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Ralph E. Eshelman
University of Michigan

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Faunal Analysis of the Schmitt Site

RALPH E. ESHELMAN¹

SYNOPSIS: Faunal Analysis of the Schmitt Site. *Proc. Iowa Acad. Sci.*, 79(2):59-61, 1972. A faunal analysis on the animal remains recovered from the Schmitt Site shelter was conducted to supplement the formal archeological report by John L. Reese (*Proc. Iowa Acad. Sci.*, 79(2):56-58, 1972). Animal remains suggest that the valley in which the site was situated had permanent water,

an oak-hickory forest interspersed with meadows, and prairies above the valley on the flatlands. Little if any climatic change has taken place since the occupation of the site. The shelter probably was never occupied permanently, but was used periodically as a camp.

Of 4,506 elements of vertebrates identified, twenty-six genera or species are recognized. Many elements such as those of fish, amphibian, and bird have not been identified down to the generic or specific level. The identified remains are listed in taxonomic order in Table 1. This table also includes the State University of Iowa (SUI) catalog numbers, number of elements of each taxa by level, and total number of elements represented in each class. All elements identified from this analysis are cataloged in the vertebrate paleontological collections of the Department of Geology, University of Iowa. Description and excavation procedures are presented in the archeological report by John L. Reese (*Proc. Iowa Acad. Sci.*, 79(2):56-58, 1972).

The Schmitt Site is located in northeast Iowa, Dubuque County, Taylor Township, near the town of Farley (T. 88 N., R. 1 W., Sec. 31). The site is actually a small shelter and cave situated beneath a limestone bluff on the north bank of John Creek. The site was excavated by two foot square grids and six inch levels. All bone, as well as cultural material, was recorded as to provenience by this method. Thus a bone recovered from level 4 was between 18 and 24 inches below the surface.

FAUNAL ANALYSIS

Several communities can be recognized in the osteological sample from the Schmitt Site. These include: 1) a permanent stream community, 2) stream border community, 3) forest community, and 4) lowland meadow-prairie community.

Permanent Stream Community

The presence of 27 fish remains and freshwater clams indicate permanent water was present during the Schmitt Site occupation. John Creek which flows within the valley of the Schmitt Site probably was the source of this supply.

Stream Border Community

This community consists of animals that require permanent water, but spend a portion of their time on land. The muskrat, *Ondatra zibethicus*, and 6 elements of frog are representative of this community.

Forest Community

¹ Department of Geology and Mineralogy, University of Michigan, Ann Arbor, Michigan.

The largest proportion of taxa are included in this community and include: *Coluber constrictor*, the black racer; *Crotalus horridus*, the timber rattlesnake; *Glaucomys volans*, the southern flying squirrel; *Pitymys pinetorum*, the pine vole; and *Odocoileus virginianus*, the white-tailed deer.

Lowland Meadow-prairie Community

Recovered forms such as *Geomys bursarius*, the plains pocket gopher; and *Citellus tridecemlineatus*, the thirteen-lined ground squirrel are characteristic of prairie situations. *Synaptomys cooperi*, the southern bog lemming; and *Microtus pennsylvanicus*, the meadow vole are representative of meadow habitats.

The remaining taxa are often found in more than one of the above communities and offer little to environmental interpretation. The communities and representative species indicate little if any climatic change has occurred. Because this area of Iowa is within the transitional zone between the tall grass prairies to the west and the coniferous forest to the east and north, a community of this varied structure is to be expected.

DISCUSSION

All of the forms identified presently are found in northeast Iowa, except the porcupine, *Erethizon dorsatum*, which presently is extirpated from Iowa. Figure 1 illustrates the area of sympatry represented by the Schmitt fauna. Excluding the porcupine, the northern and western border of the area of sympatry is based on the present range of the pine vole, *Pitymys pinetorum*. The eastern border is defined by the present range of the plains pocket gopher, *Geomys bursarius*, and the southern border by the least weasel, *Mustela rixosa*. This area is shown in Figure 1 by the diagonally hatched area. The vertically hatched area, marked B, is the area of sympatry including the present range of the porcupine.

One might at first conclude that the climate during the Schmitt Site occupation was cooler, such as that of north central Wisconsin today. However, the author feels the porcupine, as well as the bear and elk would range here today if it were not for the presence of the white man, who has destroyed the natural environment of this area. Therefore, it is concluded that little climatic change, if any, has taken place.

It is interesting that deer bones increased in number with depth. This may be a result of greater dependency upon the

deer for food early in the occupation, a decrease in occupation with time, or that deer were more numerous earlier.

The presence of the plains pocket gopher, as well as the woodchuck (*Marmota monax*), and the thirteen-lined ground squirrel, may in part be the result of recent contamination by their burrowing habits. This is especially suggested by the greater number of elements of these forms in level 1. One bone of a young domestic pig, undoubtedly recent contamination, was also recovered from level one.

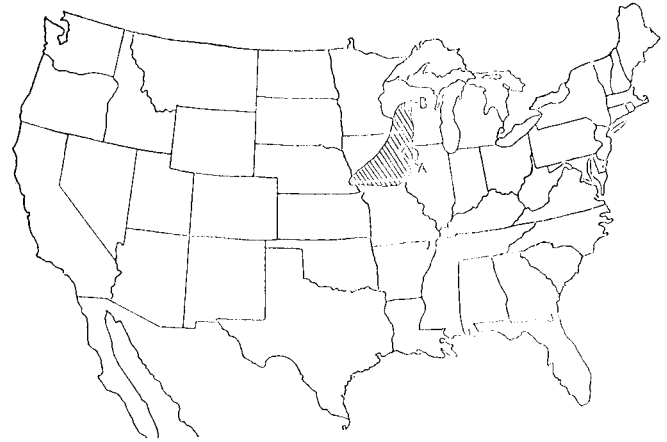
Seven elements of human skull, presumably of one individual, were recovered from level 6. Because of its depth below the surface, these elements are probably Indian.

The Schmitt Site offered shelter not only to man, but to many animals as well. The fauna recovered from this shelter is therefore not purely the result of man's occupation. Many bone elements such as mole (*Scalopus aquaticus*), gopher and the flying squirrel are probably the result of natural accumulation, whereas deer bones were no doubt the result of man's occupation.

Only one element can definitely be identified as worked bone. This is a large canine incisor (SUI #35009) probably of dog or wolf. It appears the worked incisor was never completed, but may have been intended for ornamentation. One bone fragment and one snake vertebra (SUI # 35016) appear to have a copper salt stain on them. This suggests that some type of copper ornament or tool was associated with the occupants of the site.

CONCLUSIONS

The size of the site, lack of worked bone material, and small amount of usable animal refuge, indicates the site probably was never occupied permanently, but was used



periodically as a camp. The shelter offered limited protection from the environment and because of its unique locale offered access to varied sources of food. John Creek provided fish, fresh-water clams, and other animals associated with permanent water. The meadows along the valley and probable prairies above the bluffs on the flatlands, offered small game. The most important environment, the forest, which was probably confined to the valley of John Creek, contained large game such as the deer which was their main source of food, berries and firewood.

No bison bone, tools suggestive of gardening, or seeds were recovered. Inhabitants of a site which was only periodically occupied depended on hunting and gathering, not agriculture.

TABLE 1. FAUNAL LIST AND REPRESENTATIVE ELEMENTS OF EACH TAXA

Taxa	SUI #	1	2	3	4	5	6	T*
<i>Class Teleostomi</i> —(true fish)								
Cypriniformes								
cf. Cyprinidae—(the minnows)	34982	0/0	8/1	6/2	6/2	3/2	4/2	27/9
	fish totals =	0/0	8/1	6/2	6/2	3/2	4/2	27/9
<i>Class Amphibia</i>								
Anura—(frogs and toads)	34983	0/0	2/2	1/1	1/1	1/1	1/1	6/3
	amphibian totals =	0/0	2/2	1/1	1/1	1/1	1/1	6/3
<i>Class Reptilia</i>								
Chelonia (unidentified turtle)	34984	1/0	3/0	4/0	2/0	3/0	3/0	16/0
Testudinidae								
<i>Terrapene</i> sp. (box turtle)	34985	0/0	0/0	1/1	3/1	0/0	2/1	6/1
Squamata								
S.O. Lacertilia ? (lizards)	34986	0/0	1/1	0/0	0/0	0/0	1/1	2/1
S.O. Serpentes (unidentified snake)	34987	528/?	637/?	667/?	234/?	154/?	215/?	2435/?
Colubridae								
<i>Coluber constrictor</i> ? (black racer)	35014	?	?	?	?	?	?	?
Crotalidae								
<i>Crotalus horridus</i> (timber rattlesnake)	35015	?	?	?	?	?	?	?
	reptilian totals =	529/2	639/2	672/3	239/3	157/2	221/4	2459/4
<i>Class Birds</i>								
? unidentified	34988	19/2	28/2	26/2	13/2	7/1	19/3	112/3
	bird totals =	19/2	28/2	26/2	13/2	7/1	19/3	112/3
<i>Class Mammalia</i>								
Insectivora								
Soricidae								
<i>Blarina brevicauda</i> (short-tailed shrew)	34989	1/1	2/1	6/5	0/0	0/0	0/0	9/5
Talpidae								

SCHMITT SITE FAUNAL ANALYSIS

61

<i>Scalopus aquaticus</i> (eastern mole)	34990	1/1	5/2	1/1	1/1	3/2	0/0	11/5
Chiroptera								
Vespertilionidae (plainnose bats)								
? <i>Myotis</i> sp.	34991	1/1	0/0	1/1	0/0	0/0	0/0	2/1
<i>Lasionycteris</i> or <i>Pipistrellus</i> sp.	34992	0/0	1/1	0/0	0/0	0/0	0/0	1/1
Primate								
Hominidae								
<i>Homo sapiens</i> (American Indian)	34993	0/0	0/0	0/0	0/0	0/0	7/1	7/1
Lagomorpha								
Leporidae								
<i>Sylvilagus floridanus</i> (eastern cottontail)	34994	11/2	8/1	5/2	2/2	3/1	2/1	31/4
Rodentia								
Sciuridae								
<i>Marmota monax</i> (woodchuck)	34995	2/2	0/0	0/0	0/0	0/0	1/1	3/2
<i>Citellus tridecemlineatus</i> (thirteen-lined ground squirrel)	34996	0/0	3/2	4/3	0/0	4/2	3/1	14/8
<i>Sciurus</i> sp. (tree squirrels)	34997	2/0	0/0	3/0	5/0	7/0	6/0	23/0†
<i>Sciurus carolinensis</i> (eastern gray squirrel)	34998	1/1	0/0	0/0	0/0	1/1	0/0	2/1
<i>Sciurus niger</i> (eastern fox squirrel)	34999	1/1	3/1	1/1	1/1	0/0	0/0	6/2
<i>Glaucomys volans</i> (southern flying squirrel)	35000	2/2	2/2	3/2	2/1	0/0	1/1	10/6
Geomysidae								
<i>Geomys bursarius</i> (plains pocket gopher)	35001	12/3	5/2	3/1	0/0	0/0	3/2	23/6
Cricetidae (unidentified cricetids)	35002	0/0	3/0	2/0	0/0	1/0	2/0	7/0†
<i>Peromyscus</i> sp. (pocket mouse)	35003	1/1	2/1	5/2	2/2	0/0	0/0	10/4
<i>Synaptomys cooperi</i> (southern bog lemming)	35004	2/1	0/0	4/3	0/0	0/0	0/0	6/3
<i>Microtus pennsylvanicus</i> (meadow vole)	35005	0/0	0/0	1/1	0/0	0/0	0/0	1/1
<i>Pitymys pinetorum</i> (pine vole)	35006	2/1	3/2	1/1	1/1	1/1	1/1	9/5
<i>Ondatra zibethicus</i> (muskrat)	35007	2/1	0/0	2/2	0/0	0/0	0/0	4/3
Erethizontidae								
<i>Erethizon dorsatum</i> (porcupine)	35008	2/2	0/0	0/0	0/0	0/0	0/0	2/2
Carnivora								
Canidae								
<i>Canis</i> sp. (large dog or small wolf)	35009	0/0	1/1	0/0	1/1	0/0	2/1	4/1†
Procyonidae								
<i>Procyon lotor</i> (raccoon)	35010	8/2	22/2	6/1	6/2	2/1	9/3	53/7
Mustelidae								
<i>Mustela rixosa</i> (least weasel)	35011	2/2	1/1	1/1	0/0	0/0	2/2	6/3
Artiodactyla								
Cervidae								
<i>Odocoileus virginianus</i> (white-tailed deer)	35012	6/2	8/1	17/1	8/1	5/1	20/1	64/2
Suidae								
<i>Sus scrofa</i> (domestic pig)	35013	1/1	0/0	0/0	0/0	0/0	0/0	1/1
mammalian totals =	60/27	69/20	66/28	29/12	26/9	59/15	309/74	
total mammalian count ² =	294/27	338/20	381/28	320/12	172/9	397/15	1902/74	
total bone count of all classes =	842/31	1017/27	1087/36	579/20	342/15	642/25	4506/91	

*T column equals the total identifiable remains/minimum number of individuals. The individuals in one row may not equal the sum of minimum number of individuals in the T column. This can be shown as follows: 3 right mandibles in one level equal 3 minimum individuals; 3 left mandibles in another level also equal 3 minimum individuals, but totally both levels still represent a minimum of three individuals.

†Minimum numbers of individuals were not calculated for categories of uncertain classification for they may be represented by several identified taxa of the same order. Minimum numbers of snakes cannot be made by vertebrae alone, for their vertebral counts increase with age. For this reason question marks (?) are shown. However, at least one member of each snake taxa can be calculated in the final reptilian totals.

¹ Totals derived for this taxa include one worked canine incisor (35009) discussed above.

² Total counts for the Class Mammalia were based only on teeth, mandibles and skulls (in the other classes all elements were used). This row of total mammalian count includes post-cranial elements assigned to this class. The minimum number of individuals has remained the same.

All unidentifiable fragments were discarded. Any elements that may be identified in the future with comparative collections more complete than the present State University of Iowa collections, have been saved. These include all shell, fish, amphibian, reptilian, bird and identifiable post-cranial mammalian elements.