

## ON TWO LEGS AND ALL FOURS: WESTERN MESOAMERICA AND THE RELATIONSHIP BETWEEN DOG, HUMAN AND VICE VERSA ... AN APPROACH THROUGH CASE STUDIES

Aitor Brito-Mayor<sup>1</sup>, Rodrigo Esparza-López<sup>1</sup>, Raúl Valadez-Azúa<sup>2</sup>

<sup>1</sup> Centro de Estudios Arqueológicos, El Colegio de Michoacán, México. aibrimay@gmail.com

<sup>1</sup> Centro de Estudios Arqueológicos, El Colegio de Michoacán, México. resparza@colmich.edu.mx

<sup>2</sup> Instituto de Investigaciones Antropológicas, UNAM, México. raul\_valadez@hotmail.com

---

BRITO-MAYOR, A.; ESPARZA-LÓPEZ, R.; VALADEZ-AZÚA, R. (2021). On two legs and all fours: Western Mesoamerica and the relationship between dog, human and vice versa ...An approach through case studies. *Canarias Arqueológica*, 22: 541-561. <http://doi.org/10.31939/canarq/2021.22.45>

**Abstract.** *Canis familiaris* becomes a paradigmatic field of study, and it has yielded significant results in Mexican research. However, when discussing this phenomenon in the region of Western Mesoamerica, the need to make an integrative approach arises beyond ethnohistoric data. With the theoretical perspective that Social Zooarchaeology offers, we develop an investigative strategy based on the case studies in three different sub-areas. La Mina is in the Eastern Highlands, a housing platform at the end of the Epiclassic (AD 500/600–900), with burials at its base where puppies appear next to humans. Los

Guachimontones is in the Centre of the Western Highlands, a neuralgic city for the Early Classic (100 BC – AD 250). Lastly, in the Coastal Plains, we studied a funerary hill and a residential-funeral area. The methodological bases include analysis of bone remains in primary and secondary levels, estimation of paleodiethetic tendencies by XRF and AMS dating. In this way we access the analysis of the relationship between dog, human and vice-versa in their own terms, with the main objective of recognizing the social context in which this symbiosis occurred.

**Keywords.** Zooarcheology. Archeometry. Dog (*Canis Familiaris*). West Mesoamerica.

## I. INTRODUCTION

The ability we have to create our own world based on what surrounds us involves animals, leaving the domestic in a privileged plane. It is here where the symbiotic relationship we have established with the dog (*Canis familiaris*) is understood as an object of study, contributing in this way to a holistic analysis on the human groups of the past. Relevant contributions give a good account of information for the investigation of this phenomenon in Mesoamerica, with special interest in Central Highlands and Mexican Southeast (Götz 2014, Ramos-Novelo 2009, Valadez-Azúa & Blanco 2005 among others). On the other hand, in the little worked region of the West (Fig. 1) there is evidence of this link from Middle Formative (900 to 300 BC), highlighting the representation of canids as containers (Baus-Czitrom 1988; Cabrero-García & Valadez-Azúa 2009, Cupul-Magaña et al. 2014, Rodríguez-Galicia et al. 2001, Rodríguez Galicia et al., 2012). This fact postulates the place as a region where the practices of joint burial between dogs and humans became important from early times, a practice that in the Epiclassic (AD 500 / 600-900) would begin to spread throughout the rest of Mesoamerica (Valadez-Azúa et al. 1999).

In this sense, when reviewing the previous works, the overrepresentation of funeral contexts in the archaeological record is clear (Cabrero-García 1995:142, Carot 2001:24, Flores 1992:15, Mountjoy et al. 2014, Porter 1956:537, Taylor 1970:166, Winning et al., 1996:413, among others), a fact that in our understanding motivates an academic tradition of interpreting the dog as a psychopomp element (Valadez-Azúa et al. 2010: 232). An animal that guides the deceased through a journey into 'beyond the grave', a vision owed to the ethnohistorical sources that collect Postclassic information (AD 900-1552). Without underestimating this point, I consider that the relevance of the Afterlife in which it relates to dogs is the result of a plan of interaction in life that has to be analyzed in its own terms. The present work, summary of more than three years of work materialized in a Master Thesis (Brito-Mayor 2017), has as primary goal the identification of the social context in which the animal is integrated, taking the theoretical framework that provides us the Social Zooarchaeology (Marciniak 1999, Russell 2012).

It was conceived from the postulates of interpretive archaeology (Hodder, 1991), proposing a holistic perspective of zooarchaeological analysis that understands the relationships between non-human animals and human animals as a result of inter-species participation (Brittain & Overton 2013:137). Thinking about

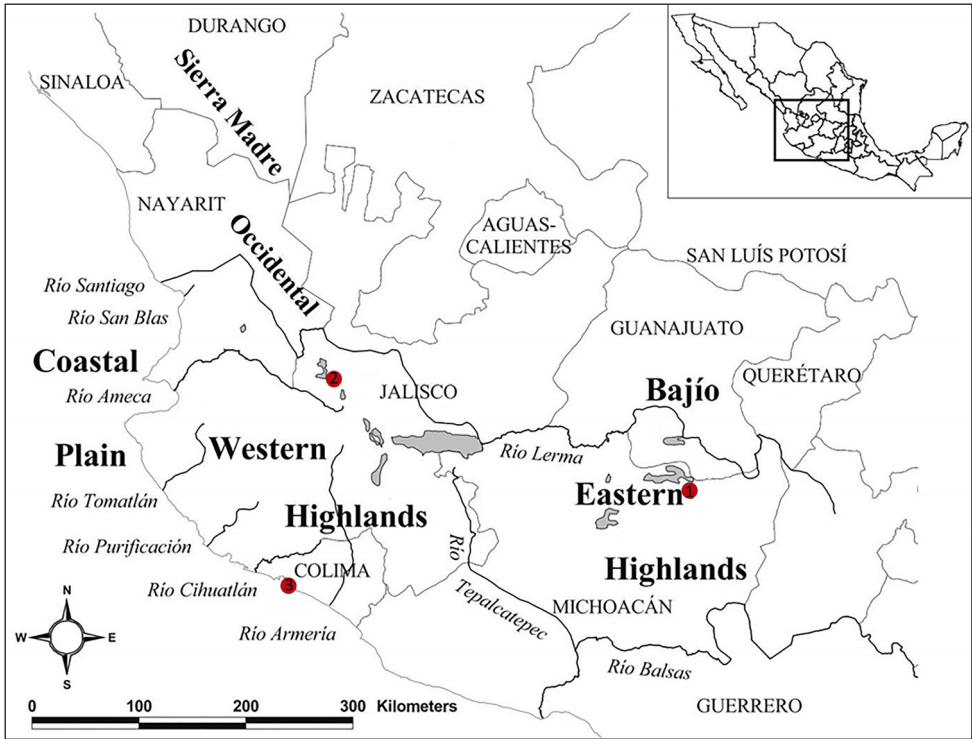


Fig. 1. Map of the Western Mesoamerica, where the three sub-areas that this study addresses are indicated through the studies of (1) La Mina, (2) Los Guachimontones, (3) Manzanillo Liquefied Natural Gas Terminal, and Patio de Maniobras Tepalcates II (Modified by Beekman, 2010: 42).

Homo Sapiens as a single agent in this complex is, in my opinion, to be reductionist, with a clear accent on its ability to influence but underestimating that of being influenced. At this point zootology is managed as a heuristic discipline, an epistemological exercise that understands the animal as an agency capable of recognizing its world and acting accordingly (Overton & Hamilakis 2013: 113).

Considering the cultural heterogeneity present in the West and the development that zooarchaeology presents in the region, we have chosen for a research model based on three case studies, where inhumations of humans with dogs were found. I consider essential to study them in their own terms, analyzing the bone remains by means of the “credibility of a mediated physical observation” that the

current approaches give us as a source of hypothesis generation (Marciniak 1999:303). The analyzes in La Mina, Guachimontones and Laguna Cuyutlán (Fig. 1) are based on primary contexts. This gives an entity to the archaeological interpretation, which is motivated by the following general questions:

- What information about the social use of the dog can we identify in our case studies?
- How do we understand it within the systemic contexts that we analyse?

## 2. MATERIAL AND METHOD

The research in our discipline starts from bases similar to the rest of studies in the social sciences. Inescapable step is the processing of institutional permits, documenting in archives and libraries, as well as maintaining links with first-hand informants, in our case archaeologists responsible for the campaigns or custodians of the materials. But beyond that, the processes that make up our methodology revolve around a transdisciplinary discourse, self-critical epistemological self-criticism that transgresses the traditional borders erected around the different sciences (Nicolescu, 2002). This exercise of participatory collaboration finds shelter in «Laboratorio de Paleozoología IIA-UNAM», the nucleus of almost 30 years of research in the field of Mesoamerican canid zooarchaeology (Valadez-Azúa *et al.* 2013:188).

During the cabinet work, the data collection was organized systematically into two groups. On the one hand, the primary data, based on comparative anatomy, offer taxonomic information on sex and age (Blanco-Padilla *et al.* 2009, Hillson 2005, Ruscillo 2003). A detailed description with appropriate nomenclature, the osteological query manuals and the use of a large reference collection is essential. At this level, pathological indicators that have been recorded in the bone can also be detected, such as certain traumatic episodes, nutritional stress or even infectious diseases. Finally, the potential take of 35 measurements is considered, based on osteometric points and sanctioned standards (Blanco-Padilla *et al.* 2009, Rodríguez-Galicia 2000, Driesch 1976).

Secondary data are derived from current approaches and archaeometric applications, by beginning to define an explanatory entity within the context of the origin of the remains. The measures taken allow us to obtain biotypic information that can identify different morphotypes in the case of Mesoamerican canids (Blanco-Padilla *et al.* 2009). Of vital importance for our purposes is the evaluation of taphonomy and diagenesis, which we perform based on a multivariate analysis

model. It is discerned between the marks of biological and anthropic origin, to establish an order of affection and obtain a chronological view of the "postmortal" processes that affected the bone (Bar-Oz & Munro 2004, Sainz-de-los-Terreros 2013). This allows us to find basis of interpretation of the archaeological context, as well as to select the suitable samples to be part of the archaeometric analysis.

In this sense, the objective of work is to determine the paleodiethetic tendencies of dogs, by conceiving as a methodological assumption that the nutrition of domestic animals is conditioned by anthropic variables. The analysis of trace elements is part of the laborator's prehispanic canid study protocols (Valadez-Azúa et al. 2005:950-951). With the manifest intention of contributing to this line, we have opted that technique against other options. For this we adapted the protocol of sample processing and of trace elements reading by XRF, including a wide repertoire of samples that included human remains and archaeological dogs together with reference specimens such as herbivores or strict carnivores. The reading of trace elements was carried out with the Thermo Scientific™ Niton™ XL3t equipment from the «Laboratorio de Geoquímica Ambiental IG-UNAM». The results obtained in ppm were compared in histograms, paying special attention to the Sr / Zn relation. Finally, motivated by the temporal uncertainty that some contexts aroused, numerical dates were obtained by AMS in the «Laboratorio Nacional de Espectrometría de Masas con Aceleradores IF-UNAM», calibrated with OxCal 4.3.2 and the IntCal curve 13 in its online version (Ramsey 2009, Reimer et al. 2013).

### 3. CASE STUDIES AND RESULTS

La Mina is located in the Eastern Highlands, on the southern shore of Lake Cuitzeo (Fig. 1). The discovery of archaeological remains in the foundation work of a fence motivated the intervention of the INAH Michoacan Center in December 2013. When identifying the funerary character of the set, inserted in a housing platform, two test pits were made, where remains stood in situ. A total of 5 MNI of *Canis familiaris* were identified, of which 2 could be studied in depth. The North pit was characterized by the presence of primary inhumations, with anthropological and zoological remains in an advanced state of degradation. Burial 1 is identified, with two human subadults in fetal position and ceramic trousseau. This production gave the pattern for the chronological definition around the Epiclassic, which being delimited by archeomagnetic dating between AD 647-825 (Goguitchaichvili et al.,

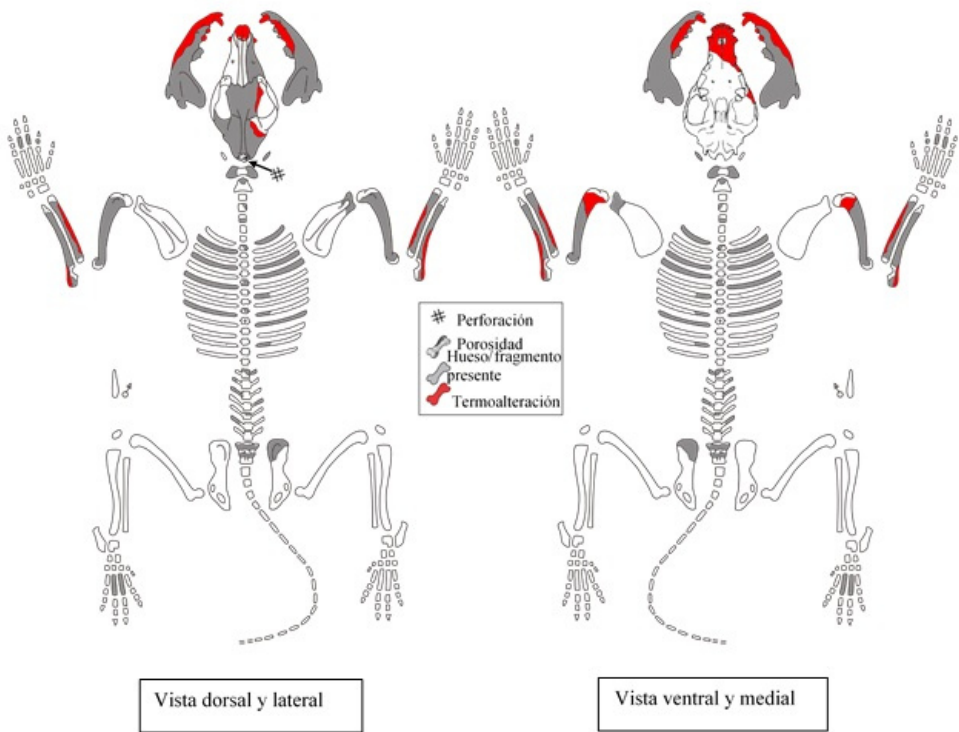
2016). Related to this set appeared skeletal remains of a semi-articulated juvenile dog, called «Entierro 1C». It has signs of differential coloration in the most exposed bone regions, such as the cranial edge of the tibia and its diaphysis, which is associated with a uniform shiny patina and a polished texture that tends to be linked to the use of water as a transmission element of heat (Pijoan Aguadé *et al.*, 2010: 165). Another factor to keep in mind is the close connection to intentionally fractured containers, called «cerámicas matada».

In the South pit arose «Entierro 1A» better known as Alvaro. He is a male adult, aged 30-35 years at death time, placed in the left lateral decubitus position with a SW-N orientation and whose dental analysis reveals interesting practices (Aguayo Haro & Quiroz Casta, in progress). It is noteworthy that it has an intentional modification of the incisors and canines of both arches (Fig. 2). He is accompanied by two elements: a bowl on his back and some remains of a canid in anatomical connection at the level of the individual's face, which were surrounded by Alvaro's arm. Changes of reddish-brown coloration are registered in parts of the bones in direct contact with the skin. This led to the comparison and mapping of these evidences (Fig. 3), an examination that led to their identification as direct thermal alterations that show the exposure of the body to a flat heat source for a maximum period of 10 minutes (Pijoan Aguadé *et al.*, 2010). It is undoubtedly in the cranial skeleton where the clearest evidences of this thermoalteration appear, with blackened areas in the right temporal region, on the external part of both jaws and teeth, and one of them presenting a longitudinal fracture. In the same



Fig. 2. (Left) Original context of Burial 1A with puppy and (right) traumatism.

ON TWO LEGS AND ALL FOURS: WESTERN MESOAMERICA AND THE RELATIONSHIP BETWEEN DOG, HUMAN AND VICEVERSA ... AN APPROACH THROUGH CASE STUDIES

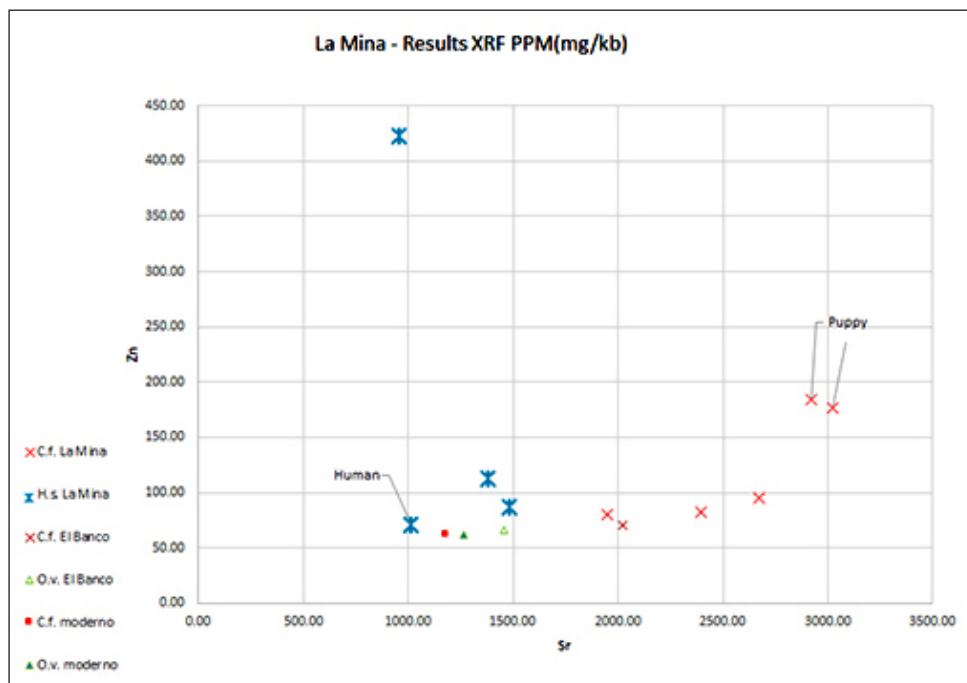


Référence :  
 Dessin vectoriel par Michel Coutureau (Inrap) - © 2013 ArcheoZoo.org  
 D'après : Daniel Helmer - Fiches descriptives pour les relevés d'ensembles osseux animaux.  
 In : Jean Desse et Nathalie Desse-Berset (dir.) - Fiches d'ostéologie animale pour l'archéologie, Série B : mammifères, n° 1  
 Juan-les-Pins : Centre de recherches archéologiques du CNRS / APDCA, 1987, fig. 1

Fig. 3. Helmer sheet with the bone elements of *Canis familiaris* of analysed Burial 1A.

way, in the anterior part of the neurocranium, a traumatism is located, linked to cracks in fresh bone originating from a rectangular perforation (Fig. 2). Attached there is a surrounding area with differential taphonomic involvement, highlighting the porosity and reduction of the cortical layer:

The comparison of the levels Zn / Sr allows us to characterize a food trend in humans linked to the intake of vegetables with little variability, except for the case of «Entierro 1», which is positioned at the top of the table evidencing a greater animal protein intake (Graph 1). Also linked to this trend are the five dogs sampled, although their diet has higher Sr indexes, which is usually linked to greater plant variability and episodic contribution of animal protein. Because most of the spec-



**Graph I.** The analysis was made on 6 samples of domestic canids and 4 of humans, contrasted with a strict herbivore and a dog from the nearby El Banco archaeological site, as well as with another dog and another modern herbivore found in the same area. In addition, the levels are evaluated in 3 sediment samples whose results of Sr fluctuate between 408.28-541.97 ppm and Zn between 57.39-64.94 ppm, discarding it as a source of contaminants by diagenetic processes.

imens are subadults, we cannot assess whether the distancing they present with respect to humans and the two adult dogs reflects different dietary trends or if it is the result of the immaturity of the bone tissue. In this sense it is remarkable the case of Alvaro and the two samples taken from his puppy, both of them located in diametrically opposed regions of the table.

Our second case study is located at Los Guachimontones (Fig. 1), framed in a rich environmental space with abundant lake resources and obsidian sources, which favoured the place to become a neuralgic city for the Terminal Formative and the Early Classic (100 BC - AD 250). However, preserved bone remains are very scarce, among which I identified a total of 4 MNI assigned to *Canis familiaris*, of



which only I could be analyzed in depth. It was found in the main ceremonial complex, characterized by a series of circular pyramidal structures surrounded by rectangular platforms and open enclosures (Weigand & Esparza López, 2008). It is precisely in one of them, the Outer Plaza of Circle 3, where a series of inhumations related to an exempt structure was placed as an altar. Tomb 1 is made up of a human 6 to 7 years old and Tomb 3 is a 12-year-old subadult with an individual disarticulated on it. The peculiarity of the latter is that it presents cranial deformation and problems in the jaw. In Tomb 2, we also find dismembered remains of two individuals, one with evidence of gigantism and another with short neck or Klippel Feil syndrome (Betancourt López, 2013).

In individual burial at a lower depth but linked to the previous context, there is the so-called Tomb 4, a *Canis familiaris* deposited in the left lateral decubitus so that the boundaries of a circular fossa are drawn (Fig. 4). Within the framework of this investigation, we submitted it to a dating of C14 by AMS that places it temporarily around the Terminal Formative, thus constituting the oldest dog of Western Mesoamerica assigned by numerical dating up to now. It is a female young adult, with several birth events as judged by the development of the pubic symphysis, as it is indicated by the Biol. Jardón Nava (2004). At the dental level, this specimen shows an advanced occlusal wear, especially pronounced on the right side of the



**Fig. 4.** (Left) Primary context of Tomb 4 and (above) detail of the condition in the vomer.

arch at the level of the carnassial tooth. It also presents a fissure caries in the M/I of the left jaw and the loss of several pieces, which are followed by reabsorption events in the alveoli. In this sense, the absence of the left I3 of the maxilla is documented, followed by an event that triggered the loss of bone tissue, the expansion of the corticals and the displacement of the adjacent teeth (Fig. 4).

However, the comparison between Zn/Sr reflects in the four domestic canids a diet dominated by vegetable intake, but with greater variability than in humans. This group cannot be analyzed due to lack of data, with only two sampled individuals that reflect two opposing tendencies. Our third case of study is located in the coastal Plains (Fig. 1), specifically on the sandy bar of the Cuyutlán Lagoon (Manzanillo, Colima). The anthropic pressure suffered by the environment, as a consequence of gas industry, resulted in the performance of the INAH Direction for Archaeological Rescue, guaranteeing the safeguarding of the vestiges that emerged. Two are the sites we have analyzed, Manzanillo Liquefied Natural Gas Terminal (TGNLM, by its initials in Spanish) and the Patio de Maniobras de Tepalcates II (PMTII, by its initials in Spanish), both characterized by the abundance of remains of ritualized funeral activities. The aggressiveness of this sedimentary matrix, together with the fluctuations of the phreatic level and recent human activity, seriously affected the state in which the bone remains were found. However, the wide sample covered a long locally defined chronology, main thread of the analysis of this case study.

The oldest remains belong to the Ortices-Comala phase (300 BC to AD 500), with 70 human burials located in the TGNLM, an artificial Funeral Hill with a circular central altar. Precisely this period stands out for the fine pottery technique and the aesthetic achievement in the representation of hollow figures of canids. From this temporariness, we analyzed remains of dogs belonging to 8 MNI, 6 of which were found in joint deposits with other animals, often thermoaltered remains of ichthyofauna and crocodile. A couple of exceptions are worthy of mention, such as Ent.584 of an adult dog with short legs or tlachichi, with the front limbs extended in front of the individual, which may indicate an inhumatory state in rigor mortis or a certain perimortem accommodation. On the other hand, Ent.569, of human and remains of male adult canine disarticulated, with evidence of thermoalteration.

The next phase is named Colima-Armería (AD 550-900), which seems to coincide with the restructuring of the central altar of the Funeral Hill in quadrangular form. 71 human burials were assigned to this temporality, with supine decubitus tendencies and offerings with exogenous elements of a sumptuary nature.

The burials of dogs and humans become more frequent in this interval, but the state of the remains did not allow deep analysis of the materials that arrived at the laboratory. A total of 10 MNI of *Canis familiaris* could be registered, among which it is worth mentioning the Ent.534, which had the best conservation conditions. It is a simple inhumation of a young adult dog in right lateral decubitus with W-E orientation. It is flexed in such a way that the boundaries of a rectangular pit are drawn, which worked as a passive containment of the deposit. A dating by AMS developed in the framework of the present investigation confirmed the Armería temporality.

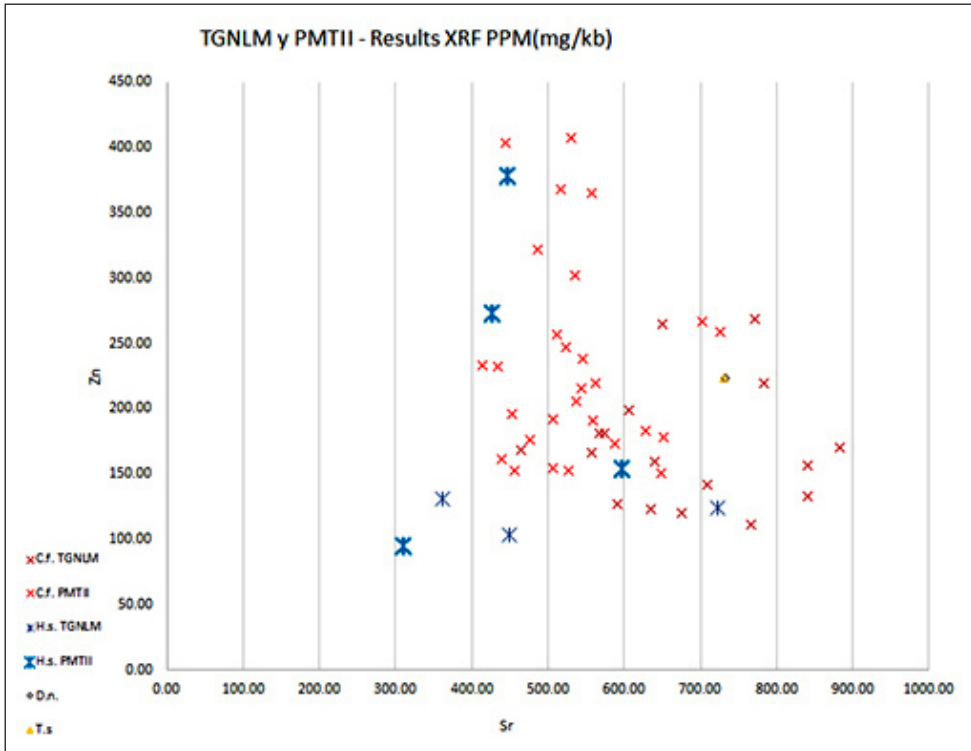
But undoubtedly a space that stands out in terms of the burials of dogs and humans is the PMTII, which was inhabited during Colima-Armería while TGNLM was in use. It is a residential space called ChocoHuistle, with a total of 53 underground burials, 28 humans and 25 animals. There is a clear pattern of deposition in the supine position, oriented E-W, with ceramic offering next to head (medial-capital), and Armería figurines around the pelvis. In addition, post-mortem bone displacement demonstrates the existence of an active containment element. In humans, the distal epiphyses of the humerus are pressed towards the ribs, the distal epiphyses of the femurs converge and the metatarsals come to overlap, in addition to the clavicles become out of phase or disarticulated. This pattern is also seen in dogs, whose limbs appear hyperflexed and stuck to the ribcage, and the head retracted or tilted. Among the animal burials, 23 dogs are documented in the field, 20 of which could be integrated into the present study. Twelve simple burials were identified, highlighting the Ent.45 in supine decubitus with the extremities crossed and the head pressed towards the left scapula, indicators of an active pressure. This seems to be a constant, also manifested in joint inhumations, such as Ent.52 and Ent.53. The latter is a young adult dog that shows a perforation by anthropic action in the right calcaneus, coinciding with the intersection of its crossed legs (Fig. 5). We also see this in joint burials, such as in Ent.8, performed by an adult woman with a young adult dog on her left leg, both with signs of active containment despite of their poor state of preservation. A dating by AMS was carried out on this dog, which shows discordant results with the general context. The results of the analysis show a negligible amount of residual collagen contained in that sample, which forced to combine the older collagen to 30 KDa and the younger one at 30 KDa, small collagen portions that result from the degradation and are more susceptible to contamination. This fact could have as a consequence that the age can be older than expected. This seems to be the according case to



**Fig. 5.** (Left) Photograph in research with detail showing the perforation at the level of the right calcaneus Ent.53 (Facilitated by Ms. Margarita Carballal); (Right) Detail of the hole.

the estimates of those responsible for the project, which delimit the time interval of the deposit by the ceramic production that is inserted in it. At the base of the same deposit of Ent.8, next to a basaltic polisher, there are two specimens in very poor condition, Ent.10 of mature adult dog and Ent.15. to the south of the set.

As we have pointed out, both in the TGNLM and in the PMTII, a poor state of preservation of the skeletal remains is valued, mainly due to the aggressiveness of the context that housed them. Its location in a sandy lagoon bar gives it an abrasive, dynamic and saline matrix, at the mercy of phreatic fluctuations and adverse coastal processes. In addition to the radicular activity of the recent coconut cultivation and anthropogenic pressure on an excellent communication channel, the potential affection to the state in which the bone remains were found is feasible. In order to evaluate this type of interference in the clarity of our data, we subjected a total of 8 sediment samples to analysis. The reflected results are very similar to those obtained in the bone pieces, data that shows a possible evidence of an advanced diagenetic process. What is more, the general tendencies shown in the graph are poorly defined (Graph 3), and it does not allow us to interpret them with guarantees of being reflecting paleodiethetic information.



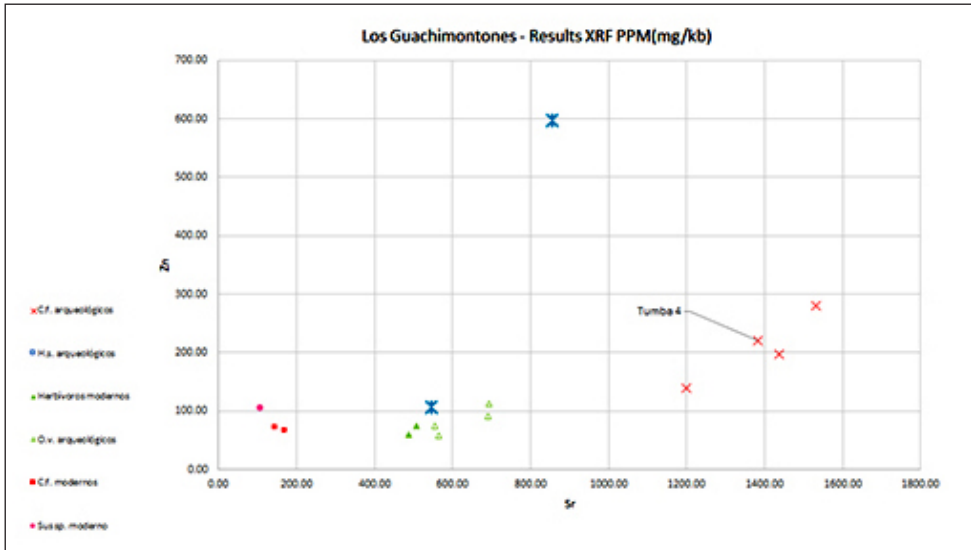
**Graph 3.** Trace element analysis was performed based on samples from 3 humans and 17 dogs from the TGNLM, along with 4 humans and 28 domestic canids of PMTII. In this sense, we also included a sample of armadillo (*Dasypus novemcinctus*) and peccary (*Tayassuidae*), animals with omnivorous tendencies. The levels of 8 sediment samples whose results of Sr fluctuate between 368.91-466.33 ppm and Zn between 69.67-133.47 ppm are evaluated, postulating the matrix as a source of contaminants by diagenetic processes.

#### 4. DISCUSSION OF RESULTS

In chronological order, the first stage of the Funeral Hill of TGNLM is the one that appears, within the local framework Ortices-Comala (300 BC to AD 500). It would correspond to the Terminal Formative and the Classic, margin in which 6 of the 8 MNI seem to play a role linked to food offering, manifested in joint deposits with other thermo-altered animal remains. In a contemporary manner, we are dealing with a different phenomenon, located in the heart of the Western

Highlands, where population synergies revolve around Los Guachimontones site. We have focused on the funeral deposits of the Outer Plaza of Circle 3, characterized by the presence of individuals in secondary position with pathological features that are physically manifested. To this space belongs Tomb 4, a female dog of about 5 years old, 40 cm of height, multiparous and with a unique dental history. An advanced infectious process, as a result of a possible exogenous maxillofacial osteomyelitis, that is, an infection originated in tissue near the vomer that ends up affecting it (Fig. 4). This fact caused a facial modification, and it could be added an episodic lingual protrusion. Here, we are dealing with a phenomenon in which humans and the female dog have common characteristics that make them disparate from an empirically observable plane. Therefore, it opens the possibility that we are talking about a propitiatory or votive practice around the funeral, where the human-animal and non-human-animal participate in similar attributes. In this sense, it is clarifier to see the developments of this phenomenon in its immediate geographic context, where we find the Bolaños Culture of the Middle Classic. In particular at the Pochotitan site, 6 MNI are documented biometrically similar to the female dog we have studied. These specimens appeared in adnexal deposits to the ceremonial circles and they are interpreted as periodic events of space protection, in a society in which their role in hunting would be fundamental (Cabrero-García & Valadez-Azúa, 2009:92, Rodríguez-Galicia et al. 2012:209).

Returning to Tomb 4, the oral affection of the female dog resulted in a mechanic adapted masticatory, which is reflected in a differential wear pattern. But, in the light of the paleodietic data, this evidence did not affect its feeding that is framed in the same pattern as that of the other dogs in Los Guachimontones (Graph 2). A nutrition based on a vegetable intake with high variability and episodic contribution of animal protein. Identical pattern shows the results of the two deposits of La Mina, next in the chronological scale at the Epiclassic (AD 500/600-900). On one hand, Burial 1C, composed of an 8-month-old juvenile dog with evidence of indirect thermoalteration due to boiling process. On the other hand, Álvaro's Burial accompanied by a 3-month-old puppy that presents a generalized direct thermo-alteration with a pattern of exposure to a flat heat source (Fig. 3). After his analysis it is clear that the way in which he was exposed was prone decubitus with limbs out of phase as if it were open in channel, same position in which he was inhummed. This individual has a perforation with a rectangular section at the intersection between the parietals and the occipital, known as the Lambda point. Its anthropic origin is proposed as a working hypothesis, and as a traumatism



**Graph 2.** The analysis was performed on the 4 dogs identified in the site, in addition to 2 humans related to these animals. For testing purposes, data were taken from strict herbivores, 4 deer (*Odicoileus virginianus*) from an archaeological context, another modern one, a horse (*Equus sp.*), a pig (*Sus sp.*) As an omnivorous representation and two current dogs. In addition, the levels are evaluated in 5 sediment samples whose results of Sr fluctuate between 78.44-183.76 ppm and Zn between 68.55-93.77 ppm, discarding it as a source of contaminants by diagenetic processes.

executed prior to thermoalteration. Nevertheless, at this point I conclude that the immediate function of the dog is presented as a food offering with elements that make us think of purposes that transcend the satisfaction of nutritional needs. By paying attention to this field, Álvaro’s dental modification can be understood as a reflection of the “fleur-de-lis” shape, characteristic of the incisors of the canids (Montiel-Mendoza *et al.*, 2008; Valadez-Azúa *et al.*, 2004). In the same line of work, thermoalteration can be understood as part of funerary ritual, like the connection of “pot burials” or the use of immature specimens.

Returning to the contexts of the Coastal Plains we reach the upper limit reach of our analysis, the end of the Epiclassic. The TGNLM identifies not only a change in the area of use of the Hill but a quadrangular restructuring of the central altar. The tendency of deposition of burials is in supine decubitus, with capital offering

and anthropomorphic figurine on the thorax or pelvis. In the same way, the site presents exogenous elements in the trousseau and indicators that relate the space with its use by a social empowered class in a remarkably stratified society. The generalized tendency of the previous phase seems to have continuity. In other words, joint deposits of animals, and representation of parts when they accompany the human. This fact contrasts with the nearby Chocoahuistle settlement identified in PMTII, a space similar to the previous one but in which the residential activity and the funerary orientation, carried out in the subsoil, coexist. A burial pattern is documented in the supine position with E-W orientation, medial-capital ceramic offering and anthropomorphic figurines around the pelvis. In addition, the way in which the individuals were found evidence the use of elements of active containment as part of the funerary ritual, also applied to the canids. A sort of textile bundle that did not survive the natural deterioration of organic elements (Cuevas Sagardi *et al.*, 2013:34). Here we see two different practices, but they converge temporally and spatially on the bar of the Lagoon. On the one hand, the participation of dogs in events of ritual meals linked to a funeral space, used by some members of a stratified society with access to exogenous elements. On the other hand, the site of Chocoahuistle with a large number of dogs buried, in similar conditions to those presented by humans. A difference so marked at this point between two contexts very related may be talking about a different conception of dogs, perhaps linked to these notions of status.

## 5. CONCLUSIONS

I consider it a wilderness effort to try to defend the representativeness of a sample like the one we handle. Not only the contextual and chronological diversity, but also the degree of depth of the analysis that is conditioned by the state of the sample, they are serious limitations for this. However, the results obtained as a consequence of the reflected methodological strategy predict a heterogeneity with regard to the funeral deposits of human and dog that we have studied. These primary contexts and the diversity of data they provide contrast with the generalized monologue interpretations for Western Mesoamerica. The dog as a psychopomp element takes ownership of the argument, in a phenomenon that in the light of our analysis transcends the boundaries of the grave.

As we have seen, most cases could enter at the beginning under this interpretive framework, which is not a random matter. There are few zooarchaeological examples



that deepen into primary contexts beyond the funeral in this region, as well as the decontextualization of animal bones. This fact curtails the perspective from which to analyze the phenomenon, which emphasizes what could be specific. In any case, it is necessary to delve into this diverse field to understand with better perspectives the cultural development of the human groups of Western Mesoamerica.

## ACKNOWLEDGEMENTS

This work would not have been possible without the reception of the Colegio de Michoacán and the help that CONACYT has given me during two years of M.A. People such as Dr. Rodrigo Esparza-López, Dr. Maldonado, Dr. Valadez, Dr. Bernardo and Dr. Götz were key in the development of the thesis. Special mention deserves the «Red de Ciencias Aplicadas a la Investigación y Conservación del Patrimonio Cultural» and Dr. Fabiola-Vega, facilitators of numerical dating and reading by XRF. My deepest gratitude to M.A. Eugenia, the Phys. Anth. Humberto-Quiroz, the M.A. Ramiro-Aguayo, The M.A. Antonieta-Moguel, the M.A. Margarita-Carballed and each one of the people I approached and they extended their hands to me throughout this process.

## BIBLIOGRAPHY

AGUAYO HARO, R. & QUIROZ CASTAÑÓN, H. (2014). *La Mina: Un pequeño asentamiento a orillas del lago de Cuitzeo*. Morelia, México, INAH Michoacán.

BAKER, J. R. & BROTHWELL, D. (1980). *Animal diseases in archaeology*. New York, Academic Press.

BAR-OZ, G. & MUNRO, N. D. (2004). Beyond Cautionary Tales: A Multivariate Taphonomic approach for resolving equifinality in zooarchaeological studies. *Journal of Taphonomy*, 2: 201-222.

BAUS CZITROM, C. (1988). *Los perros de la antigua provincia de Colima: estudio y corpus de sus representaciones en arcilla en las colecciones del Museo Nacional de Antropología*. México D. F., México, Instituto Nacional de Antropología e Historia.

BEEKMAN, C. S. (2010). Recent research in western Mexican archaeology. *Journal of Archaeological Research*, 18(1):41-109.

BETANCOURT LÓPEZ, J. A. (2013). *Estado nutricional y de salud de individuos de la zona arqueológica Los Guachimontones en Teuchitlán, Jalisco a través del Análisis de Restos Óseos Prehispánicos*. Tesis de licenciatura.

BLANCO PADILLA, A.; RODRÍGUEZ GALICIA, B. & VALADEZ AZÚA, R. (2009). *Estudio de los cánidos arqueológicos del México prehispánico*. México D. F., INAH y IIA-UNAM.

BRITTAIN, M. & OVERTON, N. (2013). The significance of others: a prehistory of rhythm and interspecies participation. *Society & Animals*, 21: 134-149.

BRITO MAYOR, A. (2017). *A dos y a cuatro patas: el Occidente de Mesoamérica y la relación entre el perro, el humano y viceversa... Una aproximación a través de estudios de caso*. Tesis de maestría, CEQ - Colegio de Michoacán.

BRITO MAYOR, A.; QUIROZ CASTAÑÓN, H. & AGUAYO HARO, R. (2017). Más allá de la muerte y la vida: zooarqueología de cánidos en el complejo funerario del sitio de La Mina (Michoacán). XIX Juan Comas, Morelia (Michoacán).

CABRERO GARCÍA, M.T. (1995). *La muerte en el occidente del México prehispánico*. México, IIA-UNAM.

CAROT, P. (2001). Le site de Loma Alta, Lac de Zacapú, Michoacán, Mexique. Paris monographs in American archaeology Vol. 9. Archaeopress, Oxford, England.

GARCÍA, M.T. & VALADEZ AZÚA, R. (2009) El perro en el sitio arqueológico de Pochotitan, Jalisco. *AMMVEPE*, 20(4):85-94.

CUEVAS SAGARDI, M., OLVERA, J. J. H. & RUIZ, R. P. (2013). Consideraciones en torno a la dinámica cultural del sitio costero Valle de las Garzas, Manzanillo, estado de Colima, durante el 450 al 650 d.C. *Trace. Travaux et recherches dans les Amériques du Centre*, 64: 25-43.

CUPUL MAGAÑA, F. G., MOUNTJOY, J. B. & RHODES, J. A. (2014). Dientes de cánido (Canidae) asociados a un entierro del periodo Formativo medio en el valle de Mascota, Jalisco. *Arqueología*, 48: 69-76.

FLORES, D. (1992). *Ofrendas Funerarias de Chupicuaro, Guanajuato*. México, Instituto Nacional de Antropología e Historia - INAH.

GÁNDARA, M. (2011) *El análisis teórico en ciencias sociales, aplicación a una teoría del origen del estado en Mesoamérica*. Zamora, Michoacán, México, El Colegio de Michoacán.

GOGUITCHAICHVILI, A., MORALES, J., HARO, R. A., CASTAÑÓN, H. Q. & CAMACHO, J. R. (2016). First evidence of complex dental practice about 1300 BP in Mesoamerica revealed by absolute geomagnetic intensity. *Studia Geophysica et Geodaetica*, 61: 310-317.

GÖTZ, C. M. (2014). *La arqueología de los animales de mesoamerica*. Atlanta GA, Lockwood Press.

HERNÁNDEZ OLVERA, J. J., MERAZ MORENO, A. & MOGUEL COS, MA. A. (2012). Prácticas funerarias durante las fases Colima y Armería en un sitio costero-

ro de Manzanillo, estado de Colima. Memorias del VII Foro Colima y su Región Arqueología, antropología e historia, pp. 20-38.

HILLSON, S. (2005). *Teeth*. New York, Cambridge University Press.

HODDER, I. (1991). Interpretative Archaeology and its role. *American Antiquity*, 56:7-18.

JARDÓN NAVA, E. (2004). Determinación taxonómica de los restos arqueozoológicos recuperados en el Proyecto Arqueológico Guachimontones. Informe del Proyecto Arqueológico Teuchitlán.

MARCINIAK, A. (1999). Fauna materials and interpretive archaeology: epistemology reconsidered. *Journals of Archaeological Method and Theory*, 6:293-320.

MONTEROS GUIJÓN, A. (2011). Informe de excavación pozo 22, extensiva I, Patio de Maiobras Tepalcates II. Informe de la Dirección General de Salvamento Arqueológico, INAH.

MONTIEL MENDOZA, M., MORA SÁNCHEZ, C., PÉREZ ROLDÁN, G., SERRANO SÁNCHEZ, C. & VALADEZ AZÚA, R. (2008). Análisis Radiográfico de Mutilación Dentaria en Tantoc. Catálogo de la colección de dientes mutilados prehispánicos IV parte. *Anales de Antropología*, 42:9-30.

MUÑOZ CAMARGO, D. (1892 [1576-1591]). Historia de Tlaxcala. Oficina Tipográfica de la Secretaría de Fomento, México. Electronic document: <http://www.cervantesvirtual.com/buscar/?q=historia+de+tlaxcala#posicion>

MOUNTJOY, J., CUPUL MAGAÑA, F. G. & RHODES, J. A. (2014). El Perro en Contextos Funerarios, Valle de Mascota, Jalisco. *Arqueología Mexicana*, 125:54-57.

NICOLESCU, B. (2002). *Manifesto of transdisciplinarity*. Albany, SUNY series, State University of New York Press.

OVERTON, N. J. & HAMILAKIS, Y. (2013) A manifesto for a social zooarchaeology. swans and other beings in the mesolithic. *Archaeological Dialogues*, 20:111-136.

PIJOAN-AGUADÉ, C. M., VALENZUELA-JIMÉNEZ, G. & LEBOREIRO, I. (2010). Experimentos de Exposición Térmica de Huesos. Chapter in *Perspectiva tafonómica*, edited by Pijoan-Aguadé, C. M., Lizarraga-Cruchaga, X. & Valenzuela-Jiménez, G. México D.F., Colección Científica, Instituto Nacional de Antropología e Historia.

PORTER, M. N. (1956). Excavations at Chupicuaro, Guanajuato, Mexico. *Transactions of the American Philosophical Society*, 46(5):515.

RAMOS-NOVELO, C. (2009). El papel del perro (*Canis lupus familiaris*) en la sociedad maya prehispánica de las tierras bajas del norte. Tesis de Licenciatura, Universidad Autónoma de Yucatán.

RAMSEY, C. B. (2009). Bayesian Analysis of Radiocarbon Dates. *Radiocarbon*, 51(1):337-360.

REIMER, P. J., BARD, E., BAYLISS, A., BECK, J. W., BLACKWELL, P. G., BRONK RAMSEY, C., GROOTES, P. M., GUILDERTSON, T. P., HAFLIDASON, H., HAJDAS, I., HATTŽ, C., HEATON, T. J., HOFFMANN, D. L., HOGG, A. G., HUGHEN, K. A., KAISER, K. F., KROMER, B., MANNING, S. W., NIU, M., REIMER, R. W., RICHARDS, D. A., SCOTT, E. M., SOUTHON, J. R., STAFF, R. A., TURNER, C. S. M., & VAN DER PLICHT, J. (2013). IntCal13 and Marine13 radiocarbon age calibration curves 0-50,000 years cal BP. *Radiocarbon*, 55(4).

RODRÍGUEZ-GALICIA, B. (2000). *Estudio morfológico y morfométrico, craneal y dental de perros y lobos hallados en Teotihuacan y su aplicación en la arqueozoología*. Tesis de Licenciatura en Biología, Facultad de Ciencias, UNAM. México

RODRÍGUEZ-GALICIA, B., VALADEZ-AZÚA, R., CABRERO-GARCÍA, M. T. & GARCÍA-GIMÉNEZ, J. C. (2012). Arqueofauna del sitio El Piñón, Cultura Bolaños, Jalisco, México. *Revista del Museo de Antropología*, (5):203-212.

RODRÍGUEZ-GALICIA, B.; VALADEZ-AZÚA, R., PEREIRA, G.; VINIEGRA-RODRÍGUEZ, F., OLMOS-RODRÍGUEZ, K. & BLANCO-PADILLA, A. (2001). Restos Arqueozoológicos de perros (*Canis familiaris*) Encontrados en el Sitio de Guadalupe, Estado de Michoacán. *AMMVEPE*, 12(6):199-209.

RUSCILLO, D. (2003). Alternative methods for identifying sex from archaeological bone. *British School at Athens Studies*, 9:37-44.

RUSSELL, N. (2012). *Social zooarchaeology*. New York, Cambridge University Press, Cambridge.

SAHAGÚN, B. de (1577). Historia general de las cosas de nueva España. World Digital Library. Electronic document: <https://www.wdl.org/en/item/10096/#q=Sahag%C3%BA&qIa=en>

SAINZ-DE-LOS-TERREROS, J. Y. (2013) *Tafonomía aplicada a zooarqueología*. Madrid, UNED Ediciones.

TAYLOR, R. E. (1970). The Shaft Tombs of Western Mexico. Problems in the Interpretation of Religious Function in Nonhistoric Archaeological Contexts. *American Antiquity*, 35(02):160-169.

VALADEZ-AZÚA, R., PAREDES-GUDIÑO, B. & RODRÍGUEZ-GALICIA, B. (1999). Entierros de perros descubiertos en la antigua ciudad de Tula. *Latin American Antiquity*, 10(2): 180-200.

VALADEZ-AZÚA, R. & BLANCO, A. (2005). Perros, Maíz, el México Prehispánico. *AMMVEPE*, 16(2):63-70.

VALADEZ-AZÚA, R., GAMBOA, L., VÉLEZ, N., RODRÍGUEZ-GALICIA, B., GÓMEZ, M., GARCÍA, R. & PÉRE, G. (2004). Perros y Prácticas Rituales en una Antigua Aldea de la Cuenca de México. *AMMVEPE*, 15(5):158-171.

VALADEZ-AZÚA, R.; TEJEDA-VEGA, S.; ZARAZÚA-ORTEGA, G.; CARAPIA-MORALES, L. & CASAS-CASTILLO, M. (2005). El estudio de elementos traza en restos arqueozoológicos y su empleo en la reconstrucción de paleodietas. *Estudios de Antropología Biológica*, 12(2): 945-969.

VALADEZ-AZÚA, R., RODRÍGUEZ-GALICIA, B. & BLANCO-PADILLA, A. (2010). Flujos migratorios e influencias culturales entre el Centro, el Occidente y el Norte de Mesoamérica, vistos a través de la fauna doméstica. Chapter in *Dinámicas culturales entre el Occidente, el Centro-Norte y la cuenca de México, del Preclásico al Epiclásico*, Edited by FAUGÈRE-KALFON, B. Centro de estudios mexicanos y Centroamericanos, pp. 231-245.

VALADEZ-AZÚA, R.; BLANCO-PADILLA, A.; RODRÍGUEZ-GALICIA, B.; VINIEGRA-RODRÍGUEZ, F. & OLMOS-JIMÉNEZ, K. (2013) La investigación etnozoológica y el estudio del cánido mesoamericano. *AMMVEPE*, 14(6): 186-194.

DRIESCH, A. von den, (1976). *A guide to the measurement of animal bones from archaeological sites*. Peabody Museum Bulletins, Harvard University.

WEIGAND, P. C. & ESPARZA-LÓPEZ, R. (2008). Informe de excavaciones 2003-2006 en el Complejo Arqueológico Guachimontones "La Tradición Teuchitlán del Occidente de México". Informe del Proyecto Arqueológico Teuchitlán.

WINNING, H. von; WEIGAND, P.C. & WILLIAMS, E. (1996). *El arte prehispánico del occidente de México*. Zamora, Michoacán, México, El Colegio de Michoacán, Secretaria de Cultura de Jalisco.

