

Report of the Project "Wadi Abu Dom Itinerary"

Sixth Season, 13.1.-17.3.2015

(funded by the German Research Foundation, Germany, and
the Qatar Sudan Archaeological Project)

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2. Proposed work

In 2014, we started to document only the archaeological record with some functional and/or chronological relevance. After the good results of this more reflected survey we planned to proceed with that method within the middle Wadi Abu Dom this year. Additionally, we planned to implement the reconnaissance of the middle Wadi with a low altitude unmanned aerial vehicle to get high density aerial photos.

Besides the survey, we planned to start with the excavation of some cemeteries, starting with site 5037. We hoped to get some results which would answer questions of continuity or discontinuity of settlement and subsistence within the Wadi between the Post-Meroitic period and the Medieval period.

3. Realized work

In general, the work of this field season was functionally carried out according to the proposal, but shifted topographically due to a dam constructed near Bir Merwa, blocking the Wadi's main course at N 18° 6' 22.7" E 32° 27' 11.4". Since the dam construction and the regional rural development might cause some impact on the local cultural heritage, we decided to set focus of this season's field activities on the affected area. In addition to the scientific achievements, the survey shall give us and NCAM the opportunity to evaluate the impact of the development schemes on the cultural heritage. Additionally, we found some graveyards in the direct vicinity of the reservoir and an unfinished irrigation channel beside the dam. Since these cemeteries also seemed to be of Post-Meroitic to Medieval date and thus also meeting the requirements of our scientific questions, we decided to postpone the excavation of site 5037 until one of the campaigns to follow, and to dig the endangered graveyards instead (combining the requirements of our research aim and rescue archaeology).

3.1. Survey (fig. 1)

The survey took place in the middle and upper Wadi Abu Dom, starting from N 18°08'06" E 32°23'19" and reaching N 18°04'19" E 32°43'14". It was prepared by intensive study of satellite images, and the inclusion of the visible data into our database. Therefore, we could head directly for several sites to evaluate these data. This year our intensive survey covered 38 km of the Wadi Abu Dom. We investigated the region depending on the topography up to 4 km into the hinterland at both banks.

During this campaign, a total of 1496 sites were documented, containing 2696 features altogether. Complete lists of the features recorded and the finds collected are attached on CD or Flash.

Additionally, a remote sensing campaign was carried out. Remote sensing methods included the analysis of satellite and historical aerial photography within the Sudan Survey Department (data acquired during the previous field campaign), but mainly a dense low-altitude aerial surveillance campaign done by unmanned aerial vehicles (UAV). This was done in cooperation with the Free

University Berlin and the company Thamm Geotechnics. After some technical obstacles were solved, an area of roughly 168 km² was covered by aerial photography. After having analyzed this data during the forthcoming period of post-excavation activity, the results shall be ground-checked during next season's field campaign.

General results

Having already noted a significant reduction of sites behind the bent of the Wadi Abu Dom at Umm Beida in 2014, this observation was acknowledged during this season's survey within the area west of the ridge dividing the Bir Merwa area from the middle Wadi Abu Dom. East of that ridge, the density of sites increases again. This corresponds to the fact that the area of Bir Merwa is densely populated and a regional center of the pastoralist and sedentarian population dwelling around until today. Also today's natural vegetation around the Bir Merwa, between the ridge (where now the dam is built) and el-Tuweina, shows an ecologically favored zone. According to the density of archaeological sites, this seems also to apply to earlier periods.

The area with densities of archaeological sites concentrates generally onto the northern bank of the wadi, with one exception: The Khor of el-Tuweina (where in 2012 the ruin of the same name was discovered). There the peak of density of archaeological sites within this season's working area is reached – disregarding the fact that in general the northern bank of the wadi is archaeologically richer. East of el-Tuweina, archaeological records decline again, but there are still single, although dense clusters of archaeological records with large cemeteries (i.e. the Kerma-style cemeteries site no. 10601 and 8786, and the vast Medieval box grave cemetery of 10607).

Most interestingly, this ecologically favored zone and obvious population center (today as in antiquity) groups around the abovementioned ruin – the only larger, prominent architectural feature outside the well-irrigated oasis of the lower Wadi Abu Dom. Nevertheless, only one old well comparable to the ones described within the lower Wadi Abu Dom was discovered in this area, and the general character of the region's archaeological heritage indicates that its cultural context still differs from the lower wadi. Numerous so-called gravel platforms which are absent in the lower Wadi Abu Dom are exemplary.

Cemeteries

Concerning especially the distribution of funeral structures, this season's working area shows much more similarities with the lower than with the middle Wadi Abu Dom. The size of the so-called Post-Meroitic cemeteries (as well as the dimensions of the single graves) declines; nevertheless, they still are a quite prominent archaeological feature. The largest graves of that type discovered this season are 8 m in diameter and 1,2 m high (i.e. at site 5503 – see fig. 2), but there are very few examples of that size found in this season's working area. Quite flat tumuli of smaller size dominate.

The number of Kerma-style graves and Medieval box graves rises again (compared to the data of the previous season), almost reaching the level observed within the lower Wadi Abu Dom. But in the upper Wadi Abu Dom we documented quite large Kerma-Ancien cemeteries for the first time. They are small flat round structures laid with black stones at the slope of hills. As already documented in the previous years, the vast majority of typical Kerma-type graves are situated on top or immediately around ridges. Most of them consist of a tumulus-shaped superstructure, but also some dome graves were found. Interestingly, larger cemeteries only consist of the tumulus-shaped variant, while most of the dome graves are located solitarily in the landscape. Only very few cleft burials were discovered this season (while they occurred relatively often in the middle Wadi Abu Dom).

The Post-Meroitic tumuli and the Medieval box graves are situated on terraces beside (or, in some cases, even within) khor beds. There are several places where Kerma-type, Post-Meroitic and Medieval graves are found in direct vicinity to each other, the latter two (as also seen in the lower and middle Wadi Abu Dom) agglomerated on the same cemetery. A good example is the Post-Meroitic/Medieval site 5500 (fig. 3), which is roughly 250 m apart from the Kerma-type cemeteries 5501, 5622, 5623 and 5625.

Settlement structures

The majority of settlement structures discovered this season are round huts, sometimes agglomerated in clusters of 2-8 stonerings, and mostly 2-3 m in diameter. Most of them are preserved quite badly. Very few can be dated by associated finds, and all of them date to the Post-Meroitic (i.e. site 6153) or Medieval period (i.e. site 6712).

Still in the part of the wadi we call the middle Wadi Abu Dom, but closely to the ridge marking the beginning of the ecologically favored zone of el-Tuweina, we discovered a larger habitation site feature (feature 5518-1 – see fig. 4). Not as large as the big complexes of Umm Ruweim or el-Tuweina, but much more elaborated than the common round-hut structures, it shows at least seven rooms, and a dry stone masonry technology which closely connects it to the above mentioned larger ruins. Unfortunately, until now no pottery or other datable material was discovered here. Some architectural documentation and sondages are planned for the future. Some associated finds and the masonry technology could indicate a Post- (or even Late-) Meroitic date for this structure. Comparable to the larger buildings situated in the lower Wadi Abu Dom, two Medieval box graves are situated close to the structure, probably erected from debris of the wall of the already abandoned dwelling site.

Other sites

Throughout the area surveyed this year we also recognized several “gravel beds” (Fig. 5) like in middle Wadi Abu Dom. Some of them are associated with stonerings. In many cases there were more than one of these gravel beds, sometimes situated at 90° to each other. In some cases, these gravel beds are associated with Post-Meroitic or Medieval pottery. We excavated 3 of them this

season (sites 5348, 5350 and 8254). The excavations showed almost no finds within the filling of the beds, nor any post-holes or comparable structures around them. Nevertheless, parallels from the region of Gedaref (for this information we thank our deputy inspector Loai Shams) indicate that they were used as bed-like installations, in regions where there is a shortage of wood for angarebs. These gravel beds surrounded with stones should keep of dangerous animals like snakes or scorpions.

Some surface find concentrations of lithic material were recorded during this season. Site 9037 might be of some interest: In this region, some rough lithic tools and flakes made of basalt were found, which are usually associated with the Paleolithic era. Nevertheless, the tools were clearly associated with a significant concentration of Neolithic ceramics. Therefore it can be assumed that, at least in some cases, traces of Paleolithic technology survived until the Neolithic period. Although found in a secondary position in a small water channel, the discovery of a typical Palaeolithic stone ax proofed the presence of humans already during that remote time.

An interesting detail concerns the discovery of some panels of rock art. After having noticed a significant decline in rock art stations within the past campaigns (with almost no rock art discovered throughout the middle Wadi Abu Dom at all), the density of rock art increase again in this year's working area. It does not reach the richness of the lower Wadi Abu Dom, but the rise of the density of this find category is still significant.

3. 2. Excavations at the cemeteries 5362, 5363, 5364 and 5500

Archaeological work

For this season, it was planned to excavate a first cemetery to explore the transitional phase between the Post-Meroitic and the Medieval period in the Bayuda. For that reason, the cemetery 5037 was chosen, where different types of tumuli and box graves occur.

Due to the above mentioned dam construction, this season's plans were shifted to the area affected by the building activities and the reservoir. Among the cemeteries most endangered by the dam are the sites 5364 and 5500, where tumuli and box graves are found together in a similar way as in 5037. We have chosen these cemeteries for our archaeological excavations, to combine the means of rescue archaeology with our main scientific goals. Additionally, we decided to dig three small stone features (5362) and a small Kerma-style cemetery 5363. This graveyard is closely connected to site 5364 and highly affected by the dam (cf. table). Besides rescuing the archaeological record, we hoped to find bone material that would allow us to compare it anthropologically with the Post-Meroitic and Medieval material from nearby.

Next to the traditional archaeological documentation methods of drawing and photography, we tried to create a 3D-model from each superstructure. This was also useful to reconstruct the graves (fig. 6) after the excavations.

Site Feature number	Type of grave	Skeleton number
5364 6	Tumulus with medieval burial(?)	1
5364 7	box grave	3
5364 8	box grave	4
5364 9	Tumulus with medieval burial(?)	5
5364 10	unmarked medieval grave	6
5364 11	Not a grave - architectural structures	---
5364 12	unmarked medieval grave	7
5364 13	box grave	8
5364 14	Grave with no traces of a burial	----
5364 15	Not a grave - architectural structures	----
5364 16	Late-meroitic tumulus	----
5364 17	Late-meroitic tumulus	9
5363 1	Kermatumulus	----
5363 2	Kermatumulus	----
5363 3	Kermatumulus	2
5362_1	Late-meroitic tumulus	only sheep or goat bones
5362 2	Not a grave	----
5362 3	Late-meroitic tumulus	---
5500 1	Late-meroitic tumulus	12
5500 2	box grave	10
5500 3	box grave	11
5500 4	box grave	13
5500 5	box grave	14
5500 6	Late to post meroitic tumulus	15

Table of excavated graves

Cemetery 5364

In cemetery 5364, some of the tumuli seemed undisturbed at first (fig. 7) but were situated near a larger recently looted tumulus, together with some indifferent grave superstructures. After some cleaning, these structures turned out to be box graves (fig. 8). Eight graves at cemetery 5364 were opened: four tumuli, three box graves and two unmarked graves which were found after surface clearing.

Surprisingly, two tumuli (features 6 and 9), showed a burial situation similar to Medieval graves below the superstructure: below a stone blockage, the deceased was positioned in a dorsal position, oriented E-W (with the head in the W) without any grave goods, and (at least) at tumulus 6 traces of a shroud.

The two other tumuli turned out to be of different character. The substructure with a small side-chamber suggests a Post- or even Late Meroitic date, but both graves were so heavily looted that nothing can be said about the original position of the deceased. The bones of the tumulus feature no. 16 have vanished completely, and from the other tumulus (feature no. 17) also no original position of the bone material was reconstructable. The shape of the superstructures of both tumuli were very low, flat and round (diameter: 3,0-3,7 m, height: 0,2-0,27 m) surrounded by a single row of medium-sized stones (fig. 9).

Substructures of the graves were of the same type. The shaft was circular in the upper part (diameter: ca 0,9 m), but at the bottom, ca. 0,6 m beneath the building level, it formed a semi-circular slope step before the kidney-shaped side chamber cut into the bedrock. In both cases, the step was situated on the north side of the shaft and the chamber in the south. The bottom of the side chamber reached 0,8-0,9 m down from the surface (fig. 9).

Feature no. 16 revealed no human remains and no findings. The human skeleton of feature no. 17 was heavily disturbed during ancient grave robbery (fig. 10), but one hand-made deep bowl with rounded base and upright sides, decorated on the external side with fabric-impressed pattern, was recovered (fig. 10) from the chamber

The graves on this cemetery were similar to the graves of the Fourth Cataract region excavated by the Gdańsk Archeological Museum Expedition and dated to the Late Meroitic period.

The substructure of the box graves were quite similar to the first two tumuli: a shaft without a side chamber with the deceased in a dorsal position below a stone blockage. At the western edge of the superstructure of box-grave no. 7 a complete Medieval bowl (maybe an oil lamp?) was found. Box grave no. 14 was undisturbed but showed no traces of a burial anyway. Maybe it was constructed but never used.

The two unmarked graves revealed the skeletons of a young child (1 year - 18 months) (feature 10) and an adult (feature 12). Feature 12 is the only grave at this cemetery without any stone blockage. Its higher level indicates that it might be the youngest of the box graves.

In general, it is interesting that all male individuals are buried in one row (together with the empty grave no. 14), while the female individual (feature no. 7), the child and one juvenile individual (feature no. 9) form a different row.

Cemetery 5363

At the nearby Kerma-style cemetery, three graves were excavated (fig. 11). The material from these graves turned out to be very poor. Feature no. 2 was completely empty. It was either never used for a burial like 5364-14, or it was looted completely, shortly after the burial when the body of the deceased was still intact.

At feature no. 1, an individual facing south in contracted position was documented, but the bone material was decomposed too far for an in-depth analysis. At feature no. 3, the bone material was so heavily damaged that not even the position of the deceased could be reconstructed. None of these graves contained grave-goods.

Cemetery 5362

On cemetery no. 5362, situated in short distance to cemetery no. 5354, two graves (features no. 1 and 3) were excavated.

Grave no. 1 showed the same superstructure as graves from cemetery 5364: a low, flat, round shaped tumulus (diameter: 4,4-4,6 m) (fig. 12). The superstructure of feature no. 3 was a little bit different: It was shaped oval by a single layer of medium-sized stones (diametres: 1,04 x 1,4 m)

(fig. 13). The substructures of both graves had a rounded shafts with steps before its side-niche just as the graves from the first cemetery (fig. 14).

One fragment of a hand-made, large, deep bowl decorated with a textile impressed pattern (similar to the one found in grave no. 1. on cemetery 5364) was found in the shaft of feature no. 1. In the side niche of this grave, animal bones were deposited (fig. 14). No findings or human bones were found in grave no 3.

Graves at this site, similar to graves from cemetery 5364, can be dated to the Late Meroitic period.

Cemetery 5500

Eventually, we started to excavate cemetery 5500 (fig. 15). About 45 box graves and 7 tumuli were found. The box graves were of two different types: 13 filled with gravel, all the others made completely out of stone. Obviously, the graves at the southern part of the cemetery were constructed more carefully than the ones in the north. Two tumuli and four box graves were excavated. The box graves included one with gravel filling, one made completely out of stone in an elaborated way, another less carefully made, and a small one containing the burial of a child (6 months). As at cemetery 5364, all individuals were buried in a roughly 1,2m deep shaft, dorsal position and with their heads in the west (fig. 16). Inside box grave no. 3, at the western edge of the superstructure, a small, complete Medieval bowl was found (fig. 17).

The superstructure of the first tumulus was very well constructed: A large, low tumulus (height ca. 0,6 m) with a narrow nose on the east side (diameter: 12,7 m along N-S axis, 15,2 m along E-W axis) was surrounded by a stone ring (fig. 18). A six-angled shaft in the upper part (diameter: 1.3 x 1,4 m) (fig. 18) (ca. 1,0 m deep beneath the grave building level) led to the oblongated entrance of the main part of the grave oriented with its long sides NE to SW. The entrance to this part was blocked with stone slabs, partially preserved after ancient plundering. Flared out walls of the main shaft on the bottom (ca 2,0 m under the surface) formed a semi-circular space (diameter: 1,5 m, radius: 0,8 m) in front of another semi-circular side chamber, similar in dimensions.

Two pottery vessels were found on the bottom of this pit (fig. 19). At the short NE side, a large, hand-made storage jar with a globular body, and a short medium-sized neck, was deposited, the decorated upper part of the body with two rows of lozenges executed by impressed dotted-lines. From the middle of the long NW side a (middle to large sized) hand-made beer-jar with a rounded body, narrow neck and red slipped from the outside, was recovered. The shaft filling also contained ostrich eggshells, flat circular and tubular beads made of black stone, presumably as part of personal adornments.

The original anatomical position of the discovered human bones in the chamber was disturbed (fig. 19). It is most likely that the body was in a contracted position on either side with its head in the NE part of the chamber. Most probably, the grave was constructed in the Late Meroitic period.

The superstructure of grave no. 6 was similar to the first one, but not as good constructed and smaller (diameter: 5,8 m along N-S axis, 6,4 m along E-W axis). The shaft was a simple rectangular one from above but transformed into a kind of *dromoi* variation with two steps before the kidney-

shaped niche chamber (fig. 20). The long sides of the shaft were oriented E-W, and the chamber was located on the W side of the shaft. The skeletons position in the chamber was partially disturbed, with the lower part in its anatomical origin. The body was lying on the right side with contracted legs and its head in the southern part of the chamber facing E (fig. 20).

Two pottery vessels were found on the bottom of the grave chamber, ca. 1,1 m below the grave building level. The first large hand-made beer-jar with a globular body and a medium-sized neck with flared sides was located in the northern part of the niche, between the deceased's feet and the northern wall (fig. 21). The second vessel, a small hand-made beer-jar, was deposited on the southern part of the chamber, in front of the face of the deceased. The shaft and grave chamber filling also contained fragments of personal adornments in form of various blue faience beads; tubular, torus, doubletorus or tripletorus in shape, one archersring made of stone and four iron arrowheads with single barbs.

Grave no. 6 is similar to the graves at the Fourth Cataract region excavated by the Gdańsk Archeological Museum Expedition and dated to the transitional period between the Late Meroitic and Post-Meroitic times.

All individuals were examined anthropologically and samples were taken for later analysis in Europe (i.e. DNA and Isotopes). After the archaeological and anthropological investigations, every individual was reburied inside his or her original grave, and the superstructures which were found intact before our excavations were reconstructed (cf. fig. 6).

Anthropological investigations

During this initial excavation campaign, 15 skeletons were recovered from three different grave sites (5363, 5364 and 5500). Preservation differed strongly among findings. The bones of one third of the individuals were decomposed in a cretaceous and porous manner, thus not allowing complete excavation. If possible, morphological and osteometric data was obtained from every skeleton, including the basics: age at death, sex, pathological changes, anatomical variations and body height. Furthermore, osteometric data of skulls and extremities was collected in order to compare the results with different populations during continuing studies and campaigns. Our main archaeological interest lies within the population structures like family relationships, behavioral patterns and general circumstances of life. Therefore, epigenetic characteristics, pathological and habitual dependent changes were recorded as well. After examinations, samples of each of the individuals were obtained for further investigations in Germany, such as dental material and bone fragments for DNA analysis (sex verification, family relationship reconstruction and analysis of regional origin), histological investigations (age verification) and isotopic determination (burial time and history of settlement).

Distribution of sex is nearly balanced between male and female (8 male, 6 female, 1 indifferent) individuals. Sex dimorphism of the skull is less prominent in the examined individuals than compared to European populations. The age at death ranges from neonate to senile individuals

including all ages, with its maximum at late mature deaths. More male than female individuals add up to this result most likely due to sex distribution and sample size in general. As expected, most pathological changes occur in an ordinary manner due to osteoarthritis of the spine, knees and hip joints. Dental pathologies such as caries or dental calculus rarely appeared. Moreover, *Cribra orbitalia* and unspecific periosteal reactions are present in about one fifth of the individuals. One female individual showed a possibly tumorous bone formation around two molars of the maxilla (fig. 22). Also a possible gland stone (e.g. gall or bladder stone) was recovered with one of the individuals (fig. 23). The most occurring habitual dependent changes appeared at the Tibiae, which often showed squat facets.

More data needs to be collected in order to clarify social structures, life circumstances, general demographics and other historical, population based linkages. The so far obtained data does not suffice for significant results of statistical analysis since the possibility of coincidental findings cannot be excluded with small sample sizes.

3. 3. Pottery study

Our pottery specialist has been in the field for three weeks. This year, she documented 1745 sherds of Neolithic to Islamic period - all the remaining pottery of 2014 and most of 2015. 180 sherds were drawn but a small bag with decorated pottery still needs to be drawn in Germany.

In the middle Wadi Abu Dom, very homogenous material of (late) medieval time with parallels to the pottery of the Fourth Cataract was found. We detected that special forms occur together, like the large hand-made flat bowls, in general their rims with impressed criss-cross decorations and the pots with flaring rims and globular bodies (fig. 23). Still, we are missing the specific ritual pottery used in churches. This corresponds with the situation in the survey where we did not find any churches, although there are quite large box-grave cemeteries.

Concerning the pottery of the excavation, two of the beer-jars show remains of their content: a whitish-yellowish coating (samples for analysis taken). Although only three beer-jars were found, all of them show different forms, different techniques of manufacture and different dates (fig. 24).

3. 4. Reconnaissance of recent settlement

As a comparison to ancient landuse, we decided to map the recent settlement areas as well as the type of buildings inhabited today or abandoned recently. We covered the total length of the Wadi Abu Dom till the spring in the east. The following data were collected: Name of the places, subsistence of the inhabitants, water supply, kind of dwellings and huts. In general, the habitations between Ghazali and Hannik are more dense than between Hannik and the springs of the Wadi. Only about 300 people are living in the eastern part, mostly in small dwellings and huts of reet or branches. Between Hannik and Ghazali a lot more people are living and several huts of mudbrick can be mapped. For the next season, a detailed study of some of these settlements is planned.

3. 5. Trips

We made a reconnaissance trip to the dendritic arms at the offspring region of the Wadi Abu Dom. It turned out that the ideas about this region we had in mind from the satellite image proved only partly true: Indeed, trees and other larger vegetation decline, but the surface water allows closed grass vegetation covering the whole width of the wadi to grow. At some places, even rain-fed durrha cultivation is possible. Archaeologically, we found some grave structures, most impressively a large box grave cemetery located exactly at the offspring of the most prominent dendritic arm of the wadi (site 5700; cf. fig. 25).

3. 6. Site protection

In addition to the fence built during the previous season at Umm Ruweim, we erected explanatory information panels for tourists (fig. 26). We noticed an increasing number of tourists (Sudanese and foreigners) making their way through the wadi. These explanatory panels (together with marked parking lots, fig. 27) shall not only inform the tourists, but also guide them through the archaeological remains along the intended entrances and prevent them from climbing the walls. Therefore, a site presentation as well as a protective function does now exist.

After analyzing the skeletal and archaeological contents of tumuli and box graves in our excavation, we reburied the human remains within their original graves and rebuilt the graves according to 3D models done before excavation (fig. 6).

3. 7. Public relations

In close cooperation with the German Cultural Center in Khartoum (Goethe-Institute) Atif Saad, professional photographer, visited us for two days, taking photos of our work and living conditions. Together with photos of the general landscape and the life of the local people, they shall be incorporated into an exhibition planned within the Goethe-Institute for September or October.

On March 14th, we had the possibility to give a lecture to the local public. It took place in the school of Bir Merwa and more than 100 people (men, women and children) attended (fig. 28). The lecture was given in a good atmosphere and several interesting questions arised. We hope that the given information will help the local people to understand our work and our interest in the region.

As already mentioned above, explanatory panels were erected at the main sites of public interest: Umm Ruweim, Umm Khafour, Quweib and el-Tuweina.

In addition to the English version of our site presentation guide book, we printed an Arabic version this season which was distributed among several institutions.

4. Proposal for future activities

Our plan for next year consists of two parts: on the one hand we will finish the survey with good preparation in remote sensing. Therefore, we hope to reach the spring of the Wadi Abu Dom. With this part of the project we will also include sondages at hut structures, singular features and

campsites. The project part funded by QSAP will deal mainly with the continuation of the excavation in the cemetery 5500 and the start of the excavation at site 5037.

5. Endangered sites

The main task dealing with endangered sites is caused by the already mentioned dam construction west of el-Tuweina. The construction activities already destroyed some antiquities, mostly graves of the Kerma style. Besides the graveyards 5363 and 5364 are most endangered by the lake, and graveyard 5500 by the irrigation channel construction nearby. We dug all the cemeteries in this campaign in order to save as much scientific data as possible.

Other endangered sites are situated in the vicinity of the lake. A map with all sites affected by the lake during its assumed maximum level is fig. 29.

Downstream the dam, more sites could be endangered, depending on the fact whether the building of the unfinished irrigation channel will be continued, and how much arable land will be irrigated. The region immediately downstream the dam is quite rich archaeologically. Any planned rural development scheme will for sure have an impact on the regional cultural heritage.

6. Final remarks

We would like to thank Mr. Mohammed el Toum and Mr. Loai Shams very much for all their indispensable help and smooth organization! They have acted as good mediators to the people in the Wadi Abu Dom as well as experts for organization and especially as good friends to us!

Karima, 17.3.2015

Angelika Lohwasser

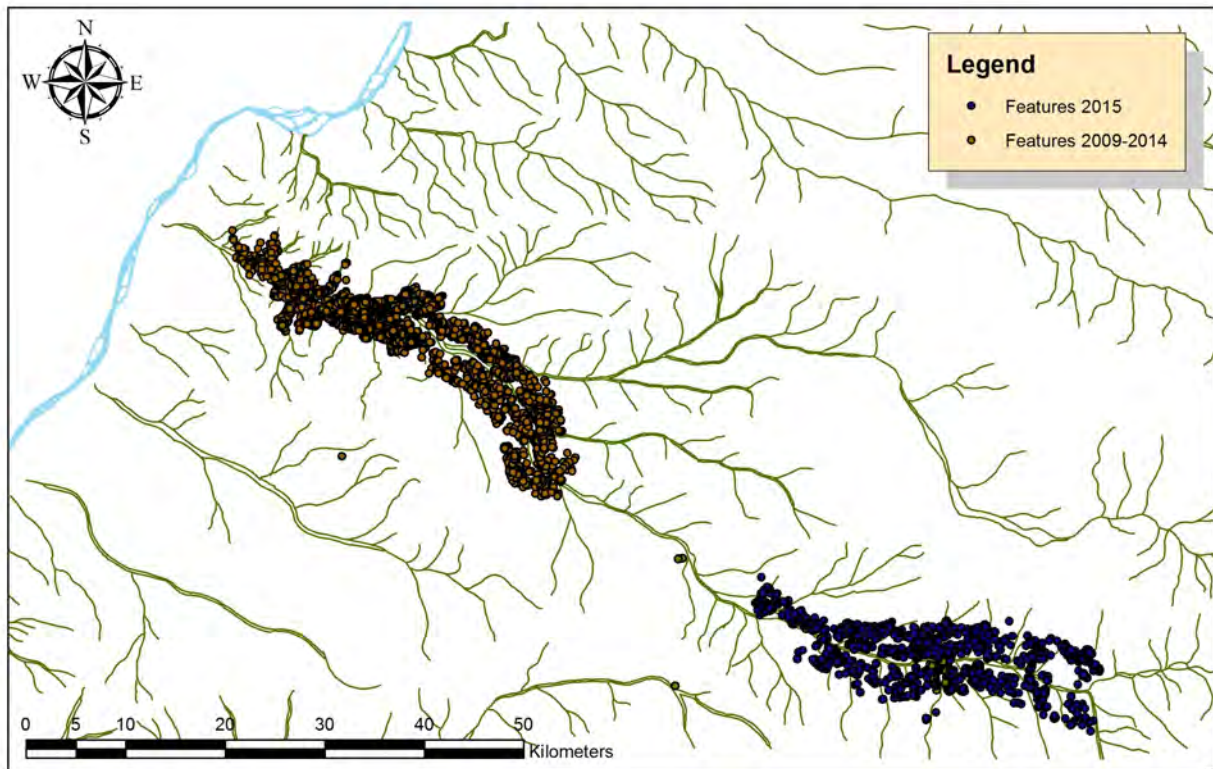


Fig. 1: Distribution of Sites documented in seasons 2009-14 and 2015



Fig. 2: Large Post-Meroitic tumuli at site 5503



Fig. 3: Post-Meroitic/Medieval site 5500

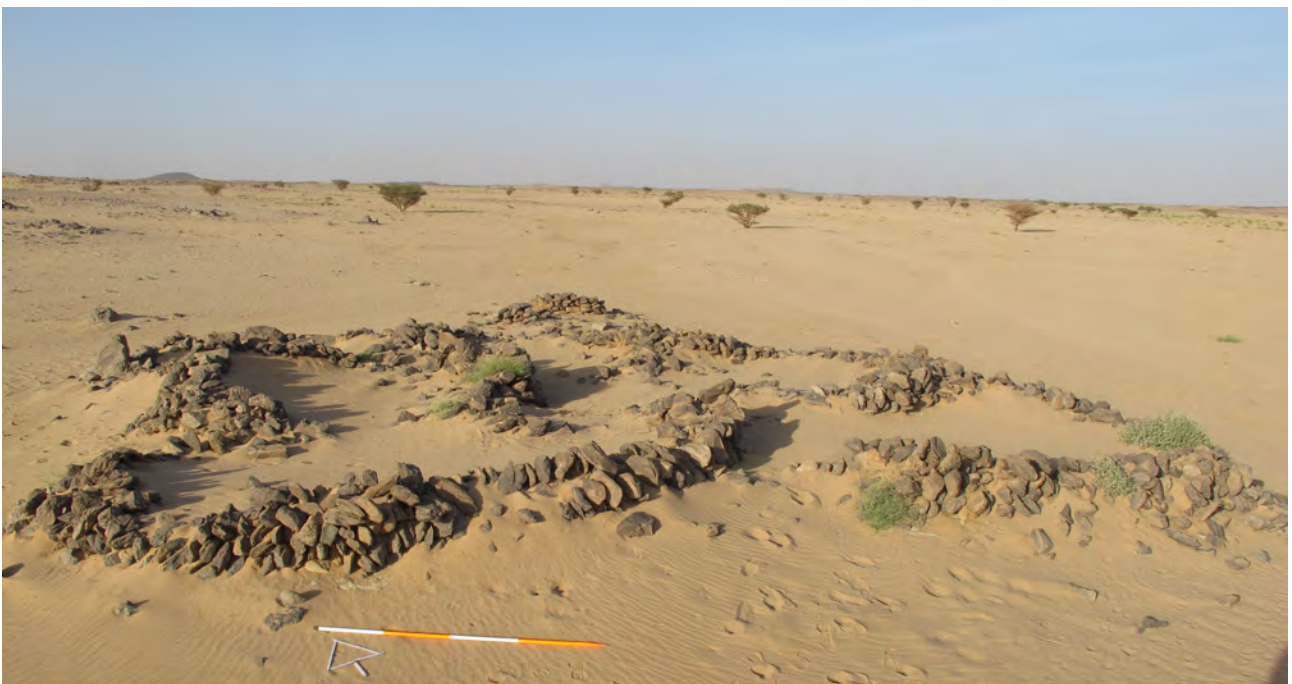


Fig. 4: A larger habitation site (feature 5518-1)



Fig. 5: Examples of “gravel beds”



Fig. 6: 3D model of box grave 5364_7 and reconstructed box graves on Site 5500 (Feature 2 and 5)



Fig. 7: Tumulus 5364_6 with medieval burial



Fig. 8: Box grave 5364_7 and its burial



Fig. 9: 5364_16, rounded grave superstructure, circular shaft before side niche (Late Meroitic)



Fig. 10: 5364_17, disturbed skeleton in rounded shaft, and hand-made ceramic bowl in the grave chamber (Late Meroitic)

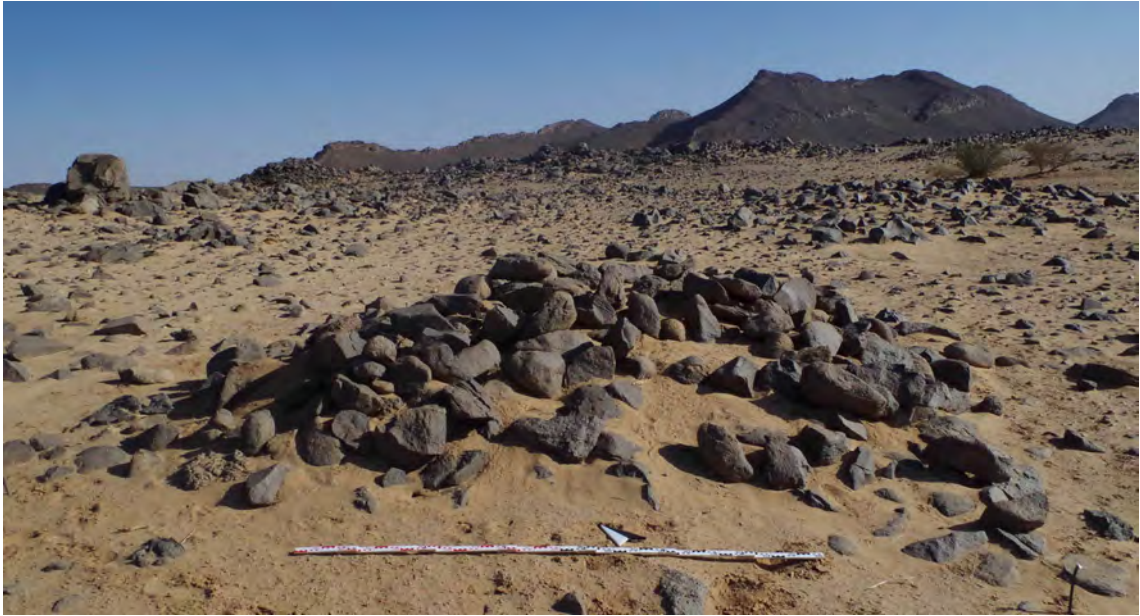


Fig. 11: Tumulus 5363_3



Fig. 12: 5362_1, superstructure (Late Meroitic)



Fig. 13: 5362_3, oval superstructure (Late Meroitic)



Fig. 14: 5362_1, rounded shaft before side chamber cut in the south part of substructure, and animal bones in the grave chamber (Late Meroitic).



Fig. 15: Cemetery Site 5500



Fig. 16: Burial of grave 5500_2



Fig. 17: Ceramic in situ in 5500_3



Fig. 18: 5500_1, drop-shaped grave superstructure and shaft sixangled in upper and trapezoid in lower part, Late Meroitic period.



Fig. 19: 5500_1, bottom of the main shaft with grave goods (two pottery vessels) and disturbed skeleton remains discovered in the side chamber and in the shaft (Late Meroitic)



Fig. 20: 5500_6, *dromos* with steps before side niche chamber, and side niche chamber with human skeleton remains (Late to Post Meroitic period)



Fig. 21: 5500_6, northern part of side niche chamber with ceramic beer-jar (Late to Post Meroitic period)



Fig. 22: Possible tumorous structure of the maxillar molars Fig. 23: Gland stone (?) of a young adult female

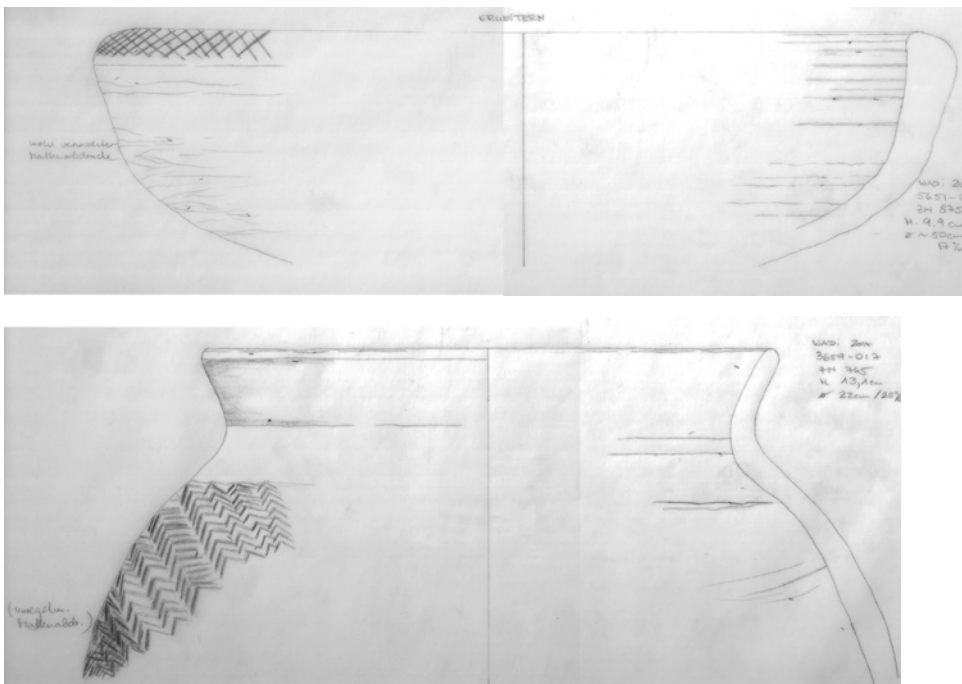


Fig. 23: Large hand-made flat bowl with rim decoration and pot with flaring rims and globular bodies



Fig. 24: Beer-jars and detail of decoration



Fig. 25: Box grave cemetery site 5700



Fig. 26: Parking sign in el Tuweina



Fig. 27: Tourist information panel in Umm Ruweim, in the background the protection fence is visible



Fig. 28: Lecture in the school of Bir Merwa

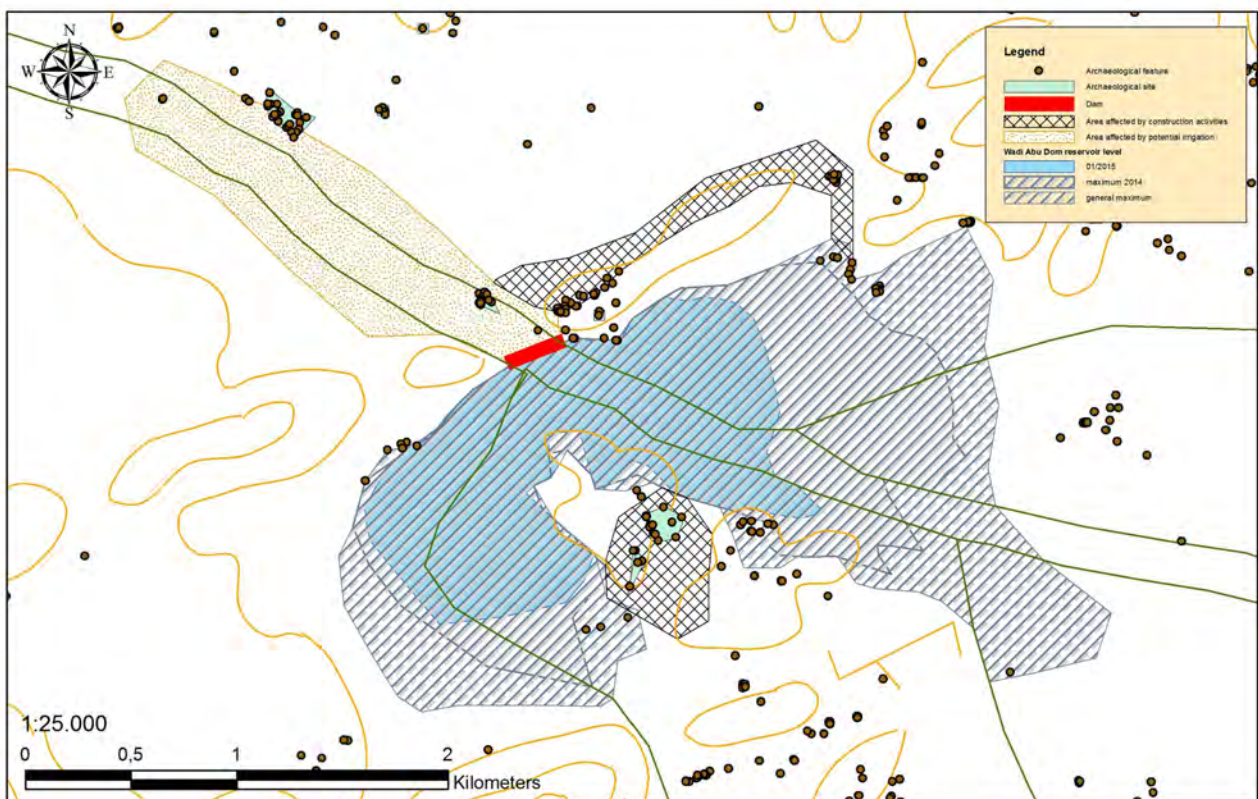


Fig. 29: Dam affected area