

# BALU' REGIONAL ARCHAEOLOGICAL PROJECT: THE 2010, 2012, AND 2017 SEASONS AT KHIRBAT AL BĀLŪ'

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## Introduction

The Balu' Regional Archaeological Project (BRAP) officially began in 2017 with excavations at KHirbat Al Bālū' under the current directors, Drs. Kent Bramlett, Monique Roddy, and Friedbert Ninow. GPS survey and test excavations in 2010 and 2012 established the extent and excellent preservation of the remains at the site and paved the way for the renewed excavations at Al Bālū' in 2017.

KHirbat Al Bālū' is located next to the Wādī Al Bālū', which is a tertiary tributary to the Wādī Al Mūjib (Fig. 1). In this location, Al Bālū' was able to control the major north-south road in pre-Classical periods and guard access from the north to the Al Karak Plateau. A Middle-Late Islamic settlement with a possible caravanserai attests to the continued importance of this site's location on transport routes over the millennia. Previous work at Al Bālū' includes Friedbert Ninow's 2008 excavations of a Nabatean structure (Ninow 2008) and Udo Worschech's 1980s soundings of primarily Iron II remains (Worschech and Ninow 1992; Worschech 1989; Worschech *et al.* 1986).

The GPS surveys in 2010 and 2012 traced all visible architecture, water features, and looting damage to the site. Four probes were opened in 2012 to test the GPS results and correlate with previous excavations. The 2017 season expanded on one of these probes, in an Iron II domestic structure, and opened two new probes in alignment with specific goals regarding the dating and phasing of the monumental *qasr* structure and the fortification system. The surveys and excavations revealed the outlines

of a fortification system enclosing upper and lower settlements, housing areas, and potential streets from the Iron II period. The numerous standing doorway lintels and deep preservation of the core of the settlement, especially the domestic structures of the upper settlement, suggest a well-preserved example of a major Iron II city. Distinct areas of occupation from the Roman and Middle-Late Islamic periods were also indicated by separate structure clusters and concentrations of sherds dating to these periods. The vast size of the site, nearly 25ha, promises potential for many seasons to come and with preservation and development could make Al Bālū' a distinctive educational opportunity in Jordan.

## Research Plan

This report includes results from the 2010, 2012, and 2017 seasons at KHirbat Al Bālū'. The 2017 season marked the start of a full-fledged, five-season research plan for the BRAP, from 2017 to 2025, excavating on alternate years. The research design of the BRAP includes the following goals:

- 1) Build a ceramic typology of the Al Bālū' region. While this includes all periods of occupation, the specific focus at the start of this project is to develop the Iron Age ceramic sequence for Moab from a major stratified site. The possible Bronze and Iron Age phases of the *qasr*, the three distinct phases of the Iron II domestic structure, and the casemate rooms of the Iron II fortification system provide stratified Iron Age ceramics alongside short-lived radiocarbon samples.



1. Aerial view of KHirbat Al Bālū'. (Credit: APAAME).

- 2) Understand the political and economic history of a large site on a major route. The prominent location of Al Bālū' is the likely cause of its large size and success in multiple periods. Collecting and analyzing the historical, social, and economic evidence of this site will contribute to our understanding of one of the largest sites in Central Jordan and its role in regional politics and trade over time.
- 3) Establish the sequence and expanse of settlements at Al Bālū'. Soundings have confirmed periods of occupation that include the Iron I and Iron II, Hellenistic, Early Roman, Nabataean, and Middle-Late Islamic periods. Survey pottery from the *wadi* below the site has also included pottery from other, earlier periods, not yet identified in stratified excavation. Continued sampling and exposure of multiple, stratified areas will confirm the extent and duration of the various settlements at Al Bālū'. A probe excavated in 2012, for example, revealed the first known Hellenistic remains on site.
- 4) Survey and excavate test squares at regional survey sites from multiple periods. As the full name of the The Balu' Regional Archaeological Project indicates, this project is determined to include the larger region around Al Bālū' as part of its investigations. This will build a larger social and environmental picture of this region's use and development. This will include regional surveys for ceramic density as an indicator of occupational intensity.

Careful excavation, historical research, and environmental investigation over the course of the five planned seasons will bring this ancient settlement to life by situating it firmly in its larger regional context in all major periods of occupation. This will build a picture of long-term subsistence and social and economic patterns on the northern Al Karak Plateau.

#### Season and Team Information

The 2010 season ran from 15 August to 7 September. The team consisted of 10 volunteers from Germany and the United States. The Department of Antiquities representative was Jihad Darweesh. Dr. Friedbert Ninow (Theologische Hochschule Friedensau) directed the project with Friedensau's sponsorship. Matthew Vincent supervised the mapping.

The 2012 season ran from 12 August to 13 September. The team consisted of 11 volunteers from Germany, the United States, Jordan, Bosnia and Herzegovina, Spain, and France. The Department of Antiquities representative was Jamilah Shtawey. Dr. Friedbert Ninow (Theologische Hochschule Friedensau) directed the project with Friedensau's sponsorship. Matthew Vincent supervised the mapping and Monique Roddy supervised the excavations.

The 2017 season ran from 6 to 25 August. The team consisted of 19 participants from the United States and Germany and 6 workers hired locally from the Azazmeh tribe, As Samākiyyah, and 'Ammān. The Department of Antiquities representative was Arwa Massadeh. Dr. Kent Bramlett (La Sierra University), Dr. Monique



2. GPS survey outline overlaid on satellite map.

Roddy (La Sierra University/Walla Walla University) and Dr. Friedbert Ninow (La Sierra University) directed the project. La Sierra University and Theologische Hochschule Friedensau sponsored the project. Ian Jones managed the geospatial system.

### 2010 and 2012 Survey Results

The 2010 and 2012 seasons at KHirbat Al Bālū' focused on building a geographical information system to help record details of the site and understand the layout of the visible ruins. Using a differential GPS system (Promark 3 RTK) with an accuracy of 2cm, the team established new benchmarks and control points for current and future use and mapped the exposed architecture.

The first priority in 2010 was to establish a benchmark and four control points. Using a post-processed, static survey, the benchmark and control points were created and then used during the rest of the season to tie the survey work into the UTM 36N projection. We used elevation data from Palestinian Grid topographic survey maps in order to keep elevation readings from previous seasons of work consistent with the work of this and future seasons. All data were collected in a geodatabase using ArcMap 10.0.

The team then mapped as much of the exposed architecture as possible, which was accomplished by recording most of the large buildings and perimeter walls in 2010 and then filling in the gaps in 2012. Udo Worschech produced a map of the site that showed the

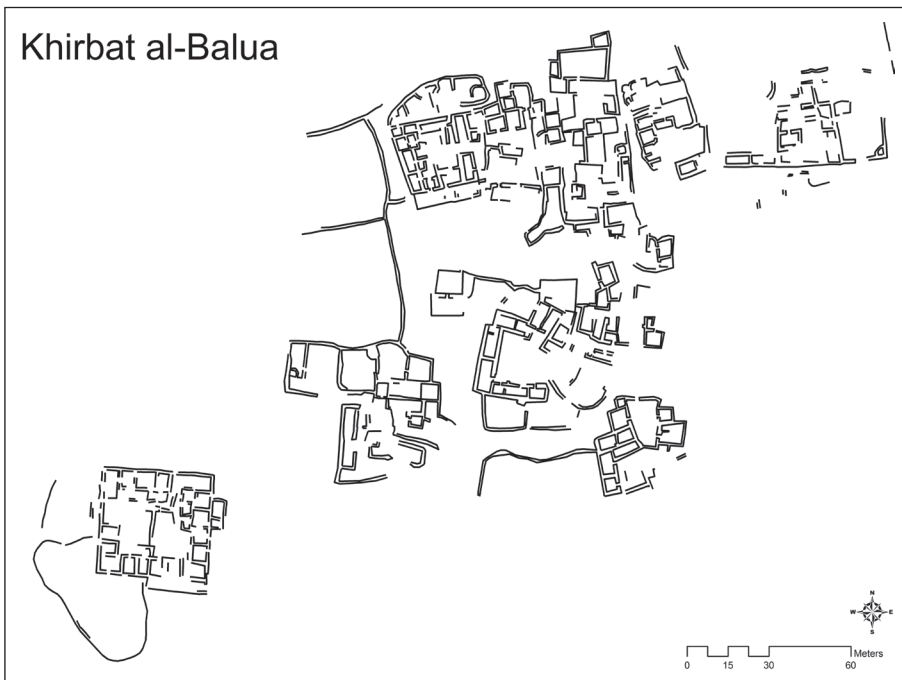
perimeter of the site especially in regard to the western and northern edge towards Wādī Al Bālū' (Worschech 1989: 112; 1990: 90). Only a few architectural features and remains were shown on the map, however, and the digital data of this map have since been lost. The 2010 initiative produced the outlines of a new map of the site that is more comprehensive in regard to the overall site and its various architectural features. The purpose was to show what is on the surface today and not to interpret construction or phasing. Once excavations are conducted in various areas, the recorded architecture can be dated, phased, and organized where it is related to stratigraphically secure architecture.

The 2012 season continued the mapping that had started in 2010, focusing on the architectural features within the perimeter wall of the main site, *i.e.*, the Iron Age settlement. In addition, four probes were opened to test the GPS survey results, correlate results with previous excavations, and to evaluate possible future areas for excavation. Two probes were opened at the eastern end of the site (lower settlement) and two others northeast of the central *qasr* (upper settlement, see image ref).

The new map that emerged from this work displays the potential of the site as well as the extent of KHirbat Al Bālū' (**Fig. 2**) The architectural map reveals a densely populated and densely built site. In the Iron Age, the period of the largest extent of the remains, it is clear that this site was not a small village (**Fig. 3**). It seems to have been a major center on the Al Karak Plateau. While the western part



3. GPS survey outline overlaid on satellite map with periods highlighted.



4. GPS survey outline of Islamic remains.

of the Iron Age occupation seems to include various smaller and larger living quarters, the eastern part seems to be more spacious and not so densely populated. Possible street lines could be seen in parts of the settlement. A heavy casemate wall, confirmed by earlier excavations as well as this season's mapping efforts, surrounded the Iron Age settlement. A second casemate wall separated the western/upper and eastern/lower parts of the site. The significance of this separation will await future excavations, but likely marks a new extension of the site in the latter part of the Iron Age.

The Middle-Late Islamic settlement is in

the southwestern part of the site (**Fig. 4**). The settlers of this part of the site did not build on top of the former occupation but used new building space to the SW of the Iron Age ruins. It appears that a small settlement first started near the Iron Age demarcation and then extended further to the south with three main buildings. The various buildings, their size and architecture, points to the importance that this site gained during the Islamic era.

Analysis of satellite images also revealed structures at the western edge of the site which had not been recognized previously. A surface survey of this area revealed quite a number of

Roman pottery sherds. A few walls could be traced. The concentration of Roman sherds was located on the northeastern part of this section. If these new features are indeed part of the site, the overall site would cover an area of almost 20 hectares, instead of the currently estimated 16 ha.

The 2010 and 2012 surveys noted two additional features at Al Bālū‘ and in its immediate environment. In 2010 water features were recorded with a handheld device with ArcMap on it to record the location of the water features around the site. Water features included an estimated 55 cisterns. In 2012, evidence of looting was recorded, with a substantial increase between 2010 and 2012 in illegal excavation. The Nabatean cult place, excavated by Ninow in 2008, had been completely destroyed. Shallow metal-detection pits were found all over the site.

#### Data from the 2010 and 2012 Season Mapping Project:

Area covered by the entire site: *ca.* 16ha

Area covered by mainly Iron Age remains: *ca.* 11ha

Area covered by mainly Islamic remains: *ca.* 5ha

East-West extent: 1025m

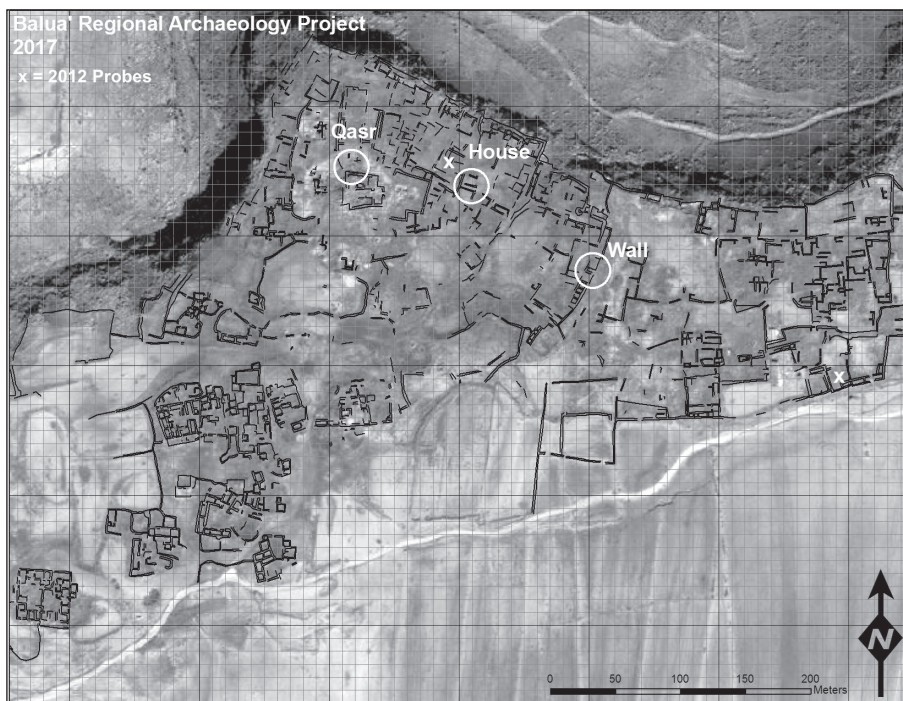
North-South extent: 400m

#### 2012 Excavation Results

In 2012, as stated above, four probes were opened to test the GPS survey results, correlate results with previous excavations, and to evaluate possible future areas for excavation. A grid was generated to cover the extent of visible ruins at the site starting from the northwestern corner with 100m<sup>2</sup> areas subdivided into 10m<sup>2</sup> areas (Fig. 5). Two probes were opened at the eastern end of the site (lower settlement) and two others northeast of the central *qasr* (upper settlement, see image ref). Unfortunately, some of the excavated areas were vandalized overnight during the season, preventing further excavation. These incidents were traced by the local police department to tribal rivalries over the position of official guard of the site.

In the lower settlement, in the southeastern area of the architectural remains, two 2m by 2m probes were opened for excavation in adjacent buildings (Fig. 5). Both were finished after nine days of excavation. Each building consists of a rectangular N-S structure with a smaller southern room formed by a casemate wall and a larger, open northern room inside the settlement. While excavation of the small probes did not confirm a connection between the southern and northern rooms, it was assumed that they did so to form a single large building.

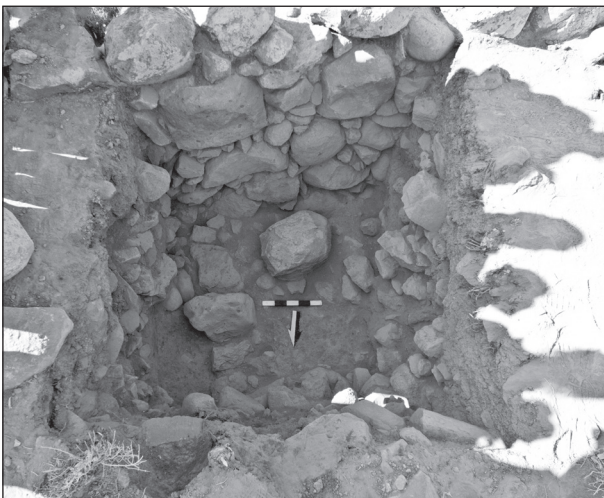
The first probe (Square 59.20) was placed in



5. GPS survey, excavation grid, and 2012 and 2017 excavations over satellite map.

the larger, northern room of one building, while the second probe (Square 60.11) was placed in a southern casemate room (Fig. 6). The goal was to determine the date and occupational phases of the layers associated with the casemate wall system. The results of the excavations showed a single period of occupation, with no sub-phases detected. Both probes located a hard, gravelly, semi-solid layer of basalt bedrock with limestone veins at 834.39 and 834.93m asl. The ancient occupants had laid beaten earth surfaces directly on the bedrock. The surfaces in both rooms were bare of cultural material, with the exception of a single flat-lying pottery sherd and possible jar stopper/spindle whorl blank embedded in the surface of the casemate room. Post-occupation, the upper structures of the walls collapsed into the rooms with windblown earth, sealed in later by earth layers hardened by seasonal rains. The post-occupational debris measured approximately 1m in depth. Domestic items (grinding stone and figurine fragments) were found in these debris layers. In both probes the distinction between the collapse levels and the post-occupational weathering levels was clear on the face of the wall stones, which were clean and unweathered in the collapse layers and heavily weathered above this level.

Two 2m by 3m probes were placed in the upper settlement, north of the *qasr*, with the goal of detecting the earliest periods of occupation at the site. Each was placed against standing walls, guided by the GPS survey results (see Fig. 5).



6. Lower settlement excavations in Square 60.11; the exterior fortification wall is to the south with a small, single row, single course dividing wall and earth surface at its base.

Square 24.50 was placed northeast of the *qasr* in an area where it was hoped there would be considerable stratigraphic depth preserved. Initial excavation included probable Hellenistic occupational phases associated with large walls, carefully prepared beaten earth and plaster surfaces, and domestic artifacts including an in-situ basalt mortar (Fig. 7). Unfortunately, the square was then vandalized, stones tipped over, and excavation halted for the season. The Hellenistic occupational phases in this square were the first noted at Al Bālū‘.

Square 25.62 was placed against a wall in what appeared, from the visible wall lines, to be a room in a large building. Excavation revealed a well-preserved Iron Age structure with walls standing to over 2m in height, preserved under at least a meter of destruction debris from a major fire, with tumbled stones, burnt mudbrick, and ashy earth. The part of the room in the probe turned out to be an entryway with a threshold and earthen and cobble stone floors, part of a



7. Upper settlement excavations in Square 24.50; earliest Hellenistic walls and surface reached before vandalism.

building with at least two phases of use dating to the Iron II period (**Fig. 8**). Material remains included domestic artifacts such as ground stones, pottery, figurine fragments, jewelry, and a spindle whorl. As this building will be further described below in the 2017 excavation results, we will not describe it further here.

The 2012 excavations, while preliminary, did contribute significantly to our understanding of occupation at Al Bālū‘. In particular, the deep destruction layer discovered in the upper settlement probe was not detected in the lower settlement probes. This highlights the rapid expansion, short occupation, and then peaceful abandonment of the lower settlement when compared to the fiery destruction of the upper settlement after at least two major phases of use. Future excavation will clarify the occupational history of the Iron II period at Al Bālū‘.

### 2017 Excavation Results

We returned to Al Bālū‘ for renewed excavations in 2017. Work focused on three areas, including the *qasr*, the Iron II domestic structure from 2012, and the fortification line dividing the upper and lower settlements in the Iron II period (see **Fig. 5**).

#### *The Qasr*

One goal of the 2017 season at Al Bālū‘ was to narrow the date of the large standing structure called the *Qasr Al Bālū‘*. Excavation against the northwestern external face of the structure would examine its founding level and the *strata* that related to its construction, use, and abandonment. Because of the collapse of the *qasr*’s upper structure it had previously not been feasible to excavate near the base. An estimated upper two meters of wall stones, many weighing an estimated several thousand pounds, had collapsed on a layer of sloped debris encircling the *qasr*. A front-end loader was arranged through the assistance and cooperation of the DoA representative, regional offices, and the *Qasr* municipal district. We mapped and numbered about 60 of the large blocks in the area we wished to work. Photogrammetry was conducted on the area in case of future reconstruction efforts, then the loader pulled back the fallen blocks from a 4m width along a western portion of the northern *qasr* wall.

A 3×3m probe in Square 24.42 was opened against the *qasr*’s north wall (**Fig. 9**). Sloped debris layers were excavated that contained mostly Iron II pottery, perhaps representing late collapse of original mud-brick superstructure. A cobble and packed-earth surface was reached at about level with the surrounding area (**Fig. 10**). A few Nabataean pottery sherds indicated an early first-century AD Nabataean reuse of the structure and surrounding area, including one inscribed with a possible measurement.



8. The Iron II domestic building with Phase II features and surface at the end of 2012.



9. *Qasr Al Bālū‘*.



10. The Nabataean cobble surface sealing against the *Qasr*.

Excavation below this level revealed two east-west walls and several layers of earth debris covering and running up to the *qasr* wall (Fig. 11). Diagnostic pottery indicated an Iron IIB date. Much bioturbation and disturbance was encountered along the *qasr* wall including a fox burrow, which made it difficult to ascertain the stratigraphic relationship of the Iron II layers with the *qasr* wall. Further excavation finally reached below the bioturbation and established that the earth layers sealed against the *qasr* wall and had not been cut by a foundation trench. Time limitations did not allow us to excavate to the bottom of the *qasr* wall, but the lowest layer excavated appeared to consist of destruction debris interspersed with charred wood and animal bone fragments (Fig. 12). This layer contained a quantity of pottery which dated earlier than any of the other layers encountered in the 2017 season. Late Bronze Age pottery dominated with some Iron I forms present. A careful study will be made to refine the ceramic readings from this layer. Tentatively, it appears this debris layer, if not of secondary deposition, could provide a *terminus ante quem* for the construction of the *qasr*, which would be early in the Iron Age sequence.

#### *The Iron II Domestic Structure*

Square 25.62 was reopened and expanded to further expose the domestic structure excavated in 2012. A major objective was to establish a date for the destruction of the building and to understand the phases of use represented by several surface layers encountered in 2012.

#### Phase I

The first phase of the structure was founded on bedrock (a basalt and limestone mix, as found in 2012 in the lower settlement probes). Two enormous boulders (over 1m high) were either placed in this area at this time or were already present and utilized as part of an east-west wall. A stone wall abutted these boulders from the north. Preparatory earth layers smoothed the surface of the bedrock and a cobblestone surface was laid against these two walls to the northeast (Fig. 13). The surface contained significant buildup, with a thick, hard-packed organic layer (which in 2012 contained a quantity of artifacts and pottery). While minimally exposed in 2017, Phase I represents a distinct period of use early

in the Iron II period, as dated by the ceramics. The two Phase I walls were reused/rebuilt in the succeeding phase, though the plan appears to have changed significantly with the addition of more walls to the north and east. There was no clear destruction or abandonment level between the two phases.

#### Phase II

New walls were added to the east and north and the two existing walls rebuilt to



11. The *Qasr* and the Iron Age walls.



12. Iron Age earth layers sealing against the *Qasr*.



create an area with two rooms. The walls and surfaces of this phase were constructed on top of a thick plaster surface sealing in the Phase I remains (with the exception of the southern wall, which was built directly on top of the large basalt boulders) (Fig. 14). A foundation trench cut along the central wall indicates the Phase II occupants took some care in reutilizing the earlier architecture. The two rooms were partially exposed with additional rooms indicated by an unexcavated doorway to the southwest and a passage to the east. The preservation of these walls is remarkable, with the walls still standing nearly 3m high and a basalt door lintel still *in situ* over the southwestern doorway.

A series of surfaces in both rooms attest to several sub-phases of use over the course of the structure's occupation.

The latest use-surface included a number of domestic installations and artifacts, including two stone-lined bins or supports for pithoi in the western room and a flat basalt quern with later rebuild and reuse as a bin in the eastern room (Fig. 15). The western room contained several pithoi crushed by the collapse of the dividing wall between these two rooms (Fig. 16).

The destruction that brought this structure to an end was likely caused by an earthquake and consequent conflagration. The central wall, oriented roughly north-south, had collapsed, producing a pile of wall stones and rubble mostly on the west side. But the courses near the base were shifted eastward. This is strong evidence of an earthquake emanating from the direction of the Great Rift Valley just to the west with the shockwave traveling eastward and shifting the

base of the wall off its foundations to the east. However, the stationary inertial momentum of the upper wall would cause it to lag behind the motion of the lower portion and it collapsed backwards on the west side crushing at least five pithoi. Mudbrick debris, at least 1m deep and fiery red with destruction, sealed in the last phase of use (Fig. 17). Another half meter of windswept debris covered this destruction



14. The Iron II domestic structure with Phase II on left, Phase I on right image.



15. The Iron II domestic structure's Phase II bins, surface, and pithoi in western room.



13. The Iron II domestic structure Phase I with cobble stone surface.

layer. The ceramic forms from the final phase of the house date to the Late Iron II or even into the Persian period while retaining mostly Late Iron II characteristics. The ceramics, as well as the artifacts, from this structure are likely to contribute greatly to a better understanding of the Iron II occupation at Al Bālū‘.

*The Wall*

An area of excavation, part of Square 41.31, was chosen to overlie what appeared from the surface and GIS mapping to constitute a defensive wall that separated the upper settlement from the lower, eastern expansion. This wall probably served as the external wall prior to the late Iron Age expansion and thus might provide us with information that could establish a chronology of the upper settlement and a date for the lower extension. Excavation revealed three phases of fortification, all dating to the Iron Age II.

Phase I

A probe on the eastern external side of the wall extended more than 3m down to the wall’s founding level on bedrock. The resulting view of the wall face indicated three phases of construction (**Fig. 18**). The latter two phases correspond to what we call here Phases II and III, while an earlier Phase I appeared on the exterior that has not been reached yet on the interior. The pottery from this lowest phase probably indicates a date early in the Iron II.

Phase II

Excavation of the 7m wide wall soon revealed that there are actually two large walls running parallel to each other, with a room in between. While the Phase III tower obstructs a

clear view of this room at this time, the layout strongly suggests a casemate construction

(**Fig. 19**). The portion of the casemate room excavated produced 45 clay loom weights of varying sizes. The unfired loom weights were very crumbly but were photographed *in situ* and extracted as intact as possible for restoration (**Fig. 20**). A number of ground stone fragments also were excavated in these fill layers suggesting domestic or economic activity



17. The Iron II domestic structure’s Phase II destruction debris in eastern doorway.



18. The Iron II domestic structure’s Eastern Wall with all three phases.



16. The Iron II domestic structure’s Phase II pithoi in balk with collapse stones above.



19. The Iron II fortification’s casemate room.

in this room. A short wall extending east-west between the casemate walls, but with a door or passageway allowing movement into the next presumed room, suggested an interlinking of casemate rooms.

### Phase III

The latest phase appeared to entail the construction of towers along the destroyed or abandoned line of the earlier fortification wall. Spaces between these towers could allow passage through and access between the settlement areas (Fig. 21).

### **Conclusions**

The Iron II remains at Al Bālū' cover roughly 11 ha, based on the visible architecture mapped by the GPS surveys in 2010 and 2012. Excavations in 2012 and 2017 confirmed that the predominant remains date to the Iron II period, with at least two main phases of occupation. GPS survey also mapped a Middle-Late Islamic village to the southwest



20. The Iron II fortification's loom weights in the casemate room.



21. The Iron II fortifications viewed from the east: towers on either end, casemate room in center, and outer wall at end of 2017.

and possible Roman remains to the west, for a total site size of 25 ha. Further excavation of the Iron Age and Islamic settlements is planned for the 2019 season. Continued excavation under the five-year research plan will contribute to the The Balu' Regional Archaeological Project's major goals of building a better picture of the ceramic typology of the Al Bālū' region, especially in the Iron Age, as well as a better picture of the social and economic activities throughout the millennia at this important site.

### **Acknowledgements**

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The Balu' Regional Archaeological Project.  
KHirbat Al Bālū' 2010, 2012, and 2017 Seasons.

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Site: KHirbat Al Bālū' (Fig. 1).

Coordinates: 31°21'36.6"N / 35°46'58.9"E.

Location: Central Al Karak Plateau.

Project Name: The Balu' Regional Archaeological Project.

Dates of Fieldwork Seasons:

15 August to 7 September, 2010;

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Sponsors: La Sierra University and Theologische Hochschule Friedensau.

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### **Bibliography**

Ninow, F.  
2008 “Khirbat al Balu’ Excavation Project 2008.”  
*Munjazat* 9: 86-87.  
Worschech, U.  
1989 “Preliminary Report on the Second Campaign at

the Ancient Site of el-Balu’ in 1987”. *ADAJ* 33:  
111-121.

Worschech, U. and F. Ninow.  
1992 “Preliminary Report on the Third Campaign at  
the Ancient Site of el-Balu’ in 1991. *ADAJ* 36:  
167-174.

Worschech, U.; Rosenthal, U. and Zayadine, F.  
1986 “The Fourth Survey Season in the North-West  
Ard el-Kerak, and Soundings at Balu’ 1986”.  
*ADAJ* 30: 285-310.