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Preface

When I participated in the IVth International Conference of ASWA, held in the summer of 1998 in Paris, I was gratified to learn that the Scientific committee had unanimously agreed to hold the next meeting in Jordan. Thus, on 2 April 2000, the Vth International Conference of the Archaeozoology of Southwest Asia and Adjacent Areas was held for the first time within the region at Yarmouk University in Irbid, Jordan after being held on the past four occasions in Europe.

The themes of this conference were divided into five areas including:

- Paleo-environment and biogeography
- Domestication and animal management
- Ancient subsistence economies
- Man/animal interactions in the past
- Ongoing research projects in the field and related areas

I wish to thank all those who helped make this conference such a success. In particular, I would like to express my appreciation to the Director of the Institute of Archaeology and anthropology at Yarmouk University Special thanks are due to his excellency, the President of Yarmouk University, Professor Khasawneh, who gave his full support and encouragement to the convening of this conference at Yarmouk University and to all those who contributed the working papers which made the conference possible.

I also wish to thank members of the organizing committee who worked very hard for many months in preparing the venue for this conference.

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Note from the editors:
The editors wish to thank Dr. László Bartosiewicz for his excellent assistance in preparing and checking the contributions to this volume.

Participants at the 5th ASWA Conference, held at theYarmouk University in Irbid, Jordan, 2000

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THE DANA-FAYNAN-GHUWAYR EARLY PREHISTORY PROJECT PRELIMINARY ANIMAL BONE REPORT ON MAMMALS FROM WADI FAYNAN 16

Denise B. Carruthers[1]

Abstract

The faunal assemblage from the 1997 and 1998 excavations at Wadi Faynan 16 in Jordan is unique in that the dominant taxon is *Capra* sp. (76%). In contrast to other Pre-Pottery Neolithic A (PPNA) sites in the Levant, Wadi Faynan has no gazelle bones. The bones identified as *Capra* sp. are presently classified as coming from wild goat, based on age profiles. The *Bos* and *Equus* remains account for only 9% of the total assemblage. Other species identified include *Vulpes vulpes* and *Caracal caracal*.

Résumé

L'assemblage faunique des fouilles de 1997 et 1998 de Wadi Faynan 16 en Jordanie est unique pour être représenté majoritairement par Capra sp. (76%). Au contraire des autres sites PPNA du Levant, Wadi Faynan ne contient aucun reste de gazelle. Les os identifiés comme Capra sp. sont classés ici comme provenant de chèvre sauvage à l'appui des profils d'abattage. Les restes de Bos et d'Equus ne comptent que pour 9% des restes. Le renard (*Vulpes vulpes*) et le caracal (*Caracal caracal*) font partie des autres taxons identifiés.

Key Words: *Capra* sp, PPNA, Wadi Faynan, Jordan

Mots Clés: *Capra* sp., PPNA, Wadi Faynan, Jordanie

Introduction

This paper presents the preliminary results of animal bone material recovered from two seasons of excavation at the Pre-Pottery Neolithic A (PPNA) site of Wadi Faynan 16 (WF16) located in Jordan[2]. The 1997 excavation produced 436 bones for analysis; the 1998 excavation produced just under 4000 bones. The recovery of such substantial faunal data within a settlement is unique; to date, only a handful of PPNA sites within Jordan have produced subsistence data (Rollefson 2000). Not only has Wadi Faynan yielded a significant number of animal bones, it has also revealed a faunal assemblage dominated by goat (*Capra* sp.) The dominance of *Capra* sp. within the Jordanian highlands around 9,500 bp possibly reveals an earlier domestication relationship between humans and animals in this transitional period. Traditionally, the dominant prey for hunters at most PPNA sites in Israel and Jordan was gazelle (*Gazella* sp.), while goats were favored in the Jordanian highlands. WF 16 reveals not only a preference for goats but also a complete absence of gazelle. The predominance of goats was not due solely to environmental circumstances since, *Bos* and *Equus* were hunted in habitats preferred by gazelle. The dominance of goats suggests that the inhabitants of WF 16 began to alter their strategy for meat acquisition in addition to preferring a semi-sedentary way of life (Rollefson 2000).

Background

The Dana-Faynan-Ghuwayr Early Prehistory Project was established in 1996 as a joint Edinburgh and Reading University research initiative with a four year excavation program. WF16 was discovered in 1996 during a reconnaissance survey of the area. WF16 is located at the junction of Wadi Ghuwayr and Wadi Faynan in southern Jordan. It lies on the edge of the Jordanian upland plateau, at the mountain front between the Jordanian highlands and the Wadi Arabi rift. The site lies on an outcrop over-

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looking the wadi bed. There are two main phases of occupation at the site, the first occurring at about 9900 BP and the second at 9400 BP.

Mammal bone material

The faunal assemblage has produced 359 bones identified to genus, 1587 bones identified as either medium[3] or large mammal[4] and 2099 unidentified bone fragments (Table 1). The faunal sample reveals species that prefer a typical semi arid desert/steppe environment. *Capra* sp. dominates the assemblage at 77%, followed by fox (*Vulpes vulpes),* wild cattle *(Bos primigenius)* and a few equid bones. Smaller taxa such as hare (*Lepus capensis*) and land tortoise (family Testudinidae) are also present. Each identified taxon will be reviewed.

Table 1. Animal bones from the site

Genus	**NISP**	
Capra sp.*(Capra aegagrus/ ibex)*	264	77%
Bos primigenius	29	8%
Equus sp.	5	1.5%
Vulpes vulpes	30	8.5%
Felis sp.	9	3%
Carnivore	4	1%
Lepus capensis	2	0.58%
Testudinidae	16 (1)	0.29%
Large Mammals	70	
Medium Mammals	1517	
Not Identifiable	2099	

Capra sp.

The majority of the identified bones recovered from WF 16 were from *Capra* sp. (77%). Two species, *Capra aegagrus* (wild goat) and *Capra nubiana* (Nubian ibex) inhabit the region around WF 16. Both species are found at Levantine archaeological sites and are difficult to distinguish within faunal assemblages without diagnostic elements such as horn cores. WF 16 lacks both horn cores and a large comparative collection. Therefore, *Capra* sp. has been used to encapsulate both species on a taxonomic level until further evidence emerges from future excavations.

All body parts are represented, indicating that entire goat carcasses were transported back to the site. The predominant skeletal elements recovered were from limbs (scapula, humerus, radius/ulna and carpal bones) and extremities (metapodials and phalanges) ; (Fig. 1).

The predominance of *Capra* sp. bones at WF 16 raises the possibility of domestication. This issue is very pertinent considering the transitional nature of subsistence associated with the PPNA in the Levant (Tchernov 1994). Sites have previously produced faunal reports with gazelle being the main game animal in the Mediterranean belt and both gazelle and ibex providing most animal protein in arid areas (Tchernov 1994). Due to the fragmentary nature of the *Capra* sp. bones at WF 16, analysis

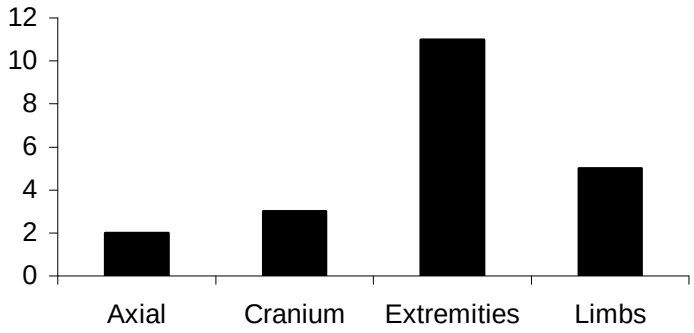

Fig. 1. *Capra* sp. body part distribution.

[3] Medium Mammal bones are bones that, based on their bone density and size are believed to have come from species such as sheep, goat, deer, pig. *Capra* is the probable taxon represented by these bones.

[4] Large Mammal bones are bones that, based on their bone density and size are believed to have come from taxa such as cattle or horse.

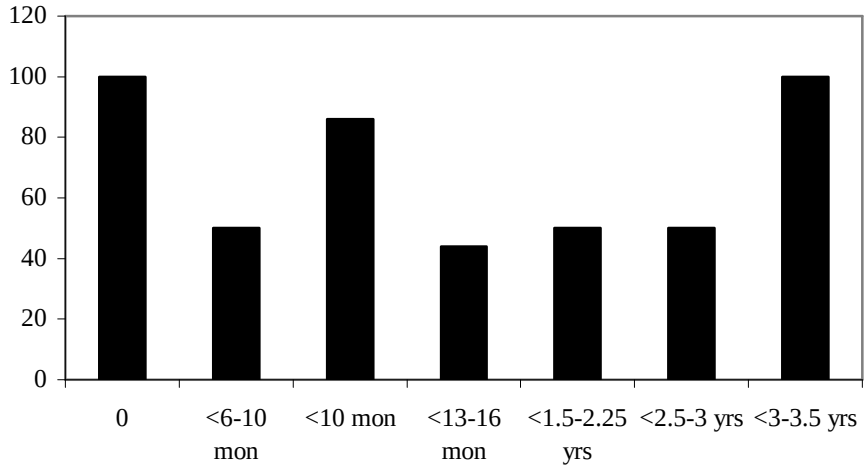

Fig. 2. Age profile of *Capra* sp. based on unfused bones (Silver 1969).

was restricted to certain methodological approaches in the assessment of a wild versus a domestic population. Age profiles reveal a marginal difference in the frequency of juveniles and adults at 41.9% and 58.1% respectively.

This is better represented in Figure 2 where an even distribution of age based on unfused elements from *Capra* sp. is plotted (Silver 1969). Based on the type of elements recovered, the age of the population and the high fragmentation that is indicative of marrow extraction, the WF 16 *Capra* sp. has been classified as representing a wild population.

Bos primigenius

Bos primigenius represents 8% (29 bones) of the total indentifiable bone specimens recovered. The majority of the fragments are from maxillary teeth. The other elements are mainly extremities and limb bones. These include a carpal bone, a metacarpal, phalanges, a patella, a scapula and sesamoid bones. The *Bos* bones have the only cut marks recorded at the site. The cut marks are lateral slices across the carpal bone, produced during butchering (Rixson 1989). At least two individuals are represented in the assemblage: an adult and a juvenile[5].

Equus sp.

Equids represent 1% (5 elements) of the total identifiable faunal assemblage. Of the five bones recovered, only one unfused middle phalanx could be aged to between 9 and 12 months (Silver 1969). The lack of cranial elements, especially teeth, and the fragmentary nature of the equid bones have made species identification difficult. However, the general size and composition of the Wadi Faynan bones are much smaller than *Equus caballus* bones and larger than *Equus hydruntinus*. Therefore, the bones may be from either an onager or wild ass.

Vulpes vulpes

Vulpes vulpes represent 8.5% (30 bones) of the total identifiable faunal assemblage. Most body parts are represented, indicating that whole carcasses were transported to the site. The majority of elements recovered are cranial, more specifically maxillary and mandibular teeth. Tchernov (1994) states that the high frequency of fox cranial elements found at PPNA sites is a continuation of a Natufian tradition where canine teeth were used for adornment. However, none of the fox teeth from WF16 show signs of modification.

[5] Ages based on fused humerus, unfused metacarpal and unfused proximal and middle phalanges.

Felis sp.
The *Felis* specimens recovered make up 3% (9 bones) of the total identifiable faunal assemblage. *Felis* bones from the Levant in the PPNA are rare. Netiv Hagdud reports 14 skeletal elements identified as *Felis silvestris*, and 2 specimens of *Caracal caracal* (Tchernov 1994). Based on preliminary analysis, the *Felis* specimens probably belong to *Caracal caracal*.

Other Carnivores
A mere 1.16% (4 bones) of the total identifiable faunal assemblage comprises bones most likely from either *Vulpes* or *Felis*; however, because of their fragmentary nature these could not be conclusively placed within either taxon and were therefore assigned to a broader "carnivore" category.

Lepus capensis
Only two *Lepus capensis* bones were recovered, a humerus and a scapula from an adult. There was evidence of burning on both bones.

Land Tortoise
Sixteen fragments of a land tortoise shell were recovered. The shell pieces found in the same area and they are believed to come from one single shell. No other area produced tortoise shell, nor were any bones recovered. Four of the recovered shell fragments showed signs of burning suggesting the carapace could have been used as a roasting vessel.

Medium and large mammal bone fragments

The 1587 bones classified as either medium or large mammal bone fragments represent bones that could not be identified to a taxon but could be classified within a general mammal size category based on bone density. Most of the bone fragments are from limbs and represent the processing of the long bones for marrow extraction and roasting. The 1517 medium mammal bone fragments most likely belong to *Capra* sp. as it is the only medium sized mammal identified on site. The 70 large mammal bone fragments are either from *Bos* or *Equus*, suggesting that certain long bones were transported to the site.

Seasonality indicators

Neonatal and natal *Capra* bones were recovered. The rutting season for wild goats is primarily during October and November. The young are born in March/April. A *Capra* sp. metapodial III or IV diaphysis fragment was recovered along with other very porous bone in the same context. The diaphyses of metapodials III and IV fuse at birth (Silver 1969). As this metapodial III or IV shaft is unfused, an occupation in March and April is suggested. An unfused *Capra* sp. acetabulum was also recovered putting the age at less than 6-10 months old (Silver 1969). The bone shows signs of starting to fuse, which suggests a fall and winter occupation at the site. These preliminary estimations will be compared with the pending bird bone report and other environmental data[6].

Summary of findings

Compared to other PPNA sites in the Levant such as Jericho, Gilgal and Netiv Hagdud (Tchernov 1994), WF 16 lacks evidence of *Sus scrofa* (wild boar), gazelle and cervids (deer). Habitat preference is a possible reason. *Sus* prefer moist habitats such as thickets or marshy regions. Cervids on the other hand prefer forested hills and mountain ranges, which does not account for their absence at WF 16. However, the most significant absence is that of gazelle. Gazelle is the dominant animal species at all PPNA sites in the Levant. WF 16 appears to be an exception to this pattern. The transition from the

[6] Kevin Rielly is in the final stages of his analysis of the bird bones from Wadi Faynan 16.

PPNA to the PPNB (specifically within the Jordan Valley, PPNB) has previously been characterised by a shift from gazelle hunting to an almost exclusive reliance on goat (Tchernov 1994). WF 16 is the first site to show a complete reliance on goat within a PPNA time frame. Traditionally, hunting goat was believed to have taken place due to gazelle overkill and or resource stress due to PPNA sedentism. Both of these causes would not have been factors within the PPNA and are therefore irrelevant to the preferential hunting of goat at WF 16. This type of selective hunting is also evident in the bird remains (Reilly 2000). The site is in an area that would have supported water game species, and desert species that are totally absent at WF 16 but highly represented at other contemporary sites. Again, the nature of the site is brought into question as the inhabitants clearly avoided species that were likely to have been abundant locally.

There is no evidence that the goat was domesticated at WF 16. However, a few bones have been recovered from the 2000 excavation that are much smaller than ibex and *Capra aegagrus*, suggesting some type of management. This question will be addressed once the 2000 material is fully anlaysed. The *Bos* and *Equus* remains combined, only make up 9% of the total identifiable faunal assemblage. Distal limb bones and long bone fragments along with a few bovine teeth were recovered. This suggests that only partial carcasses were brought to the site. The other wild mammals identified were *Vulpes vulpes* and *Felis* sp. Foxes were likely hunted for skins and also for meat. *Felis* specimens from the Levant in the PPNA are rare (Tchernov 1994) and to find them at Wadi Faynan 16 is quite unique.

Conclusion

The faunal material from WF 16 can be placed outside the general cultural change-process typically modeled for subsistence in the southern Levant. Based on the preliminary analysis of faunal material, the sequence from WF 16 possibly indicates a transition from gazelle subsistence to goat in the middle to late PPNA rather than during the PPNB (Rollefson 2000).

Future and ongoing research

One more season of excavated material remains to be analyzed. Other issues that will be addressed in future analysis include species variability in relation to spatial use of the site and possible cultural control of *Capra* sp. at the site. The unique faunal assemblage at WF 16 will be further explored, as the site is located in an environment where there was an abundance of other species that are, thus far, absent from the current assemblage. A more in-depth comparison with other PPNA sites in the region will be also be undertaken.

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