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Contents

Editors' Foreword	v
<i>In memoriam</i> Nigel Groom (1924–2014)	vii
<i>In memoriam</i> Professor Tony Wilkinson (1948–2014)	xi
Alessio Agostini, <i>The excavation of the temple of ʿAthtar dhu-Qabḍ in Barāqish. Stratigraphic data and historical reconstruction</i>	1
Eleonora Bavutti, Federico Borgi, Elena Maini & Jonathan Mark Kenoyer, <i>Shell fish-hook production at Ras al-Hadd HD-5, Sultanate of Oman (fourth millennium BC): preliminary archaeological and experimental studies (poster)</i>	15
Stéphanie Bonilauri, Tara Beuzen-Waller, Jessica Giraud, Marion Lemée, Guillaume Gernez & Eric Fouache, <i>Occupation during the Lower and Middle/Late Palaeolithic period in the Sufrat Valley (Adam region, Sultanate of Oman)</i>	21
John P. Cooper, Dionisius A. Agius, Tom Collie & Faisal al-Naimi, <i>Boat and ship engravings at al-Zubārah, Qatar: the dāw exposed?</i>	35
William M. Deadman, Derek Kennet & Khamis al-Aufi, <i>Hafit tombs and the development of Early Bronze Age social hierarchy in al-Batinah, Oman (poster)</i>	49
Michele Degli Esposti & Anne Benoist, <i>More on Masafi ancestors: the Late Bronze Age site of Masafi-5</i>	57
Liam Delaney, Richard T.H. Cuttler, Faisal al-Naimi, Othmane Bouhali, Ali Sheharyar, Yasser al-Hamidi & Emma Tetlow, <i>Re-presenting Qatari history: 3D digitizing of human remains of the Neolithic Age from Wadi Debayan (poster)</i>	75
Stephanie Döpfer, <i>The reuse of tombs in the necropolis of Bat, Sultanate of Oman</i>	83
Bleda S Düring & Eric Olijdam, <i>Revisiting the Ṣuhār hinterlands: the Wādī al-Jīzī Archaeological Project</i>	93
Guillaume Gernez & Jessica Giraud, <i>Protohistoric graveyards in Adam (Oman). Preliminary report on the 2013 and 2014 seasons of the French Archaeological Mission to Adam</i>	107
Martin S. Goffriller, Ma Hongjiao, Soumyen Bandyopadhyay & Julian Henderson, <i>Chinese porcelains and the decorations of Omani mihrabs</i>	123
María del Carmen Hidalgo-Chacón Díez, <i>The distribution of the Dadanitic inscriptions according to their content and palaeographical features</i>	139
Ahmed Hilal, Derek Kennet & Liz Humble, <i>Towards a heritage management strategy for Ras al-Khaimah (UAE)</i> ...	149
Áurea Izquierdo Zamora, Richard T.H. Cuttler & Faisal A. al-Naimi, <i>Prehistoric and pre-Islamic burial archaeology in Qatar: new results and perspectives</i>	159
Sterenn Le Maguer, <i>The incense trade during the Islamic period</i>	175

Stephen McPhillips, Sandra Rosendahl & Victoria Morgan, <i>Abbasid rural settlement in northern Qatar: seasonal tribal exploitation of an arid environment?</i>	185
Vitaly Naumkin & Leonid Kogan <i>Dual principles and binary oppositions in Soqotri social and oral traditions</i>	199
Eric Olijdam, <i>Archival practices in Early Dilmun Bahrain as indicated by glyptic evidence from domestic and institutional contexts (poster)</i>	205
Robyn Pelling, Richard T.H. Cuttler, Faisal A. al-Naimi, Antonio O. Reis & Liam Delaney, <i>A re-examination of the petroglyphs of Qatar</i>	217
Timothy Power, Nasser al-Jahwari, Peter Sheehan & Kristian Strutt, <i>First preliminary report on the Buraimi Oasis Landscape Archaeology Project</i>	233
Anjana Reddy, <i>Sourcing Indian ceramics in Arabia: actual imports and local imitations</i>	253
Claire Reeler & Nabil Āl Shaikh, <i>A discussion of Neolithic settlement patterns in Saudi Arabia and Bahrain during the Holocene Pluvial Period</i>	273
Marielle Risse, <i>Generosity, gift giving, and gift avoiding in southern Oman</i>	289
Jérôme Rohmer & Guillaume Charloux, <i>From Lihyān to the Nabataeans: dating the end of the Iron Age in north-west Arabia</i>	297
Abdul Rahman al-Salimi & Eric Staples, <i>Reflections of a Muslim-Portuguese maritime world in a sixteenth-century Portuguese source</i>	321
Julie E. Scott-Jackson, Jeffrey I. Rose, William Scott-Jackson & Faisal al-Naimi, <i>Found: the Palaeolithic of Qatar (poster)</i>	329
Peter Sheehan, Timothy Power, Omar Al Kaabi, Mohamed Khalifa, Mohamed al-Dhaheri, Bakheeta al-Mansoori, Leqa al-Zaabi, Myriam al-Dhaheri & Rifaa al-Mansoori, <i>Rediscovering a ‘lost’ village of al-^cAyn: archaeology and communal memory in the oasis (poster)</i>	337
Peter Spencer, Faisal al-Naimi, Richard T.H. Cuttler & Talfan Davies, <i>Between the desert and the sea: the prehistoric landscape of north-western Qatar</i>	347
Rachael Sycamore, <i>Social structure and everyday life at the Early Dilmun settlement of Saar, Bahrain (poster)</i>	363
Walid al-Tikriti, Mohamed al-Neyadi, Diaeddin Tawalbeh, Abdul Rahman al-Nuaimi, Abdullah al-Kaabi & Waleed Oma, <i>Filling a blank: new excavations at an early Islamic site at Oud Al Toba/Muataredh in al-^cAyn, UAE</i>	371
Francelin Tourtet & Friedrich Weigel, <i>Taymā’ in the Nabataean kingdom and in Provincia Arabia</i>	385
T. Van de Velde, <i>Digging into the ^cUbaid period bitumen from Dosariyah</i>	405
Julian Jansen van Rensburg & Peter De Geest, <i>Rock art from Dahaisi cave, Socotra, Yemen: a preliminary report</i>	417
Titles of papers read at the Seminar for Arabian Studies held at the British Museum, London, on 25–27 July 2014	431

First preliminary report on the Buraimi Oasis Landscape Archaeology Project

TIMOTHY POWER, NASSER AL-JAHWARI, PETER SHEEHAN & KRISTIAN STRUTT

Summary

The Buraimi Oasis Landscape Archaeology Project is a three-way collaboration between Zayed University, Sultan Qaboos University, and the Abu Dhabi Tourism and Culture Authority (TCA), which aims to explore the historic unity and shared heritage of the Buraimi Oasis. This first season of the project undertook a survey of the open area between the UAE border fence and the Buraimi ring road. A period tomb (c.2000–1300 BC) is located inside al-^ḥAyn immediately adjacent to the border fence and may be part of a Bronze Age cemetery extending into Buraimi. Evidence of an Iron Age village (c.1300–300 BC) in the northern survey area consists of a series of mounds containing mud-brick walls and covered with pottery sherds. Some ambiguous turquoise glazed material was retrieved which does not find ready parallels with late pre-Islamic (c.300 BC–AD 300) or early Islamic examples. An early Islamic (c.AD 750–900) village in the southern survey area consists of large buildings with walls preserved up to c.2.3 m, making it one of the best-preserved early Islamic sites in the Arabian Gulf. Limited evidence for Middle Islamic (c.AD 1050–1200) activity was discovered, which has so far been extremely rare in the al-^ḥAyn/Buraimi Oasis group. Evidence for the Late Islamic 1 (c.AD 1650–1800) includes an extensive field system and low-density settlement, demonstrating that the Buraimi Oasis was once much larger than today. During the Late Islamic 2 period (c.AD 1800–1950) the field system was abandoned and cemeteries established in its place. A series of forts was built at this time of which the survey located the visible surface outlines of the destroyed Subara and Sudayrī Forts. The archaeological record of the Buraimi Oasis can therefore be shown to stretch back at least 4000 years.

Keywords: Buraimi Oasis, landscape archaeology, geophysical survey, ceramic sequence

Introduction

The Buraimi Oasis Landscape Archaeology Project (BOLAP) is a three-way collaboration between Zayed University, Sultan Qaboos University, and Abu Dhabi Tourism & Culture Authority, which aims to explore the historic unity and shared heritage of the Buraimi Oasis (al-Buraymī). The Buraimi Oasis, as described by nineteenth- and twentieth-century British explorers, was made up of nine discrete date-palm oases, namely al-Hīlī, al-Mas^ḥūdī, al-Qaṭṭārah, al-Jīmī, Ḥamāsah, Ṣa^ḥrā, al-Muwayji^ḥ, al-Mu^ḥtariḍ, and al-^ḥAyn Oasis. Our understanding of the origin and development of the Buraimi Oasis group has been obscured, however, by the international border dividing the oasis into Emirati and Omani sections. Since the mid-twentieth century, archaeological work has focused on the Emirati half of the oasis, culminating in the inscription of al-^ḥAyn on the list of UNESCO World Heritage Sites in 2011, with almost no archaeological work undertaken on the Omani side of the oasis. The Buraimi Oasis Landscape Archaeology Project was set up to redress this imbalance by commencing fieldwork

in Oman. The first phase of fieldwork included a desk-based assessment coupled with remote sensing, which informed targeted geophysical survey undertaken by the University of Southampton, together with limited field walking and test pitting to provide ceramic dates. This paper will present the preliminary findings and discuss their contribution to the understanding of the origin and development of the Buraimi Oasis group.

The survey focused on the open area between the border fence and the ring road, which together describe an angular ‘C’ shape (Fig. 1). The survey identified a total of ninety distinct archaeological sites or features (Fig. 2). These were given a unique identifier combining the site code and year of fieldwork, BOLAP14, together with a rolling serial number (e.g. BOLAP14-01). They were plotted on Google Earth and registered on an Excel sheet. Sites or features were either identified through remote sensing and ground truthing, or else detected by the magnetometer and ground penetrating radar (GPR). Spot dates were suggested on the basis of ceramics retrieved from the surface or exposed sections resulting from machine truncation. It is important to note that spot



FIGURE 1. The BOLAP 14 survey area showing the main areas.

Feature	Type	Spot date	Description
BOLAP14-01	Mound	IA	Mound covered with white pebbles associated with Iron Age pottery (damaged)
BOLAP14-02	Mound	IA	Mound covered with white pebbles associated with Iron Age pottery (damaged)
BOLAP14-03	Mound	IA	Mound covered with white pebbles associated with Iron Age pottery (damaged)
BOLAP14-04	Mound	BA? IA?	Unexamined linear mound parallel with Wādī Sūq tomb on the UAE side
BOLAP14-05	Mound	LI?	Badly truncated mound
BOLAP14-06	Building	IA, LI-1	Iron Age mound surmounted by late Islamic building truncated by modern road
BOLAP14-07	Mound	IA	Mound truncated by road to reveal walls and tumble visible in section
BOLAP14-08	Mound	IA	Mound covered with white pebbles and mostly Iron Age pottery (undisturbed)
BOLAP14-09	Mound	IA, PIR	Mound covered with white pebbles and mostly Iron Age pottery (undisturbed)
BOLAP14-10	Wall	LI	Curvilinear wall with perpendicular east–west wall
BOLAP14-11	Wall	LI	Linear east–west wall turning to south
BOLAP14-12	Wall	LI	Long linear wall running east–north–east–west–south–west with perpendicular wall to south
BOLAP14-13	Mound	IA, LI-1	Iron Age mound surmounted by late Islamic building truncated by modern road
BOLAP14-14	Building	LI-1, LI-2	Tower with courtyard enclosure walls
BOLAP14-15	Well	LI	Deep well or <i>falaj</i> entrance
BOLAP14-16	Mound	IA	Mound near BOLAP14-09 and BOLAP14-08 disturbed by modern dumping
BOLAP14-17	Wall	LI	Long linear wall running east–west with perpendicular return to north

Feature	Type	Spot date	Description
BOLAP14-18	Building	??	Heavily ruined building visible in RAF 1968 photograph
BOLAP14-19	Building	LI-1, LI-2	Tower with courtyard enclosure walls
BOLAP14-20	Walls	LI	Field boundary walls visible in RAF 1968 photograph
BOLAP14-21	Wall	LI	Remaining stretch of wall running parallel to north of Qattara Falaj (falaj al-Qaṭṭārah)
BOLAP14-22	<i>Falaj</i>	LI-1	Qattara Falaj running north-east–south-west through Buraimi (al-Buraymī) Oasis into Qattara Oasis
BOLAP14-23	Building	LI	Small mosque adjacent to the Qattara Falaj occupied in 1968 RAF photo
BOLAP14-24	Building	MD-2	Eid Musallah (Muṣallā al-ʿĪd) just south of BOLAP14-23 post-dating 1968 RAF photograph
BOLAP14-25	Wall	LI	Remaining stretch of wall running east–west north of Northern Cemetery
BOLAP14-26	Building	LI-1	Heavily ruined tower house likely pre-dating Northern Cemetery
BOLAP14-27	Cemetery	LI-2	Historic cemetery surrounded by a modern wall dubbed the ‘Northern Cemetery’
BOLAP14-28	Cemetery	MD-2	Modern cemetery (post-1968) overlying area of historic field system
BOLAP14-29	Building	LI-1	Large heavily ruined building already derelict in the 1968 RAF photography
BOLAP14-30	Building	LI-2	Courtyard house and garden plot with well occupied in 1968 RAF photograph
BOLAP14-31	Wall	LI-1	First (northernmost) axial east–west boundary wall of late Islamic field system
BOLAP14-32	Feature	LI-1	Ambiguous rectilinear feature c.13 x 5 m abutting east–west wall BOLAP14-31
BOLAP14-33	Feature	LI-1	Ambiguous rectilinear feature c.11 x 5 m abutting east–west wall BOLAP14-31
BOLAP14-34	Wall	LI-1	Second axial north–south boundary wall of northern late Islamic field system
BOLAP14-35	Wall	LI-1	Third (easternmost) axial north–south boundary wall of northern late Islamic field system
BOLAP14-36	Wall	LI-1	Second axial east–west boundary wall of late Islamic field system
BOLAP14-37	<i>Falaj</i>	EI	Unknown <i>falaj</i> running north–west–south-east under the northern late Islamic field system
BOLAP14-38	Feature	EI	Ambiguous linear feature running north–east–south–west under the late Islamic field system. <i>Falaj?</i>
BOLAP14-39	Wall	LI-1	Third axial east–west boundary wall of late Islamic field system
BOLAP14-40	Wall	LI-1	Fourth axial east–west boundary wall of late Islamic field system
BOLAP14-41	Wall	LI-1	First (westernmost) axial north–south boundary wall of northern late Islamic field system
BOLAP14-42	Feature	LI-1	Ambiguous rectilinear feature c.5 x 6 m abutting southern extent of BOLAP14-35
BOLAP14-43	Building	LI-1	Heavily ruined building adjacent to the Jimi (<i>al-Jimī</i>) Falaj
BOLAP14-44	Wall	LI-1	Fifth axial east–west boundary wall of late Islamic field system
BOLAP14-45	Wall	LI-1	Sixth (southernmost) axial east–west boundary wall of late Islamic field system
BOLAP14-46	Feature	LI-1	Ambiguous square feature c.3 x 3 m abutting to south of BOLAP14-45. Room?
BOLAP14-47	Feature	LI-1	Ambiguous square feature c.3 x 3 m abutting to south of BOLAP14-45. Room?
BOLAP14-48	Building	LI-1	Heavily ruined rectilinear building at extant eastern end of BOLAP14-45
BOLAP14-49	Feature	??	Uncertain linear features picked up by the geophysics. Walls or <i>aflāj?</i>
BOLAP14-50	Wall	LI-1	Axial north–south wall on different alignment to the other axial north–south walls
BOLAP14-51	Building	LI-1	Heavily ruined building abutting BOLAP14-50 and overlying the Jimi Falaj
BOLAP14-52	<i>Falaj</i>	EI	Unknown <i>falaj</i> running north–west–south-east towards the EI <i>falaj</i> and building at the Jimi School site
BOLAP14-53	Feature	EI	Ambiguous square feature c.9 x 9 m adjacent to EI <i>falaj</i> BOLAP14-52. Building?
BOLAP14-54	Wall	LI-1	Isolated stretch of wall running parallel to north of Jimi Falaj
BOLAP14-55	<i>Falaj</i>	LI-1	Jimi Falaj running east–west from Hamasa (Ḥamāsah) & turning north–west–south–east under the border fence to Jimi
BOLAP14-56	Building	LI	Ruined building already derelict in the 1968 RAF photograph. Truncated by modern road

Feature	Type	Spot date	Description
BOLAP14-57	Building	LI	Ruined building already derelict in the 1968 RAF photograph
BOLAP14-58	Building	LI	Ruined building apparently still occupied in the 1968 RAF photograph
BOLAP14-59	Wall	LI-1	First (westernmost) axial north–south boundary wall of southern late Islamic field system
BOLAP14-60	<i>Falaj</i>	LI-1	Unknown <i>falaj</i> running north–north–west–south–south–east under the southern late Islamic field system
BOLAP14-61	Wall	LI-1	Second (easternmost) axial north–south boundary wall of southern late Islamic field system
BOLAP14-62	Wall	LI-1	Axial curvilinear east–west wall of southern late Islamic field system. Southernmost?
BOLAP14-63	Cemetery	LI	Historic cemetery surrounded by a modern wall dubbed the ‘Southern Cemetery’ (west)
BOLAP14-64	Cemetery	LI	Historic cemetery surrounded by a modern wall dubbed the ‘Southern Cemetery’ (east)
BOLAP14-65	Building	EI	Stretches of wall partially revealed in the sand associated with a building
BOLAP14-66	Building	EI	Truncated building c.35 x 15 m associated with quantities of early Islamic pottery
BOLAP14-67	Building	EI	Spread of disarticulated mud brick c.35 m long running parallel with modern road
BOLAP14-68	Building	EI	Stretches of wall partially revealed in the sand possibly associated with a building
BOLAP14-69	Building	EI	Stretches of wall partially revealed in the sand possibly associated with a building
BOLAP14-70	Building	EI	Stretches of wall partially revealed in the sand associated with a building
BOLAP14-71	Building	EI	Stretches of wall partially revealed in the sand associated with a building
BOLAP14-72	Building	EI	Stretches of wall partially revealed in the sand associated with a building
BOLAP14-73	Building	LI-2	Site of the Ḥiṣn al-Sudayrī visible in the 1968 RAF photograph but since obscured
BOLAP14-74	Building	LI-1	Completely ruined tower house surviving as little more than mounds of rubble
BOLAP14-75	Building	LI-1	Completely ruined tower house surviving as little more than mounds of rubble
BOLAP14-76	Building	LI-1	Rectangular structure visible in outline in the 1968 RAF photograph
BOLAP14-77	Building	LI-1	Completely ruined tower house surviving as little more than mounds of rubble
BOLAP14-78	Fort	LI-2	Remains of Qal‘at al-Ṣubārah visible as outline in 1968 RAF photograph
BOLAP14-79	Building	LI	Uncertain building identified on Google Earth
BOLAP14-80	Building	LI	Uncertain building identified on Google Earth
BOLAP14-81	Cemetery	LI-2	Discrete burial area located in the geophysical survey in north of al-Bustan Field System
BOLAP14-82	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (extant)
BOLAP14-83	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (destroyed)
BOLAP14-84	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (destroyed)
BOLAP14-85	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (destroyed)
BOLAP14-86	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (uncertain)
BOLAP14-87	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (extant)
BOLAP14-88	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (destroyed)
BOLAP14-89	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (destroyed)
BOLAP14-90	Feature	??	Possible mound or building visible in the 1968 RAF photograph as a white spot (extant)

FIGURE 2. A register of sites and features identified during the BOLAP14 survey.

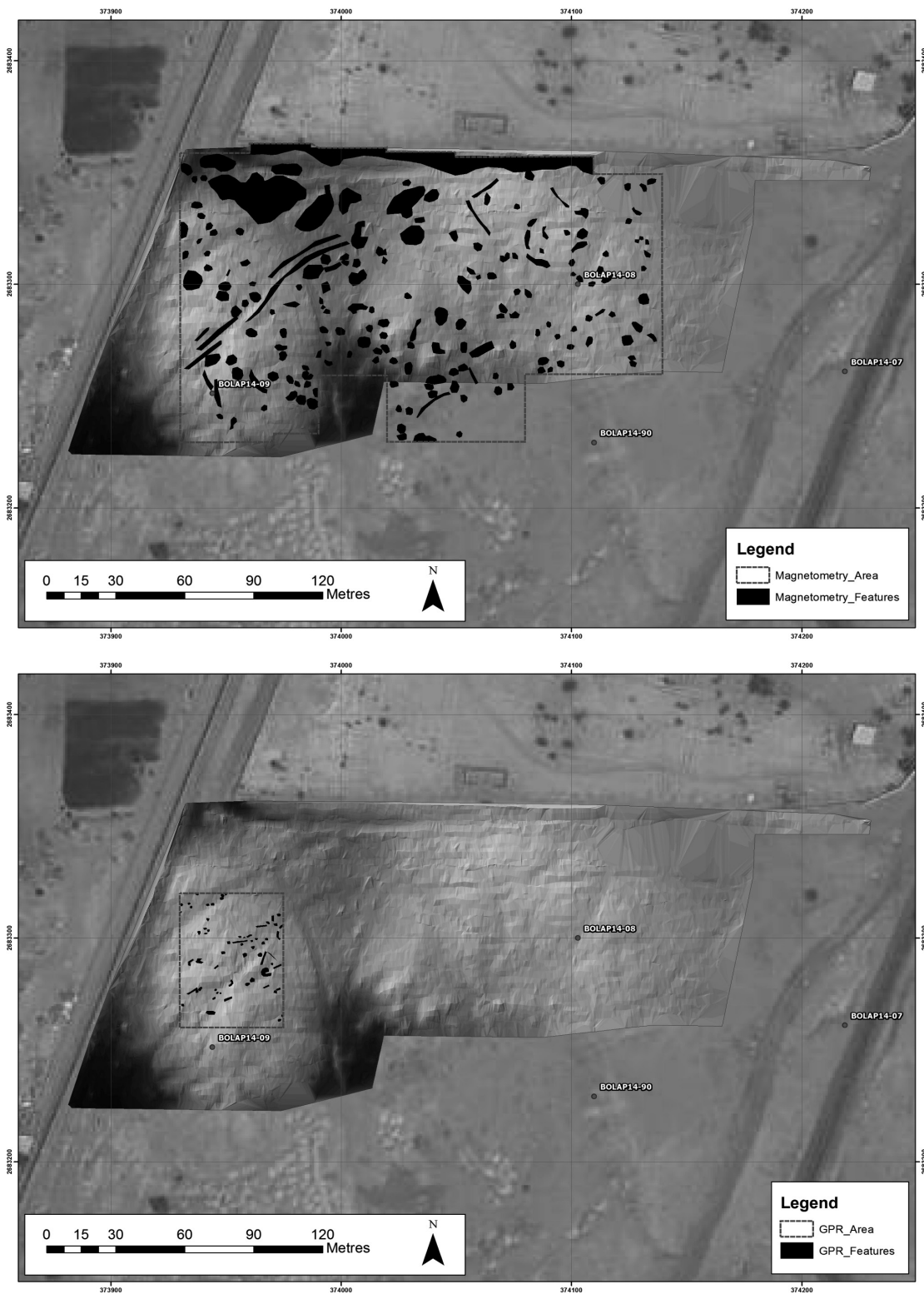


FIGURE 3. Magnetometer and GPR survey of Iron Age mounds BOLAP14-08 and BOLAP14-09.

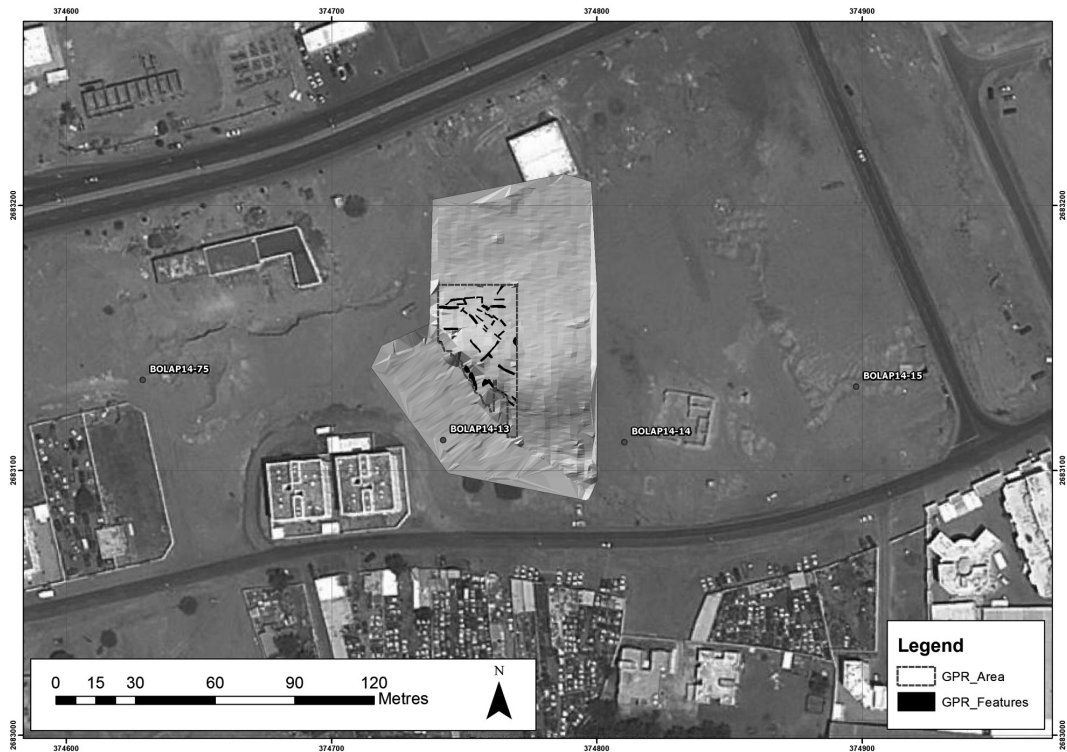


FIGURE 4. Magnetometer and GPR survey of Iron Age mound BOLAP14-13.

dates should be taken as preliminary indicators pending further fieldwork.

Pre-Islamic landscape

The earliest dated feature in the vicinity of the survey area is the so-called ‘Qaṭṭārah Tomb’, which lies immediately within the UAE border fence to the west of the northern survey area. The tomb was discovered and excavated in 1973 and again in 1988 and is generally believed to date to the Wādī Sūq period (c.2000–1300 BC) (al-Tikriti 1975: 38–41; Velde 2003). Finds include the double-headed zoomorphic gold amulet displayed in the al-ʿAyn National Museum. It is possible that this belongs to a Bronze Age cemetery continuing into Buraimi. If so, this would add a third major prehistoric cemetery to the al-ʿAyn/Buraimi Oasis, in addition to the well-known UNESCO World Heritage Sites of Ḥafīt and Hīlī. Part of the adjacent area in Oman lies within a large residential compound with a boundary wall surrounding private gardens, which contains a low mound — BOLAP14-04 — approximately 110 m from the ‘Qaṭṭārah Tomb’. Unfortunately, it was not possible to investigate the mound in the 2014 field season. This remains a research priority and will be targeted by future fieldwork.

Iron Age mounds were discovered throughout the northern survey area and beyond. Almost all the mounds presently visible on the surface also appear on the 1968 RAF aerial photograph as a series of ‘white spots’. Many of the Iron Age sites identified by the French Archaeological Mission in 1976–1977 during a survey of the area between the Hīlī and Qaṭṭārah Oases may further be identified with ‘white spots’ in the photograph (Cleuziou 1976–1977: fig. 4). The mounds of the northern survey area therefore belong to a much larger Iron Age landscape, further including the Bayt Bin ʿĀtī site in the Qaṭṭārah Oasis and the villages of Hīlī 2, Hīlī 17, and Rumaylah (Power & Sheehan 2012: 294–96). Indeed, since no significant Iron Age material has been found to the south, it is possible to posit the northern survey area as constituting the southern limits of the Iron Age landscape. Unfortunately the majority of the ‘white spots’ putatively interpreted as Iron Age mounds in both the UAE and Oman have been lost to modern development. This makes the few remaining mounds discovered in the northern survey area all the more important. It is quite possible we are dealing with the last undisturbed area of the Iron Age landscape within the greater al-ʿAyn/Buraimi conurbation.

Many of the remaining mounds have been partially truncated and some are in imminent danger of being lost to modern development, but two undisturbed mounds, BOLAP14-08 and BOLAP14-09, were identified in the western extent of the northern survey area (Fig. 3). They are covered with a dense spread of white pebbles and ceramic sherds, which together lend them a distinctly whitish hue at variance with the yellowish brown sands of the central survey area. These white pebbles were not found elsewhere — neither visible on the surface nor revealed in exposed sections — and closely resemble the temper of locally made mud bricks. Such bricks are familiar from the Iron Age villages of Hīlī and Rumaylah. The mounds show up very clearly on the topographic survey and were investigated with the magnetometer, the less disturbed BOLAP14-09 being further examined with the GPR, which picked up two discrete parallel linear features possibly representing the walls of a ruined house. Modern disturbance is more common to the east of the mounds so that surface finds have been obscured. Nearby mound BOLAP14-07 has been truncated by the construction of a side road revealing the extant lower courses of walls in the section, and mound BOLAP14-13 further to the east has been truncated to create a level building plot revealing architectural tumble in section. Geophysical survey of BOLAP14-13 demonstrated the extent of the walls in plan (Fig. 4). Further structural features were visible in disturbed mound BOLAP14-03, cut by the boundary fence of a modern date-palm garden. It therefore appears that the mounds of the northern survey area formed around collapsed or deflated mud-brick buildings.

The date of these buildings may be inferred from brick typologies and associated ceramics. Mound BOLAP14-07 preserves several courses of bricks in the truncated section, which are very similar to those found at the Iron Age villages of Hilli 2, Hilli 17, and Rumaylah. These are quite distinct from late Islamic brick typologies. Ceramics were retrieved from stratified deposits in the machine-exposed section through mound BOLAP14-13 and collected from the surface of undisturbed mound BOLAP14-09. The section through mound BOLAP14-13 is c.40 m long and c.4 m high. The earliest exposed contexts consisted of two episodes of mud-brick tumble separated by an intervening layer of wind-blown sand and buried by a 700 mm-thick layer of wind-blown sand, together making up somewhat over one half of the visible section. Both of these aeolian deposits produced Iron Age pottery; no earlier or later material was detected. Sherds taken from the wind-blown surface accumulation

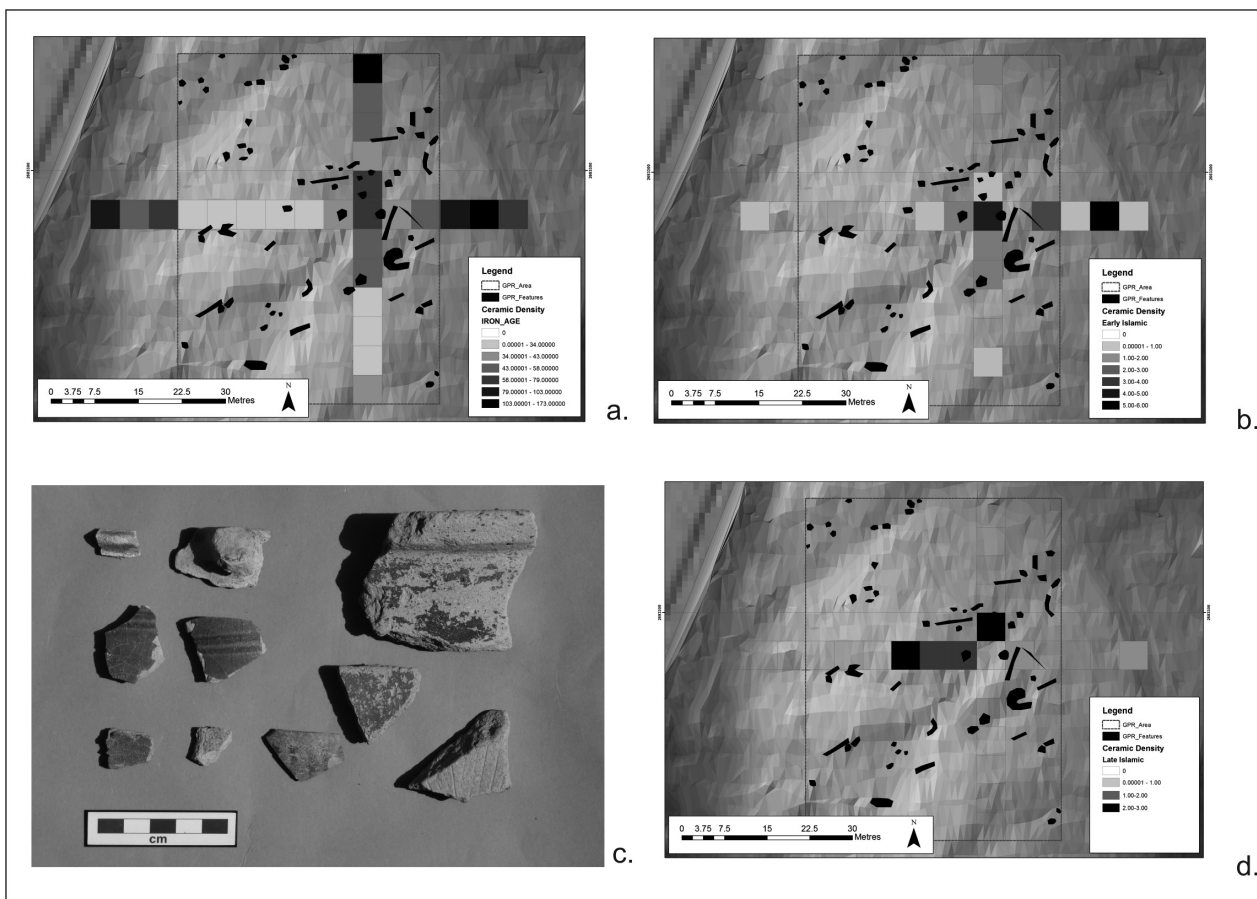


FIGURE 5. Distribution density of surface sherds collected from BOLAP14-09.

overlying the mound included some Iron Age instances but were dominated by Late Islamic 1 material.

Undisturbed mound BOLAP14-09 has a roughly oval plan *c.*105 m long by *c.*60 m wide covering an area of *c.*0.63 ha. The whole mound is covered with pottery and a 5 x 5 m grid was laid out to allow the systematic collection of surface finds (Figs 5 & 6). Sherds were taken from two transects running north–south and east–west, amounting to twenty-six grid squares covering an area of 0.065 ha, or approximately 10% of the total area of mound BOLAP14-09. Some 1457 sherds were collected, implying that the total number covering the mound approaches 15,000 sherds. Almost all of these were Iron Age with some possibly late pre-Islamic/early Islamic and a limited amount of late Islamic sherds; modern material was almost entirely absent, with only a single piece of modern glazed tile (MGTS) discovered. The Iron Age assemblage ranged from fragments of massive storage

jars to fine painted tableware, with five sherds from carved steatite vessels (STN), apparently all engraved with linear designs. The possibly late pre-Islamic/early Islamic assemblage consists of twenty-seven sherds of turquoise alkaline glazed ware, of which eighteen sherds had a generally well-preserved green glaze (TURQ.4) and five had an, often degraded, blue glaze (TURQ.5) with the other four too degraded to ascertain. Most of these represent body sherds from small bowls, with a handle and a rim sherd giving some idea of form (Fig. 7). Kennet notes that TURQ.4 is predominant at Kūsh Period II, dated from the late sixth to early eighth centuries (2004: 37). Similar green-glazed vessels are known to have been produced in Iraq under the Parthians, however, and are found in quantities in the UAE, including in Horizon 7 at the nearby site of Qaṭṭārah (de Paepe 2003: 209, 212, fig. 4/3; Kennet 2004: 29–31; Mouton 2008: 40–41, 65–66, 94–97, 127–128; Power & Sheehan 2011a: 275). Further

SQ	Iron Age	PIR/EI (?)	Late Islamic	Modern	Other
1	62	1 (TURQ.4)	1 (FRIT.BW)	1 (MGTS)	
2	173 (1 STN)	6 (3 T.4, 3 T.5)			
3	103	1 (TURQ.4)			2 shells
4	58	3 (TURQ)			
5	43		1 (MGPAINT)		
6	79	4 (3 T.4, 1 T.5)			1 coin? 1 Copper fragment
7	38	2 (TURQ.4)	2 (JULFAR)		
8	14	1 (TURQ.4)	2 (BAHLA)		
9	4		3 (JULFAR)		
10	6				
11	34				2 shells
12	30				
13	63				
14	55	1 (TURQ.4)			
15	95				
TOTAL	857	19	7	1	

SQ	Iron Age	PIR/EI (?)	Late Islamic	Modern	OTHER
A	136 (2 STN)	2 (TURQ.4)			
B	54				
C	48				1 bangle, 1 shell
D	42 (1 STN)				
E	68 (1 STN)	1 (TURQ.5)	3 (IBWS)		
F	58	2 (TURQ.4)			
G	50	2 (TURQ.4)			
H	29				
I	8				1 flint core
J	28	1 (TURQ)			
K	41				
TOTAL	562	8	3		

Code	Name	Kennet (2004)
BAHLA	Bahla Ware	KHUNJ
FRIT.B&W	Blue & white fritware	FRIT.BW
JULFAR	Julfar Ware	JULFAR
STN	Carved stone vessel	–
TILE	Modern glazed ceramic tile	
TURQ.BLU	Bluish turquoise alkaline glaze	TURQ.5
TURQ.GRN	Greenish turquoise alkaline glaze	TURQ.4

FIGURE 6. Quantification data of surface sherds collected from BOLAP14-09.

work is necessary to establish the date of the green-glazed sherds from BOLAP14-09. If on closer inspection some or all of these sherds transpire to be late pre-Islamic, then Buraimi constitutes one of comparatively few sites

in south-east Arabia with an occupational sequence potentially spanning the Iron Age to the late pre-Islamic period, which would make it an exceptionally important site.



FIGURE 7. Selected ceramic sherds from field-walking Grid Square 2 at BOLAP14-09.

Early Islamic landscape

Early Islamic material was found throughout the survey area. Structural remains were most apparent in the southern survey area, where a *c.*150 x 120 m area of partially exposed structural remains associated with quantities of early Islamic pottery was discovered (Fig. 8). Building BOLAP14-66 was discovered driving along the 2009 street grid when the survey team noticed walls protruding from a truncated dune. Building BOLAP14-65 was found just to the north. The construction of the road truncated building BOLAP14-67, creating a spread of disarticulated mud brick stretching for *c.*35 m along the south side of the street. Fortunately, the dunes south of the recently constructed street have not yet been levelled so that buildings BOLAP14-68 to BOLAP14-72 presently remain undisturbed. Some attempt to level the dunes surrounding BOLAP14-66 had already been made by the developers, resulting in an irregular crescent-

shaped bulldozer scar. The south-eastern corner of a large rectilinear building was nevertheless preserved, with the truncated southern wall extending for *c.*15 m and the undisturbed eastern wall for *c.*35 m, preserving a large gateway *c.*2 m wide and a room *c.*5 x 3 m in plan. The walls exposed by bulldozer truncation are preserved to a height of *c.*1.5 m, and the GPR results suggest that their full extent ranges between *c.*1.7 and 2.3 m. Clearly the dunes have served to protect and preserve the structural remains, so that the height of the walls is far greater than any early Islamic site yet found in the al-^cAyn/Buraimi Oasis. A cache of intact ceramic and carved-stone vessels from the site was recently handed in to the Ministry by a local man, further indicative of the remarkable state of preservation.

The limited area of geophysical survey and only partial exposure of surface features in the mobile sands obscures the extent and nature of settlement. A total of eight discrete areas of mud-brick walls were discovered which might

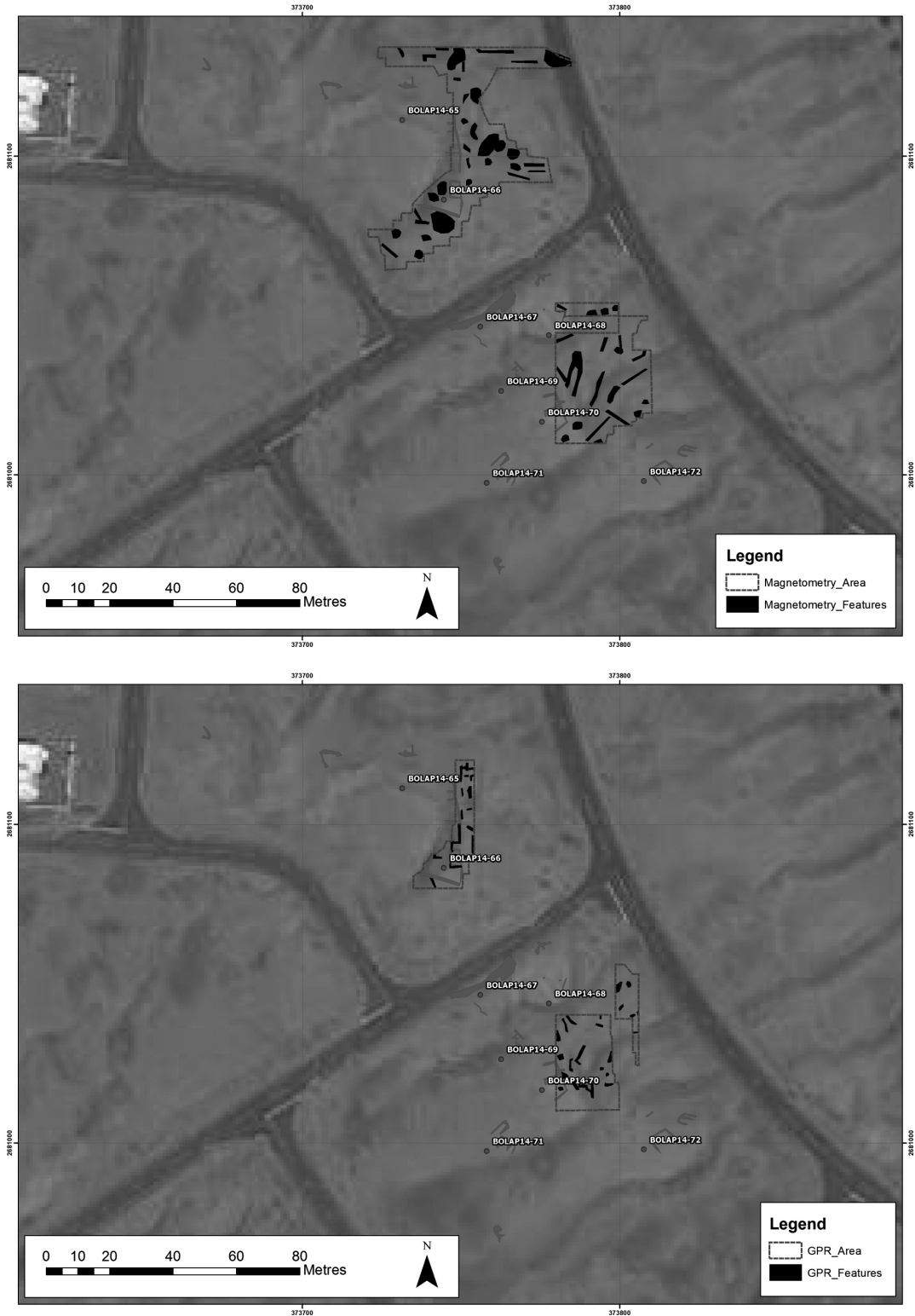


FIGURE 8. Survey of surface and sub-surface features at BOLAP14-66 and environs.

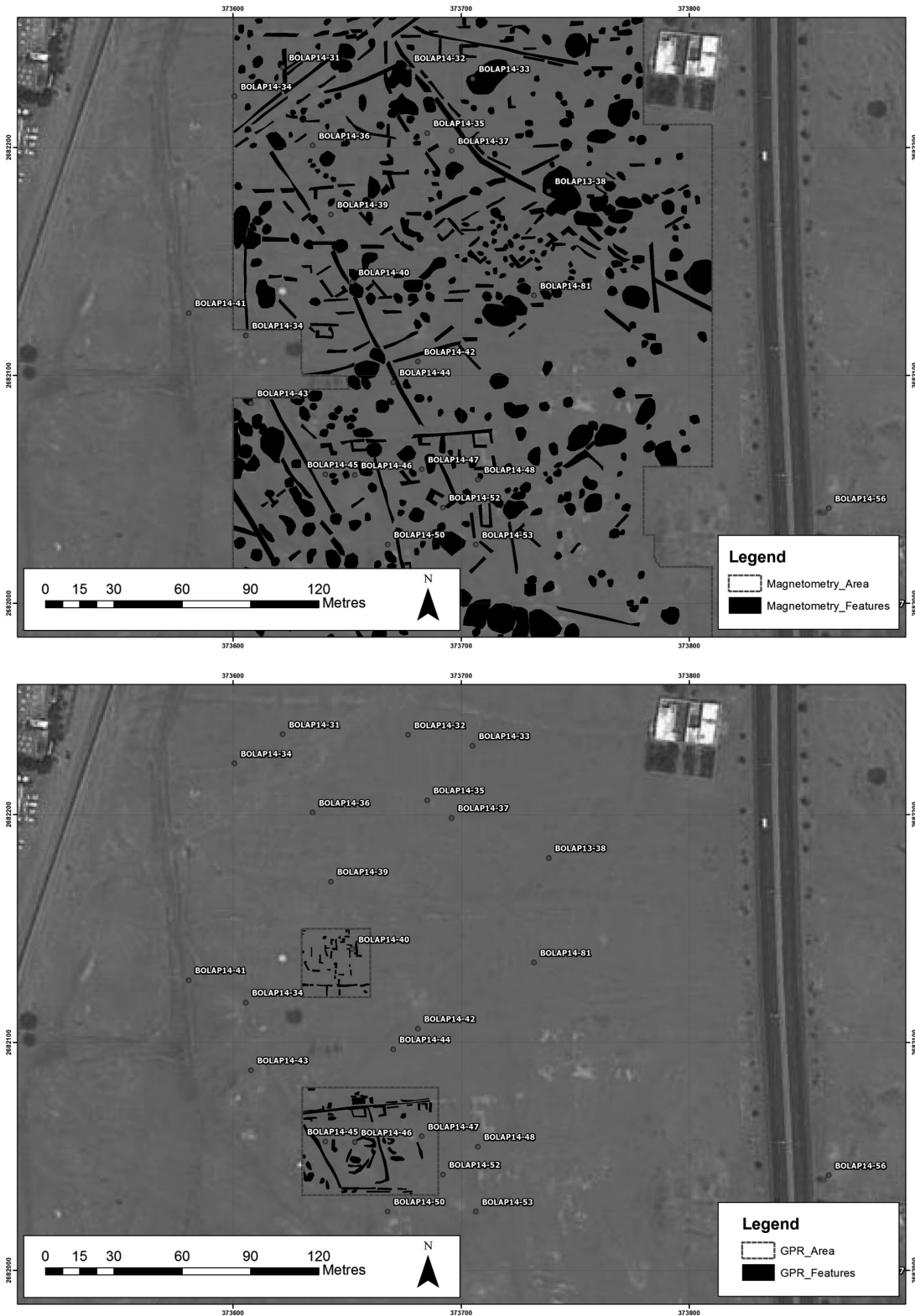


FIGURE 9. Magnetometer and GPR survey of the central survey area.

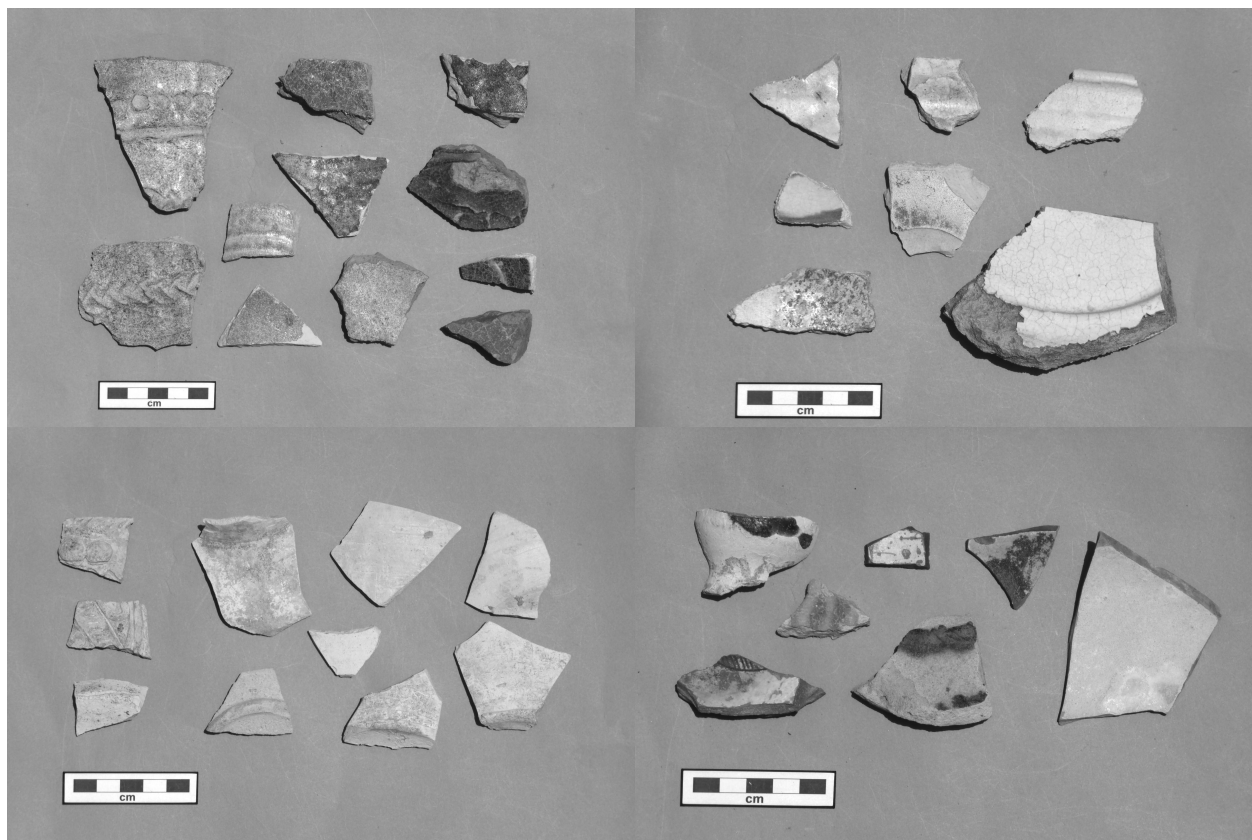


FIGURE 10. Eighth- to twelfth-century ceramics from BOLAP14-66.

have belonged to eight individual houses, or else a smaller number of larger residential complexes. A walk through the dune fields, however, revealed not infrequent scatters of early Islamic pottery, suggesting that the potential area of settlement is much larger. Excavations by the Abu Dhabi Tourism and Culture Authority (TCA) at the Bayt Bin ʿĀfī in nearby Qaṭṭārah Oasis documented two phases of post-hole structures associated with early Islamic pottery, interpreted as evidence for ʿarīsh or palm-frond buildings (Power & Sheehan 2011a: 275–276; fig. 8). A number of early Islamic mud-brick square-plan buttressed buildings and *aflāj* (sing. *falaj*) have been excavated at ʿAwd al-Tawbah, about 1.2 km to the south-east (al-Tikriti 2003; al-Tikriti et al., this volume). To these can be added a similar early Islamic building located at the Jimi (al-Jīmī) School site, with early Islamic ceramics recently reported from PCR 616, both located just west of the border fence (see Fig. 1). The early Islamic period is now emerging as a major occupational phase in the development of the al-ʿAyn/Buraimi Oasis.

A number of potentially early Islamic *aflāj* were detected through remote sensing and geophysical prospection. In the central survey area, two unidentified linear features running north-north-east–south-south-west were picked up by the magnetometer, namely BOLAP14-37 and BOLAP14-52 (Fig. 9). These are overlaid by the late Islamic field system and therefore predate it. A test pit dug in this area revealed a compact layer of silt overlying the natural bedrock. The silt was cut by root action, the fill of which produced a few sherds of Eggshell Ware, and can be interpreted as a possible early Islamic cultivation horizon (Fig. 10). No other sub-surface occupational horizons were detected, implying that the *aflāj* are contemporary with the earlier phase. *Falaj* BOLAP14-52 is on the same alignment and route as a *falaj* recently discovered by the Abu Dhabi TCA on the other side of the border fence, about 425 m to the north-east, immediately adjacent to the Jīmī Oasis within the architectural footprint of a proposed school. Ceramics from the Jīmī School site suggest a broadly early Islamic

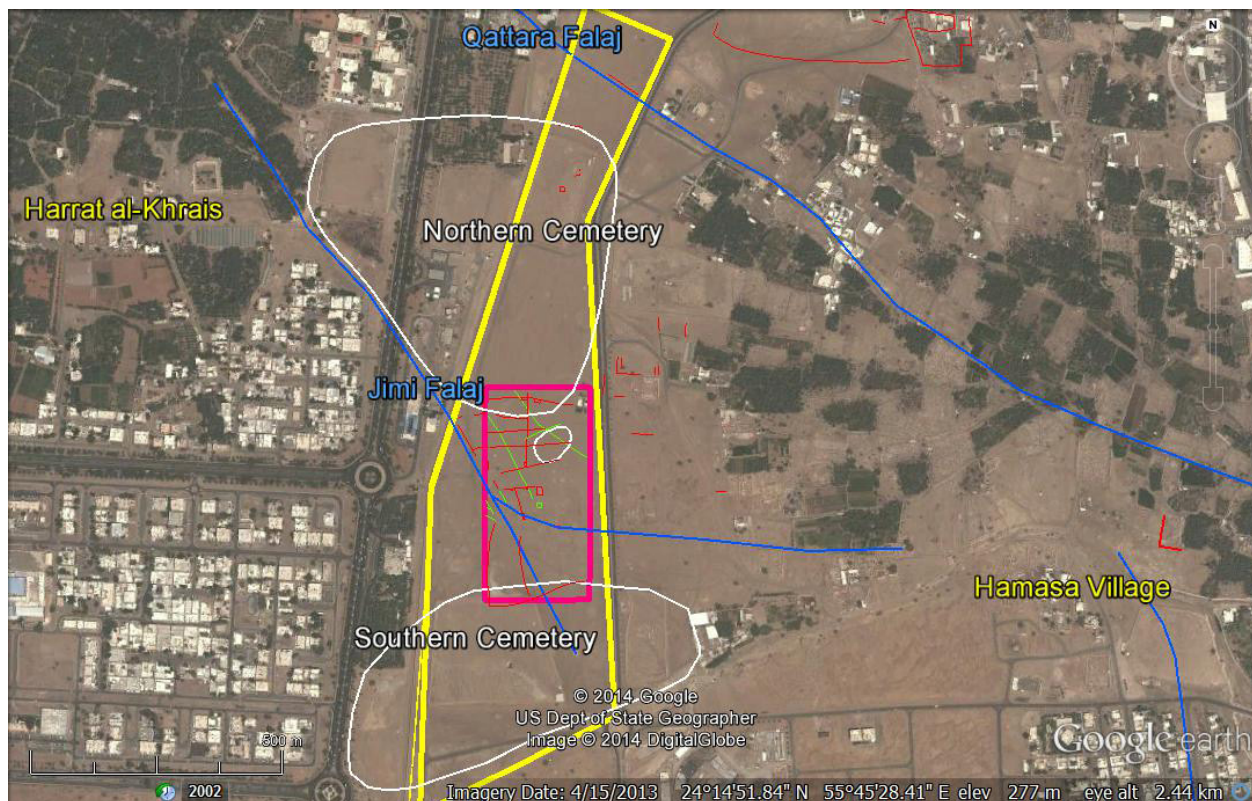


FIGURE 11. Visible surface features in the central survey area drawn onto Google Earth.

date for *falaj* BOLAP14-52. The early Islamic cultivation horizon and *aflāj* discovered in the central survey area help provide an economic context for the mud-brick settlement found in the southern survey area. Further excavations are required to ascertain these preliminary hypotheses and understand the hydraulic infrastructure of sedentary life in the Buraimi region.

Ceramics allow the date of early Islamic occupation to be refined somewhat. Surface sherds were intermittently visible across most of the southern survey area and were not limited to BOLAP14-66 to BOLAP14-72. Qualitative observation suggests that the material is fairly homogeneous. Sherds were collected at random from BOLAP14-66 to provide a ‘spot date’ for occupation (Fig. 11). In fact, two phases of occupation may be inferred:

1) Eighth and ninth centuries

Glazed ceramic classes including turquoise alkaline glazes with barbotine decoration (TURQ.5), thought to have been introduced in the mid-eighth century, and opaque white tin

glazes with in-glaze blue cobalt decoration (COBALT), believed to have gone out of use before the foundation of Sāmarrāʾ in 836 (Kennet 2004: 36, 40). Reasonable quantities of opaque white tin glazes (YBTIN) were retrieved, dated from 836–861 into the tenth century on the basis of Sāmarrāʾ and Sīrāf (2004: 39). A single white glazed sherd with in-glaze black cobalt decoration (BTIN) was also found. Unglazed types include large incised storage vessels (LSIV) and Eggshell Ware (EGG), dateable to the eighth and ninth centuries (2004: 78–79, 82);

2) Eleventh and twelfth centuries

Limited to a single sherd of hatched sgraffiato (HGRAF) and a possible sherd of champlévé (CHAMP) (2004: 43, 46–47). Both of these types were found at the Bayt Bin ʿĀtī excavations in Qaṭṭārah, and Andrew Petersen found a single sherd of sgraffiato on the surface of the Qalʿat al-Sudayrī site (2009: 71).

Unglazed sherds include a fair amount of possibly proto-Julfār Ware, which Kennet notes is associated

with hatched sgraffiato in Ra's al-Khaymah (2004: 82). It may further be of significance that some of the Eggshell Ware has fine moulded decoration, similar to tenth- to twelfth-century Iranian instances illustrated in Oliver Watson's publication of the Āl Ṣabāḥ collection (2004: 107). Future excavations of sites BOLAP14-66 to BOLAP14-72 will aim to produce a well-stratified sequence supporting a typological quantification of the assemblage, which will cast light on the duration of occupation and the commercial contacts of the local community.

Late Islamic landscape

The study of ceramic and numismatic finds from secure stratigraphic contexts at multiple sites in al-ʿAyn has allowed a refined chronology for the late Islamic period to be put forward. The finer points and full publication of this chronology remain in preparation, although some preliminary findings have been published (Power & al-

Kaabi, in press; Power & Sheehan 2012: 297–304; figs 3 & 4).

The Qaṭṭārah Falaj (BOLAP14-22) and Jīmī Falaj (BOLAP14-55) constitute salient topographic features in the landscape (Fig. 12). They extend from Oman under the present border fence into the UAE, a vivid testament to the shared history of the al-ʿAyn/Buraimi Oasis. It is possible to trace the *aflāj* by following their *thuqab* (sing. *thuqbah* 'excavation shafts surrounded by up-cast material'), visible in the archive photographs or as extant surface features. The *thuqab* of the Qaṭṭārah Falaj, for instance, show up clearly on an oblique aerial photograph from the 1960s. Moreover, the routes of the *aflāj* may be read into the alignment of field boundary walls and the situation of mosques and forts built to utilize or control the flow of water. For example, the small mosque in the central survey area, BOLAP14-23, was built next to the Qaṭṭārah Falaj and provided with stairs to access the water necessary for the ritual ablutions preceding prayer. Their importance to the field systems and forts will be discussed

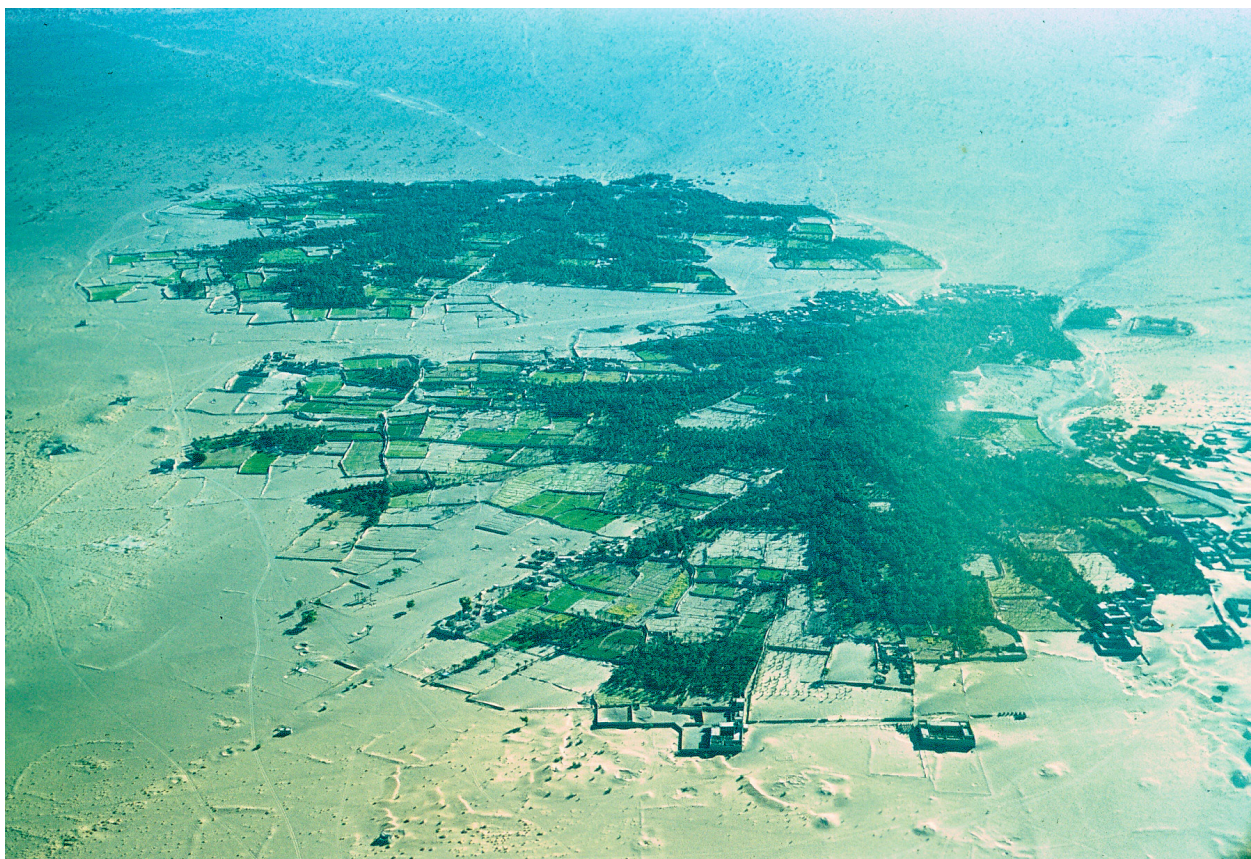


FIGURE 12. An oblique aerial photograph taken in the 1960s showing the survey area in the foreground (Tony Cawston).

below. The main *aflāj* appear in sketch maps made before modern development transformed the landscape (Stevens 1970: fig. 1). It is clear from our remote-sensing and geophysical survey, however, that the *aflāj* network was more complex than these maps suggest. A diachronic model for the development of the *aflāj* network as the basis of land use and settlement remains a long-term goal of the Buraimi Oasis Landscape Archaeology Project.

The traditional oasis environment consisted of a core of palm groves under which fruits were grown, surrounded by open fields of wheat and animal fodder (Zwemer 1902: 62; Lorimer 1915: 260–264; Cox 1925: 207–208). How far back the oasis agrosystem may be traced and to what extent the nine distinct date-palm oases of the al-ʿAyn/Buraimi group share a developmental dynamic remains open to debate. The Abu Dhabi TCA excavations at the Bayt Bin ʿĀṭī in the Qaṭṭārah Oasis demonstrated that date-palm groves there were dug in the late Islamic 1b period (c.1700–1800), and we have argued that this belongs to a regional expansion of agriculture under the Āl Yaʿrub (Power & Sheehan 2012: 297–303). Given that groundwater generally moves from the mountains in the east to the plain in the west, aided by wadis and directed by *aflāj*, it might logically be argued that the more easterly Ḥamāsah and Ṣaʿarāʾ Oases are older. The Ibadi histories refer to the demolition of forts in the oases around the year 1633 (Sirḥān b. Saʿīd 1874: 53), implying that there was some sort of sedentary occupation at the time, although it would be unwise to assume the oasis agrosystem was already in place. Certainly the oasis environment should not be imagined as static. Historical sources suggest that the al-Masʿūdī and al-Muwayjjiʿ palm groves were only established by the Āl Nahayān in the late nineteenth and early twentieth centuries, broadly borne out by the Abu Dhabi TCA excavations at Qaṣr al-Muwayjjiʿ (Power & Sheehan 2011*b*). It is worth noting, too, that oases can wither away. The date groves of the Ṣaʿarāʾ Oasis have almost entirely disappeared following the drop in the water table since the 1970s. The oasis environment, then, should be understood as a fluid relationship between human beings and the natural world. The origin and development of the Buraimi Oasis will therefore continue to be targeted by future fieldwork.

Important new information pertaining to the development of the oasis landscape was obtained from the present season’s survey. A solitary field boundary wall, BOLAP14-25, was found near the Qaṭṭārah Falaj. This appears on the oblique aerial photograph from the 1960s, where it is surrounded by further field boundary walls not now visible on the surface, suggesting that a

field system once surrounded the Qaṭṭārah Falaj. Clusters of field boundary walls were found in the northern survey area, namely BOLAP14-10, BOLAP14-11, BOLAP14-12, and BOLAP14-17. These areas were not covered by the geophysical survey but it is highly likely that more walls remain to be discovered beneath the surface. A remarkably undisturbed pre-modern field system was discovered in the central survey area, the open plain of desert scrub linking the Ḥamāsah Oasis and the Jīmī and Qaṭṭārah Oases, covering an area c.440 m north–south x c.260 m east–west. Shaykh Rashid Ahmed Meshari al-Shamsi, the shaykh of the Shamsi (al-Shāmsī) tribe indigenous to Ḥamāsah, told us that the area is known as ‘al-Bustān’ (Ar. garden) and said it used to be planted with wheat and before that with palms. The sketch plans and aerial photographs from the 1950s and 1960s, however, demonstrate that the field system was abandoned beyond living memory. The lateral extent of the al-Bustān Field System was obscured first by the construction of the Khrays roundabout and Dubai road, which appear in the 1968 RAF aerial photograph, and then truncated by the UAE border fence and Buraimi ring road in recent years. It nevertheless seems clear that the al-Bustān Field System covered much of the area between the Ḥamāsah Oasis and the Jīmī Oasis. Taken together with the less well-preserved field boundary walls to the north, it soon becomes apparent that the Ḥamāsah Oasis was once considerably larger than at present, apparently over half as much again.

The exceptional preservation of the al-Bustān Field System affords an excellent opportunity to study traditional agricultural practices and changing land use in the early modern period. Its longitudinal extent is parenthesized by late Islamic 2 cemeteries. Internally, the field system is divided laterally by the Jīmī Falaj. The southern area appears to be divided into much larger plots, c.60 x 170 m, which may be the result of different land use or constitute a later addition. The northern area is divided into a grid of sub-rectangular plots, c.30 x 80 m, on a regular east–west alignment. Field boundary walls are constructed of a single row of mud bricks and survive to a height of about 300 mm, the tumble having been robbed out or eroded away by winds sweeping over the plain. Four north–south and six east–west axial field boundary walls are visible on the surface. Surface ceramics were not systematically collected or quantified, but qualitative observation suggests that the assemblage is late Islamic 1 (c.1650–1800). A test pit was dug targeting the relationship between the northernmost east–west axial wall, BOLAP14-31, and the uncertain structural feature, BOLAP14-33, which transpired to

Phase	Date	Coins	Pottery
LI-1a	1650–1700	Šafavid (c.1501–1722)	PORC.B&W, GRNGLZ.LI
LI-1b	1700–1800	Šafavid (c.1501–1722)	PORC.B&W, GRNGLZ.LI, MANGA, RED-YEL
LI-2a	1800–1850	Qajar (c.1785–1925), Rāj (pre-1857)	<i>Imported types disappear?</i>
LI-2b	1850–1900	Āl Bū Saʿīdī (1890s), Rāj (1857–1947)	CHING, MANGA, SPONGE, TRANSFER
LI-2c	1900–1950	Pahlavi (c.1925–1979), Rāj (1857–1947)	CHING, SPONGE, TRANSFER, COFFEE
MD-1	1950–1970	Baḥraynī (post-1965)	TRANSFER, COFFEE, MODERN
MD-2	1970–1990	UAE (post-1971)	COFFEE, MODERN
MD-3	1990–2010	UAE (post-1971)	COFFEE, MODERN

Code	Name	Kennet (2004)
CHING	‘Kitchen’ Ching	–
COFFEE	Coffee cups	–
GRNGLZ.LI	Green-glazed late Islamic	GMONO.2
MANGA	Underglaze manganese painted	MGPAIN
MODERN	Modern ceramics (excluding tiles)	MODERN
PORC.B&W	Blue & white porcelain	CBW
SPONGE	Sponge painted refined white wares	–
TRANSFER	Transfer printed refined white wares	–

FIGURE 13. The relative ceramic chronology and suggested dates for the late Islamic period.

be contemporary. The walls were underlain by a firm/friable sand containing late Islamic 1 sherds, and overlain by layers of degraded mud brick and fine wind-blown sand containing more late Islamic 1 pottery. None of the readily identifiable European refined white wares were noted, suggesting that occupation had ended by the mid-nineteenth century (Fig. 13).

A number of apparently isolated late Islamic buildings were discovered scattered through the northern and central survey areas. Many of these buildings are surrounded by abandoned field systems and are probably broadly contemporary with them. Among the better preserved are tower houses BOLAP14-14 and BOLAP14-19, which can be seen in the oblique aerial photograph from the 1960s and the 1968 RAF photograph, where they already appear to have fallen into ruin. Archaeological work by the Abu Dhabi TCA on the historic buildings of al-ʿAyn suggests that the large tower houses belong to the late Islamic 1 period (c.1650–1800), for instance the Bayt Bin ʿĀtī and Bayt Bin Biduwah (Badwah) in the Qaṭṭārah Oasis (Power & Sheehan 2012: 297). The towers of both BOLAP14-14 and BOLAP14-19, however, appear to have been rebuilt, while the generally good state of preservation implies that occupation continued into the late Islamic 2 (c.1800–1950). Completely ruined tower houses that survive as little more than mounds of rubble include BOLAP14-05, BOLAP14-26, BOLAP14-43, BOLAP14-74, BOLAP14-75, and BOLAP14-77.

These may tentatively be placed in the late Islamic 1 period pending further investigation. Note that these features appear on the 1968 RAF photograph as virtually identical to the well-dated Bayt Bin ʿĀtī. Tower house BOLAP14-26 is particularly interesting as it logically predates the ‘Northern Cemetery’ and provides a hypothetical *terminus ante quem* for the change in land use. Other buildings appear as little more than outlines on the surface, including BOLAP14-06, BOLAP14-18, BOLAP14-29, BOLAP14-48, BOLAP14-51, and BOLAP14-76. A sketch map from the 1950s shows that the area around BOLAP14-05 and BOLAP14-06 is labelled ‘Khīrbat al-Jarāhīh’, denoting an area of ruins. Taken together, these scattered houses constitute a low-density settlement coterminous with the extensive field system outlined above, implying that occupation peaked in the late Islamic 1 period.

Two large historic cemeteries were identified during the survey. The ‘Northern Cemetery’ includes a rectangular concrete enclosure, BOLAP14-27, measuring c.200 x 100 m, but it seems that the modern enclosure wall does not correspond well to the true boundaries of the historic cemetery. Graveyards were not traditionally delineated by boundary walls and graves were marked only by unworked stones, with more recent burials reusing stones taken from nearby older graves. The tendency is therefore for the older areas of cemeteries to become forgotten and unprotected by recently erected enclosure

walls. Two more cemeteries are known just over the UAE border fence, with reports of human remains found during the construction of the Khrays ADNOC Garage and the al-ʿAyn–Dubai Road, and graves found during the Abu Dhabi TCA excavations at the Jīmī School site beyond the boundaries of the adjacent cemetery. A discrete burial area, BOLAP14-81, was picked up by the magnetometer in the northern al-Bustān Field System, and disarticulated human remains were subsequently noticed on the surface near the test pit targeting BOLAP14-33. Moreover, the area between cemetery BOLAP14-27 and BOLAP14-81 is conspicuously devoid of visible surface features, possibly suggesting that earlier activity has been obscured by an overlying cemetery. These series of marked and unmarked burial grounds should be understood as belonging to the single larger historic entity, here dubbed the ‘Northern Cemetery,’ in which the unmarked graves are vulnerable to continued modern development. A hypothetical date may be put forward on the basis of the prominent ruins of a large tower house, BOLAP14-26, visible within the cemetery enclosure wall BOLAP14-27. Given that this house type appears to have been most common in the late Islamic 1 (c. 1650–1800), it follows that the ‘Northern Cemetery’ formed in the late Islamic 2 (c. 1800–1950), once the extensive field system and low-density settlement had been abandoned.

The ‘Southern Cemetery’ consists of two modern enclosure walls BOLAP14-63, c. 200 x 270 m, and BOLAP14-63, c. 160 x 80 m, separated by the modern Buraimi ring road. An unmarked open area immediately beyond the UAE border fence possibly also belongs to this group. Together they very likely comprise a single historic cemetery c. 730 x 320 m in an area that has been cut by the road in recent times. The southern extent of the cemetery is defined by the course of Wādī Ḥamāsah, while the northern boundary corresponds with the southernmost axial east–west wall of the al-Bustān Field System, BOLAP14-62, implying that at least the southern extent of the field system post-dates the cemetery. The north–west–south–east branch of the Jīmī Falaj runs beneath the cemetery, however, and since its *thuqab* are not visible, logically pre-dates the cemetery. One might conclude that the north–west–south–east branch of the Jīmī Falaj is the oldest feature in the landscape, followed by the northern extent of the al-Bustān Field System which formed along it. This branch then seems to have gone out of use and the ‘Southern Cemetery’ was allowed to form over it. Finally, the east–west branch of the Jīmī Falaj was dug and the al-Bustān Field System extended to the limits of the ‘Southern Cemetery.’ Other

interpretations are no doubt possible and this represents a preliminary hypothesis based on observation of surface features to be tested further by targeted archaeological interventions in the next phase of research.

Future work

The first season’s work has demonstrated something of the archaeological potential of Buraimi. At the time of writing, a comprehensive site management plan is being put forward and we are working closely with colleagues at the Ministry of Culture and Heritage to ensure that the archaeology is protected from encroaching development. Funds for the excavation of BOLAP14-66 have been generously allocated by the Ministry and we intend to present the results at next year’s Seminar for Arabian Studies. The next phase of work will target the built environment of Ḥamāsah village, and we plan to undertake a LiDAR survey to document the historic buildings and inform conservation work. Ultimately, it is our aim to explore the possibility of extending the UNESCO World Heritage status from al-ʿAyn to Buraimi, and in so doing restore the unitary history and shared heritage of the Buraimi Oasis.

Acknowledgements

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