

HUMAN-FAUNAL RELATIONSHIPS IN NORTHWESTERN BAJA CALIFORNIA

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Translated from Spanish by Don Laylander

In the last few years, at the National Institute of Anthropology and History's Baja California Center (Centro INAH-BC), interdisciplinary zooarchaeological studies have been carried out as part of the El Vallecito archaeological project. The results offer a view of the subsistence of the Kumeyaay groups that occupied the northwest portion of Baja California. Among the remains have been found are sea urchins, marine mollusks, fish, and small mammals such as hares, squirrels, and woodrats, as well as large mammals such as black-tailed deer. Some of the remains showed cultural modifications clearly indicating that they were exploited by the human groups that lived together with these species. The modifications are primarily those resulting from exposure to fire and butchering cuts made with stone tools.

Throughout the decades and centuries, seminomadic inhabitants of what is now known as El Vallecito, situated northwest of the town of La Rumorosa, came to this site at the end of summer in order to procure their daily sustenance. Acorns, pinyon nuts, and other fruits and seeds provided the principal attraction for the migratory groups that traveled from the valleys into the mountains year after year (Garduño 1994:37). In addition to its attraction for subsistence, the site's geological characteristics provided numerous natural shelters that served as places of refuge for the native groups, as well as being used to give expression to the culture by means of rock art (Garduño 1994:36).

The Kumeyaay, a native group that based its economy on hunting and collecting, were able to leave behind evidence of their activities, customs, and methods of survival—activities that now must be reconstructed by means of those remains accumulated through the centuries.

El Vallecito archaeological site is considered to be one of the most important sites in northern Baja California. Within a relatively small space are concentrated a significant number of pictographs, suggesting an important cultural activity by the native group that lived here, the Kumeyaay.

With the aim of generating information about the cultural activity of the groups that occupied the location and in order to determine what traces they left behind in their passage, the first ongoing investigations were initiated in the year 2001. Prominent among the studies that have been carried out on the archaeological materials recovered through excavations are zooarchaeological studies, which provide information

relating to the subsistence of the Kumeyaay groups that occupied the site.

This paper presents the results of the study of faunal remains recovered by the El Vallecito archaeological project's archaeological investigations under the direction of Fernando Oviedo García, member of the archaeological section of Centro INAH-BC. The excavations were made within or close to the rockshelters known as El Tiburón, El Diablito, and Los Solecitos, as well as at locations where concentrations of lithic material were observed on the surface, such as in the current camping area (Oviedo García 2002, 2003).

The objective is to reconstruct the functions and the interrelations that existed between the native Kumeyaay groups and their environment, focusing primarily on their relations with the fauna. This objective is set out as part of the general objectives to be met by the El Vallecito archaeological project.

STUDY AREA

El Vallecito is characterized as a rocky expanse that was used as a refuge by seminomadic groups that left evidence of their presence in the graphic form of rock paintings. Consequently, the site was recorded for its protection and study as part of the comprehensive project, "Recordation of Archaeological Sites in Baja California," begun in 1987 under INAH's direction. In 1988, the first rehabilitation and excavation work was carried out under the supervision of archaeologist Jorge Serrano, and the first efforts were also made to bring the site to the attention of the general public (Serrano 1997).

El Vallecito covers an area of 160 ha (Salcido 2000) and is situated on the western slope of the Sierra Juárez, 6 km west of the town of La Rumorosa in the *municipio* of Tecate (Serrano 1997). It is located at 32° 32' 28" north latitude and 116° 06' 30" west longitude, with an elevation that ranges from 1,300 m to 1,350 m above sea level in its highest point (Figure 1).

The climate at the site varies between dry Mediterranean temperate and sub-humid temperate, with a predominantly winter rainy season that also includes sporadic snowfall, and with hot summers. The temperature difference between winter and summer is greater than 10° C. The vegetation is chaparral, within which chamise, juniper, pine, and scrub oak predominate; in the past, the pinyon-juniper community was abundant. The fauna include rattlesnakes, quail and a great variety of other birds, woodrats, rabbits, squirrels, bobcats, and coyotes, among many others. Not many years ago, mountain lions and black-tailed deer were seen.

Geologically, the area forms part of the outcropping batholith, in which the intrusive igneous rock termed granite predominates. This made it possible for the area to offer a refuge to different human groups coming there to procure their subsistence.

MATERIALS AND METHODS

To carry out the archaeological project's zooarchaeological component, the analysis was divided into three stages:

- The first stage began with the identification of the species that are present. Unquestionably this was one of the most important phases of the investigation, in that the interpretations depend on the correctness of the identifications. Achieving this first task presented some difficulties; in addition to working with fragmentary remains, in many cases there are close similarities between the species, requiring the assistance of a comparative collection as well as specialized bibliographical sources. I accomplished the identification of some species with the help of the comparative collection of birds and mammals at the San Diego Museum of Natural History, which is in the care of curator Phillip Unitt.
- The second stage, which can be considered to have been concurrent with the preceding one, consisted of quantifying the material in order to
- determine the number of bone elements from each species. Making use of this information, it is possible to identify the presence of choices among the animals; in other words, quantitative information is indicative of aspects of culture that point toward the probable value or importance that the species had for the inhabitants of the site area.
- The third stage consisted of recording the presence of cultural modifications, along with other types of alterations. These indicate to us the relations between humans and animals and the uses that were made of the latter, whether they were exploited as food, as items of personal use, for religious reasons, or as raw materials (Guía-Ramírez 1997).

RESULTS

Two pieces of echinoderms, 67 pieces of shell, and 552 pieces of bone were examined, giving a total of 621 items. As percentages, these correspond respectively to .3 percent, 10.8 percent, and 88.9 percent of the total (Figure 2). Despite the material's thoroughly fragmented condition, in the case of the bone it was possible to identify remains of fish, reptiles, and mammals, the latter being the most abundant.

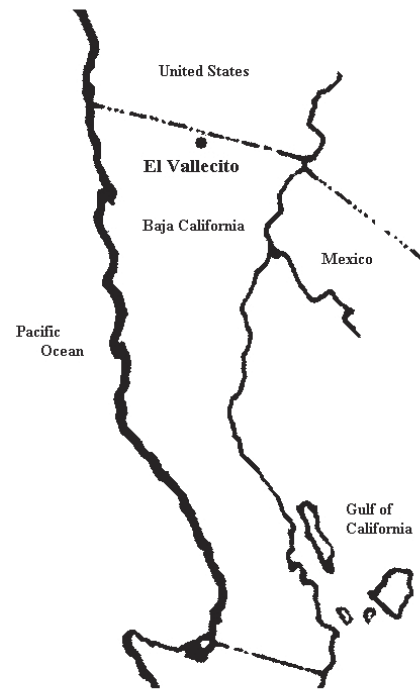


Figure 1: Location map of El Vallecito archaeological site.

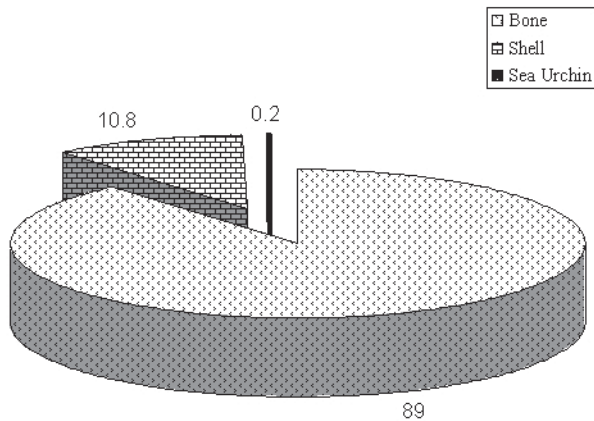


Figure 2: Proportion of zooarchaeological remains by taxonomic group.

Mollusks are represented by four genera of bivalves, *Crassostrea*, *Chione*, *Pitar*, and *Anadara*, and by one genus of gastropod, *Olivæa*. With respect to the echinoderms, sea urchin is present.

Mammals that were successfully identified included a species of hare (*Lepus californicus*), a species of squirrel (*Spermophilus beecheyi*), and black-tailed deer (*Odocoileus hemionus*). At the genus level, rabbit (*Sylvilagus*) and woodrat (*Neotoma*) were also identified. In addition to other remains that could not be distinguished to the lowest taxonomic level, there were rodents, carnivores, small mammals, medium mammals, large mammals, and non-American fauna, among others (Table 1). Remains classified as small mammals were those of sizes corresponding to such animals as woodrats and squirrels. Medium mammals were similar in size to hares, large rabbits, and fawns. Remains similar in size to those of large deer were designated as large mammals. Non-American fauna are animals that arrived from Europe during the contact period.

Among the excavation units, the camping area stood out for the amount of material that it contributed, accounting for 70 percent of the total of recovered remains. It was followed by El Diablito rockshelter with 23 percent; the other units represented less than 5 percent each (Figure 3).

It was also in the camping-area unit that the largest number of taxonomic groups were concentrated. The substantial number of small mammal remains is conspicuous,

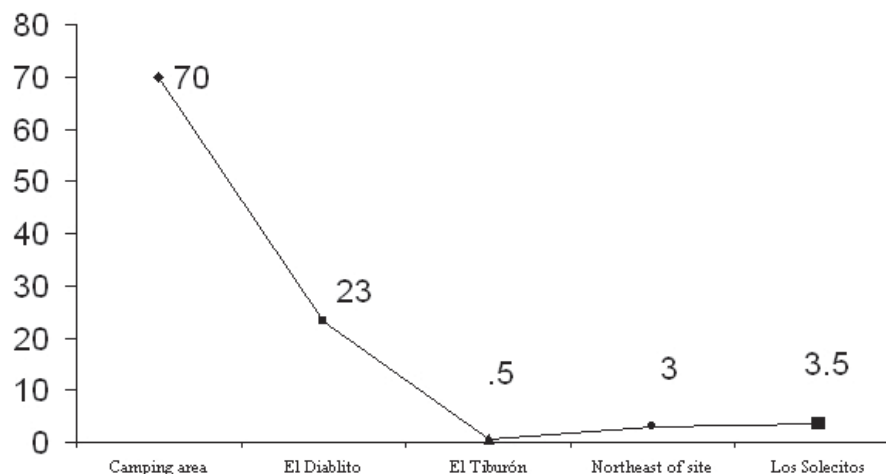
followed by medium mammal and non-diagnostic remains. Another element to be emphasized, in comparison with the other units, is the presence of a considerable number of bivalves, primarily *Crassostrea* (oyster) and in lower frequencies *Anadara* (ark shell). Also notable is a significant quantity of hare (*Lepus californicus*) remains. The other taxonomic groups were meagerly represented (Table 1). The largest numbers of fragments were present in the stratigraphic levels corresponding to 2-5 cm, 5-10 cm, and 10-15 cm; below this level, the fragments diminished in number.

With regard to remains that were modified, either culturally or naturally, a total of 205 specimens were present in this unit, amounting to 52 percent of the material. The most affected category were small mammal remains, followed by medium mammals and non-diagnostic specimens. The main modification is cremation, and to a much smaller extent carbonization. It is interesting that of the remains classed as hare (*Lepus californicus*), 71 percent had evidence of cultural modification, particularly cremation.

Other indications of cultural modification worth mentioning are cuts that were made both with stone chips and with string. The first of these were found on the remains of hare, small mammals, and large mammals, as well as on non-diagnostic remains, while the second was seen in a transverse fragment of a long bone from a medium mammal.

As to the levels in which the largest numbers of modified specimens were found, the 10-15 cm level stands out with a total of 54 affected pieces. This is

Figure 3: Proportion of zooarchaeological remains by excavation area.



Species	Camping Area	El Diablito	El Tiburón	Noreste del sitio	Los Solecitos
mollusk fragments	23	2	-	-	4
pelecipods	-	1	-	-	-
Chione sp.	-	1	-	-	-
Crassostrea sp.	23	-	-	-	-
Pitar sp.	-	1	-	-	-
Anadara sp.	11	-	-	-	-
Oliva sp.	1	-	-	-	-
sea urchin	2	-	-	-	-
modern fish	1	-	-	-	-
bird	-	1	1	-	-
Ophidae	-	1	-	-	-
Crotalus sp.	-	21	-	-	-
rodent	7	2	-	3	-
Lepus Californicus	24	2	-	-	-
Sylvilagus sp.	30	12	-	13	1
Spermophilus becheeyi	3	-	-	1	-
Neotoma sp.	1	-	-	-	-
carnivore	2	-	-	-	-
Equus sp.	-	1	-	-	-
Ovis aries	-	2	-	-	-
Odocoileus hemionus	3	1	-	-	-
Bos taurus	-	1	1	-	-
small mammal	178	14	-	-	9
medium mammal	59	32	-	1	1
large mammal	20	12	-	-	3
non-American fauna	3	-	1	-	1
nondiagnostic	52	28	-	1	2

Table 1: Distribution of zooarchaeological materials from different excavation areas.

followed by the 2-5 cm and 5-10 cm levels. Remains located in shallower levels showed little cultural modification.

In contrast, at El Diablito rockshelter remains from medium mammals were most prominent, followed by small and large mammal fragments. This is the only unit in which reptiles were documented, and basically what was represented was the nearly complete skeleton of a rattlesnake (*Crotalus* sp.) (Table 1). As to cultural modification, few of the remains were altered, and only cremation and burning were recorded. There was no pattern of preference by stratigraphic level. Of the modified items recorded from the unit, approximately 90 percent were found to have been burned, and a

smaller number were carbonized. The highest frequency of remains was recorded in the 15-20 cm stratigraphic level, and it is here that most of the modified remains were concentrated. On the other hand, this rockshelter also yielded remains of horse (*Equus*), sheep (*Ovis aries*), and cow (*Bos taurus*), which are considered to stand apart from the cultural context (Table 1).

El Tiburón rockshelter only produced three bones: one of bird, one of cow (*Bos taurus*), and the third from other non-American fauna. The bird fragment showed evidence of gnawing, and the cow and non-American faunal bones showed serrated metal cuts of the type associated with butchering (Table 1).

The excavation unit located in the northeast part of the site yielded 13 elements assigned to the genus *Sylvilagus*. Three others belong to the rodent group, another was squirrel (*Spermophilus becheeyi*), one was medium mammal, and one was non-diagnostic (Table 1). The specimens showed evidence of exposure to fire, including cremation, and carbonization.

In the case of Los Solecitos, small mammals once again predominate, with nine specimens, followed by mollusk fragments, large mammals, and non-diagnostic specimens. In this unit, few of the remains were found with any cultural modification; only some small mammal fragments showed evidence of exposure to fire. The stratigraphic level that had the largest concentration of modified materials was 1-5 cm.

ANALYSIS AND DISCUSSION

The Kumeyaay being seminomadic, their subsistence depended in large part on the environment and the seasons of the year, during which they chose sites that would provide them with their basic needs. Among the main activities was seed collecting, since seeds offered most of the consumable calories that they needed. Despite the fact that there was an ample variety of edible seeds and other vegetal foods, acorns and pinyon nuts were among of the most important sources of food, at least for the groups that traveled in the mountain zones, as in the case of those that came to El Vallecito. Acorns are a resource with a high caloric value

and an important fat content. In a study by White (1963), it was estimated that acorns provided nearly 50 percent of the diet of the Luiseño, a group very similar to the Kumeyaay. However, the collection of acorns is dependent of their seasonal availability, which led the natives to seek other, alternative foods.

It is precisely those alternatives that are evident from the study of zooarchaeological material. The analyzed faunal remains present a view of subsistence activities relating to the consumption of animal protein and fat.

Among the major groups of animals, three principal ones were found: sea urchins, mollusks, and mammals. In the case of the first two, they are organisms that had to be transported from the coasts, although it has not been possible to determine whether they came from the Pacific or the Gulf of California. Because they were found in large part on or near the surface of the site, it is difficult to determine if their presence resulted from discarding by native peoples or from the activities of the visitors who currently come to the location. Mollusks tend to decompose quickly if they are not subject to prompt preservation, which makes them poorly suited to be food resources (Guía-Ramírez 2002), at least in the region where the present study was conducted. However, ethnohistoric sources mention that the Kumeyaay groups collected mollusks and later dried them (Labastida and Caldeira 1995), which made it possible for the animals to be eaten over a longer period and transported long distances. The fact that fragments were found in the 15-20 and 25-30 cm stratigraphic levels suggests the possibility that Kumeyaay people who came to El Vallecito year after year carried with them coastal products that served as reserve foods used during their long travels. On the other hand, they may only have brought the shells as utilitarian or personal items; it is known that some of them served as spoons (Mullen 2003). However, few of the remains that have been studied show evidence of human use. They are found in a highly fragmented condition, which prevents a fuller and more definitive discussion of their function.

Another single piece of evidence, but no less important for that, is the presence of a snake's rib, found in cremated condition. Snakes formed an element in the diet of Kumeyaay native groups (Bendímez ca. 2004; Labastida and Caldeira 1995), constituting part of the wide range of animals that were used for food.

In contrast, the presence of 21 rattlesnake (*Crotalus*) bones, including vertebrae, ribs, and mandible fragments, is thought to be due to chance circumstances, because of the characteristics of the environment and the lack of any definite cultural

associations. This material was recovered from the surface, which tends to support the conclusion that it is intrusive into the cultural context. These animals are customarily found in rocky areas that allow them to sun themselves in order to regulate their temperature, as well as offering refuges for survival; they are accustomed to hide themselves under rocks to take shelter from the cold. Because the study area is situated in an area with conditions suitable for snakes, the view is favored that these remains came to form part of the varied faunal evidence as a result of the organism's natural death.

A striking fact that calls for consideration is the scarcity of bird remains, since birds had always been highly sought as a food resource. At the study site, where a great variety of birds can be found, their nearly total absence was unexpected. Even when two fragments were identified (Guía-Ramírez 2002), it was not possible to determine any functions for them. Birds such as dove, quail, and others provided meat in the diet of the Kumeyaay natives according to ethnohistoric accounts (Garduño 1994; Labastida and Caldeira 1995; Mullen 2003). However, it has not been possible to define such use archaeologically.

For their part, mammals represented the bulk of the material, both in numbers and in species. Mammals have been closely linked to man ever since his origins as such, and one of their primary functions has been to provide food. The native Kumeyaay were no exception in this.

Among the faunal material, the presence of at least two species and two genera of small mammals was recognized: respectively hares and squirrels, and rabbits and woodrats. Also present is one large mammal, the black-tailed deer. All of these are common inhabitants of the study area. Their populations may have been greater in the past than those that are found at present, because of the accelerating growth in the human population on the one hand, and on the other because of a change in habitat conditions resulting from a fire that afflicted the La Rumorosa area.

As stated in the historical sources (Baksh 2000; Labastida and Caldeira 1995; Mullen 2003), most of the time the Kumeyaay depended upon meat obtained from hunting small mammals, and on fewer occasions from larger animals. This is reflected in the analyzed remains, within which small mammals predominate. Some of them are grouped under the general heading of "small mammals," but they may well correspond to the identified species. The fact that small or medium-sized animals were preferred to larger ones may be the result of two factors: (1) the energy expended may have been lower in hunting small and medium mammals

(including, in this context, juveniles or females) than for large animals, and (b) hunting was done by single individuals or by groups of a few individuals; the latter case occurred only when a large number of animals were available, and it was limited to men driving animals toward traps (Shipek 1970).

Stratigraphic levels show no preference in the size of mammals that were consumed. The deeper levels contain both small and large mammals, although the latter occur in lower frequencies, the same as in the shallower levels. Thus, during the different periods of occupation at the study area, the same pattern was maintained, indicating that throughout the occupations small animals were preferred to large ones.

Another point, although it goes beyond the Kumeyaay context, is represented by the presence of fish remains, which have been determined to be modern, and remains of non-American fauna such as horses, sheep, and cattle. Both of these classes are alien to the cultural context and do not represent a significant impact upon the site, because they were found in very shallow levels.

In keeping with the cultural modifications recorded on the analyzed remains, a preference for roasting game directly in a fire is confirmed (Guía-Ramírez 2002). It is said that native peoples roasted animals on charcoal and ash in small fires (Service 1984). For very small animals such as woodrats, once they were roasted, a small hand-held tool such as a flake was used to remove the scorched skin that had not been consumed by the fire (Campbell 1999). Subsequently, the animals were put back in the fire to finish their cooking, and once they were ready they were put together on a flat rock and “milled” by hand, from head to tail. In this processing, the bones were practically pulverized (Campbell 1999), and only the largest fragments were separated from the meat after milling. This is probably the reason for the presence of what have been characterized as flake cuts on the surface of some bones of small animals.

As to the preparation of larger animals, again the preference was for roasting, although their cooking involved a more complex process than that used for small animals. This would have required preparing a large, rock-lined hearth, making the fire, and throwing the animal on it (Service 1984). Although flake cuts are reported on some specimens, these may have resulted from skinning the animal.

Activity Areas

Based on the results of the bone analysis, an area of concentrated activity was detected in what is currently

known as the camping area. This circumstance would lead us to believe in an important change in the Kumeyaay cultural context, although one that is not very conspicuous in the archaeological (Oviedo García 2003) and zooarchaeological data. This location may have offered a space for eating and probably for other activities as well, in what was a large, open area that could hold a large number of people.

El Diablito rockshelter provided another location for important activities. Activity was revealed by the number of bones present, as well as by the fact that the majority were found to have been culturally modified, cremated and burned, indicating a prolonged exposure to fire.

Site Taphonomy

Based on the fragmentation of the remains and the presence of carbonized and burned bones, it is suggested that the site experienced intensive and extensive activity. Remains that had been discarded during subsistence activities were altered again on an ongoing basis. This is seen most conspicuously in the remains from El Diablito rockshelter, nearly all of which were found to have been burned, indicating repeated and prolonged exposure to fire.

This may account for the scarcity of bird remains at the site. The bones of those animals are much more fragile, and consequently in the end they completely disintegrate with prolonged exposure to fire.

Other Evidence

A new feature revealed by the bone analysis relates to a long-bone shaft from a medium mammal in the excavation unit within the current camping area. The bone showed a cut that was made with string, a characteristic type of cut among native groups. This would have been done to get a tool or an item for personal use, although the fragment is very small and its interpretation is still open.

CONCLUSIONS

From a zooarchaeological perspective, the following conclusions are reached concerning El Vallecito archaeological site:

- The native Kumeyaay who visited the site exploited small animals, as well as occasional medium and large animals, as alternative sources of food.

- Marine resources – mollusks and sea urchins – were sources of food for the native groups of the mountains. This matter needs to be investigated further in follow-up studies, in order to arrive at a better understanding of the role of these animals among the native Kumeyaay groups that visited El Vallecito during the summer.
- Hares, rabbits, squirrels, woodrats, and black-tailed deer formed parts of the Kumeyaay diet.
- The animals were roasted directly in the fire, and in the case of small animals they were completely consumed, including bones that were milled together with the meat.
- The hard parts of large animals, such as bones, may have been used as raw materials for making tools or items for personal use.
- El Vallecito was the site of intensive and extensive activity, within which two areas stand out as having particular importance: the current camping area, and El Diablito rockshelter.

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