TANZANIA

Archaeological Exploration of the Mikindani Region of the Southern Tanzanian Coast

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Introduction

This report concerns archaeological research I undertook at and around the town of Mikindani on the southern Tanzania coast between November 2007 and December 2008 (see Figure 1). The purpose of this research was to evaluate the ways in which past communities in the region participated in the economic and cultural systems of the East African Swahili Coast during the second millennium AD. I also studied how land use in the Mikindani region was organized spatially across local microenvironments, and how settlement patterns changed as the coastal systems developed. Archaeological work has just begun to demonstrate the antiquity of coastal settlement in southern Tanzania (Chami and Kwekason 2003) and indeed around Mikindani Bay (Kwekason 2007). My project was designed as a systematic study of this little-known region to explore the questions above. In pursuit of these goals, I engaged in three phases of archaeological research outlined below.

Phase I: Excavations at Mikindani Bay

The first phase of the project involved the excavation of 1 m by 1 m test units in Mikindani town and three other villages surrounding the southwest lagoon of Mikindani Bay with evidence of pre-20th century settlement (Figure 1). Historically this area was the center of the region's interactions with the wider Indian Ocean world (Gray 1950), and previous archaeological work has shown the existence of several phases of settlement in the area, the earliest of which date to the last centuries BC (Kwekason 2007). My excavations during this phase were designed to study the material culture sequence at Mikindani.

To this end I excavated thirty-four 1m by 1m test units. Twenty-four of these units were placed within Mikindani town itself and the remaining 10 were placed for comparison in the villages lining the lagoon. The earliest settlement from this phase was at Pemba village on the north side of the lagoon where imported Sasanian Islamic ceramics, reliably dated to ca. AD 500-1000 (Horton 1996), were found with mid-first-millennium local ceramics bearing Early Iron-Worker (EIW) motifs (see Chami 1994). Local ceramics with first millennium decorations were also found at Mirumba, a village located on the southern end of the lagoon. Settlement in Mikindani town came later, as the lowest levels in the town yielded local ceramics dating to the 14th and 15th centuries (see Gramly 1981). The town units also produced evidence of stone construction, imported goods including Chinese blue and white porcelain, and the exploitation of marine resources showing that the town was a thriving settlement involved in the Indian Ocean networks by the mid-second millennium AD. All of the excavations also possessed a 19th century component when Mikindani was a port where captives from the interior were sold as slaves.

Phase II: Archaeological Survey of Region around Mikindani Bay

The second phase of the project was an archaeological survey of the region surrounding Mikindani Bay for the purpose of discovering previously unknown archaeological sites and producing data regarding land use and settlement patterning on the regional landscape. In the pursuit of this type of data I defined a survey region of 510 km^2 around Mikindani Bay and divided this region according to five microenvironments. I identified within it: (1) the immediate shoreline area, comprising 14% of the total study area; (2) the lowland plains off the shore, 37%; (3) the ridges and slopes of the transition zone, 7.5%; (4) the upland plains above 350 feet, 28.5%; and (5) the valleys where water flowed from the uplands to the ocean, 13% (see Figure 2). Such stratification follows previous successful stratified surveys in East Africa (e.g. Mapunda and Berg 1991). After stratification, thirty 0.5 km^2 units were randomly selected for survey, with the microenvironment percentages maintained in the sample. Each unit was arranged into 100 m-wide, one km-long transects for walkover survey. Previous surveys on the coast (e.g. LaViolette et al. 1989; Fawcett et al. 1989; Fleisher

Figure 1: The Study Area in Southern Tanzania Around Mikindani

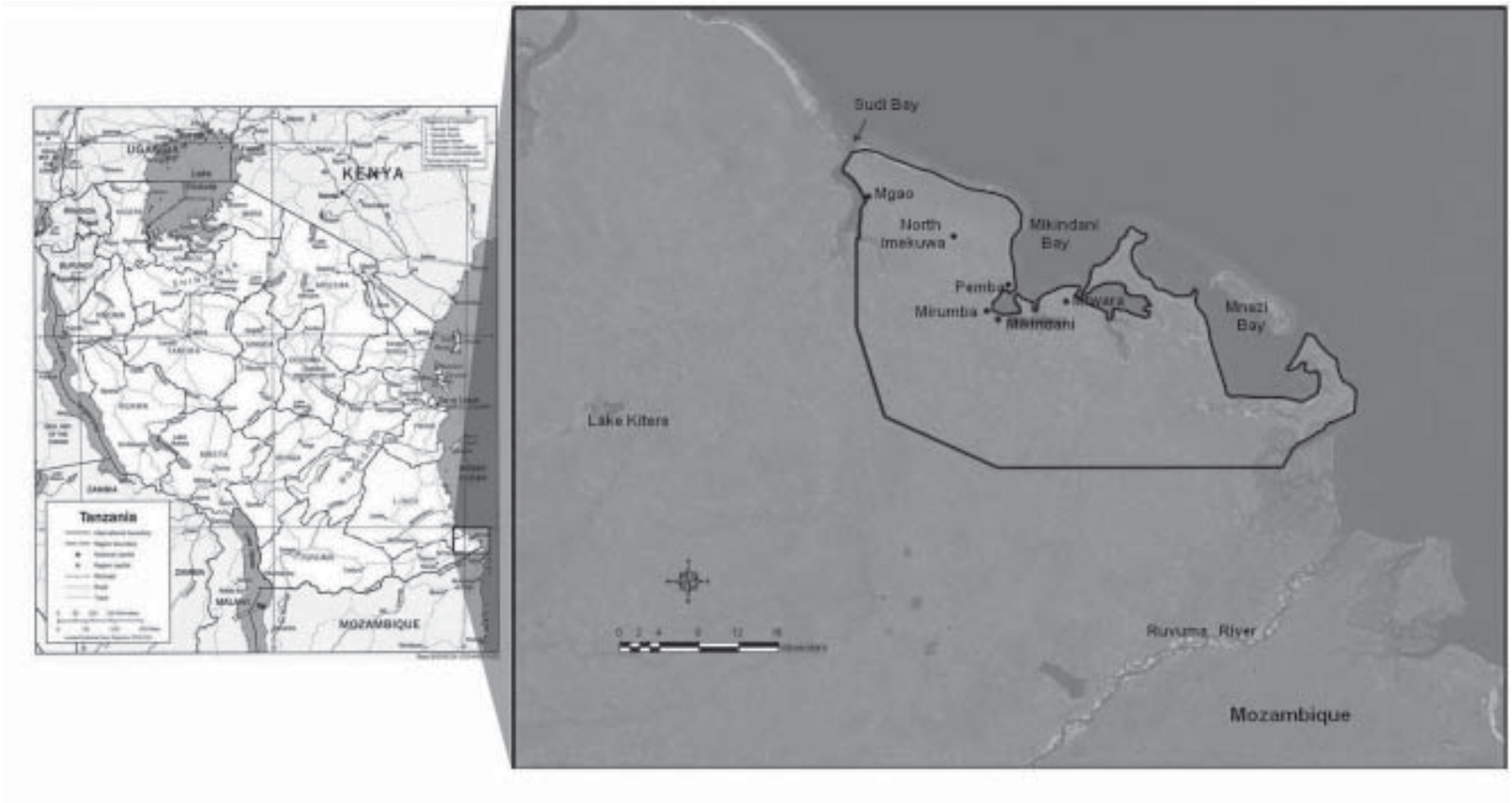
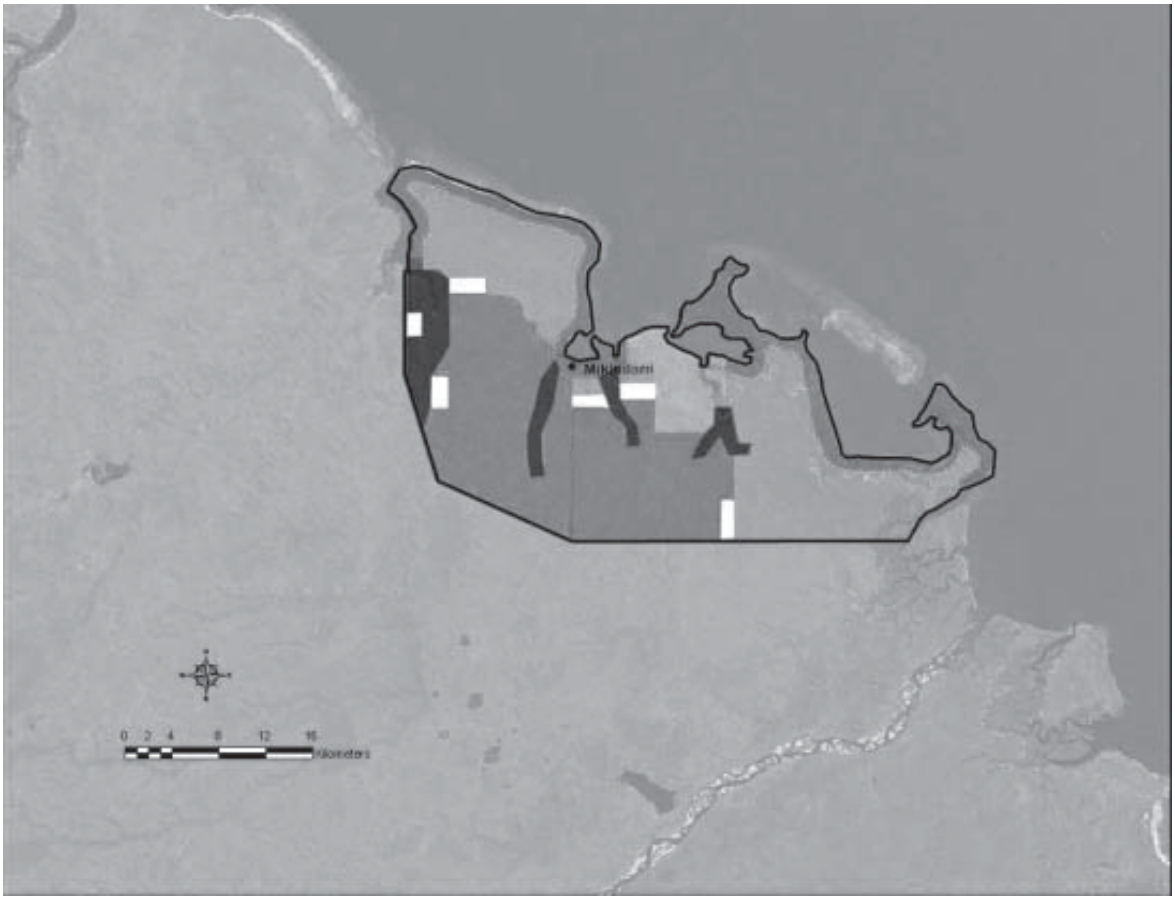


Figure 2: Schematic of approximate areas covered by the five microenvironments. Lowlands are in light gray, highlands in dark gray away from the ocean, coast in darker gray by the ocean, valley is darkest, and ridge is white.



2003) have shown that surveys incorporating testing below the ground surface will identify many more sites, so this survey also excavated shovel-test pits (STPs) every 100 m along the transects, so that every site greater than one hectare (ha) would be found (see Krakker et al. 1983).

Pursuing this strategy, my crew and I recovered 55 sites, 54 of which were previously unreported, and 38 of which date to the mid-second millennium AD or earlier. The large number of recovered sites emphasizes the intensity of past human occupation of the southern Tanzania coast, something which was previously unknown. Also, the recovery of 26 sites below 1 ha in size allowed the project to approach the smallest levels of Swahili settlement. The survey thus supports Fleisher's (2003) creation of a coastal settlement hierarchy which includes space for these small settlements (cf. Kusimba 1999; Wilson 1982). Also as 21 of the sites, or 38%, possessed no surface remains, the survey further demonstrated the necessity of sub-surface testing as part of coastal surveys to produce good spatial data.

Sites were distributed fairly evenly across the five microenvironments (see Table 1) as the percentage of sites found per microenvironment closely mirrored the percentage of the microenvironments within the entire survey region. The presence of sites across microenvironments means that the distinctions in land use and settlement patterning between the different environments around Mikindani must be found in the characteristics of the sites. Characteristics useful for drawing these distinctions include the size of the sites, the intensity of their occupations, and the presence or absence of certain artifact classes.

Table 1: Phase II Survey Recovered Sites by Site Characteristics

	# of Sites	Highland	Lowland	Coast	Valley	Ridge
% of Survey Region		28.5%	37.0%	14.0%	13.0%	7.5%
Total Sites	55	13	21	8	8	5
		23.6%	38.2%	14.5%	14.5%	9.1%
Sites > 1 hectare	29	1	14	6	6	2
(% within category)		3.4%	48.3%	20.7%	20.7%	6.9%
(% within micro-environment)		7.7%	66.7%	75.0%	75.0%	40.0%
Multicomponent Sites	19	2	6	5	4	2
(% within category)		10.5%	31.6%	26.3%	21.1%	10.5%
(% within micro-environment)		15.4%	28.6%	62.5%	50.0%	40.0%
Sites Pre-19th AD	38	7	15	7	5	4
(% within category)		18.4%	39.5%	18.4%	13.2%	10.5%
(% within micro-environment)		53.8%	71.4%	87.5%	62.5%	80.0%
Sites w/Imports	9	0	3	4	2	0
(% within category)		0.0%	33.3%	44.4%	22.2%	0.0%
(% within micro-environment)		0.0%	14.3%	50.0%	25.0%	0.0%
Sites w/Iron or Slag	16	3	6	3	3	1
(% within category)		18.8%	37.5%	18.8%	18.8%	6.3%
(% within micro-environment)		23.1%	28.6%	37.5%	37.5%	20.0%
Sites >10 sherds/STP	12	2	2	4	2	0
(% within category)		16.7%	16.7%	33.3%	16.7%	0.0%
(% within micro-environment)		15.4%	9.5%	50.0%	25.0%	0.0%
Sites >7 sherds/STP	25	5	8	7	5	0
(% within category)		20.0%	32.0%	28.0%	20.0%	0.0%
(% within micro-environment)		38.5%	38.1%	87.5%	62.5%	0.0%
Sites >5 sherds/STP	35	7	14	7	5	2
(% within category)		20.0%	40.0%	20.0%	14.3%	5.7%
(% within micro-environment)		53.8%	66.7%	87.5%	62.5%	40.0%

Of course, to have confidence in the distinctions between microenvironments we must account for change over time and know the dates of recovered sites (see Table 2). These dates are suggested primarily through similarities between the locally decorated ceramics recovered at the sites and those found elsewhere on the coast in dated contexts. Much like the case of the sites taken as a whole, the sites of each period are well spread across the different microenvironments. An exception is the Late Stone Age (LSA), as the survey recovered a single site with similarities to the recovered ceramics of the last centuries BC from LSA sites recovered by Kwekason (2007). Still, the highland sites do underperform their expected percentages in each time period (i.e. the number of sites which would exist if sites were distributed evenly across the survey region and all microenvironments). This fact may be partially attributable to the smaller-scale, less intense occupations of those sites. Coastal sites seem to become overrepresented during the Tana phase ca. 700-1000 AD, perhaps indicating a settlement preference for the shore in this period. Lowland and valley sites increase their numbers to match the coastal sites during the second millennium, which may suggest an increase in agricultural, rather than marine, concerns at that time. Bearing these temporal trends in mind, it is still necessary to seek many of the distinctions between the microenvironments in terms of the physical characteristics of the sites themselves and the artifacts found at the sites.

Site size was a variable that clearly distinguished the regions from one another. This is perhaps most clear if one looks at sites that are one ha or greater, all of which would have been recovered by the survey. Of 29 such sites, only one was found in the highlands and two were found in the ridge zones. In contrast, such sites were well represented in the coastal, lowland and valley zones. This size distinction does not appear to be related to distance from the ocean, as several of the large lowland and valley

Table 2: Phase II Survey Recovered Sites by Date

	# of Sites	Highland	Lowland	Coast	Valley	Ridge
% of Survey Region		28.5%	37.0%	14.0%	13.0%	7.5%
Total Sites	55	13	21	8	8	5
		23.6%	38.2%	14.5%	14.5%	9.1%
Sites w/ No Diagnostic Artifacts	8	4	2	0	1	1
(% within category)	14.5%	50.0%	25.0%	0.0%	12.5%	12.5%
(% within micro-environment)		23.1%	23.8%	0.0%	0.0%	20.0%
Sites w/ Multiple Early Periods	18	2	6	4	4	2
(% within category)	25.5%	11.1%	33.3%	22.2%	22.2%	11.1%
(% within micro-environment)		23.1%	19.0%	37.5%	37.5%	40.0%
Sites w/ LSA	1	0	0	1	0	0
(% within category)	1.8%	0.0%	0.0%	100.0%	0.0%	0.0%
(% within micro-environment)		0.0%	0.0%	12.5%	0.0%	0.0%
Sites w/ EIW	13	2	5	2	2	2
(% within category)	23.6%	15.4%	38.5%	15.4%	15.4%	15.4%
(% within micro-environment)		15.4%	23.8%	25.0%	25.0%	40.0%
Sites w/ TIW/Tana	22	5	8	5	3	1
(% within category)	40.0%	22.7%	36.4%	22.7%	13.6%	4.5%
(% within micro-environment)		38.5%	38.1%	62.5%	37.5%	20.0%
Sites early to mid 2nd AD	27	3	11	5	5	3
(% within category)	49.1%	11.1%	40.7%	18.5%	18.5%	11.1%
(% within micro-environment)		23.1%	52.4%	62.5%	62.5%	60.0%
Sites with recent dec	30	7	11	5	5	2
(% within category)	54.5%	23.3%	36.7%	16.7%	16.7%	6.7%
(% within micro-environment)		53.8%	52.4%	62.5%	62.5%	40.0%

sites are as distant from the ocean as the smaller highland and ridge sites.

Occupational intensity was another measure by which the microenvironments could be distinguished. One way to get at occupational intensity is to determine which sites showed evidence of being occupied for multiple phases. At least half of the sites in the coast and valley microenvironments have multiple components, and each microenvironment has more multiple component sites than we would expect if such sites were distributed evenly. The lowland and ridge sites each have about as many multicomponent sites as one might expect if they were evenly distributed. The highland environment underperformed its expected number of multicomponent sites. Another measure of occupational intensity is the density of artifacts at the sites. Because of their ubiquity across sites, ceramic sherds are the best artifact class to measure density. By this measure, the coastal sites are the most intensely occupied, as half of them are very densely occupied with over ten sherds per STP. The valley sites were the next most densely occupied. The lowland and highland rates of density were very similar, though each microenvironment's sites tended to be less intensely occupied than the coast and valley sites. Finally, the ridge microenvironment was the least intensely occupied by this measure.

Because land-use decisions are a focal point of this research, I also needed to determine whether specific economic activities and artifact classes present at sites in the region distinguished the different survey regions. Only nine of the 55 sites possessed imported ceramics, and these sites were more or less evenly distributed between the valley, coastal and lowland regions. Sites located closer to the coast, even if they were not found in coastal units, were more likely to possess imports. However, five of the nine sites with imports only possessed imports dated to the 19th or 20th centuries, and no imported ceramics from the first half of the second millennium were recovered in the survey. Another important artifact class to consider was iron artifacts and slag. Sixteen sites produced slag, and the percentages of slag-

Figure 3: Selected Decorated Local Rims from 1st Millennium Contexts

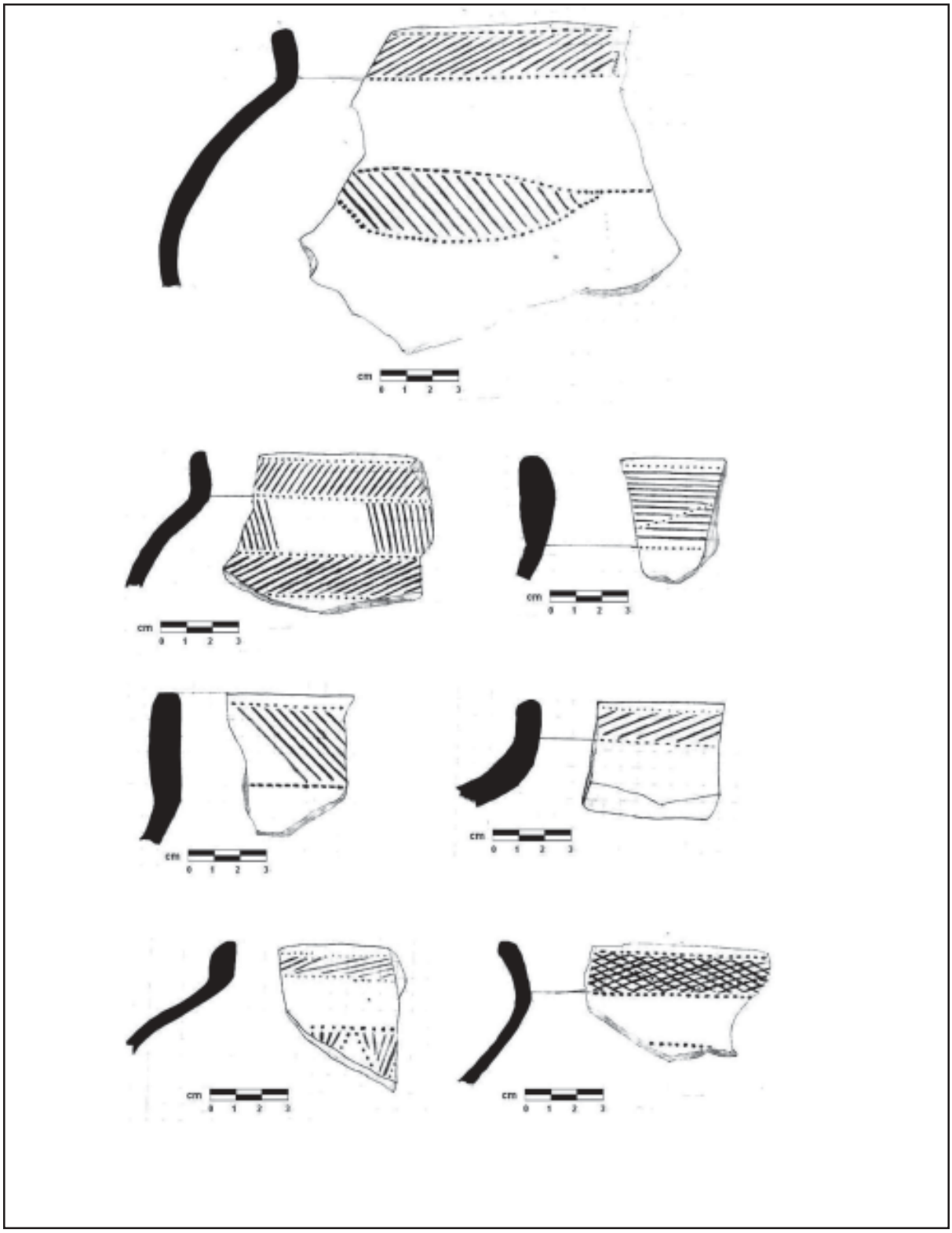
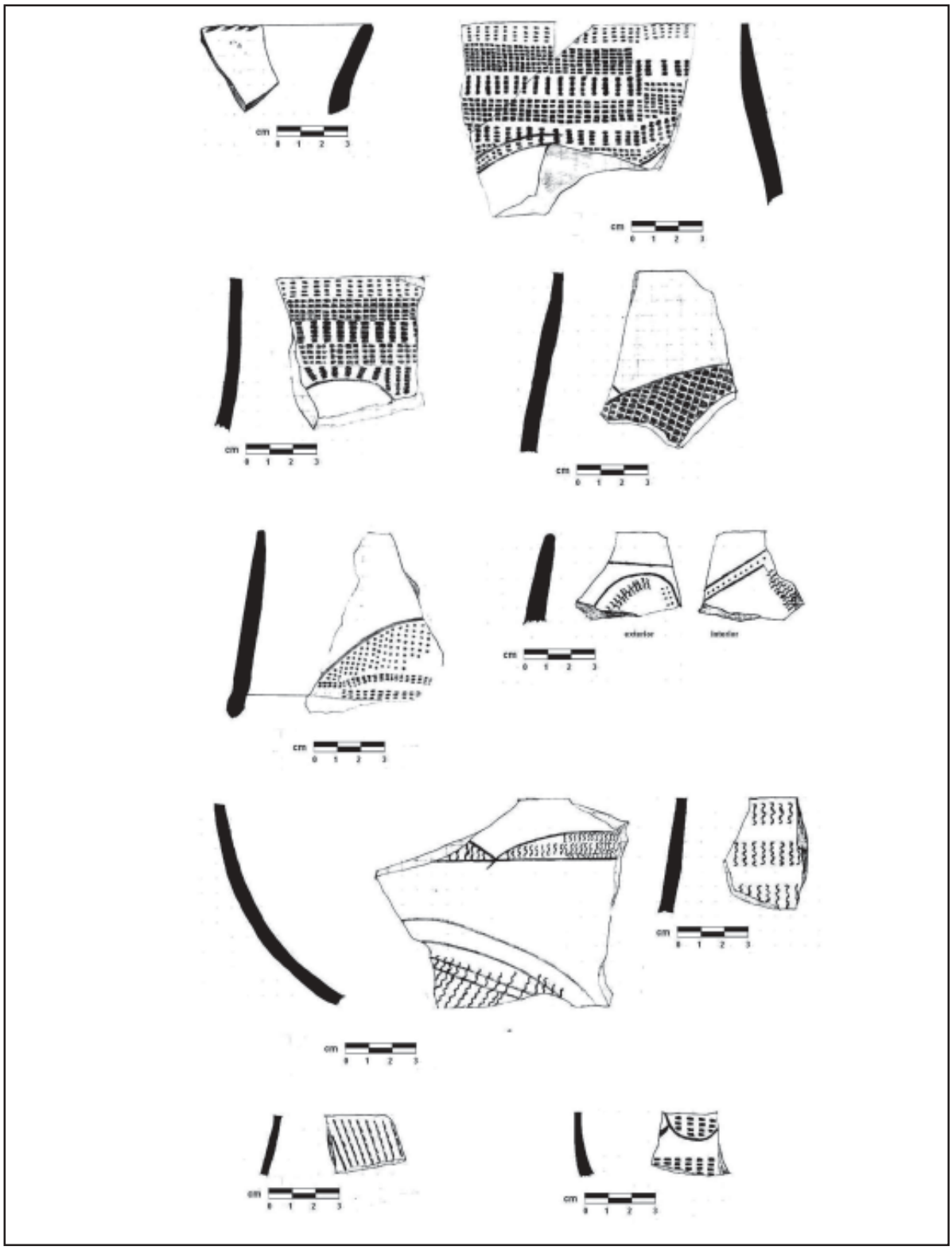


Figure 4: Selected Decorated Rims from 1st half of 2nd millennium contexts



producing sites were between 20 and 40 for all microenvironments. The highest percentages were from the coastal, valley and lowland microenvironments, possibly because of the larger size of such sites. Still, the data suggest that ironworking was not concentrated in any single microenvironment.

Settlement within microenvironments was also varied. For example, the lowlands to the far east of the survey region produced few sites, and most of these were of modern date. In contrast, the lowland area between Mikindani and Sudi bays was the richest area of the entire region, with several large and early sites (see Figure 2). The above analyses must be regarded as preliminary in light of such variation.

Phase III: Excavations at Selected Sites Recovered in Phase II

The third phase of the project involved test excavations at some of the sites recovered during the survey. Sites from each of the five microenvironments were tested and those sites which were larger and more intensely occupied were preferentially excavated. The excavations involved 2 m by 2 m trenches excavated by arbitrary 10 cm levels within natural sediment layers. In total, 22 trenches were placed in 16 sites, providing improved material culture samples and knowledge of stratigraphy. Over 13,000 sherds, 49 kg of shell, and 330 pieces of slag were recovered, and the presence of several features including pits, middens, postholes, and clay floors were recorded.

Phase III confirmed the material culture sequence obtained in Phase I. No sites excavated in Phase III produced unexpected LSA components, forcing us to conclude that, while such settlements exist in the region, they are low in number and difficult to recover. Settlement in the region picked up towards the middle of the first millennium AD, as there are many EIW sites. This settlement expansion persists into the second half of the first millennium with 22 sites producing Tana/TIW ceramics. However, the distinctions between EIW and TIW/Tana ceramics found around Mikindani are less clear than they appear elsewhere on the coast. Thick-bodied sherds bearing EIW design motifs of diagonal or parallel sets of incised lines between bands of impressed dots (see Chami 1994) are common at many sites, but only sometimes occur on vessels with EIW characteristics such as rim beveling and fluting. Instead, these motifs are often found on vessel forms which match Tana/TIW types: thick-bodied pots with restricted necks and thickened rims for decoration (see Chittick 1974). Further, relatively few sherds with the classic Tana/TIW motif of incised triangles have been recovered despite the large number of sites thought to date to the 7th - 10th centuries and several sites possessed undisturbed contexts which yielded both sherds with TIW decorative motifs and sherds bearing EIW motifs within the same stratigraphic level (see Figure 3). All of these data suggest a connection between the makers of local EIW and Tana/TIW ceramics in the Mikindani region, some continuity in settlement, and perhaps a transition in which both EIW and Tana/TIW attributes are being utilized.

The second millennium AD is also a period of heavy settlement for the region. There is evidence that a Plain Ware (see Chami 1998) phase existed at some sites close to Mikindani Bay. However, at many sites from the first half of the second millennium AD, Mikindani Bay inhabitants are not partaking in widespread traditions such as Plain Ware, but are making and using a distinct ceramic style. This style, first noted by Kwekason and dated by him to the 12th century (2007), is largely comprised of restricted vessels whose rims are noticeably thinned and often flattened and some open bowls, which are usually smoothed and well fired. These ceramics are decorated with a range of designs including notched and incised rims, diagonal humped incisions, “squiggles” created with shell edges, and especially areal stamping filling portions of the vessels’ surfaces (see Figure 4). Phase III excavations demonstrated that this ceramic style was the most common early second millennium ceramic style for the Mikindani region. Further, this style was found to directly overlay Tana/TIW ceramics at several sites. Kwekason describes this ceramic style as being unique on the coast, but attributes of the ceramics show notable similarities to second millennium material from Kilwa (Chittick 1974) and to Lumbo Tradition wares from the northern Mozambique coast (see Duarte 1993, Madiquida 2005). Design motifs expressed on the Mikindani sherds such as shell-edge “squiggles” associated with incised lines, are also present in locally produced ceramics from the second millennium AD (Period IIIa) at Kilwa. However, these motifs were found on different vessel forms at Kilwa and Mikindani.

Other design motifs, most notably areal stamping, are shared with the second millennium Lumbo Tradition material found across coastal northern Mozambique, dated there to the 13th and 14th centuries. The Lumbo tradition is dominated by unrestricted open bowls (Duarte 1993), which are also present at Mikindani, but the absence of restricted ceramics from most Lumbo contexts suggests a significant variation from the Mikindani material where there is a preponderance of such ceramics. This Mikindani ceramic style thus seems to exist "in between" the local ceramic styles being produced to its north and south, sharing certain elements with, but also distinct from each.

Another useful role for the Phase III data has been to test some of the suggestions from Phase II about specific classes of artifacts. Imported ceramics were found at only three sites in Phase III, for a total of just nine sherds out of more than 13,000 recovered sherds. One of these imported goods contexts was dated to the first millennium, as it produced a Sasanian Islamic sherd, but the other three were all from late second millennium contexts. None of the sites in the area produced any of the early second millennium ceramics often imported to the coast such as sgraffiato, monochromes, or greenware/celadons (see Horton 1996). All but two of the trenches excavated in Phase III produced slag. However, there is no evidence to suggest specialization at any of these sites, as none of the trenches produced even a kilogram of slag and no clear production features such as smelting furnaces were recovered. All three of the excavated coastal sites uncovered shell middens, indicating strong marine exploitation. Shells were found at many sites located off the coast, but never in the same numbers or in large middens. This either indicates occasional collection of marine resources by people living off the coast, or local exchange of subsistence resources.

Discussion

After preliminary analysis, this project has contributions to make to our understanding of the ways in which the Mikindani Bay region's past inhabitants fit themselves into the broader Swahili world. Finds from the project have shown that residents of the Mikindani region used locally produced decorated ceramics with affinities to similar material from Kilwa (Chittick 1974), and the Rufiji delta (Chami 1994) in Tanzania, Manda in Kenya (Chittick and Tolbert 1984), and several sites in Northern Mozambique (Duarte 1993), demonstrating their participation in broader coastal networks. In the first millennium AD there is a progression from EIW ceramics to Tana/TIW ceramics, often taking place at a single settlement. During this period interregional trade connections also existed, as demonstrated by Sasanian Islamic sherds. In the second millennium AD the Mikindani area adopts a new local ceramic style which is at once unique and which evinces connections to ceramics both at Kilwa and further south in coastal Mozambique, and some communities using that new style around Mikindani show continuities with preexisting settlements of Tana/TIW-using people. The lack of imported ceramics during this period suggests an intriguing situation for the Tanzanian coast south of Kilwa where long-standing cultural connections with the rest of the coast do not develop into the standard Swahili economic forms of the early second millennium. Instead, coupled with the evidence from local ceramics, it seems that the past communities around Mikindani were navigating continued contacts with neighboring groups along the coast and an increasingly marginal role at the limits of Indian Ocean trade, the latter position likely exacerbated by the emergence of Kilwa. Then, in the middle of the second millennium AD, settlement with stone construction is found at Mikindani and some limited trade contacts resume, though significant amounts of trade goods will not be found in the region until the 19th century. Ultimately then, at this stage of analysis I can suggest that Mikindani is involved in a dynamic and unique relationship with other communities of the East African coast and the Indian Ocean world, a relationship whose character shifts at different moments in coastal history and which reflects both changing external influences and the existence of a self-sufficient local economy.

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