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NOTES ON THE MOLLUSCA FROM SITE 41DT59, COOPER LAKE, DELTA COUNTY, TEXAS

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This paper focuses on the information about the mollusca from site 41DT59. The author takes the information from Dr. Fullington, the noted malacologist, and illustrates how the archeologist can take the information and apply it to site analysis. This information derived from the analysis mainly supports what the

authors have concluded about site 41DT59, but does discuss material not covered in the original text. The analysis is divided into two sections. The information derived from the gastropods is discussed first, and the information derived from the mussels second.

The Gastropods

In their interpretation of the soils for site 41DT59, Shanabrook, Hunt, and Cliff (1955:F-7) state that they believe the sediments from Unit 25 were probably alluvial floodplain deposits. Based on the gastropod shells found in the excavation, they are correct. The species *Anguispira strongylodes* was recovered from the upper 10 cm, species *Rabdotus dealbatus*, *Gastropta contracta*, *Strobilops texasiana*, *Hawaiiia minuscula*, *Zontoides arboreus*, and *Glyphyalinia indentata* were recovered from the 10 - 20 cm level, and species *Gastrocopta contracta*, *Glyphyalinia indentata*, *Rabdotus dealbatus*, *Strobilops texasiana*, and *Mesodon thyroidus* were recovered from 20 - 30 cm below datum (Fullington 1995:H-3). Fullington (1995:H-3) states

that *A. strongylodes* prefers exposed knolls surrounded by trees or shrubs. The remaining gastropod fauna, however, prefer an oak-savannah environment that may be slightly moister than that for *A. strongylodes*.

All of the species in Level 2 can be found on floodplains in oak-savannah environments. Both *G. indentata* and *S. texasiana* can be found under leaves and rotting logs in moist areas in a floodplain, but *S. texasiana* prefers to be adjacent to streams or water. *G. contracta* prefers to be on rocks adjacent to the floodplain, although it can be found in the floodplain. *H. minuscula* lives under rocks and logs on a floodplain. *Z. arboreus* is always associated with trees, and *R. dealbatus*

prefers mixed, drier grasslands and woods, even though it can be found on floodplains where there is standing water (Fullington and Pratt 1974).

Level 3 contained all of the gastropods in Level 2, which still indicates a floodplain,

except for *H. minuscula* and *Z. arboreus* and contained *M. thyroidus* which Level 2 did not. *M. thyroidus* prefers mixed, drier grassland and woods similar to *R. dealbatus*. There may have been a grassier and drier environment during Level 3 times than Level 2 times.

The Mussels

Cliff and others (1995:100) list the species and percentages of the identified species in Table 1. Current scientific name are used instead of those used in 1995.

As is shown in Table 1, *P. purpuratus* is the most common mussel present in the sample. *A. plicata* is the second most common mussel present, but this is true only if one looks at the fragments. If one looks at the number of umbos/hinges re-

covered from the site, *P. purpuratus* is still the most common mussel with 18 umbos/hinges present of 36, or 50 percent. The next most common mussel represented by the umbos/hinges is *L. hydiana* with seven umbos/hinges (18% of the sample) with *A. plicata* being represented by only one umbo (3% of the sample). Fullington (1995:H-3) stated that the site inhabitants use of *P. purpuratus* was unusual because *A. plicata* is usually the

Table 1. Common Name, Scientific Name, and Percentage of Fragments from Site 41DT59.

Common Name	Scientific Name	Number of Fragments	Percentage
Bluefer	<i>Potamilus purpuratus</i>	52	54.2
Threeridge	<i>Amblema plicata</i>	17	17.7
Louisiana Fatmucket	<i>Lampsilis hydiana</i>	12	12.5
Pink Papershell	<i>Potamilus ohioensis</i>	5	5.2
Yellow Sandshell	<i>Lampsilis teres</i>	5	5.2
Texas Fatmucket	<i>Lampsilis bracteata</i>	2	2.1
Mapleleaf	<i>Quadrula quadrula</i>	2	2.1
Washboard	<i>Megaloniais nervosa</i>	1	1.0

dominant food mussel found on pre-historic Native American sites.

By looking at the scatter of fragments, there were probably four *A. plicata* shells recovered from the site. Four is the MNI for *L. hydiana* based on the valve/umbo count also, meaning that the two species are about even in their popularity at the site. It appears that the three major mussel species eaten or used by the site inhabitants were *P. purpuratus*, *A. plicata*, and *L. hydiana*.

Because six of the eight species of mussels recovered from the site inhabit deeper streams or river waters (Cliff et al. 1995:100), they may have been gathered in the summer or fall when the water was low. The mussels such as *L. teres* which inhabit shallow water could have been gathered at any time. It is interesting that there were only two fragments of *Q. quadrula* and one fragment of *M. nervosa* recovered. *Q. quadrula* inhabits shallow water, oxygen rich riffles and runs (Howell et al. 1996:125), but *M. nervosa* inhabits deep water and suggests again that these mussels were gathered when the water was low.

Cliff and others (1995:52) suggest that the southeastern area of the site contained a kitchen midden and was not a primary occupational area based on the bone, shell and charcoal recovered from Unit 25. This conclusion is supported by the amount of shell recovered from Unit 25. It contained 32 percent of the shell recovered from the site by itself. In addition, the mussels collected from Unit 25 show the greatest diversity of any other unit of the site.

Of the shell collected from 41DT59, 11 percent was burned. This percentage appears high to me. Ethnographic accounts and experiments suggest that roasting or boiling the mussels was the fastest way of cooking them [Henshilwood et al (1994:107); Parmalee and Klippell (1974:421); Waselkov (1987:169)]. The shell being burned, however, does not necessarily mean that it was intentional. It merely could have been incorporated into a fire accidentally.

It appears that the use of mussels increased over time at 41DT59, just like the use of other animals. Although mussels were not a major subsistence base, their importance can not be overlooked. For one thing, the amount of energy return for gathering time is greater. Brown (1988: 229), in his discussion of the subsistence practices of the prehistoric inhabitants of what is now Aquilla Lake, stated that mussels may have been an important source of calcium. Lintz (1996:T-14) pointed out that mussels recovered from two Early Archaic sites in the Concho River Terraces in Tom Green County provided fat and vitamin A as well as calcium.

One interesting aspect of mussels that has not been utilized much is their use to determine what fish were present in the stream that the mussels were recovered from. Since different mussel species may use the same fish for hosts for their glochidia, there has been no attempt to specify which fish were hosts to which mussel. Although no fish bones were identified at 41DT59, fish recovered from the Spike site (41DT16) included bowfin,

catfish, drum, gar, and sunfish (Yates 1993:23). These fish could have been utilized for food at 41DT59 and other possibilities include white bass, rock bass, largemouth bass, bluegill, warmouth,

white crappie, black crappie, and yellow perch. Other fish include northern pike, pumpkinseed, and sauger (Howells et al. 1996).

Conclusions

It appears that Shanabrook, Hunt, and Cliff's conclusion about Unit 25 is correct based on the gastropods present. Unit 25 was probably within a midden also based on the percentage of shell fragments present. The amount of burned shell seems high, especially when roasting was probably the most common form of cooking mussels. The mussels were probably gathered when the Sulphur River was low. In addition, potential fish species that might be found in the Sulphur River may

be identified by which fish were used as hosts by the mussels' glochidia. Based on the locations of shell fragments and number of umbos/hinges present, the percentage of fragments may yield a false picture of the dominance of a species present at a site. Both *A. plicata* and *L. hydiana* are probably represented equally in the archeological record instead of *A. plicata* being more common as the percentages of shell fragments indicate.

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