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Archeologists from the Natural Resources Conservation Service and Arkansas Archeological Survey employed multiple techniques to investigate a newly recorded mound site (3DA673) in the Ouachita River valley in southern Arkansas. Topographic mapping documented a large two-stage mound. Geophysical surveying around the mound revealed anomalies in the gradiometry and resistance data, and soil coring detailed floodplain soils. A test unit was excavated in a large circular anomaly that corresponded to a low topographic rise north of the main mound. While very few artifacts were found, a burned zone and a post mold feature suggest the anomaly was a burned structure covered with fill, and show the potential for buried cultural deposits at the site. Based on the 2010–2011 investigations, 3DA673 and the neighboring site 3DA403 represent the archeological residues of a Middle to Late Caddo period community (ca. A.D. 1400s).

Introduction

Numerous mounds have been recorded as archeological sites in the Ouachita River valley of southern Arkansas over the past century (Lockhart 2012). Many have been destroyed in the past by looting, flooding and erosion, farming practices, or large-scale excavations by early archeologists. While we try to make revisits to previously recorded mound sites, once in a while we are able to record a new one. In 2010, we were called to investigate a newly identified mound in southern Arkansas. Over the next year, we used multiple techniques to document this construction and the surrounding cultural landscape. In this article, we summarize the results of those investigations.

A New Mound Site

In August 2010, staff from the Natural Resources Conservation Service (NRCS; John Riggs and Diana Angelo) and the Arkansas Archeological Survey (ARAS; Jamie Brandon and Mary Beth Trubitt) made a visit to a location in the Ouachita River valley in Dallas County. As part of routine field work on a project on the property, the NRCS staff had discovered a mound that appeared to be a cultural construction. It stood out from the pasture because it was covered with trees (Figure 1). While it was hard to discern the shape, it appeared to be a two-stage construction with a higher conical portion at the western end and a lower stage or ramp on the eastern end (Figure 2). The two-stage form is seen on other Caddo period mound sites in southwest Arkansas (Girard et al. 2014:74-75). Based on archeological excavations at other sites in southwest Arkansas (such as Mineral Springs [3HO1], Ozan Site 4 [3HE60], and Ferguson [3HE63]), these are structure mounds made up of series of burned and buried buildings dating to the A.D. 1200s to 1500s or Middle to Late Caddo periods (Bohannon 1973; Harrington 1920; Schambach 1996; Taormina 2015). With permission from the property owner, we made plans for additional work at the site, now recorded into the Arkansas archeological site file system as 3DA673.

Figure 1. View south of tree-covered mound in pasture, 2010 (ARASHSUD_K1972).

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Figure 2. View northwest from lower mound towards summit (people partially hidden by trees on summit show scale; ARASHSUD_K1966).

Mapping, Geophysical Surveying, and Soil Coring

Over several days in October and November 2010, ARAS and NRCS personnel mapped the mound with a total station, starting from an arbitrary N500 E500 Z100 datum. The site is in a floodplain setting with ridge/swale topography. The Ouachita River is about 230 m west of the site, and the soils in this locality are mapped as Ouachita silt loam, frequently flooded (NRCS 2019). In 2020, Jami Lockhart processed and examined bare-earth lidar data for the vicinity (included in site form but not illustrated here to protect the site location) that shows the dynamic stream morphology with multiple paleochannels. Flooding in the past is likely. The 3D map in Figure 3 shows the two-stage mound as well as a lower rise to the north of it. The larger mound is about 35 m E-W and 32 m N-S and stands about 3.2 m high. The smaller oval rise is about 28 x 25 m and 40 cm high. Based on conversations with the property owner, we suspected this represented a second mound that had been plowed down in the past.

Following the mapping, in November 2010, Jami Lockhart (ARAS) directed a geophysical survey at the site. At other Caddo sites in southwest Arkansas, geophysical surveying has been successful in locating clusters of structures, pits, and middens in the vicinity of the mounds (e.g., Lockhart 2010; McKinnon 2017; Walker and McKinnon 2012). Lockhart surveyed a 140 x 140 m area with gradiometry (trees and brush covered the mound and immediate vicinity, restricting survey there). The gradiometry survey around the mound showed patterns of anomalies that seem to correspond with elevation (that is, more concentrated anomalies were found along the higher-elevation ridges, Figure 4). These linear magnetic signatures are likely related to flood deposits, but testing would be needed to rule out cultural factors. Lidar imagery shows these topographic features, as well as east-west paleochannels to the north and south of the main two-stage mound (Figure 5). Whether these were a factor in situating construction at the site is unknown. In addition, a 40 x 40 m block over the suspected plowed-down mound north of the two-stage mound was surveyed with electrical resistance. Based on the results of the resistance and gradiometry survey, Lockhart identified a circular anomaly that corresponded to the low topographic rise (Figure 6). The anomaly is not centered on the topographic rise but is northwest of it, which may be the result of twentieth-century agricultural activity. This anomaly probably relates to mound construction; the magnetic signature in the gradiometry is weaker than would be expected from

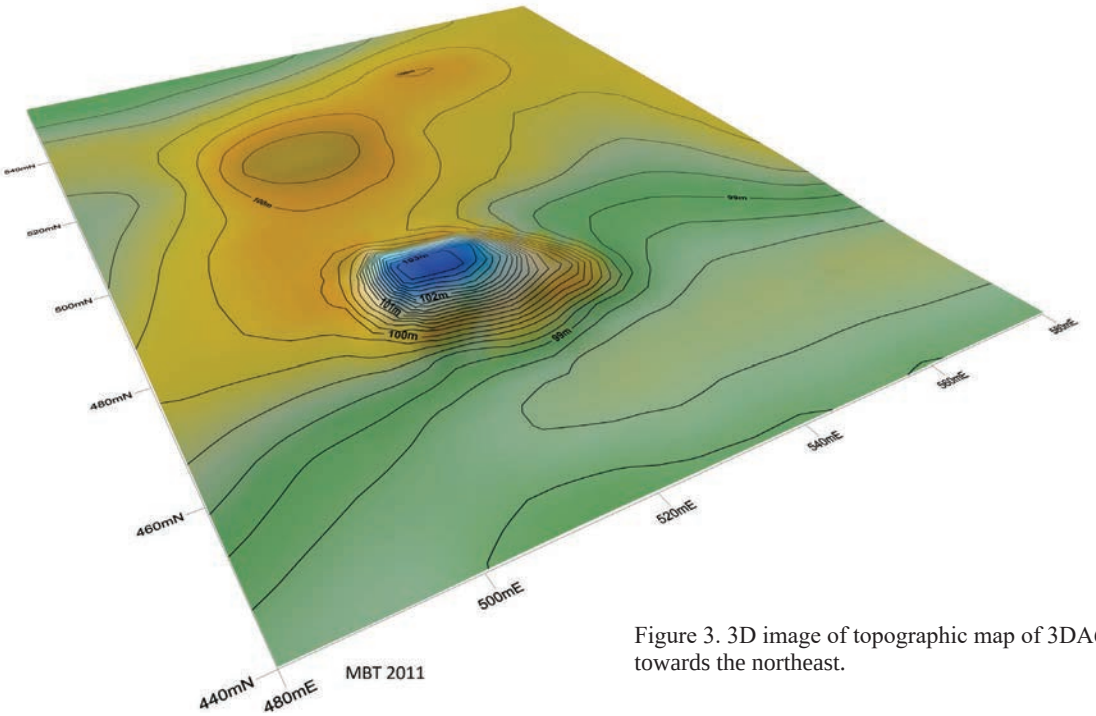

Figure 3. 3D image of topographic map of 3DA673, view towards the northeast.

a burned structure.

There are magnetic dipoles in the gradiometry that are probably metal, but other discrete magnetic monopoles of various sizes and strengths that warranted further testing. In November 2010, we placed four soil cores (P1-4) into gradiometry anomalies by hand using an Oakfield probe (Figure 7). Soils were relatively homogenous with hard dry silt. Two of the probes had small amounts of charcoal and burned clay that were collected from between about 50-110 cm below surface (bs; Accession 2011-363-1, 2; Table 1). In February 2011, NRCS soil scientist Leodis Williams did more

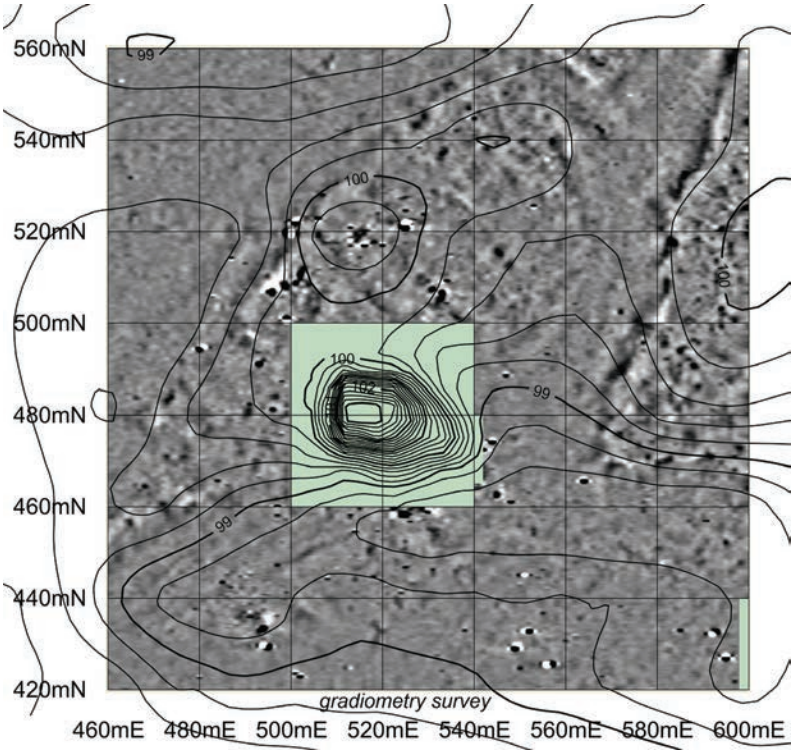

Figure 4. Gradiometry results with topographic base map; darker shades indicate increased magnetism.

Figure 5. Lidar image of 3DA673 site vicinity; dotted lines indicate locations of linear magnetic signatures from gradiometry survey.

extensive soil coring around the mound with a truck-mounted auger. He took a total of 15 cores, some going as deep as 2.25 m bs (SC1-15). Soils were described as brown silt loam to about 70-80 cm bs, when texture changed to a fine sandy loam or a silty clay loam. There was a brown loamy sand deposit below about 160 cm in several cores. While we saw flecks of charcoal in most cores, a soil sample with heavier charcoal was collected from one core (Accession 2011-363-3). Small fragments of burned clay or daub were seen and collected from two

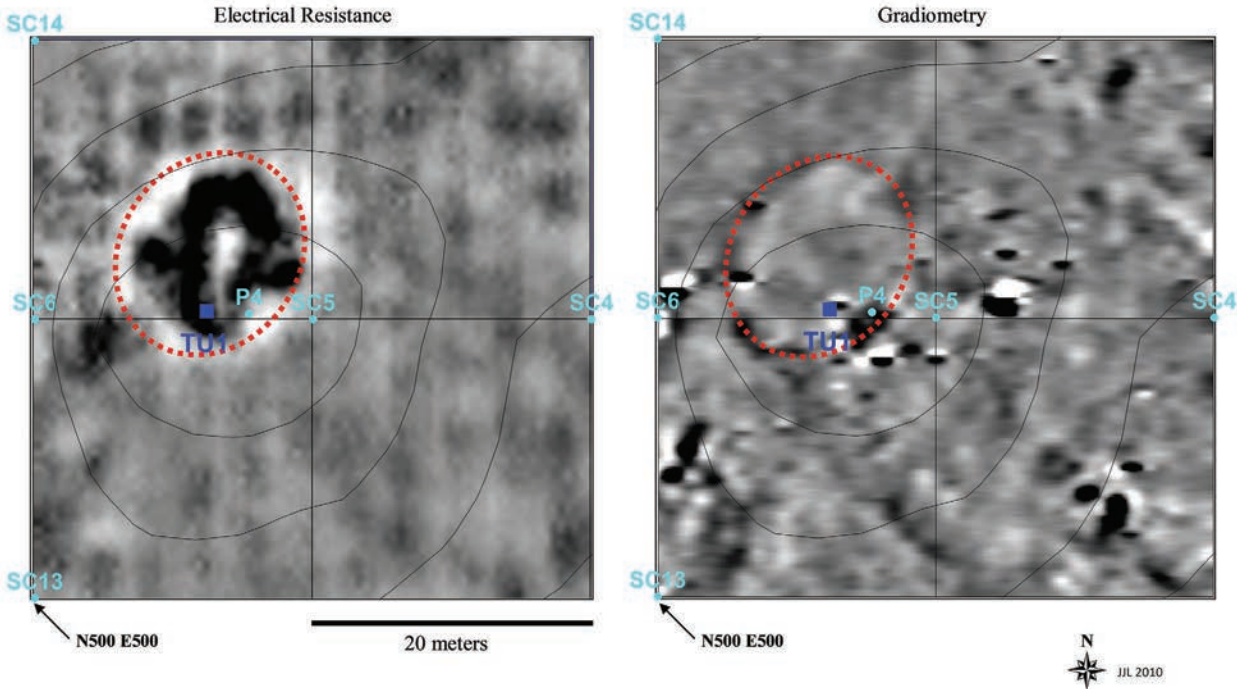

Figure 6. Detail of N500-540 E500-540 grids with electrical resistance and gradiometry results; darker shades indicate increased geophysical readings. The shared anomaly is circled in red, and locations of subsequent soil cores and test unit are shown.

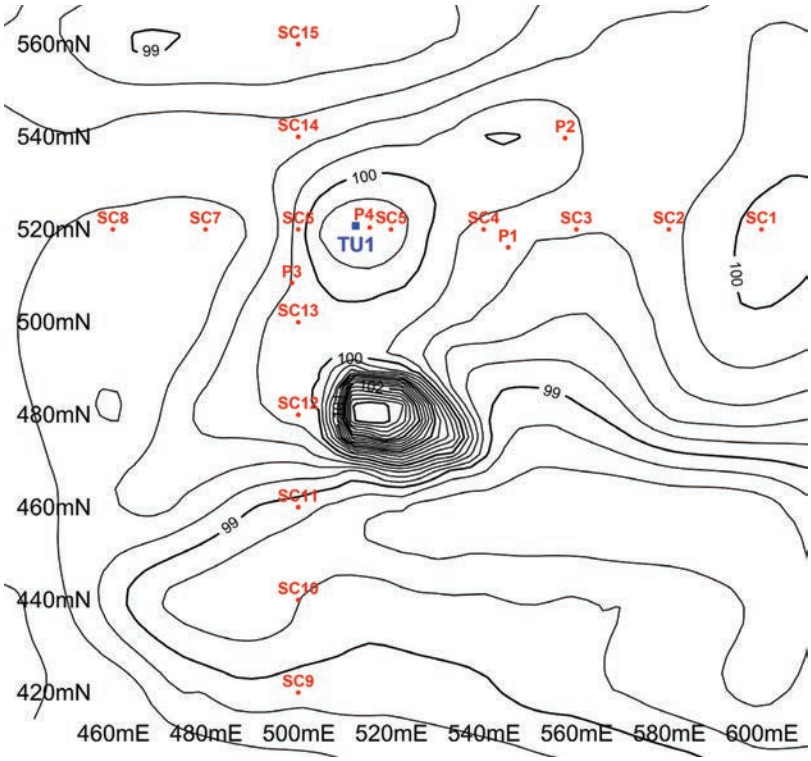

Figure 7. Locations of soil cores (P=Oakfield probe locations; SC=truck-mounted auger locations) and test unit (TU1).

cores (Accession 2011-363-4, 5), but no artifacts were found.

At this point, we had not identified any cultural artifacts at the site. No artifacts were recorded during the initial NRCS shovel testing at the site, although two pieces of daub were observed in a bare patch on the mound. One soil probe (P3) and two soil cores (SC 13, 14) had fragments of burned clay or daub,

Table 1. Soil cores from 3DA673.

ID	N	E	Z	Depth	Charcoal?	Burned clay?	Accession/FSN, Contents
P 1	516.1	545.3	99.7	-0.85	-	-	
P 2	539.7	557.6	99.9	-1.15	+	-	2011-363-1 (charcoal 110 cm bs)
P 3	508.4	498.6	99.8	-0.70	-	+	2011-363-2 (burned clay 53-65 cm bs)
P 4	520.4	515.4	100.4	0.70	+	-	
SC 1	520.0	600.0	100.1	-2.22	+	-	
SC 2	520.0	580.0	99.7	-1.80	+	-	
SC 3	520.0	560.0	99.6	-1.46	+	-	
SC 4	520.0	540.0	99.8	-1.40	+	-	
SC 5	520.0	520.0	100.4	-1.65	+	-	2011-363-3 (charcoal, 20-50 cm bs)
SC 6	520.0	500.0	99.9	-2.30	-	-	
SC 7	520.0	480.0	99.3	-2.00	+	-	
SC 8	520.0	460.0	99.4	-2.25	+	-	
SC 9	420.0	500.0	99.2	-1.80	+	-	
SC 10	440.0	500.0	98.8	-1.20	+	-	
SC 11	460.0	500.0	98.9	-2.20	+	-	
SC 12	480.0	500.0	100.0	-1.30	+	-	
SC 13	500.0	500.0	100.0	-1.30	+	+	2011-363-4 (burned clay, 32 cm bs)
SC 14	540.0	500.0	99.5	-2.25	+	+	2011-363-5 (burned clay, 55 cm bs)
SC 15	560.0	500.0	99.1	-2.22	+	-	

Note: charcoal and burned clay presence or absence indicated by + or - , bs = below surface.

indicating some potential for buried cultural features such as hearths or burned structure floors north of the two-stage mound. We decided to hand excavate a small test unit in the low topographic rise north of the mound to test the circular anomaly centered at about N525 E515 that Lockhart had identified in the resistance and gradiometry results.

Test Unit Excavation

Over two days in 2011, Trubitt and Riggs (on April 19, 2011, and Trubitt, Riggs, and Vanessa Hanvey, then ARAS-HSU station assistant, on July 13, 2011) excavated a 1 x 1 m test unit (TU 1) to investigate the circular anomaly in the low rise north of the mound. TU 1 was placed at N520-521 E512-513, in the southern part of the anomaly. Excavation methods included shovel scraping and troweling 10 cm arbitrary levels, screening soil through 0.64 cm (1/4 inch) mesh hardware cloth. The local datum was set at 5 cm above ground surface at the southwest corner of the unit (relative elevation ~ 100.45 m).

On our first day, we did not find any cultural material in the upper 40 cm of the deposits. The soil was homogenous dark yellowish-brown silt. Some mottling and charcoal flecks were present in Levels 2-4, and in the mottled zone that appeared to slope down to the south as viewed on the east wall of the unit. One piece of heat-shattered novaculite was collected just above the base of Level 5 at 55 cm below datum (Accession 2011-366-1, Table 2). Mottled soil and charcoal concentrations increased in Level 6, and three small ceramic sherds were collected (Accession 2011-366-2). At the base of Level 6 at 65 cm below datum (99.80 m elevation), we mapped an area of charcoal concentration in the northwest corner and an area with heavier charcoal (burned wood) on the south side of the unit (Figure 8). At the end of the day, plastic sheeting was laid in the bottom of the unit and we backfilled, with a plan to return to complete the excavation.

We returned in July 2011 and began with Level 7 (65-77 cm below datum, 99.80-99.68 m elevation).

Table 2. Test Unit 1 Excavation (Accession 2011-366).

Level	Technique	Soil Description	FSN	Comments
L-1, 5-15 cmbd	DS1/4"	10YR3/6 silt		plow zone, no rock
L-2, 15-25 cmbd	DS1/4"	10YR3/6 silt, mottled with 10YR5/3 silt		no rock, some mottling and charcoal at base of level
L-3, 25-35 cmbd	DS1/4"	10YR4/6 silt, mottled with 10YR5/4, 5/3 clay silt in S		more charcoal and mottling, esp. in S
L-4, 35-45 cmbd	DS1/4"	10YR4/6 silt, mottled with 10YR5/4 sandy clay-silt in S		charcoal/nutshell; mottled only at S end
L-5, 45-55 cmbd	DS1/4"	10YR3/6 silt, wetter and more clayey	1	charcoal; novaculite chunk
L-6, 55-65 cmbd	DS1/4"	10YR4/6 clayey silt, areas mottled with 10YR5/3 clay, charcoal	2	charcoal lens; b.clay/sherds
L-7, 65-75 cmbd	Flot HF	10YR4/6 clayey silt with charcoal fragments	3	10.5L soil sample, S1/2 charcoal area
L-7, 65-75 cmbd	Flot LF		4	
L-7, 65-77 cmbd	DS1/4"	10YR4/6 clayey silt, some charcoal	5	sherds, lithic
L-8, 77-85 cmbd	DS1/4"	10YR3/6 clayey silt	6	artifact content decreased; sherd
L-9, 85-110 cmbd	DS1/4"	10YR3/6 clayey silt		NW quad only
F-1, 85-108 cmbd	Flot HF	10YR5/4 silt, charcoal flecks in upper portion	7	5.5L soil sample, F-1 E1/2
F-1, 85-108 cmbd	Flot LF		8	

Note: Level depths are given as cmbd (centimeters below datum); the unit datum = 100.45 m, so top of L-1 is 100.40 m and base of L-9 is 99.35 m relative to arbitrary site datum of 100 m el.

Figure 8. View east at base of Level 6 (65 cm below datum or 99.80 m elevation) in TU 1, showing mottled area in northwest quadrant and charcoal flecking at south (ARASHSUD_K4313).

A 10.5 L soil sample from the south half of the unit (the area with heavier charcoal flecks) was taken for flotation, and the remainder of the level was shovel scraped, troweled, and screened to recover any artifacts. Several ceramic sherds were recovered, as well as charred wood fragments and a large flake of silicified sandstone (Accession 2011-366-5). Two areas with heavier charcoal were mapped at the base of the level. In Level 8 (77-85 cm below datum, 99.68-99.60 m elevation), the artifact content decreased (to one sherd). There was a small circular feature defined at the base of Level 8 as Feature 1 (F-1).

F-1 was an oval area (14 x 17 cm, centered at N520.66 E512.09) that was lighter in color and siltier than the surrounding soil and had more charcoal (10YR5/4 silt with charcoal flecks). We drew a plan view of the feature, and photographed (Figure 9), and cross-sectioned it, removing the east half as a flotation sample (5.5 L; Accession 2011-366-7, 8). The soil surrounding F-1 in the northwest quadrant was taken out as Level 9 (85-110 cm below datum, 99.60-99.35 m elevation) as part of the cross-sectioning process, but contained no artifacts. In profile (Figure 10), F-1 extended from 85 to 108 cm below datum (99.60-99.37 m elevation) with a rounded base. Charcoal was heavier in the upper portion than in its base. While it was defined at 85 cm below datum (99.60 m elevation), there had been a small area of charcoal flecking visible in this location since 65 cm below datum (99.80 m elevation). It is interpreted as a post mold and was likely associated with the charcoal lens that was also mapped at 65 cm below datum.

The north and east walls of the unit were photographed and profiled (Figure 11). The north profile shows an area of mottled fill overlying the burned zone at 70 cm below datum (99.75 m elevation). The east profile shows fill layers that slope down towards the south and cover the burned zone with charcoal lenses at 70-74 cm below datum (99.75-99.71 m elevation). Some of the homogenous fill in the upper portion of the profile may represent soils that were redeposited during mid-twentieth century leveling, in addition to a plow-

Figure 9. Close-up view of Feature 1 at base of Level 8 (85 cm below datum or 99.60 m elevation; ARASHSUD_K4474).

Figure 10. Feature 1 west profile (ARASHSUD_K4480, with digitized drawing).

disturbed zone at top. Repeated past flooding of this location may also have deposited and redeposited sterile soils, burying cultural zones in the past. The charcoal lenses and burned area in the profiles at 70-74 cm below datum, and associated post mold, may represent part of a burned structure covered with "clean earth," creating a low mound. Other examples have been described in the Caddo area in southwest Arkansas dating to the A.D. 1200s to 1500s (Middle to Late Caddo periods) (e.g., Harrington 1920; Reynolds 2007; Schambach 1996; Trubitt 2009). Unlike those examples, no charred posts or structural timbers were found at 3DA673.

Artifacts

There were very few artifacts encountered during excavation of TU 1 (Table 3). No artifacts came from the upper four 10-cm levels. Level 5 had one piece of tan-red novaculite angular debris (heat shatter) with cobble cortex (Figure 12*a*). The only other lithics were a silicified sandstone flake with cortex from Level 7 (Figure 12*b*), and two pieces of novaculite micro-debitage sorted from the Feature 1 flotation. A total of 10 ceramic sherds was recovered. Level 6 had three sherds (grog+shell+bone-tempered plain body, grog+shell+bone-tempered incised body, and grog-tempered incised body, Figure 13*a*). Five sherds came

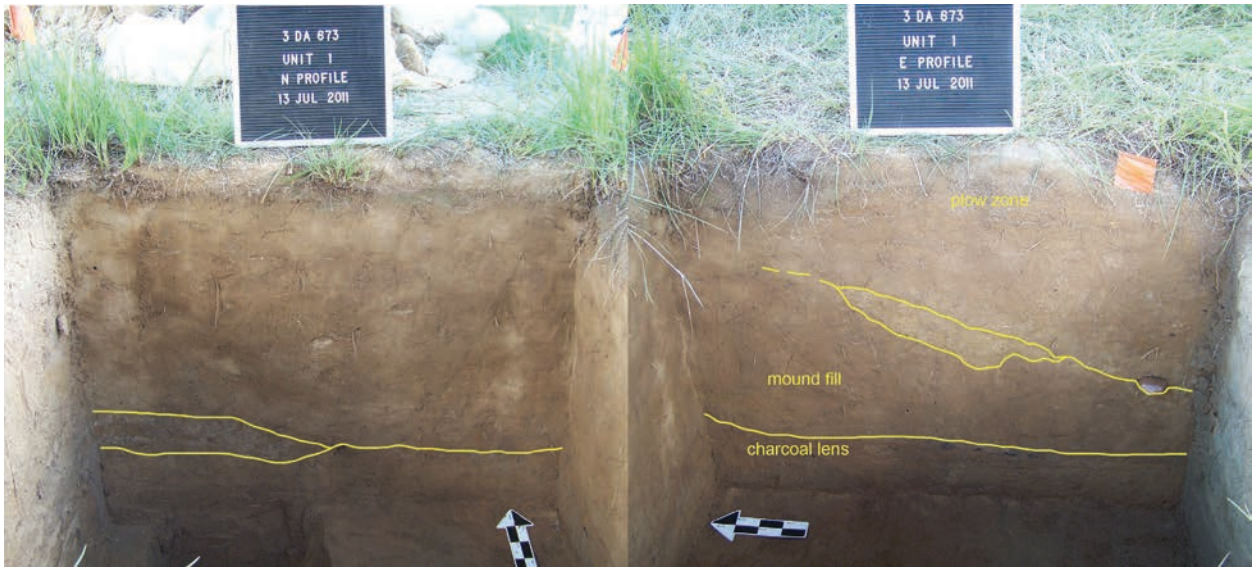

Figure 11. North and East profiles of TU 1 (ARASHSUD_K4495, 4492, with digitized drawing)..

Table 3. Artifacts from Test Unit 1 (Accession 2011-366).

		Chipped Stone		Ceramic Sherds		Floral	
Level	FSN	ct	wt g	ct	wt g	wt g	Comments
L-5, 45-55 cmbd	1	1	6.0				shatter
L-6, 55-65 cmbd	2			3	1.7	0.2	sherds; charred wood fragments
L-7, 65-75 cmbd HF	3			1	0.2	0.5	sherdlet; charred wood frags.
L-7, 65-75 cmbd LF	4					8.5	charred wood frags.
L-7, 65-77 cmbd	5	1	10.6	5	8.9	1.1	flake; sherds; charred wood frags.
L-8, 77-85 cmbd	6			1	2.2		sherd
F-1, 85-108 cmbd HF	7	2	0.1			1.9	ch. debris; charred wood frags.
F-1, 85-108 cmbd LF	8					10.7	charred wood frags.
Total		4	16.7	10	13.0	22.9	

Note: cmbd = centimeters below datum; HF, LF = heavy fraction and light fraction of flotation sample.

from Level 7 (one grog+shell-tempered engraved rim, two grog+shell-tempered engraved body, and two grog+shell-tempered plain body, Figure 13*b*), and one sherd came from Level 8 (grog+shell-tempered plain body, Figure 13*c*). At least one of these came from a carinated bowl, and the Level 7 and 8 sherds had similar paste and may have come from the same vessel. In the middle Ouachita River valley, the combination of engraved cross-hatching with red pigment filling the lines on pottery tempered with grog and shell is characteristic of Friendship Engraved and Garland Engraved, Mid-Ouachita phase types dating to the A.D. 1400s (Early 1993; Perttula et al. 2011).

Discussion

The test unit, placed in the southern portion of an anomaly visible in the resistance and gradiometry results, revealed lenses of charcoal 65 cm bs. This deposit, mainly charred wood fragments, corresponded with a very light scatter of artifacts found at that level. The engraved and plain grog+shell-tempered sherds suggest a Middle to Late Caddo period date for the deposit (ca. A.D. 1400s). The fill deposited above this charred layer slopes up to the north, and appears to form a low earthen mound centered at about N525 E515. The post mold and charred wood, with a couple of sherds, are interpreted as remnants of a burned structure. The lack of artifacts in the overlying fill may be due to purposely bringing clean earth (rather than midden) to cover the architecture as closure. Sterile flood-laid soils may also have been a factor, covering cultural deposits at the site. No excavations were done in the larger two-stage mound, but it likely contains a series of burned structures.

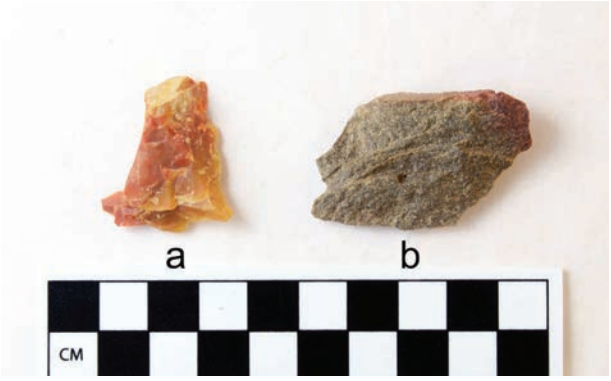

Figure 12. Chipped stone debris from 3DA673 TU 1; *a*, novaculite shatter; *b*, silicified sandstone flake (Accession 2011-366-1, -5; ARASHSUD_N30803).

This part of the Ouachita River valley has seen sporadic archeological investigation. Several sites in the vicinity of 3DA673 were initially visited by Lynn Howard as part of a University of Arkansas Museum field school in the 1950s and/or by Marguerite Verley (1964) during her survey in the 1960s, but the records are confusing. Two low mounds were recorded at site 3DA403, located about 800 m to the south of 3DA673. In a shovel test dug by the NRCS/ARAS team in a low rise at 3DA403 in 2010, a burned clay/daub/ash deposit was uncovered at 20 cm bs. Artifacts from the shovel testing included novaculite flakes and several sherds tempered with grog and with shell, as well as pieces of wood charcoal, mussel shell, and animal bone (Accession 2010-347). That site appears to have been occupied during the Middle-Late Caddo period.

Figure 13. Ceramic sherds from 3DA673 TU 1; *a*, incised and plain body sherds, Level 6; *b*, engraved rim, engraved body sherds, and plain body sherds from Level 7; *c*, plain body sherd from Level 8 (Accession 2011-366-2, -5, -6; ARASHSUD_N30819).

While the mounds once noted at 3DA403 have been disturbed or destroyed, the site retains some potential for buried cultural features. The proximity of 3DA403 to 3DA673, and the presence of Caddo period artifacts at both, suggest they may have been part of the same contemporaneous community.

The 1977 New Hope project involved archeological survey east of the Ouachita River in Dallas County (Klinger 1978). Several sites were recorded along streams draining from the uplands (e.g., 3DA61, 3DA66, 3DA109) that had artifacts diagnostic of the Caddo period as well as indications of midden, structures, and/or cemeteries. West of the Ouachita River, two low mounds were recorded at site 3OU131 by Howard and Verley, and a 1979 visit and surface collection by David Kelley (then at ARAS) confirmed a Caddo period occupation, but no further work has been done there.

South of 3DA673 and 3DA403, there is a cluster of sites (3OU32, 3OU112, 3OU125/199, 3OU247) along the Ouachita River that have Caddo period artifacts and shell middens deposits. In 1987, a large crew from the ARAS and Arkansas Archeological Society conducted excavations at 3OU112 as part of a Society Training Program, uncovering part of a structure floor as well as a large sample of decorated sherds (Davis 1987). ARAS personnel plan to complete cataloguing and analyzing materials from the 1987 excavations, which should provide new insights into ancestral Caddo lifeways in the lower Ouachita River valley.

Conclusions

Archeologists from the ARAS and NRCS employed multiple techniques to investigate a newly recorded mound site in the Ouachita River valley in 2010 and 2011. The main construction at the site is a large mound (32 x 35 m and 3.2 m high), oriented east-west, with a higher platform on the west and a lower lobe or ramp on the east. This two-stage form is seen in other Caddo mound sites in southwest Arkansas. Mapping with total station, geophysical surveying using resistance and gradiometry, and soil coring revealed a floodplain

setting. Geophysical anomalies were concentrated along higher elevations in the ridge and swale topography. A large circular anomaly about 12 m in diameter corresponded to a low topographic rise north of the mound. A 1 x 1 m test unit excavated near the south edge of the anomaly uncovered very few artifacts. A burned zone, with lenses of wood charcoal and a few ceramic sherds, was identified about 65 cm bs. A feature, interpreted as a post mold, provides slight evidence of a structure. Sloping fill zones appeared to cover the burned zone and post mold, making a low mound. No subsurface investigations were done on the large two-stage mound, but it is likely a structural mound as well that contains burned and buried architecture. Based on our limited investigations, this site and nearby 3DA403 contain archeological residues of a Middle to Late Caddo period community that was here at least during the A.D. 1400s.

Acknowledgments

Thank you to John Riggs and his colleagues at the Natural Resources Conservation Service (NRCS, Roger Gold, Monica Sharp, Joe Gulley, Alyssa Paulus, and Donna Newton) for assistance with mapping 3DA673, and to Leodis Williams (NRCS) for conducting the soil coring at the site. Tom Green, then director of the Arkansas Archeological Survey (ARAS), made it possible for Jami Lockhart to travel from Fayetteville to Dallas County to conduct the 3DA673 geophysical survey, and Tom assisted with the field work as well. Rich Johnson and Marilyn Ott (NRCS) assisted John Riggs and Mary Beth Trubitt with excavation of the test unit during part of the day on April 19, 2011. During one of her first days as research station assistant at ARAS-Henderson State University (HSU) Vanessa Hanvey assisted Riggs and Trubitt in completing test unit excavation on July 13, 2011. This article is based in part on Hanvey, Trubitt, and Lockhart's presentation on the Borderlands Project to the Arkansas Archeological Society's annual meeting in Little Rock in 2012. Field records, photographs, and artifacts from the 3DA673 field investigations (AMASDA Project 6366) are curated at the ARAS-HSU research station in Arkadelphia. We thank the property owners at this location. While not identified here to keep the site location confidential, they have played an important role in preserving part of the history of the Caddo people in southern Arkansas. Finally, we thank Timothy Perttula, Duncan McKinnon, and David Kelley for constructive comments on the manuscript. Timothy Perttula served as editor for this article.

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