The Exploitation of Fauna During the Moundville I Phase at Moundville

by

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Paper to be presented at the 1980 SEAC meetings, New Orleans, Louisiana.

Introduction

Bruce D. Smith (1973:480) has defined "Mississippian" as a cultural adaptation to a specific habitat situation, and as a particular level of sociocultural integration. This cultural adaptation seems to be primarily restricted to the meander-belt zones of the major river vallies of the Eastern United States. This zone provides both the easily tilled alluvial soils for good cultivation, and rich biotic resources.

However, very little work has been done directly with the Mississippian subsistence pattern. Bruce Smith (1975) has done one of the only complete faunal studies of Mississippian populations in a similar environment as Moundville. In this analysis he has identified three faunal groups which were of primary importance to Mississippian populations (1978):

1) backwater species of fish
2) migratory waterfowl
3) the terrestrial trinity (white-tail deer, racoon, and turkey)

I have partially analyzed the faunal remains from the 1978-1979 excavations at Moundville in an attempt to answer three questions dealing with Mississippian adaptation:

1) Which environmental zones were exploited by the inhabitants of Moundville?
2) What was the general subsistence of the population as indicated by the species present in the sample and the butchering pattern implied by the remains?
3) Was there population pressure on the inhabitants of Moundville as reflected in the types and amounts of remains? That is, was there stress being put upon the surrounding environment by the population at Moundville?

Archaeology

The remains used in my study were recovered during the 1978-1979 field seasons at Moundville from the excavations north of Mound R (Map 1). The remains were recovered from 28, mainly natural, levels found within the two major units, with these levels being semi-correlatable between the two units. Of the 41 features determined to be intact enough to warrent investigation, twenty-one were analyzed (Chart 1). All but two of these features are from the Moundville I phase, as determined by Vincas Stepinaitis (n.d.), with the remaining two features (numbers 3 and 19, those shown in red) belonging to what has been labled the Moundville III phase.

The Moundville I occupation of the site, the first Mississippian culture phase, has been tentatively dated at between A.D. 1100-1250. The Moundville III occupation, the last phase of Mississippian occupation, has been placed at about A.D. 1400-1500.

Socio-politically, Moundville has been identified by Peebles (1974) on the basis of burial remains as a chiefdom or ranked level of social organization. However, the mortuary analysis also suggests that during the Moundville I phase only one "political office" can be distinguished as opposed to two offices in the Moundville II and III burials (Peebles 1979).

The Moundville I features are those mostly associated with the stratified house floors while the Moundville III

features are those associated with the midden material from the upper portions of the excavated units.

The features themselves are all pits, with wall trenches and postmolds having been disregarded because of the assumed lack of adequate amounts of faunal remains in them. Almost all of the features were floted in entirety by the method described by M. Scarry, with only a few features, because of their large size, subjected to a three liter flotation sample with the remainder water screened through nested 1/4 inch and 1/16 inch screens.

Limitations

In the analysis and the discussion on the results it must be stressed that, although the recovery techniques were excelent as far as preserving the remains from the features, these remains are from only one structure in a large site. This should severely limit the amount of faunal remains from processing stages since most processing would probably have been done outside of the structure. Also, the structure having tentatively been identified as an "elite" household should futher limit the amount of remains and overall representativeness of the remains if differential access and distribution of foods was taking place at the site.

Another variable possibly affecting the sample is the type of remains that can be expected from the house floors verses the pits. Most of the refuse from the site appears, because of the lack of extensive middens, to have been dumped into the river and ravines (Peebles 1978), thus I

would assume that much of the ori inal refuse from the structure was disposed of in a similar manner. Diane ifford (1978) has shown that the remains most commonly found in a house floor are the smaller ones which are easily trampled in, such as fish and small bone fragements. In this case I would expect the lar er remains to be more common in the pits than in the floor/level fill. This differential deposition of the remains could lead to a skewin of my results from the features favorin the lar er remains.

Environment

Environmentally Moundville is located directly on a bluff overlookin the Black Warrior River. Geo raphically it is located in the Southern Coastal Plain and possesses mostly an Oak-Gum-Cyperess forest alon the river. The re ion borderin this river basin is mostly an Oak-Pine forest in which 50 percent or more of the stand is hardwood. There are also numerous cypress swamps in the area althou h none are located within the site itself.

Results

Environmental Utilization

In lookin at environmental zones utilized by the inhabitants of Moundville, Table 1 gives a basic outline of the faunal species commonly found in the area in historical and present times. By comparin this table with the species represented in the remains it is possible to determine the environmental zones exploited by the inhabitants.

The large number of grey squirrels verses the number of fox squirrel represented in the remains is the most important determinant for zone utilization. Although both species often inhabit the same types of zones they very rarely overlap in habitats when both species are present. The grey squirrel, when both species are present, is ususally found in the moist bottom lands and swamps, not usually in pine timber. The fox squirrel, on the other hand, is ususally found in dry pine forests and along the edge of the lottom lands, almost never is it found in the low bottom lands. The predominance of rey squirrel (13 individuals) in the sample indicates an exploitation of the zone directly around and in the site--the moist bottom lands--rather than the uplands several miles away where the fox squirrel would be the dominant species.

The presence in the remains if other species, such as the opossum and swamp rabbit, which are also commonly found in swamps and bottom lands also supports this utilization of the environemntal zone directly around the site.

However, other species such as the deer and wild turkey, are not found solely in the bottom land region suggesting that other zones may also have been exploited.

In looking at Table 2, where the habitats if various fish species are presented, it can be seen that they are predominantly exploiting large river fish, such as drum and catfish, rather than those most often found in backwater drainages. However, the presence of suckers in the remains does imply that they mi ht be using other areas rather than just the main river channel such as the man-made lakes around

the site. There have been fish hooks reported from these ponds (Peebles personal communication) supporting this idea.

Subsistence

In looking at general subsistence patterns it can be seen in Table 3 that there appears to be a clear cut preference for certain species. The most dominant species in the remains appear to be the white-tail deer, grey squirrel, and the wild turkey. In addition, fish remains were present in every sample although I have only looked at them to determine general species present rather than the number of individuals. The most common species of fish appeared to be the freshwater drum, catfish and members of the sucker and perch families. The later two catagories seem to possess a large number of smaller individuals.

In terms of meat yields for the species identified, based in figures obtained from Smith (1975), the white-tail deer seems to have been the most important since it is present in almost all of the features. Although it is likely that only part of one individual rather than an entire deer was present, even one limb from a deer could contribute more meat than a squirrel, at 1.0-1.5 pounds per individual, and probably more meat than a wild turkey at 9.0 pounds per individual.

In addition to the three species mentioned rabbits, both swamp and cottontail, two domestic dogs, an opossum, timber wolf, and a coyote were also present in the Moundville I remains. The presence of two domestic dogs does suggest the possible utilization of it as a food source although this is

not conclusive evidence.since only a small fragement from each individual was present. Swanton's ethnographic work on Southeastern Indians (1946:299) does suggest a ceremonial usage of the dog which may explain why only two are represented rather than more. The presence of only one opossum, one timber wolf, and one coyote may represent, in the cases of the coyote and timberwolf, chance kills rather than a stable part of the inhabitants'diet.

The presence of snake vertebrae, 11 individuals from 9 features, may in fact represent a utilization of them as a food source. This is further supported by the fact that some of the vertebrae were burned rulin at a purely fortuitous presence of the individuals. Swanton (1946:298) mentions only one case of an Indian group using snakes as a food source but produces no conclusive evidence for them being a steady part of the diet.

In regards to bird remains, although they have only been partially analyzed, the wild turkey appears to make up the majority of them with no evidence for extensive exploitation of migratory waterfowl. It must be noted that, unlike the sites investigated by Smith (1975), Moundville is not located directly on any major flyway possibly explaining the lack of such species in the remains.

Comparing the remains from the two Moundville III features, Table 4, with those discussed above the deer again appears to be the dominant species with the grey squirrel, wild turkey, and now the rabbit remaining important.

The lack of other species, such as the racoon, which would be expected to be present in the remains could possibly be a result of a taboo agains such food sources, or the result of a differential distribution of these foods within the site. That is, although these species may be absent from the remains in this one structure they may have been used by other groups in the site. The validity of either of these suggestions must remain questionable until further research at the site is carried on.

The dominance of squirrels in the sample over rabbits, which are much higher in meat yield per individual (1.0-1.5 pounds per squirrel verses 2.0-3.0 pounds per rabbit), may be a function of the ease of procurment of the species. That is, squirrels are easily caught simply by knocking them out of trees and by traps, rabbits must be hunted down and trapped in their dens. The same may be true of the opossum since, looking at individuals per square mile, they are much less common than squirrels (32-62 opossum per square mile verses about 320 squirrel per square mile (Smith 1975)).

With butchering two clear cut patterns can be seen : first with the small mammals, and secondly with the deer. Table 5 shows the number of squirrel and rabbit individuals represented by specific anatomical parts. By far the posterior limbs, anterior limbs, and cranial bones are the most commonly found part of the individuals with only one rabbit vertebra present for the nine individuals identified. In the squirrel remains only four vertebrae were present from the 16 individuals

identified, it should also be noted that three of these vertebrae are caudal, or tail, vertebrae rather than those from the body.

These small mammal remains would suggest that the body cavity was the part of the individual most utilized with the limbs and head being discarded rather than used as food. That is, the parts of the body with the least amount of flesh were being dicarded during the processing or eating of the individual with the body cavity being the only part eaten.

Table 6 shows the parts of the 15 deer that were represented inthe remains. In this it can be seen that the ribs, thoracic and lumbar vertebrae, femures,and tibis are the most commonly found parts. The lack of cervical vertebrae and cr cranial parts may be due to: 1) butchering practices related to differential access and distribution of food within the site; 2) transportation of the deer from areas not immediately in or near Moundville; and/or 3) hunting practices.

Table 6 also indicates that, by the predominance of thoracic and lumbar vertebrae, ribs and posterior limb bones mostly the choice parts of the deer are represented. That is, those parts which possess the best and most meat are those which are most represented. This would imply that either the inhabitants of the structure were receiving choice cuts of m meat reflecting their elite status, or that importing the meat from some distance away was forcing the abondonment of the lesser cuts of meat in favor if the meatier areas of the body.

The presence of only two cranial fragments in the entire sample of 15 deer may be a result of hunting practices as well as butchering practices. Swanton (1946:313) reported that almost all of the Southeastern tribes were using deer heads as hunting decoys by removing them at the base of the neck, drying them out, and using them to distract the deer until the hunter was close enough to kill it. This almost universal practice among the Southeastern Indians in proto-historic and historic times may account for the lack of cranial parts and cervical vertebrae in the Moundville material.

Population Pressure

One of the applications of the above results in the general study of Moundville as a large Mississippian center is to look for population pressure in the site on the food supply. That is, to determine if, during the assumed growth of the site through the Moundville I period to the Moundville III period, a pressure was put on the food supply causing the exploitation of different species, more species, and/or other parts of the animals.

Looking at the general number of individuals present and the types of species from Moundville I and III there appears to be no real change with the figure of one deer per feature and one to two squirrels per feature remaining the same throughout the levels. In addition, the typeof bone present, such as cranial verses post-cranial and limbs verses body parts, does not appear to change. If there was population

pressure being exerted upon the animal foods I would expect to see a more complete utilization of the deer with other bones being present in the remains. Even with a supposed differential access to foods within the site this should still become evident if less deer per individual was being obtained. If this was the case then less deer meat could have been distributed to the lower social levels of the population but more parts would have been needed in the upper levels to supply the correct amount of meat.

Thus, since neither a change in species nor in anatomical parts is discernible in the sample it can tentatively be concluded that there was no pressure being put on the faunal resources.

Conclusions

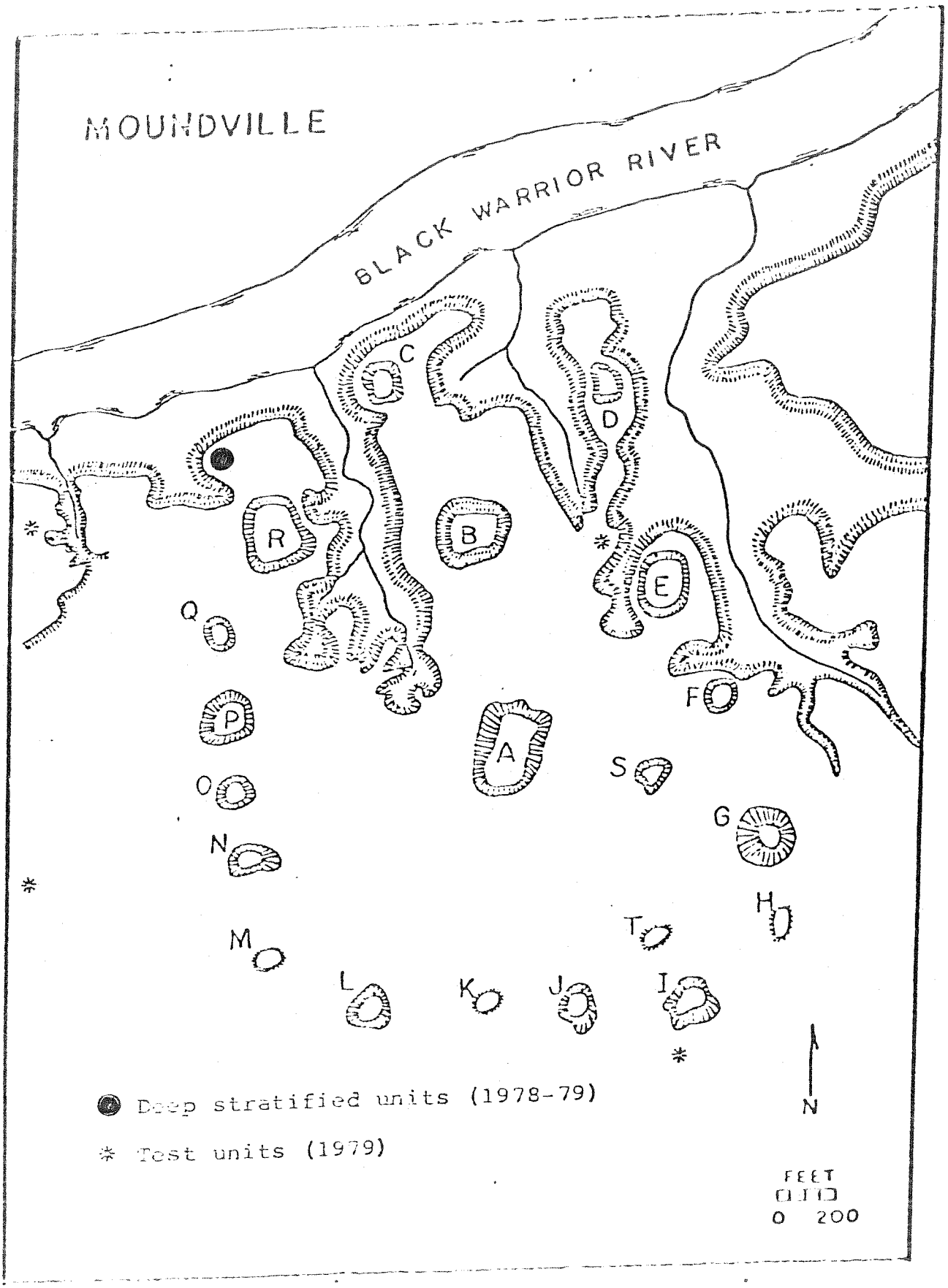
Although the above study is limited in its scope of Moundville as an entire site several tentative conclusions can be proposed based on the above discussion.

In comparison with the three faunal groups identified by Smith (1978) as being of primary importance to Mississippian populations several significant variations can be seen. First, the fish remains, although only partially analyzed, tend to imply a utilization of the main river channel rather than the backwater zones, this may be a function of Moundville's location directly on a main river channel rather than in a backwater area. Secondly, migratory water fowl do not appear to be present in the remains and may be a function of

Moundville's location off of any major flyways. Finally, in regards to a terrestrial trinity of white-tail deer, turkey, and racoon the racoon appears to be totally absent from the remains. Instead, squirrels appear to have taken the racoon's place of importance in the diet. Deer and turkey do appear to be as important to the diet at Moundville as they were at other similar sites.

The types of remains imply that the inhabitants were exploiting the environment directly around the site with the possible exception of the white-tail deer which may have been imported in. Thus, the population appears to have been well adapted to the environemental zone that they lived in.

Any further conclusions about the exploitation of fauna at Moundville must wait until excavations of other structures and areas of the site are conducted to determine whether my conclusions are universal for the entire site or for just one household within it.



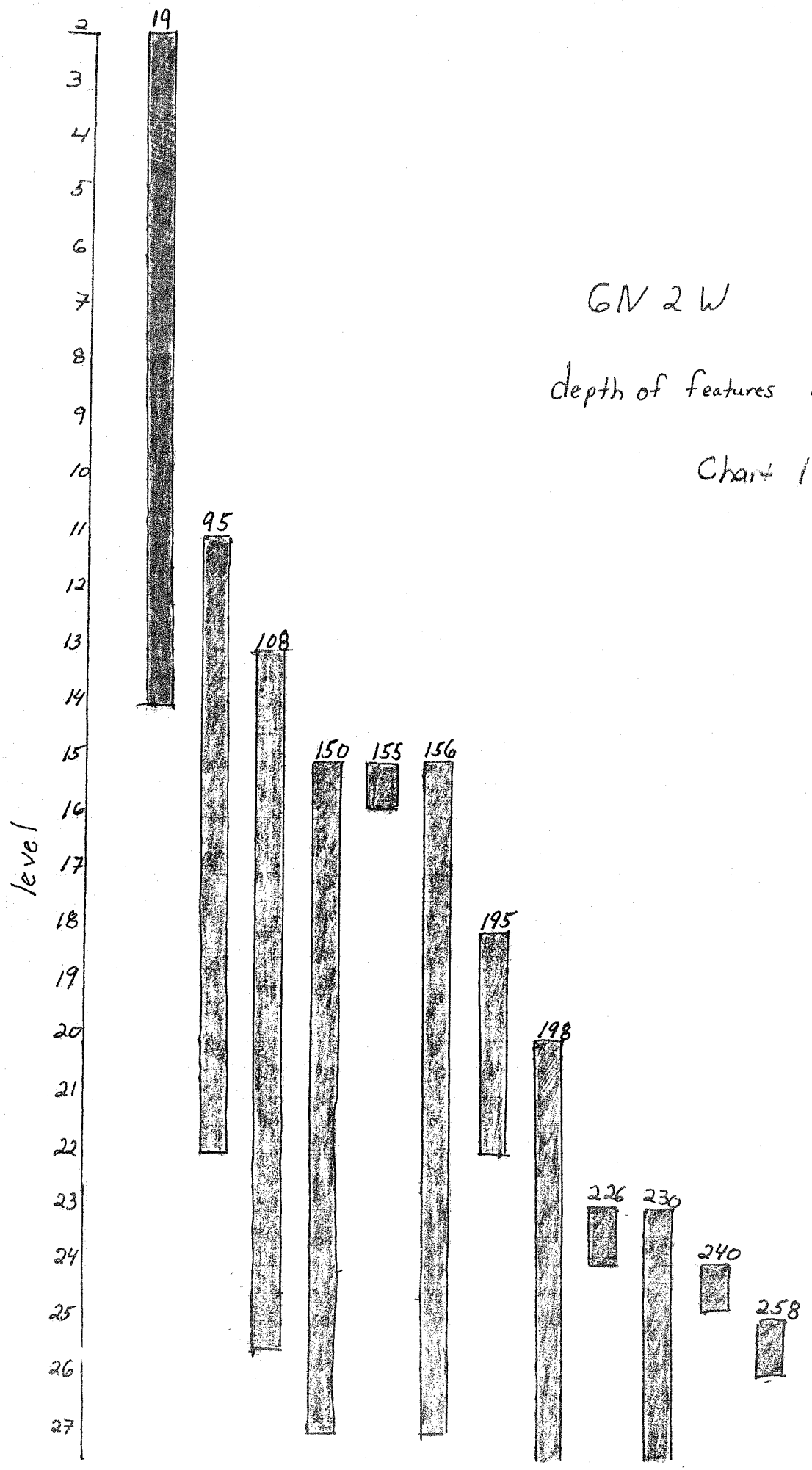
Map 1 Approximate locations of University of Michigan excavations in 1978 and 1979.

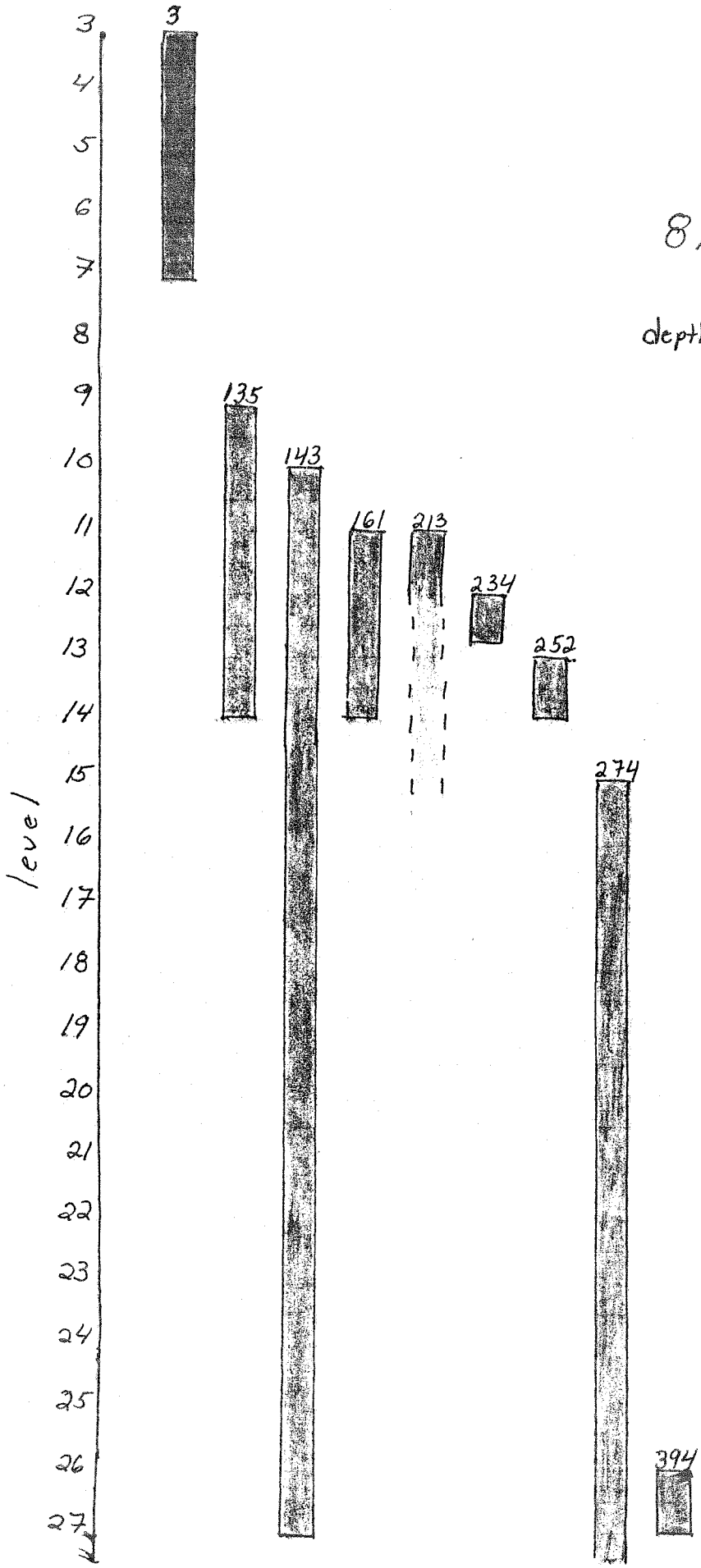
North of Hoona R

6N 2W

depth of features by level

Chart 1 (cont.)





8N 2E

depth of features by level

Chart 1

Table 1

Fauna of the Region

Species	Habitat	
Ursus americanus Black bear	heavily wooded areas in flatwoods, swamps, scrub oak ridges, bayheads, and hammock areas.	
Odocoileus virginianus White-tail deer	most common in big wooded swamps and timbered areas.	present
Lynx rufus Bobcat	in the lowlands in swamps and bushy thickets; areas with heavy forest cover, e.g. timbered swamps and secondary growth.	
Canis lupus Grey wolf	wilderness forests and tundra.	present
Canis latrans Coyote	prairies, open woodlands, and brushy or boulder-strewn areas.	present
Castor canadensis Beaver	in and along streams, rivers, marshes and small lakes.	
Didelphis marsupialis Opossum	timber regions either in swamp bottom lands or drier upland woods, and in the ravines among the hills.	present
Procyon lotor Racoon	in hardwood timberlands, timbered swamps, and river bottoms; forages extensively along the banks of streams.	
Mephitis mephitis Striped skunk	forest borders, open grassy fields broken by wooded ravins and rocky outcrops, near permanent water.	

Table I

Fauna of the Region (cont.)

Species	Habitat	
Spilogale putorius Spotted skunk	chiefly about cultivated lands, the borders of bushy swamps, and in waste lands; generally not in wet swamps or heavy timber.	
Sylvilagus aquaticus Swamp rabbit	found in river swamps and ranges up along the small streams to the foot of the mountains.	present
Sylvilagus floridanus Eastern cottontail	open brushy or forest bordered areas with generous amounts of shrubby vegetation and small open areas.	present
Sciurus carolinensis Grey squirrel	in moist bottom lands and swamps where there is an abundance of nut bearing trees; a true "deep forest" species; not in pine timber.	present
Sciurus niger Fox squirrel	dry pine forests and edges of bottom lands; never in the low bottom lands.	present
Meleagris gallopavo Wild turkey	can be found from Northern hardwood timberland to Florida palmetto and pine forests; near abundant cover and plentiful water.	present

Table 2

Fish of the Region

Species	Habitat	
Lepisosteus sp. gar	prefer quiet stagnant water most often found in lakes, ponds, bayous, oxbows, and the backwaters of streams and rivers with abundant vegetation.	not present
Amia calva bowfin	found typically in sluggish water of bayous and the back water of rivers that are often choked with aquatic vegetation.	present
Ictalurus furcatus blue catfish	mostly a big river fish found in swift chutes and pools with noticable currents.	present
Ictalurus punctatus channel catfish	found typically in large streams with low or moderate gradients.	present
Aplodinotus grunniens freshwater drum	found in the muddy bottom and silty water of large rivers and lakes.	present
Family *Castomidae* suckers	primarily inhabit the quiet water of lowland lakes and the backwater pools of large streams.	present
Centrarchidae sunfishes	found in all aquatic environments	present
Percidae Perch	mostly inhabit large lakes and streams.	present

Table 3

Species Represented

Species	Minimum Number of Individuals	Projected Meat Yield (in pounds)
Moundville I		
Sciurus carolinensis grey squirrel	11	11.0
Sciurus niger fox squirrel	2	3.0
Sylvilagus aquaticus swamp rabbit	2	6.0
Sylvilagus floridanus eastern cottontail	4	8.0
Didelphis marsupialis opossum	1	8.5
Canis familiaris domestic dog	2	16.0
Canis lupus timber wolf	1	30.0
Canis latrans coyote	1	
Odocoileus virginianus white-tail deer	13	
Meleagris gallopavo wild turkey	6	54.0
Snake non-poisonous	3	
poisonous	3	
water	1	
water/poisonous	4	
Turtle unidentified	4	

Table 4

Species Represented

Species	Minimum Number of Individuals	Projected Meat Yield (in pounds)
Moundville III		
Sciurus carolinensis grey squirrel	2	2.0
Sciurus sp. grey/fox squirrel	1	1.25
Sylvilagus aguaticus swamp rabbit	2	6.0
Sylvilagus sp. cottontail/swamp rabbit	1	2.5
Didelphis marsupialis opossum	1	8.5
Odocoileus virginianus white-tail deer	2	
Meleagris gallopavo wild turkey	1	9.0
Snake non-poisonous	1	
Turtle unidentified	2	

Table 5

Anatomical Parts Present

Minimum Number of Individuals

Parts	*Sciurus* sp. grey/fox squirrel	*Sylvilagus* sp. cottontail/swamp rabbit
ribs	2	0
vertebrae	4*	1
anterior limbs	7	2
posterior limbs	7	3
indeterminable limbs	2	1
cranium	11	2
innominates	5	0
sacrum	0	1
scapula	2	0

*three of these are caudal vertebrae

Table 6

Anatomical Parts Present

Minimum Number of Individuals

Parts	*Odocoileus virginianus* white-tail deer
ribs	10
Vertebrae	
thoracic	7
lumbar	6
thoracic/lumbar	4
sacrum	2
innominates	3
scapula	1
cranium	2
humerous	2
radius	2
ulna	1*
femur	6
tibia	4
metapodial	1
foot	2

*modified--awl

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