

## Ghana

### Archaeology, GIS, and Remote Sensing near the Pra River, Southern Ghana. Central Region Project update 2015-2017

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#### Introduction

This paper reports on archaeological investigations along the Pra River in southern Ghana from 2015 until 2017. The work involved two integrated components: focused survey and excavation work at Wawase and Supomu Island (henceforth referred to as Supomu) directed by Samuel Amartey, and a broader pedestrian survey in a series of selected areas near the Pra River directed by Sean Reid. At the sites of Wawase and Supomu, Amartey used excavations, site survey data, surface collections, and documentary sources to track two millennia of social and political changes that occurred in the lower Pra River region. Reid's research broadly examines site distribution and their implications for our understanding of regional history, particularly during the pre-Atlantic era. Reid also explores new methodological techniques of using high-resolution multispectral satellite imagery, integrated with topographical maps, to locate sites in a densely vegetated landscape. Our research is temporally and geographically

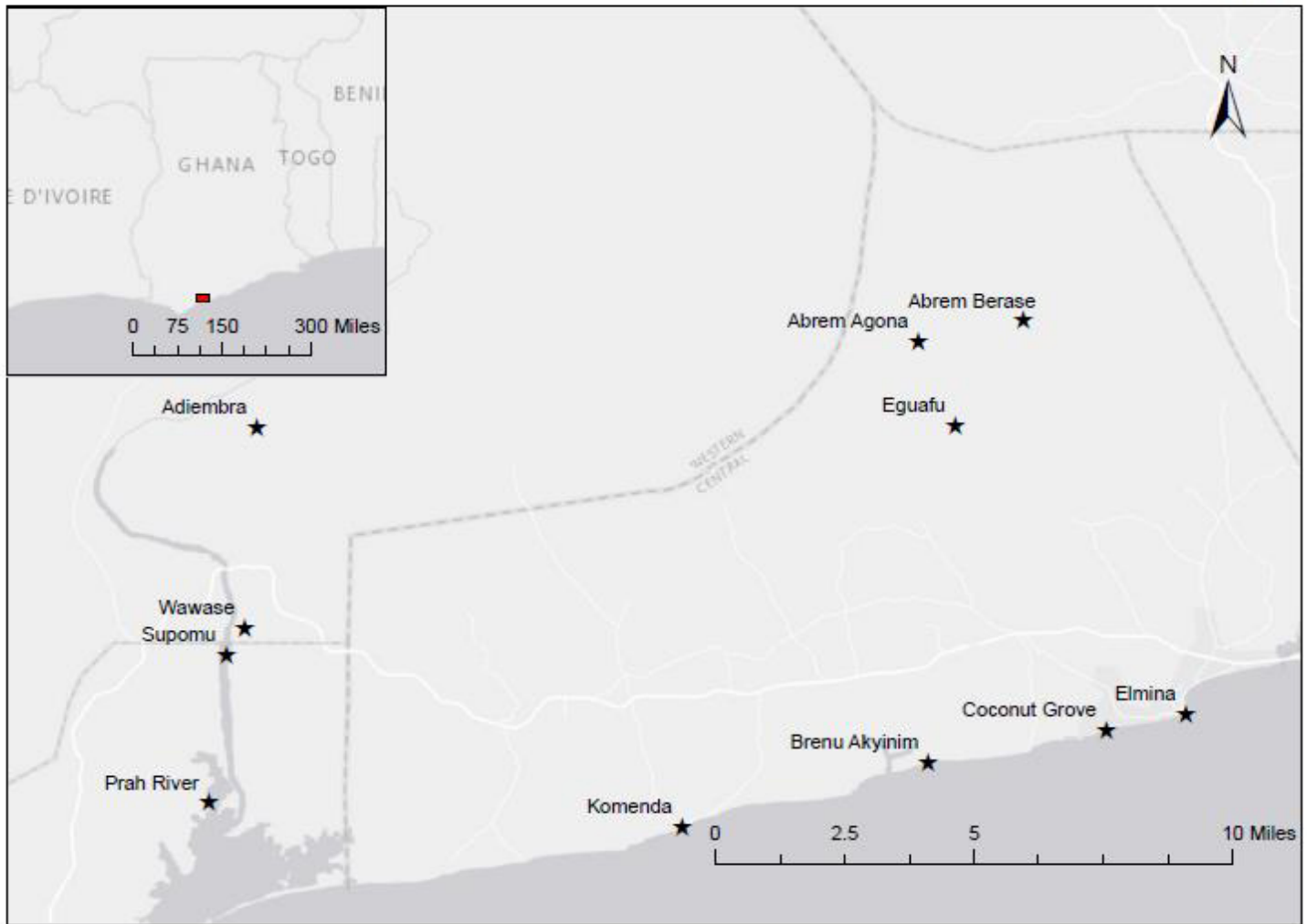
complementary, aiming to provide an understanding of social and landscape transformations in the coastal hinterlands of southern Ghana, from the first millennium AD through the mid-twentieth century.

This work is part of the Central Region Project (CRP). Originating from Dr. Christopher DeCorse's work at Elmina, this project seeks to better contextualize the long-term history of the coastal Central Region and its hinterlands. The CRP has examined transformations in the lifeways of people inhabiting the town of Elmina in the context of intense African-European interaction and trade (DeCorse 2001), sacred groves and the development of African polities (Chouin 2009; Spiers 2007), archaeological site survey and excavation on land and underwater (see DeCorse *et al.* 2000; Cook & Spiers 2004; Chouin & DeCorse 2010, Cook, Horlings, & Pietruszka 2016). Our recent work near the Pra River at Supomu, Wawase, and Adiembra has been part of a determined effort to better understand long-term transformations in settlement, technology, and sociopolitical organization in the coastal hinterlands (Figure 1; see also Amartey 2017).

#### Sociocultural and historical background

The study area is in the Shama District near the border between the Central and Western Regions, Ghana. The people are Fante speakers and part of the Akan ethnolinguistic group of southern Ghana. The paramountcy of the region is located in Shama. Supomu and Yarbiw stools (with their respective subsidiary stools or chieftains) fall under the Shama stool, and these make up the main divisions of the paramountcy. Fishing and farming are the main occupations of the people. Small-scale *galamsey* gold mining activities are also pervasive on and along the Pra River, and they pose a significant threat to the environment and archaeological sites. *Galamsey* operations dig through graves and historical sites in the region because they recover gold artefacts and gold dust. The process of washing the soil and removing gold produces a great deal of pollution that ends up in local waterways like the Pra River.

Our historical knowledge of the hinterland region is scanty, despite the relative proximity of important Atlantic-era coastal sites like Komenda and Shama, which both served as nodes of economic and cultural entrée for Europeans during the Atlantic trade (see Henige 1975). The traditions of this area indicate that there is a longstand-



**Figure 1:** Map of significant sites subjected to archaeological investigation by Central Region. Map S. Reid.

ing relationship with the people of Eguafu (see Chouin 2009:751-752). Like most coastal Fante traditions, the people claim to have migrated from the area of Takyiman in the Brong-Ahafo Region of Ghana. With the Eguafu people, they claim to have settled at a place called Amanfokese, which is said to have been located in the vicinity of Daboase Junction just west of Supomu Dunkwa on the Cape Coast-Takoradi Highway. Amanfokese is said to have been a large settlement sprawling both banks of the Pra River. This supposition can only be interpreted as clusters of settlements borne out by the archaeological survey data.

With fragmentary records and oral histories, Henige (1975) traced some of the Atlantic-era historical dynamics of the region, in particular, the transition of Adom and Jabi into the Supomu and Yarbiw stools. Shama was said to have been under the suzerainty of Yarbiw pol-

ity during the early period of the Atlantic trade (Henige 1975). At the time, Yarbiw was reportedly a small polity whose king lived in the immediate hinterland of Shama. It is unclear whether the contemporary village of Yarbiw is the same seat of the political unit during the sixteenth and early seventeenth centuries. Just beyond Yarbiw was the Adom polity, which survived only briefly, yet was supposedly very powerful. In the late seventeenth century, Willem Bosman (1705: 22) described Adom as large polity ruled by five captains, that stretched from the left bank of the Pra River to the Ankobra River in Ahanta country. According to Henige (1975), the settlement at Supomu Island was a remnant of the Adom polity through the eighteenth and nineteenth centuries. Adom fell into historical oblivion after the nineteenth century for reasons that are not clear. Although the people of Supomu Dunkwa claim to be direct descendants of the people of Supomu and Wawase, they hold no historical knowledge of Adom. Some

of the large sites we documented during archaeological survey may also constitute settlements related to Adom and Yarbiw, particularly because the expansion of neighboring Wassa and Fante territories may have been a more recent phenomenon (see Dumett 1998: 44).

Synthesized archaeological knowledge of the region is limited. Oliver Davies (1976) reported surface materials from various localities in the area. The Central Region Project (CRP) has investigated several large sites in the hinterlands of the Central Region of Ghana to the east of the Pra River and surveyed in other portions of the project area. Full details of these surveys have yet to be published, but Reid is integrating this data with his survey work. We are only beginning to understand sequences of ceramic styles and traditions in this region over the past several millennia.

### **Phase 1: Archaeological research at Supomu and Wawase**

Supomu and Wawase are contiguous, abandoned settlements located in and on the east bank of the Pra River, about midway between Shama and Supomu Dunkwa (Figure 1). Supomu is an island in the river, and Wawase is to the northeast, on the floodplains and a low-rise adjacent to the river. Archaeological research on these two sites was aimed at documenting the settlements' histories through the assessment of the lateral and vertical distribution of artefacts across the sites. Mapping, shovel testing, surface collection, and test excavations were employed to assess settlement size and growth, artefact inventories, and stylistic change in the local ceramic assemblage. The research explores the implications of these dimensions in the archaeological record to the sociopolitical history of this locality. A 10-metre grid was established at both sites and used as references for mapping and shovel testing. Surface collection of diagnostic materials was conducted within grids with good surface visibility. At Wawase, three 1x1-metre test excavations were undertaken, and a total of 84 shovel test units were excavated at 10-metre intervals to a depth between 90 and 100 centimetres. Mounds constitute one of the most conspicuous surface features at Wawase. On the island, work was focused on the northern end, where the settlement was located. Since the island has been looted by *galamsey* operators, undisturbed bulks under bamboo patches were targeted for stratigraphically intact deposits. A total of 11 shovel tests pits and four test excavations were excavated. Silting is common in the soil

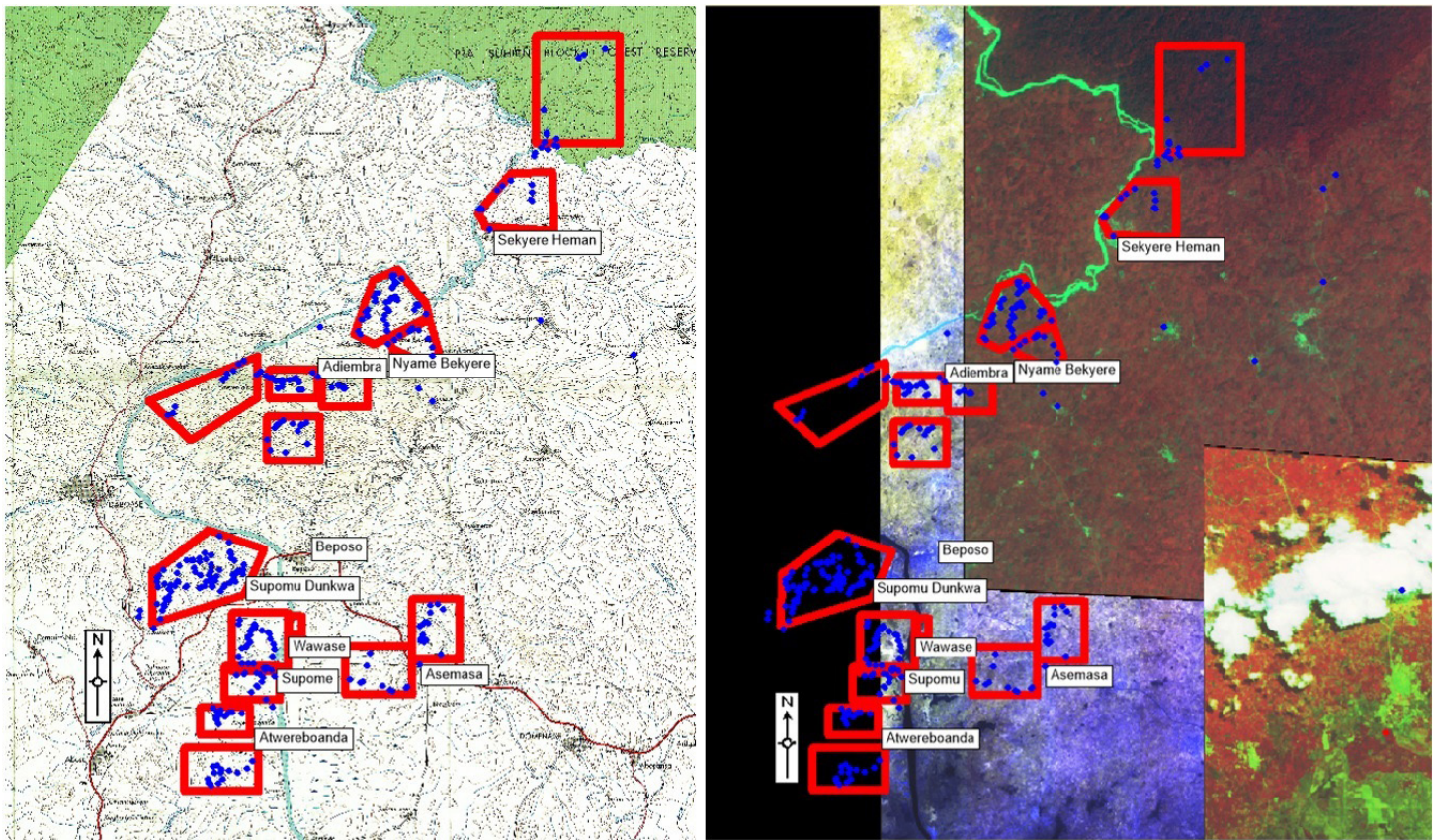
matrix of the island. The pre-Atlantic horizon mainly occurs between 50-90 centimetres in depth. The soil matrix consists of red to yellowish/buff sandy clay soil that in some instances is mottled and gravelly. The surface horizon includes materials of wider variety dating to the Atlantic period. The assemblage includes trade beads, large quantities of glass and metal fragments, European ceramics, faunal remains, and Atlantic-period ceramics similar to those documented at other sites in the region.

Artefact assemblages from Wawase exhibit a higher degree of variability compared to Supomu. The artefacts from Wawase include microliths and other stone objects, local and imported ceramics, glass, stone, shell, clay beads, local and imported smoking pipes, faunal remains (bone and shell), metal, slag, and daub. All of these materials are not represented at Supomu. There, microliths, shell, clay, and stone beads were not found. No pre-Atlantic deposit was present on the island. The materials from Supomu suggest a seventeenth through nineteenth-century occupation. This observation is not inconsistent with the documentary sources which suggest that the Supomu settlement survived until the third quarter of the nineteenth century (see Henige 1975). In contrast, at Wawase, the distribution of material across the site varies from locus to locus and is indicative of the range of temporal occupations in each respective locus from at least the first millennium AD to the mid-twentieth century. First millennium and early second millennium occupation is restricted to the northwestern plains, slopes, and low-rise. The early Atlantic period occupation appears to have been restricted to the edge of the low-rise to the west. By the late nineteenth and early twentieth centuries, after Supomu had been abandoned, the Wawase settlement shifted to the entire plains to the south. The locus contains the highest number and most pronounced of the mounds at the site.

### **Phase 2: Archaeological survey and remote sensing near the Pra**

The second component of our work examined the broader landscape around the Pra River to identify and document new archaeological sites, particularly pre-Atlantic and early Atlantic sites. The primary research objective is to better understand long-term changes in settlement patterns, subsistence, and technology in the coast and forest hinterlands of the Western and Central Regions over the past two millennia. Over several months in early 2017, Reid undertook pedestrian survey near Atwereboanda, Adiembra, Be-





**Figure 2:** Red polygons indicate survey zones along the Pra River. Scanned and georeferenced topographic maps (left) and very high-resolution multispectral satellite imagery (right) were used to select high priority areas for a pedestrian survey. Blue dots represent some of the various sites located within these survey zones. Satellite imagery courtesy of the Digital-Globe Foundation. Maps S. Reid.

beposo, Nyame Bekyere, Supomu-Dunkwa, Adiembra, Beposo, Asemasa, and Sekyere Heman after permission was granted by the traditional chieftaincies and elders of these towns and villages. Previous survey work conducted by the CRP indicates that some hilltops and sacred groves (e.g., Chouin 2009) are either pre-Atlantic settlement sites or otherwise bear material traces of pre-Atlantic activity. Thus, a survey methodology was designed to identify such areas using a combination of scanned and georeferenced topographic maps and high-resolution multispectral satellite imagery (Figure 2). Used in conjunction, the topographic maps and multispectral satellite imagery enabled the quick identification of hilltops, ridges, sacred groves, and other archaeologically relevant vegetation patterns throughout the project area so that they could be investigated via pedestrian survey and test excavation. Reid (2016) used a similar satellite imagery methodology for survey work in Sierra Leone, and the techniques discussed in that work

demonstrate applicability throughout the forested regions of West Africa. Figure 2 shows the 16 survey zones that were selected based on topographic and vegetative characteristics. Reid located nearly 300 sites within these survey zones over the course of several months of pedestrian survey. Further analysis is underway, but the most notable sites fall into four broad categories: (1) surface scatters of ceramics, many of which are on hilltops, (2) grinding slicks on granite outcrops (see Figure 3), (3) iron smelting sites / slag scatters, and (4) sacred groves.

Reid performed test excavations at three sites found during this survey: a grinding slick site (SD520), a hilltop ceramic scatter (SD610), and an iron smelting site (AD31). First, test excavations at SD520 consisting of a 1x1 metre unit adjacent to the grinding slick and six shovel test pits extending west and north dug in 10-centimetre arbitrary levels yielded very few materials. The uppermost levels contained twentieth-century trash, and the lower levels (be-





**Figure 3:** One of two rock outcrops found in a low lying bamboo grove near Nyame Bekyere, covered in grinding slicks (site designation NB37). The pictured rock features at least 21 long slicks, probably created by people manufacturing or sharpening nyame akuma stone tools. The measuring tape represents 1 metre. Photo S. Reid.



**Figure 4:** Ground stone bead excavated at AD31 near Adiembra, top (left) and side (right) views. This bead was found at a depth of 70-80 centimetres, below the slag concentration. We identified similar ground stone beads at other hilltop sites with pre-Atlantic or early Atlantic material culture in the region, including SD610 and Wawase. Photo S.Reid.

low 50 centimetres) contained charcoal and an occasional undiagnostic eroded sherd or quartz flake. At SD610, a single 1x1-metre unit was excavated on a hilltop where Reid identified eroded local ceramics with pre-Atlantic stylistic affiliations, stone flakes, and a ground stone bead during pedestrian survey. Excavation revealed the depth of archaeological deposits on the hilltop to be quite shallow (<40 centimetres). The large quantity of pre-Atlantic ceramics, small amounts of quartz flakes and debitage, and a stone bead found washing down the hillside probably indicate this hill has deflated or eroded. At the smelting site of AD31, three contiguous 1x1m units were dug as a trench into one of the iron slag mounds. Dense slag, interspersed with eroded local ceramics, charcoal, burnt palm nuts, and pieces of broken furnace extends from the surface to about 70 centimetres. 70-80 centimetres is transitional: the dense slag layer ends and stone flakes are found with increasing frequency. We also recovered a ground stone bead in this level (Figure 4). Beyond 80 centimetres, only stone flakes, heavily eroded ceramics, burnt palm kernels, and charcoal are present, until a depth of about 100 centimetres where cultural deposits end. We recovered numerous charcoal samples for radiocarbon dating that will be available soon. A full description of the excavations and what was recovered is discussed in Reid's dissertation.

### Discussion and conclusion

Remote sensing and archaeological survey data suggest a long-term settlements dynamic along the Pra River from at least the first millennium AD. Initial results of Reid's survey work have revealed material traces of pre-Atlantic and early Atlantic human activity throughout the region. Many hilltops, ridges, and sacred groves feature eroded ceramics and stone flakes. The ceramics bear a resemblance to those recovered from excavations at sites like Asebu (Nunoo 1957), the Birim Valley (Kiyaga-Mulindwa 1978), Komenda (Calvocoressi 1975), Brenu Akyinim, Coconut Grove, Eguafu, and Elmina (e.g. DeCorse 2001: 116-123; Spiers 2007: 141-170; Spiers 2012: 125-131). Many of the potsherds feature distinctive rims with a 'ledge' or 'collar', and are like those excavated from earthwork sites in southern Ghana (e.g., Boachie-Ansah 2008). Dense vegetation on fallow land and secondary forest is a hindrance to locating surface deposits. But for those hills that were actively being farmed, the dual processes of clearing vegetation by burning and disturbing the soil for planting revealed buried ceramic sherds and flakes. The unexpectedly high density of grinding slick sites also speaks to the production and maintenance of specialized stone tools, and more broadly to the intense degree of human activity throughout this archaeological landscape in the deep past. Many of these

grinding slicks are found in creek beds where large boulders are exposed, with fewer found on hillsides, flat areas, and inside the tall forest. Pre-Atlantic ceramics coming out of animal burrows and tree falls in sacred forests suggest that these sites may have been inhabited. Reid's data show a long-term and complex human interaction with the landscape and vegetation of this region.

Evidence from Amarty's work at Wawase suggests that the banks of the Pra River were settled by lithic and iron using societies by at least the first millennium AD. The first and early second-millennium assemblage includes stone and shell beads, ceramics, shells, and a few pieces of iron. At that time, the settlement was quite small, extending only a few metres towards the low-rise bordering the right bank of the Pra River. A significant portion of people's diets likely came from local riverine as well as marine resources. This inference is drawn from the number of shells recovered from pre-Atlantic contexts. Shell and stone beads were also recovered from these contexts which suggests that these societies were using items of bodily adornments. The lithics consist mainly of geometric quartz flakes and a few core tools. This assemblage does not fit into a well-defined techno/behavioural phase known from other parts of Ghana or West Africa, such as the Kintampo or Later Stone Age assemblages (see Watson 2017). On the eve of the Atlantic trade, the Wawase settlement appears to have shifted towards the low-rise. A locally made smoking pipe and a few European trade items dating to the early period of the Atlantic trade were recovered from this locus. Supomu on the other hand lacks any pre-contact archaeological horizon.

The archaeological and historical data suggest that the Wawase settlement was continuously occupied from at least the first millennium AD until the mid-twentieth century when it was abandoned. Data from Supomu indicates that the island was occupied during the Atlantic slave trade spanning the seventeenth to the nineteenth century. The timing of the occupation is also consistent with the period of Adom dominance in this part of the Gold Coast. When Supomu was abandoned in the second half of the nineteenth century, we see a flourishing Wawase settlement during the early twentieth century. During this period, Wawase may have profited from the burgeoning gin, rum, and schnapps economy during the late nineteenth and early twentieth centuries. This is evident in the large numbers of glass pieces recovered from



**Figure 5:** Logging along the Pra River near Nyame Bekyere. A spoil mound from *galamsey* operations is visible in the background on the riverbank. Photo S. Reid.

the study dating to the period in question. Wawase was finally abandoned during the third quarter of the twentieth century. The construction of the Cape Coast-Takoradi Highway to the north of the area may have been the foremost reason for the abandonment of Wawase (also see Carr 2001).

Logging and *galamsey* operations are transforming the present landscape near the Pra River (Figure 5). Reid observed active logging in numerous areas in the vicinity of the Pra, and in particular, *Ceiba pentandra* (kapok) trees were being targeted. Small-scale logging was also occurring in the Pra-Suhien Forest reserve during the survey. Old logging roads and sawpits are common in the area, likely dating from the colonial period. *Galamsey* operations are ubiquitous on the river and along the riversides. Locals reported the river being muddy brown since the mid-2000s due to *galamsey*. At Supomu, *galamsey* operations have heavily disturbed and destroyed archaeological contexts including graves. During a visit to Eguafu in late 2016, *galamsey* operations were active. Seventeenth and eighteenth centuries imported European trade materials, local ceramics, and nyame akuma were strewn around in disturbed areas. Fourteen years ago, Kankpeyeng and DeCorse (2004) sounded the alarm at the unmitigated destruction of Ghana's archaeological past due to development and *galamsey* operations. Unfortunately, in parts of the Central and Western regions, it continues unabated.

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