

ARACHNID TAPHONOMY: NOTE ON SCORPION REMAINS IN ARCHEOLOGICAL CONTEXT

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**Introduction**

Scorpions are chiefly nocturnal arachnids common throughout much of the desert west (Savory 1977). They dig burrows in caves, rockshelters, and open-air sites, and are sometimes found under objects such as rocks and vegetation (Williams 1987). Scorpions hunt other scorpions, insects, reptiles, and mice (McCormick and Polis 1982; Williams 1987), and in turn are eaten by small carnivores such as kit foxes (Vulpes macrotis) and nocturnal raptors (particularly barn owl [Tyto alba], burrowing owl [Athene cunicularia], screech owl [Otus asio], elf owl [Micrathene whitneyi] and great-horned owl [Bubo virginianus]) (Bond 1942; Brown et al. 1986; Polis et al. 1981; Williams 1966, 1987). Owls frequently regurgitate pellets of undigested matter in caves and rockshelters, and thus accumulate large numbers of scorpion remains in sites which also contain archeological materials.

Ethnographic literature does not mention Native Americans utilizing scorpions, but beads made of scorpion telsons (stingers) (Figure 1) were identified on necklaces from Kramer Cave, Falcon Hill, Winnemucca Lake Basin, northwestern Nevada (Figure 2) (photographs of telson beads can be found in Hattori 1982, figures 17a, b and 18). Therefore, both cultural and noncultural processes are responsible for depositing scorpion telsons in Great Basin archeological sites.

Telsons attached to complete or partially intact necklaces are

undoubtedly beads, but isolated telson beads may not be distinguished from telsons deposited by noncultural agents such as owls. Comparing telson beads to those in owl pellets may reveal diagnostic human patterning on scorpion stingers, thereby rendering individual telson necklace beads recognizable in the archeological record.

**Cultural Production of Telson Beads**

Excavation of Kramer Cave recovered numerous perishable artifacts, including eleven necklace fragments containing a total of nineteen beads made of sand scorpion (Paruroctonus sp.) telsons (Hattori 1982). Kramer Cave telson beads measure four millimeters long by three-and-a-half to five millimeters wide (Table 1). Proximal and distal ends are broken open, producing holes for necklace cords to pass through bulbous mid-sections of stingers (the bulbous portion of stingers houses the poison in live scorpions). Polishing is visible on ends of beads, and probably results from telsons rubbing against adjacent juniper seed beads during movement of the necklaces.

Both ends of scorpion telsons had to be modified before using them as beads. Holes in distal ends were created by snapping off stingers, then enlarging the holes with a perforating tool such as an awl or simply an unmodified stick. Small holes occur naturally near proximal ends of telsons, and could be enlarged with any perforating device. Experimentation with intact telsons demonstrates necklace beads similar to Kramer Cave beads can be

III. PROLES ARAGINES

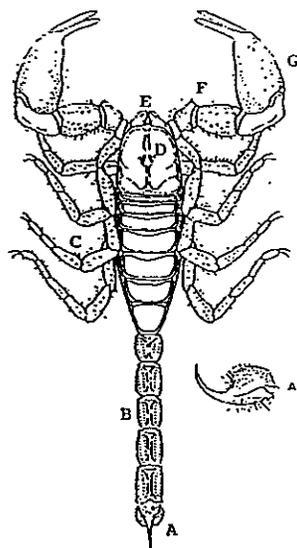


Figure 1.\* Scorpion nomenclature: A) telson, B) scleroma, C) legs, D) carapace, E) chelicerae, F) pedipalp segments, G) pedipalp chelae

\*Drawing reprinted from Savory (1977), courtesy Academic Press

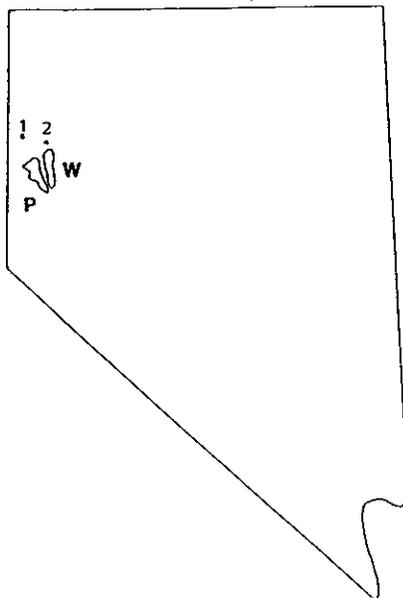


Figure 2. Locations of Two Ledges (1) and Falcon Hill (2), northwestern Nevada (P=Pyramid Lake; W=Winnemucca Lake)

Table 1  
Dimensions (mm) of telson beads  
from Kramer Cave, Nevada

Specimen #	length	width
1246A	4	3.5
	4	3.5
2271	4	5.0
	4	5.0
	4	5.0
	4	3.5
2289	4	3.5
	4	3.5
	4	3.5
	4	3.5

created in approximately thirty seconds by snapping off stingers and perforating proximal and distal ends with a stick.

#### Telsons From Owl Pellets

In 1988 I discovered numerous scorpion remains at Two Ledges, an active raptor roost located in the Smoke Creek Desert, several miles west of Kramer Cave (Figure 2). Two Ledges contains 30 intact barn owl pellets, 19,443 identifiable mammal bones and teeth, and 1,635 scorpion parts, including 102 telsons (Table 2). Owls undoubtedly regurgitated pellets full of scorpion remains at Two Ledges; Hattori (1982) reported great-horned owls deposited scorpion remains in a similar manner at Kramer Cave.

Table 2  
Number of Identified Scorpion  
Parts (NISP) From Two  
Ledges, Nevada

Scorpion Part	NISP
Telson	102
Pedipalp Chelae	576
Pedipalp Segments, Legs, Scleroma	573
Carapace	17
Chelicerae	367
Total	1,635

Telsons from Two Ledges are two distinct sizes. Large telsons are approximately 1.3 centimeters long by six millimeters wide, and belong to adult large hairy scorpions (*Hadrurus* sp.). Small telsons are six to eight millimeters long by three to four millimeters wide, and probably belong to young large hairy scorpions, and young and adult sand scorpions. Telsons of similar size are therefore found in owl pellets as well as on prehistoric necklaces from Kramer Cave, although 65 of the 102 telsons from Two Ledges (63.7%) are large hairy scorpions (all telson beads from Kramer Cave belong to sand scorpions).

Telsons from owl pellets do not resemble Kramer Cave telson beads. Two Ledges contains mainly intact telsons, and 88 (86.3%) have intact stingers, although owl-modified telsons may also exhibit punctures or missing stingers, and occasionally crushed bulbous portions. Owl feeding behavior does not create large holes at proximal and distal ends of telsons, thus further modification is required for bead production.

#### Conclusion

Kramer Cave is the only Great Basin site reporting telson beads, which may reflect past inadequacies in archeological collecting techniques. For example, Hattori (1982:42) states: "Numerous, larger scorpion remains were observed in the back dirt of Shiners Site B [Falcon Hill, Nevada]." Ignoring individual scorpion telsons in archeological sites may be ignoring actual artifacts. However, telson bead production may be restricted chronologically, and a phenomenon unique to northwestern Nevada. Hattori (1982) believes all artifacts from Kramer Cave date

between 3,600 and 3,900 years ago, and he notes that other items modified into necklace beads such as more than two thousand juniper seeds, fish vertebrae, and bird skin strips, represent a unique assemblage of artifacts from Winnemucca Valley.

Native Americans may have captured live scorpions to obtain telson bead blanks (or stingers), but they more likely collected telsons from owl roosts, as weathered raptor pellets containing scorpion remains are conspicuous along bedrock ridges in northwestern Nevada. Finally, large numbers of nonculturally-accumulated scorpion remains indicate owls have affected the faunal composition of archeological sites.

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