

In addition to examining the hilly cityscape, attention has also been focused on the settlement history of the so-called Trikonchos area south-west of the hill, in particular the Theatre / Temple Area (FIG. 2)<sup>1</sup>.

The Theatre / Temple Area is situated on an artificially levelled surface north-east of the fortress. Here in the eastern part of the city an extensive temple district - including the city's main sanctuary - was constructed, starting in the first half of the 2<sup>nd</sup> century BC. Over the course

of several centuries, and extensive construction and redesign that continued well into the 5<sup>th</sup> century AD, a unique complex of sacred and public buildings gradually arose. Four stages in the development can be defined (*cf.* Bührig 2013b: 139-157; Bührig 2009a: 369-376; Bührig 2009b: 162-207; Daszkiewicz, Liesen and Schneider 2014: 147-158; Hoffmann 1999: 795-831). The Theatre / Temple Area had stood on the east - west oriented, supraregional, long-distance trade route since early Roman times. Located in a prominent position, this complex would have been an impressive sight in the landscape from afar, an aspect that will be discussed later (FIG. 2).

Until now, the natural and economic factors as well as the social determinants that fostered the development of Gadara and enabled its transformation from a fortress to a thriving city have remained unclear. One reason for this is linked to the site's location in a present-day national border area. The strategically advantageous location of a hilltop for a fortress is obvious. The Seleucid rulers attempted to control their new empire (FIGS. 1 and 3) from this elevated setting which gave them

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1. This project is conducted by the Orient Department of the German Archaeological Institute (henceforth DAI), Berlin in cooperation with the National Museums in Berlin (Staatliche Museen zu Berlin, henceforth SMB) and, since 2011, with the Stiftung Preußischer Kulturbesitz, Berlin. The key focus of the project

is a comprehensive analysis of the settlement's development in general and that of the eastern city area, henceforth the Theatre / Temple Area, in particular. We are especially grateful to our colleagues from the Department of Antiquities of Jordan at Umm Qays for their support.



1. Settlement hill of Gadara/Umm Qays. View from the west (Christian Hartl-Reiter, German Archaeological Institute).



2. Gadara/Umm Qays. Theatre-Temple-Area, View to the north (Claudia Bührig, German Archaeological Institute).

unobstructed views over the surrounding valleys: Wādī al-‘Arab to the south, the Yarmūk valley to the north and the Jordan valley to the west.

With regard to the above, the following questions demand attention:

1. What sort of establishments and installations around Gadara supported and ensured the border security of the surrounding countryside? Strategic location was clearly

not the only factor that gave rise to the construction of the fortress.

2. What type of land-use and settlement activity took place before the Seleucid conquest?
3. Above all, what kinds of natural resources were available in the countryside?

An initial estimate can quickly be given for the last question. The region was well-suited to settlement (FIG. 3), being supported by favourable natural conditions in the hinterland,



3. Gadara/Umm Qays and its hinterland. View to the Yarmūk Valley and the Golan Heights in the north (Claudia Bührig, German Archaeological Institute).

e.g. sources of water in neighbouring valleys, and fertile soils and building material such as basalt, limestone and wood in the immediate vicinity. There are indications of settlement activity in this region as early as the Bronze Age, as attested to by surveys in Wādī al-‘Arab, e.g. those conducted by Siegfried Mittmann, Jack Hanbury-Tenison, T. M. Kerestes, Cherie J. Lenzen and Alison MacQuitty in the 1970s and 1980s (Glueck 1951: 25-28; Hanbury-Tenison *et al.* 1984: 385-424, 494-496; Hanbury-Tenison 1984: 230-231; Kerestes *et al.* 1977/1978: 108-135; Lenzen, Gordon and McQuitty 1985: 151-159; Lenzen and McQuitty 1988: 265-274; Mittmann 1970: 6-132 esp. 26-39; Glueck 1951: 25-28), and through research carried out by the team of Dieter Vieweger at Tall Zirā‘a (Dijkstra, Dijkstra and Vriezen

2009: *passim* esp. 75-77, table 9.1; Häser and Vieweger 2009: 483-492; Häser and Vieweger 2005: 135-146; Vieweger *et al.* 2003: 191-216). Also to be mentioned for this period, *i.e.* Bronze Age IV, is a further survey on Arđ al-‘Alā conducted by Nadine Riedl (Riedl 1999: 485-487).

Starting in 2010, the newly initiated Umm Qays / Gadara Hinterland Survey continued this work and has since provided even more insight into transformation processes at Gadara, especially in its surrounding hinterland<sup>2</sup>. The focus of research has subsequently been expanded to explore the environs of the site in relation to the ancient city complex, as well as settlement development and climate change since the Stone Age. In addition, specific emphasis has been placed on addressing issues

2. The current Umm Qays / Gadara Hinterland Survey provides new insights into transformation processes at Gadara and, especially, its hinterland. Work has involved a combination of archaeological and architectural research. The survey, under the author’s direction, was conducted by the Orient Department of the German Archaeological Institute, Berlin, in cooperation with the Archaeological Institute of the University of Hamburg, Dr Frank Andraschko and, in 2012, the Laboratory for Geomatics,

HafenCity University, Hamburg. We are especially grateful to our colleagues from the Department of Antiquities of Jordan (DoA) and the Royal Society for the Conservation of Nature (RSCN) at Umm Qays for their support. Surveys were undertaken between 2010 and 2012; in 2012 and 2013 several workshops were held at Umm Qays with RSCN, DoA and local stakeholders.

related to the preservation and restoration of the ancient remains and their presentation for cultural tourism.

The first three seasons have yielded significant new data relating to transport routes, water management, agriculture and landscape economy on the one hand and the sacred significance of the site catchment on the other. For the first time, evidence for prehistoric occupation was discovered (*cf.* Bührig, Berger and Pasewald 2012: 693; Bührig 2013e: 44-45).

The study area extends from the Yarmūk valley in the north, to the modern village of al-Manṣūra in the east, to the slopes of Wādī al-‘Arab in the south and finally to the high plateau of Arḍ al-‘Alā in the west (FIG. 4). This survey area covers *ca.* 34 km<sup>2</sup>. Elevations range from 0 to 410 m above sea level (asl). The primary aim of the ‘multi-period field-walking survey’ was - and will continue to be - the identification of natural and economic parameters for Gadara and its hinterland for the purpose of reconstructing transformation processes in the area. Hitherto, only a few traces of pre-Hellenistic settlement activity have been found on the hilltop of Gadara (Hoffmann and Bührig 2000: 180, note 12; Konrad 2013: 103-

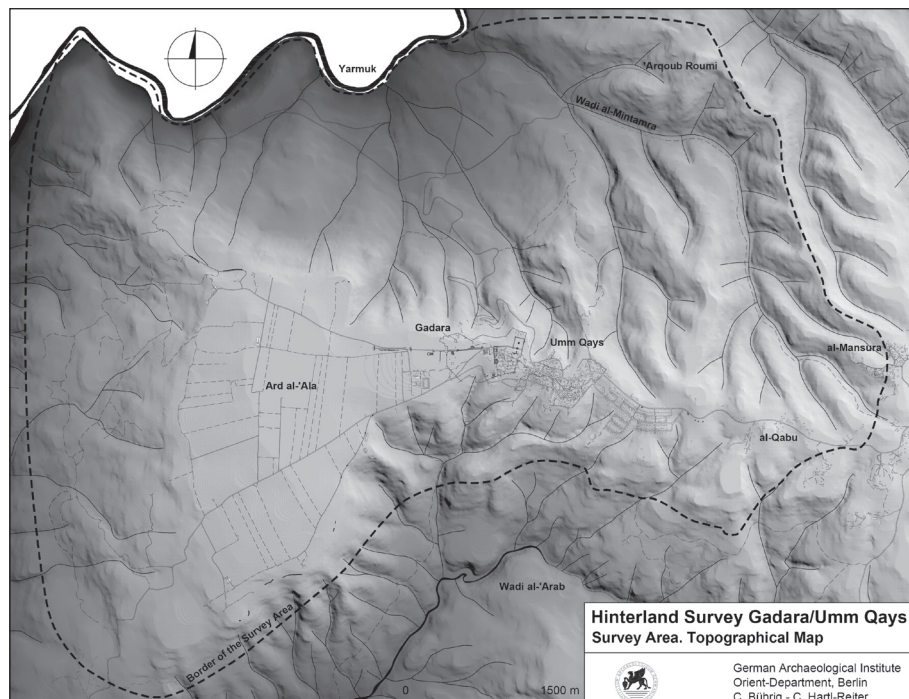
109), but the current survey anticipates the discovery of more traces of such activities on the slopes of the surrounding deep *wadis* and hilltops (FIGS. 3 and 4).

The Umm Qays / Gadara Hinterland Survey followed both synchronous (what did the natural environment of the site look like during any given period of settlement?) and diachronic (what changes took place in the natural environment prior to, during and after each phase of settlement and land-use?) approaches. The study focused on the following questions:

1. What were the main topographic, economic and natural factors affecting the settlement catchment?
2. With regard to the Decapolis city of Gadara, was the fortress erected solely as part of a political strategy aimed at demonstrating the power of the new Seleucid rulers?
3. What physiographical changes might have caused the transformation and abandonment of different urban areas?

### Preliminary Results

Finds processing, *e.g.* pottery and chipped stone, and investigation of specific topics, *e.g.* cult locations and fortification systems in the



4. Topographical Map of the Survey Area, mapping of the find spots – cemetery and caves (Claudia Bührig – Christian Hartl-Reiter, German Archaeological Institute).

hinterland, has been carried out by different members of the team. During the first three seasons a total of 387 find spots were recorded. Finds range in date from the Middle Palaeolithic, (evidenced by a hand axe), Neolithic (Pre-Pottery Neolithic B [PPNB]; evidenced by cores, flakes, borers and scrapers), Hellenistic and Roman (attested to by fine ceramics such as fish plates and *unguentaria*), and Islamic (indicated for example by Mamluk domestic pottery [FIG. 5]) periods.

The chronological range of archaeological material represented indicates that the area was continuously occupied from the Stone Age onwards, well into modern times. Different kinds of land-use and settlement activity in the Gadara hinterland (*cf.* FIG. 4) can easily be demonstrated on the basis of, for example, places of worship, residential areas, farmsteads, building structures for military use, evidence for natural resource use, facilities for agricultural and water management, and two outlying cult locations.

### Places of Worship and Sanctuaries

#### *Al-Qabū*

The Theatre / Temple area and its prominent position has been discussed above. From

there, the extra-urban sanctuary complex of al-Qabū is visible *ca.* 2.7 km to the east. This complex is situated on the highest point in the area, far above Wādī al-‘Arab on an artificial terrace (FIG. 6). Both sanctuaries, the Theatre / Temple area and al-Qabū, stood on the main trade route, which was also presumably used as a processional way in ancient times (*cf.* FIG. 4). It can be stated that there is a direct correlation between the situation and landscape of al-Qabū and the ancient city of Gadara, especially their sanctuaries, which takes optimal advantage of the local topographical situation.

The site al-Qabū was first mentioned by Gottlieb Schumacher, who went on to describe ancient “foundation walls of a square temple” in Corinthian order (Schumacher 1890: 94), in the late 1880s. In 1986 Konstantinos Politis visited the site, describing it as an “important Roman-Byzantine site in northern Jordan” and noting that “...a preliminary study of the surface pottery found at various places on al-Qabū may date the ancient occupation anywhere from Late Roman to Byzantine times” (Politis 1990: 53).

Military use and countless illicit diggings by looters during the last fifty years have left the sanctuary of al-Qabū in a very poor state of



5. Al-Qabū, findspot 32. Spectrum of finds (Lisa Berger, German Archaeological Institute).



6. View from the Wādī al-‘Arab to Gadara and Al-Qabū (Claudia Bührig, German Archaeological Institute).

preservation. Nevertheless, a preliminary plan of the structure could be reconstructed (FIG. 7). The complex located on the terrace is oriented east - west. The external walls enclose a large flat terrace and parts of different building complexes. The terrace measures  $115 \times 40$  m. Entrance to the complex is by means of a gate on the north-west side, presumably with an ascending approach from the ancient main road to the north. A  $28 \times 15$  m podium temple in Corinthian order (Thiel 1998: 17-20) is located on the western edge of this elevated terrace, giving it the appearance of being enthroned on a platform. Al-Qabū would have been visible from afar: from Gadara, from the Roman road on the southern flank of Arḍ al-‘Alā and even from Wādī al-‘Arab.

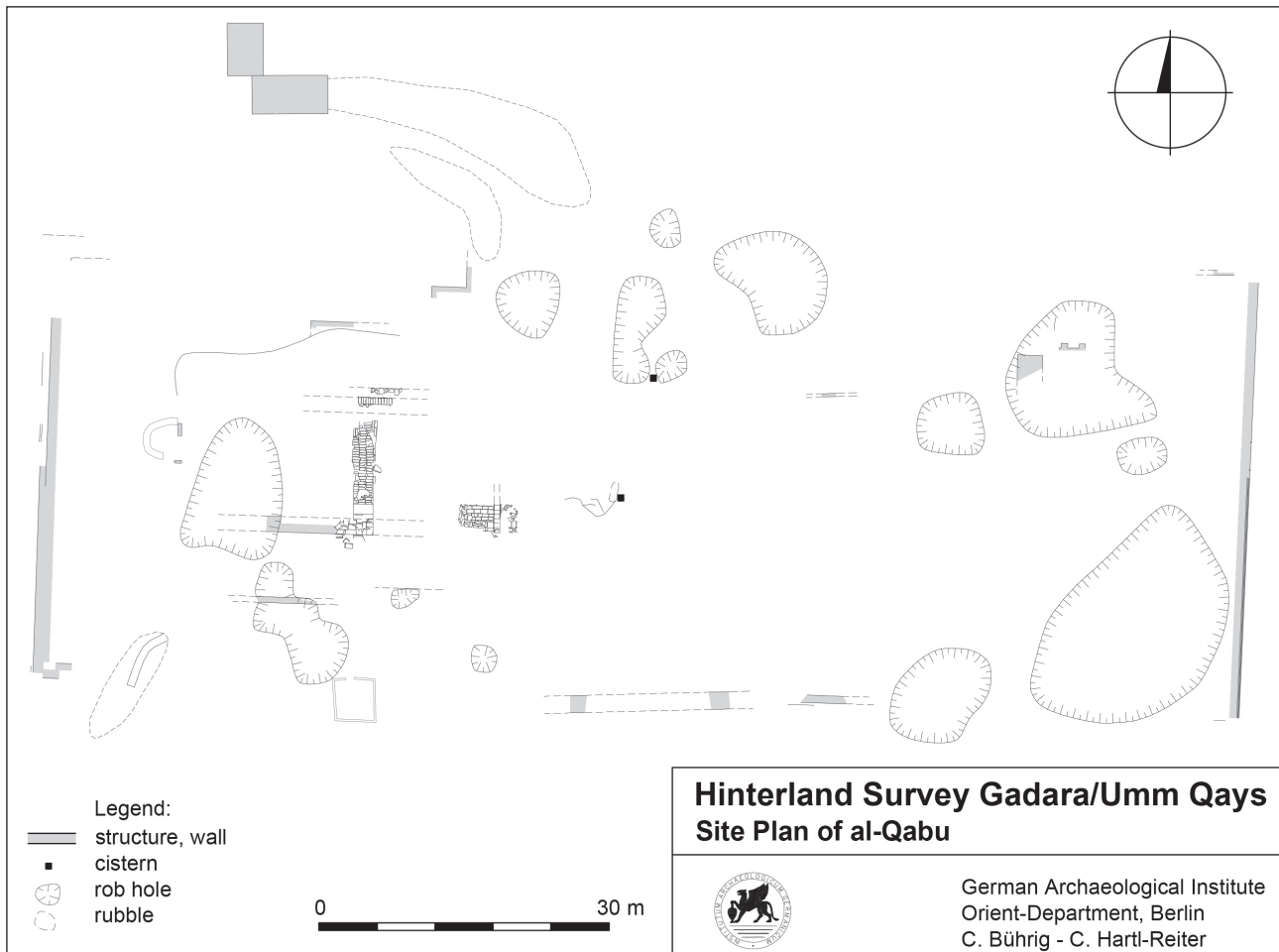
The survey and first trial trenches (2010) in the vicinity of al-Qabū confirmed the existence of an elevated sanctuary with an east - west oriented podium temple, whose presumed date is in late Augustean / early Roman. On the basis of the archaeological remains it is also possible to reconstruct the subsequent transformation of al-Qabū. Different building structures on the

terrace and analysis of finds from the site attest to further intensive use later in the Late Antique - Byzantine period, with many imports from North Africa. In addition, there is evidence for the continued use of the site in Early Islamic times.

### ‘Arqūb Rūmī

There are further visual connections to another outlying cult location on top of the hill of ‘Arqūb Rūmī, located *ca.* 3.5 km north-east of Gadara. This site can be interpreted as a kind of high place. From ‘Arqūb Rūmī there is an uninterrupted view far into the Yarmūk valley, to the Golan Heights and towards Gadara, especially to the inner-city late Hellenistic - Roman sanctuary and the Theatre / Temple Area. ‘Arqūb Rūmī also overlooks the sanctuary of al-Qabū (FIG. 8).

A preliminary contextual plan of ‘Arqūb Rūmī shows the enclosed area (FIG. 9). This trapezoid-form complex measures  $55 \times 20 - 25$  m and is oriented east - west. The enclosure wall is built of large limestone blocks. Several rectangular basins and structures cut into the bedrock are



7. Site plan of Al-Qabū (Claudia Bührig – Christian Hartl-Reiter, German Archaeological Institute).

situated within the enclosure, as is a mound of collapsed limestone ashlar and other building stone. On the slopes outside the enclosure are numerous burial caves, shaft graves and two large cisterns, as well as many looters' pits. The structures and finds from 'Arqūb Rūmī confirm that the site was used as a place of worship during Hellenistic to late Roman times.

The visual connection between the three sanctuaries of al-Qabū, 'Arqūb Rūmī and Gadara underscores the religious significance as well as sacred relevance of this landscape. Specifically, this single line-of-sight connection is only visible from one specific point at each site; a few metres to one side or the other and the visual connection is obscured by the landscape (FIG. 8). This highlights a likely association between these three intervisible sites.

This significance can also be seen in the

finds, especially those of the late Hellenistic - Augustean and Roman periods. The functional and spatial relationship of the Gadarene sanctuary with the two extra-urban sanctuaries of al-Qabū and 'Arqūb Rūmī is obvious and should be investigated more closely in the future. Here the question posed is:

1. Whether and how the then topography might have been changed by humans in order to create a special 'space' and axial intervisibility (FIG. 8)?

### Watch-Towers

The impressive intervisibility of the three prominent sanctuaries supports the hypothesis that they held important positions within a network of watch-towers. To date, five such towers have been identified in the Gadara hinterland. First and foremost they served to



8. Visual connection between the three sanctuaries. View from ‘Arqūb Rūmī to Gadara and Al-Qabū (Claudia Bührig, German Archaeological Institute).

secure and control the north - south route via Gadara, from the Yarmūk valley in the north and the road from Wādī al-‘Arab in the south, by way of Wādī Umm Qays and the important spring of Umm Qays (*cf.* FIG. 4).

The Hellenistic fortress (Hoffmann and Bührig 2000: 180-210, 228-233), Gadara’s main site, was well-integrated within this protective network. The prominent location of Gadara is obvious: from the hilltop it was possible to overlook Wādī al-‘Arab to the south (in the direction of the neighbouring city of Pella) and the Yarmūk valley and Golan Heights to the north (in the direction of Hippos and watch towers in the vicinity [*cf.* El-Khourī 2009: fig. 21]). One of the watch-towers is constructed of bossed limestone ashlar and measures *ca.* 6 × 6 m with a wall thickness of 1.1 m (FIG. 10). Finds recovered there range from Hellenistic to late Roman / Byzantine. This material and also architectural modifications to the tower indicate

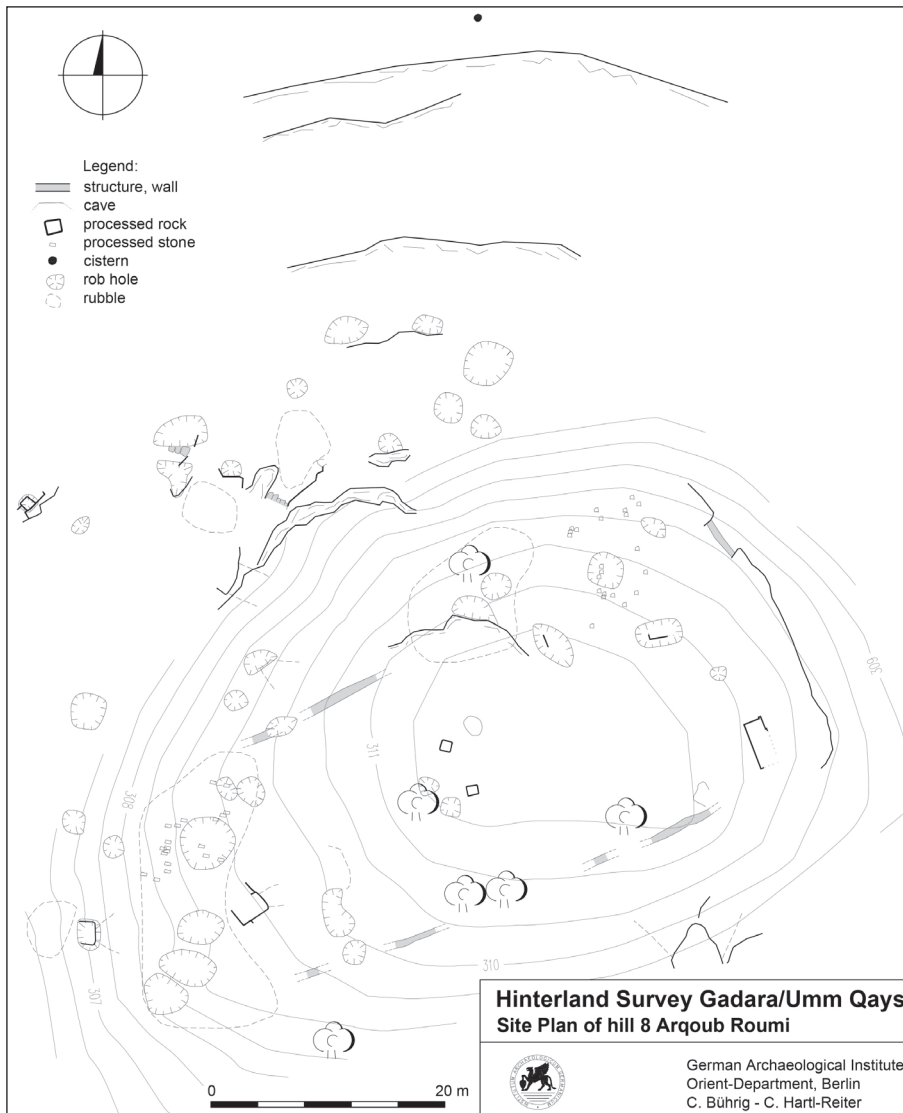
its subsequent use as a fortified compound in Late Antiquity.

### Settlements and Forms of Sedentism

The finds and multi-faceted construction and settlement activities in the Gadara hinterland confirm continuous occupation of the area. Smaller settlements, necropolises, graves, a graveyard (FIG. 11), habitations, farmsteads, compounds and occupied caves have all been identified there. The majority of these caves are still in use today.

One of the settlements in Wadi Mintanra is particularly noteworthy (FIG. 12). This site is located on slopes above the confluence of three *wadis* into Wadi Mintanra (*Wadi* 1). Two springs and several water installations are situated close to the settlement, which is remarkable for the great quantity of material found there, especially fine ware (*e.g.* *unguentaria* fragments; relief-decorated beakers; fish plates), and the many





9. Site plan of 'Arqūb Rūmī (Claudia Bührig – Christian Hartl-Reiter, German Archaeological Institute).

building structures exposed through illicit digging. An important factor is that Wadi Mintanra is the sole direct access route from the Yarmūk valley to the east - west Roman road along the chain of hills in the direction of the modern village of al-Manṣūra and al-Qabū. The history of the use of this place, with spatial shifts from east to west, dates from the Bronze Age to the Mamluk period. As well as dwellings, quarries, water installations (e.g. channels; cisterns) and several graves have also been identified.

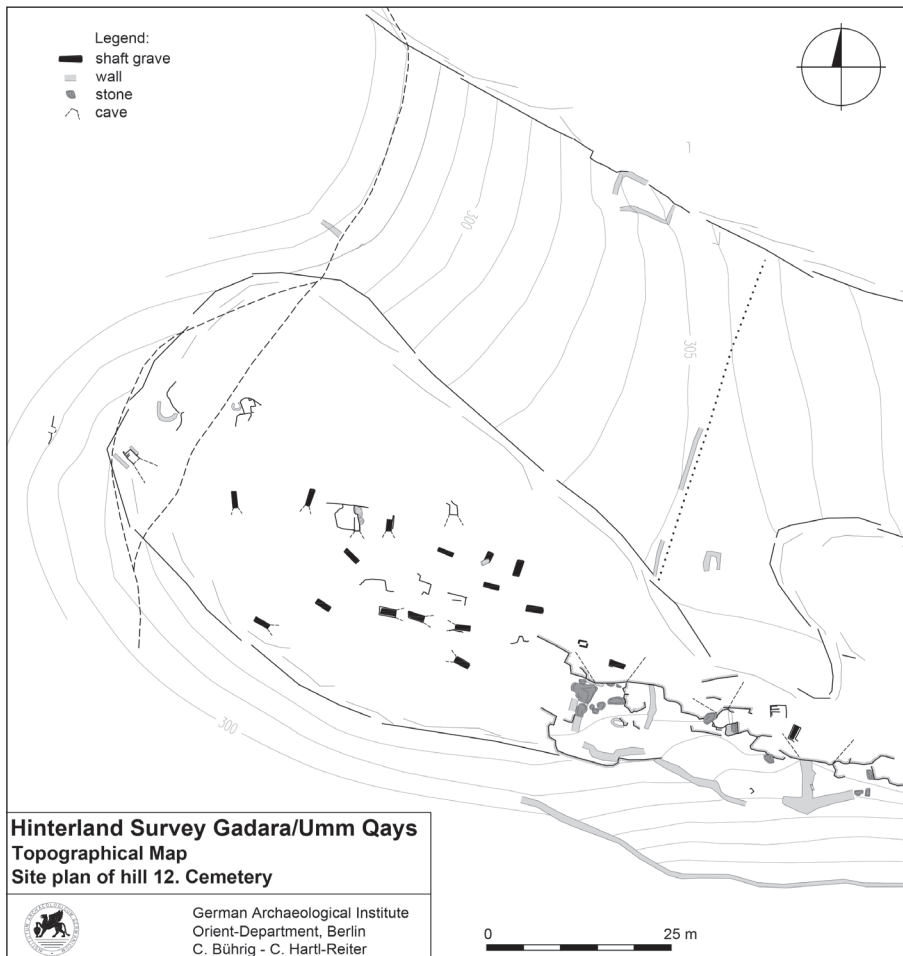
The situation of the site in *Wadi* 1.4 is quite different (FIG. 13). Circular and rectangular structures (silos?) were identified on three terraces near the rocky slope edges. The structures are built of rough stone with earth

mortar; some are founded on lower courses of near-monolithic blocks. This site was however absolutely devoid of finds.

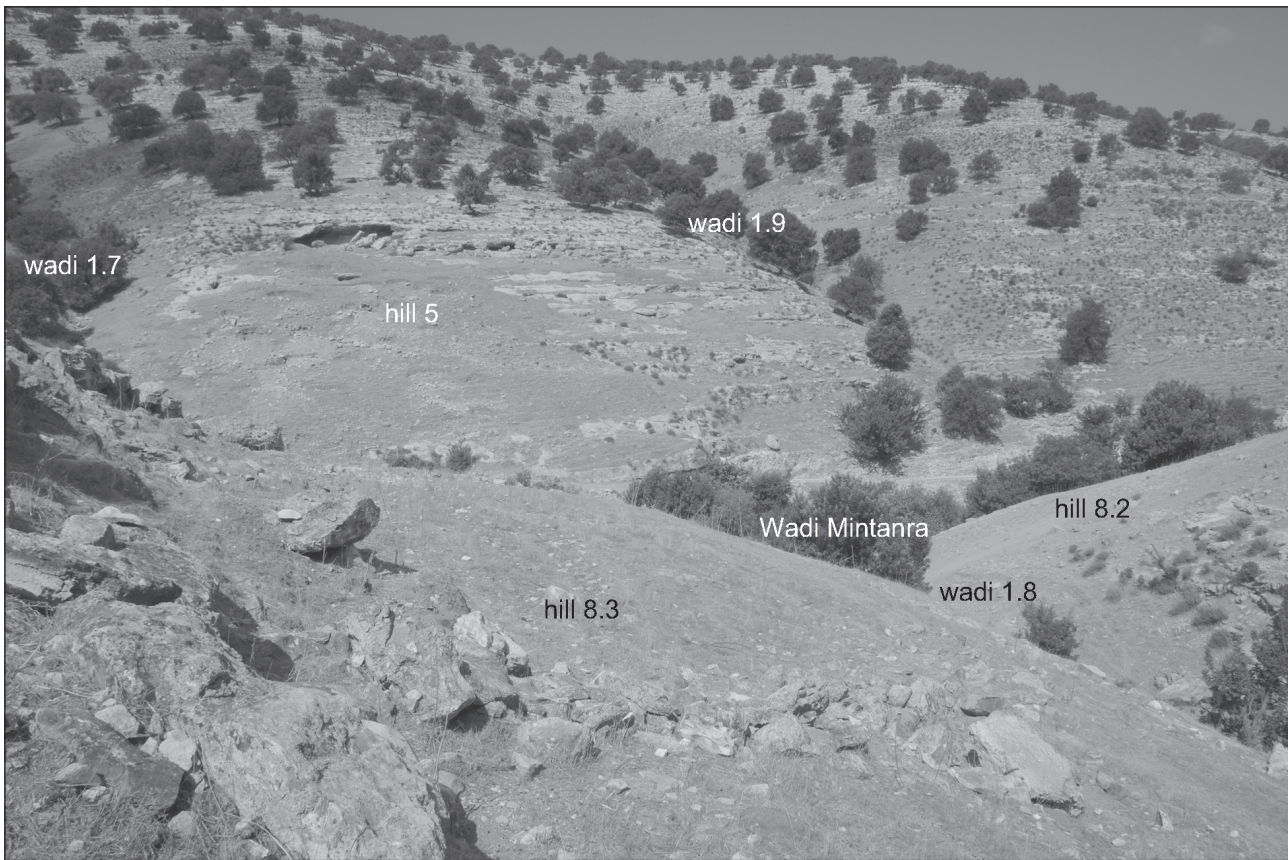
The abundant traces of ancient agricultural activity and irrigation systems (cf. Al-Karaimeh and van der Kooij 2013: 771-776, 778-781; Al-Karaimeh 2011: 601-618), as well as substantial limestone quarries, flint mines and forests, confirm the beneficent natural and economic characteristics of the region. As well as springs in the *wadis*, facilities for water management are found throughout the entire area in the form of cisterns, reservoirs, channels (FIG. 14), settling basins and even the well-known Late Hellenistic / Roman water-tunnel system (Doering 2010: 153-165; Kerner 2004: 187-202; Kerner, Krebs and Michaelis 1997: 265-



10. Watch tower in the hinterland of Gadara (Claudia Bührig, German Archaeological Institute).



11. Site Plan of hill 12, cemetery (Claudia Bührig – Christian Hartl-Reiter, German Archaeological Institute).



12. Settlement in Wādī Miṭṭānrah (Claudia Bührig, German Archaeological Institute).

270) close to the main trade route (Bührig and Riedl 2001: 263-272).

With the aid of irrigation, crop cultivation would have been possible, especially on the high plateaus and in protected hollows on the slopes above the *wadis*. In order to prevent erosion of topsoil, terraced fields and planting pits were also constructed. Stone basins in ancient quarries were used for agriculture in the past, as many still are today. The numerous storage structures, presses, mills and other features all underscore the intensity of agricultural activity in the region.

### Quarry

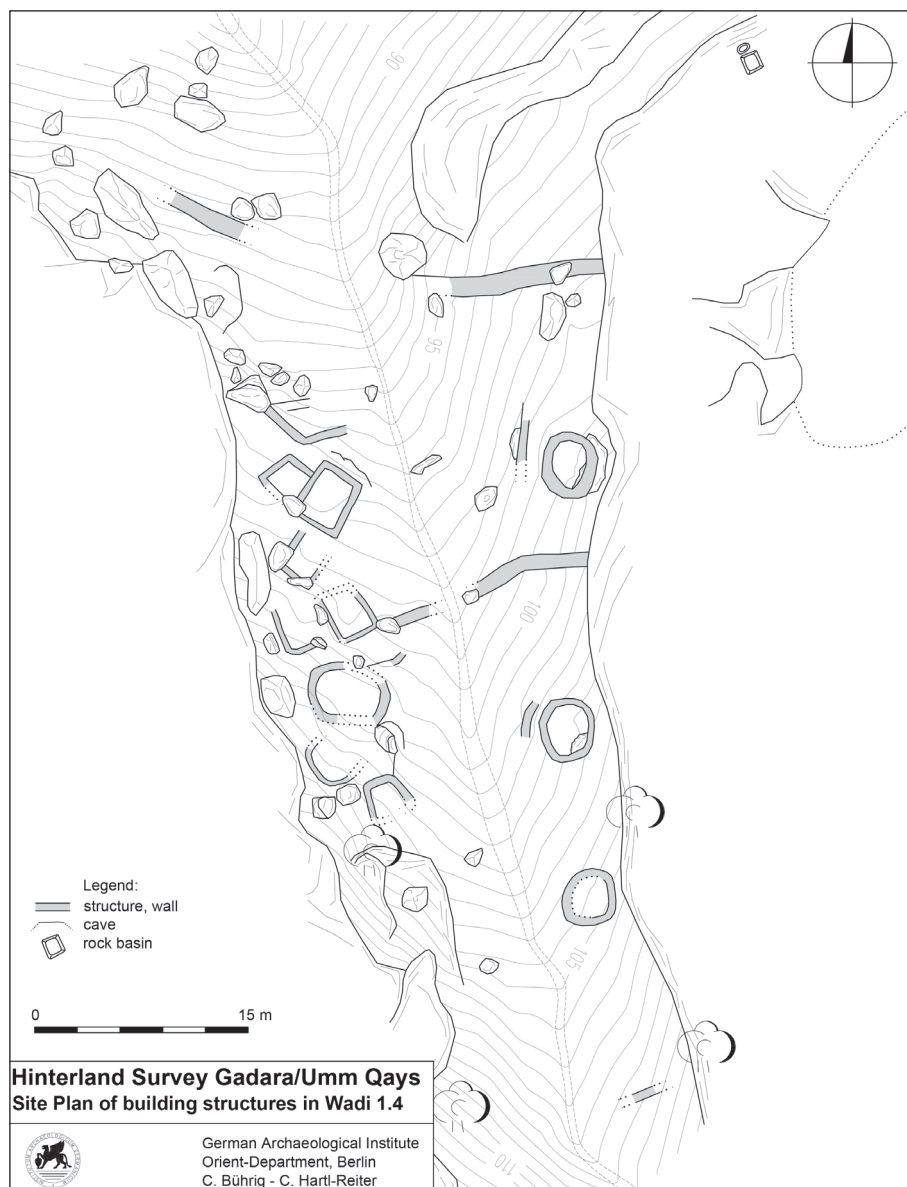
Building material for the city of Gadara (*cf.* Bührig 2013d: 187-195; Bührig 2008a: 43-45), the sanctuary of al-Qabū and other smaller

settlements was quarried in the vicinity. One of the largest quarries, located south of al-Qabū, supplied the building material for al-Qabū itself (FIG. 15). This site was investigated as a case study focused on the use of geological resources. The aim was to clarify how the quarry was developed and exploited, and how quarried material was transported to construction sites. A preliminary tachymetric and photogrammetric survey was made<sup>3</sup>.

Within the survey area, there are alternating limestone quarries and deposits of high quality flint. An open-pit flint mine is located on the south slope of al-Qabū in the immediate vicinity of the site. The mine was presumably exploited in the Neolithic period, perhaps in the PPNB<sup>4</sup>. Amongst *ca.* 600 collected fragments, there were numerous tools (*e.g.* borers; hand-

3. This limestone quarry, which extends over more than five hectares, was recorded as part of a landscape archaeology study. HafenCity University Hamburg colleagues included Stefan Heidenreich, Jan Kupke and Klaus Mechelke (see <http://www.hcu-laserscanning.de/vt/ummqays2012/Index.html>).

4. Above-ground flint exploitation occurred directly on and before steps in the topography where bands of flint are visible. As on the west slope of the hill, in 2010 we carried out a 5 × 5 m grid-collection of finds over an area of 20 × 135 m, comprising a total collection area of 2,700 m<sup>2</sup>.



13. Site Plan of building structures in Wadi 1.4 (Claudia Bührig – Christian Hartl-Reiter, German Archaeological Institute).

axes; scrapers) in addition to cores and negative flakes (FIG. 16). With this site and a total survey assemblage of - at present - more than 1,000 flint artefacts, the first deductions about life in the area can be made. One significant object is a hand-axe, which likely dates to the Middle Palaeolithic.

In view of these results and the archaeological material recovered to date, the Neolithic transition to farming communities and pastoral nomadism will become more of a focus of our future research<sup>5</sup>.

### Dendrochronology

In addition to the investigations described above, a dendrochronological study of living oak trees was undertaken<sup>6</sup>. This study aims to determine the age of the oak trees in the region. These investigations will also allow climatic research and environmental archaeological methodologies to be refined. Preliminary results demonstrate that sampled oaks are between 120 and 250 years old. This can be explained by well-known land reform in the region at the end of the 19<sup>th</sup> century (*cf.* Mershen and Knauf

5. The economic strategies of Palaeolithic hunter-gatherers and the transition to farming communities and pastoral nomadism in the Neolithic, coupled with an investigation of cave-dwellings in the region, are increasingly becoming a focus of our future research.

6. In 2012, an analysis of 27 cores was undertaken by Klaus-Uwe Heußner, Department of Natural Sciences, German Archaeological Institute (DAI), Berlin. We would like to thank Engineer Eimad Melkawi (Ministry of Agriculture, Samat Rusan) for his support.

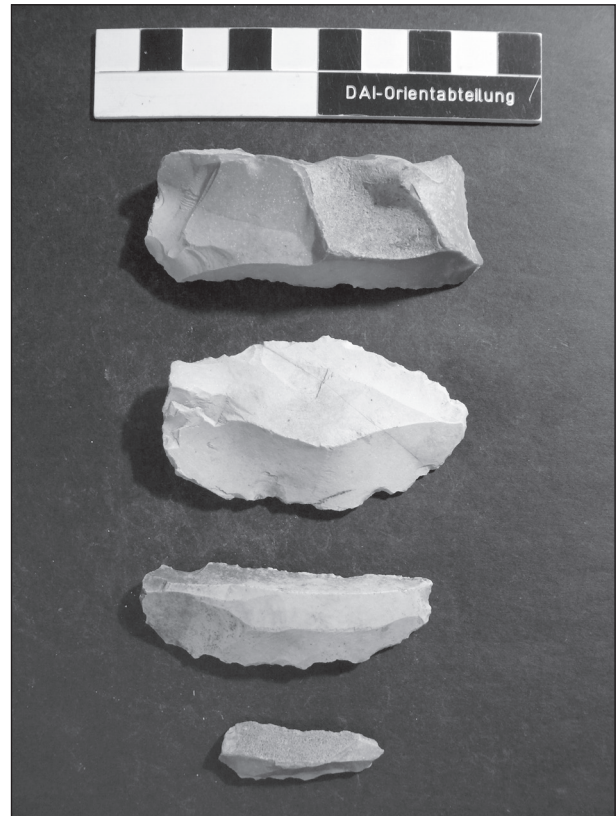


14. Irrigation system. Water channel on hill 1, with detail (Claudia Bührig, German Archaeological Institute).



15. Quarry located south of Al-Qabū. Screenshot of the virtual tour on the internet; cf. the website: <http://www.hcu-laserscanning.de/vt/ummqays2012/Index.html> (Jan Kupke – Stefan Heidenreich/HCU Hamburg – German Archaeological Institute).

1988: 138-145). At that time, the new village of Umm Qays was built on the ancient hill of Gadara and this led to changes in land-use and an intensification of agriculture. Compared to previous centuries, larger herds of goats now grazed the hills and as a result no new oak trees have grown since. The oaks represent an important resource in the cultural landscape. They once served - and still serve partly - as a



16. Finds from the south slope of Al-Qabū, findspot (Anne Sieverling, German Archaeological Institute).

supply of firewood; acorns are also widely used as animal feed.

### Summary

The Umm Qays Hinterland Survey has added significant new information to our understanding of landscape-use around the Decapolis city of Gadara. Analysis of the pottery, lithics and ground stone artefacts supports the hypothesis that there was continuous settlement in the region from prehistoric to modern times.

This research into the Gadara hinterland addresses and emphasises essential questions relating to the creation and use of urban space, as well as to natural and historical / political conditions. Evidence for Palaeolithic, Neolithic and Early Islamic settlement activity has come to light, and two large, outlying sanctuaries of the late Hellenistic and Augustean / early Roman periods have been discovered.

Particular attention has been focused on the spatial relationships between sanctuaries (cultic



17. Workshop and the field-walking in the Yarmūk Nature Reserve & Survey Area. Impression (Claudia Bührig, German Archaeological Institute).

locations) and settlement areas and natural space. Historic settlements were located on gentle *wadi*-slopes or above them on terraces. The first evidence for prehistoric settlement in the region was identified east, north and south-east of Gadara, especially on hilltops and steep slopes.

### Perspectives

A future focus of the project will be to establish an information system on cultural and natural heritage, particularly in view of the establishment of the Yamouk Nature Reserve by the Jordanian Royal Society for the Conservation of Nature (RSCN) in 2012. The survey area forms part of this reserve. The plan is to integrate the results of archaeological research within the concept of the nature reserve and to offer guided tours in close cooperation with the RSCN.

This exciting collaboration aims to bring together the protective interests of nature

conservation and archaeological preservation on the one hand, with the communication of these important aspects of cultural landscape development to locals and tourists on the other. In cooperation with the RSCN and with the participation of representatives from the Jordanian Department of Antiquities (DoA), Ministry of Tourism and Umm Qays and its schools, training workshops were held in Umm Qays in 2012 and 2013 (FIG. 17) and a hiking trail was developed.

An essential goal for the future is to develop exemplary research methodologies that link natural and cultural heritage. This includes the participation of local schools as an important part of the project's didactic approach, as well as the sustainable development of cultural tourism. A 'hands-on' workshop and exhibition for Umm Qays school-children will follow in 2015, with more trails in the surroundings of Gadara / Umm Qays to come the following year<sup>7</sup>.

7. This project is under the direction of the author and Dr Frank Andraschko, in cooperation with the Gadara 'Umm Qays Forum', Umm Qays primary school, the RSCN and the DoA.

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