

Faunal analysis of two charcoal samples from the cave beneath the Sun Pyramid

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METHODS

Animal and specimen size classes

Bone was assigned to general animal size classes based on Thomas (1969:393) (see Table 1). The bone and shell were grouped into categories according to specimen size at the maximum dimension. Most bone and shell was highly fragmented, and the taxon also tend to be small individuals, and only three size categories were needed: 0-5, 5-15, and 15-25 mm.

RESULTS

Shell and Fishbone

Fish bone was noted at the time of excavation (Jeffrey Altschul, personal communication 2007) but it is no longer present. Shell was fragmentary and was identified by Arthur Vokes of the Arizona State Museum, Tucson as belonging to two possible snail genera, either *Sonorella* sp. or *Helisoma* sp. (Vokes personal communication April 9, 2007). Although the shell fragments of these two genera look very similar, the snails they represent are found in different habitats; *Sonorella* (Talussnails) are land snails often found on rocky slopes (Vokes personal communication 2007), while *Helisoma* (Ramshorn) live in fresh water (Emerson and Jacobson 1976:309-314).

At least 513 pieces of shell were present, and 504 of those fragments were less than five mm long. The nine larger pieces all measured 5 to 15 mm in maximum dimension. Very few pieces could be identified as to portion. A minimum number of three to five individuals (MNI) was determined based on columella fragments. The number of individual specimens present (NISP) for all taxa are listed in Table 2.

Bone

Rodent Bone

Several hundred fragments of rodent-sized bone were recovered representing several taxon, both small and very small species. One complete upper right first molar and three cheek tooth fragments belong to *Neotoma* sp. (Wood rat or pack rat), possibly *Neotoma mexicana*. The teeth have little wear and may be from a relatively young animal. Two distal humeri, one right and one left, could also represent *Neotoma*. These belonged to two slightly different sized individuals, possibly an older and a younger, but both within the size range for *Neotoma*. Other possible adult *Neotoma* bones include a right calcaneus, and a few cranial fragments. Several unfused or partially fused small mammal bones could potentially be *Neotoma* or another, similar sized rodent, including a proximal femur and femur epiphysis, a distal femur and epiphysis, and three unfused or partially fused vertebrae.

A single juvenile *Dipodomys* (kangaroo rat) tooth was recovered. The tooth was a very good match with an immature *Dipodomys ordi*, Ord's Kangaroo Rat, a species that today is found across North America from Southern Canada into Central Mexico (Nowak 1991:632). A partially fused mouse-sized vertebra was also found.

A third rodent species is represented by a single cheek tooth. The tooth was compared to several specimens at the Arizona State Museum Stanley J. Olsen Laboratory of Zooarchaeology comparative collection. Of the specimens examined it is most like the teeth of *Neotomodon alstoni*, the Mexican Volcano Mouse, but is not an exact match. The Mexican Volcano Mouse is found in Mexico's transvolcanic belt at 2600-4300 meters (Nowak 1991) or 7800-14000 feet (2377-4267.2 m) (Huereca 2002). If this tooth does indeed belong to *Neotomodon*, at 2300 meters, Teotihuacán is at the low end or several hundred feet below of this species' range.

Only a few individuals are represented in all three taxa, with an MNI of one or two *Neotoma*, one young *Dipodomys*, and one possible *Neotomodon*. The majority of bone is assigned to the unidentified very small mammal size class and could belong to *Neotomodon* or *Dipodomys*, but some of the pieces assigned to very small rodent size could also belong to the slightly larger *Neotoma*.

Medium and Very Large Mammals

A vertebra and a piece of cancellous bone were from slightly larger taxa and were assigned to the medium size category. Only two pieces of deer-sized animal were found. One is a small enamel fragment that may be a portion of an artiodactyl cheek tooth. The other is a very small (less than 5 mm long) fragment of unidentified bone from a deer sized animal.

Cultural significance and Taphonomy

All three of the identified rodent taxa are likely to be intrusive. Three very small (less than 5 mm) pieces of probable rodent bone were recovered that were black, either as a result of burning or from mineral staining. No burning or other signs of cultural modification were found on the shell or other bone specimens.

If the shells belong to *Helisoma* they could have arrived in the cave as stomach contents of freshwater fish brought by humans to the cave. Either of the snail genera could have been attached to plants or wood that was brought into the cave for food, fuel, mats, or other human use, but non-human mechanisms could also be involved. *Neotoma*'s penchant for collecting may help to explain the presence of some shell, if the shell represents land, rather than water snails.

Additional specimens

A second collection of bones was recovered from a rodent burrow [C:West:5f]. These were tentatively identified from photographs. The majority of the photographed bone is consistent with the bone examined from the tunnel. The bones are dominated by *Neotoma*-sized rodents, but there was probably more than one rodent taxon present. Both adult and subadult rodent bone are presents.

The photographed bones include at least one *Neotoma* mandible, and other bones and bone fragments that may be from *Neotoma* as well. A few of the photographed pieces could be fish ribs, but cannot be identified with any confidence. As with the material from the surface, the specimens from the burrow also include a few larger, non-rodent bones, including a femoral head possibly from a small carnivore, a phalanx, and some possible long bone shaft fragments from larger species.

Table 1. Animal size classes (Thomas 1969)

Size class	Weight	Examples of Taxa
Very small	<100 g.	Mouse sized
Small	100-700 g.	Squirrel sized
Medium	700 g - 5kg.	Rabbit or hare sized
Large	5-25 kg.	Coyote sized
Very Large	25 kg +	Deer sized

Table 2. Numbers of Individual Specimens Present (NISP)

Taxon	Common Name	NISP Total	
		n	%
<i>Sonorella</i> sp. or <i>Helisoma</i> sp.	Talusssnail or Ramshorn Snail	513 +	52.4
<i>Neotoma</i> sp.	Wood rat	8	0.8
<i>Dipodomys</i> sp.	Kangaroo rat	1	0.1
cf. <i>Neotomodon alstoni</i>	Possible Mexican Volcano mouse	1	0.1
cf. Artiodactyl	Even toed hoofed mammal	1	0.1
Indeterminate medium	Rabbit sized	2	0.2
Indeterminate very large	Deer sized	1	0.1
Indeterminate small	Squirrel-sized	37	3.8
Indeterminate very small	Mouse sized	409	41.8
Indeterminate	Indeterminate	5	0.5
Total		978	99.9

Table 3. Number of Identified Specimens Present assigned to provenience. U=Unburned, B=Blackened, possibly burned

	Gastropod		Mouse-sized Rodent		<i>Neotomodon alstoni</i>		<i>Dipodomys sp.</i>		Squirrel-sized Rodent		<i>Neotoma sp.</i>		Rabbit-sized		Artiodactyl		Deer-sized		Indeterminate		Total
	U	B	U	B	U	B	U	B	U	B	U	B	U	B	U	B	U	B	U	B	
TE28:B SF 15	1	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
TE28:C The Fire Pit	512+	0	398	3	1	0	1	0	37	0	8	0	2	0	1	0	1	0	5	0	969
	513+	0	406	3	1	0	1	0	37	0	8	0	2	0	1	0	1	0	5	0	978

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