11. OTHER FAUNAL REMAINS

THE EDITORS

11.1 MICROMAMMALS

The micromammal collections from the recent excavations are still under study and will be published on a later occasion. However, Simon Parfitt has already reported (Bouzouggar et al. 2008) the presence of the Barbary ground squirrel (*Atlantoxerus getulus*) from the basal units of the Grey Series (S8-G100 to G99). This suggests only relatively scattered tree cover in the vicinity at this time, as these animals shelter in burrows and prefer rocky habitats with isolated trees (Kingdon 1997). Kowalski/Rzebik-Kowalska (1991) reported that their distribution at that time was restricted to the extreme west of Algeria, with a northern limit of around 33° N, which would imply slightly greater aridity at this level at Taforalt. However, this ground squirrel is reported in Aulagnier/Cuzin/Thévenot (2017; reference kindly supplied by. E. Stoetzel) in the vicinity and south of Taforalt today, although, as with most wildlife in North Africa, it is unclear how much this fast-breeding animal may have modified its range (still usually employing at least locally rocky areas) in response to more recent human activity, in this case by extension due to the attraction of domestic crops, especially fruits, to supplement a flexible (normally omnivorous) diet (cf. Rihane et al. 2018). Parfitt has also identified *Meriones* sp. (jirds) from Units Y4, Y2 and Y1 in Sector 8 (reported in Jeffrey 2016), an animal associated with largely open and sparsely vegetated environments, usually with a tendency towards a degree of aridity.

The microfauna reported from the Roche excavations is not available for study and we must therefore assume that the most likely reason for the presence in the cave of the majority of the taxa mentioned was accumulation by non-human predators, especially large owls or small carnivores. Under the circumstances, it is perhaps best not to rely upon the majority of these early identifications. However, it is of note in the 1950s collections that lagomorphs (a more reliably identified group) were recorded to have been concentrated towards the back of the cave, perhaps more in the upper two-thirds of the sequence of the Grey Series; whilst some carnivores may well have taken such game, it seems likely that humans also exploited this resource.

Our own excavations in Sector 8 have recovered microvertebrate bone fragments from the mollusc column (MMC units), as shown in **figure 8.5**. After adjustment for sedimentation rates, the counts (plausibly dominated by micromammals, although some smaller bird, reptile and amphibian remains will be included) show a two- to threefold decrease from the Yellow Series to the Grey Series, suggesting an overall tendency towards avoidance of man, probably by most microfaunal species and their non-human predators.

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11.2 AMPHIBIANS AND REPTILES

Methods

The herpetofaunal material was picked by Cath Price from bulk sample sieve residues. Each sample was one litre of finer matrix, unless indicated otherwise. Herpetofauna was removed from the 4 mm, 2 mm and 1 mm fractions and sorted by eye and low power microscope. The material was studied by CGO using a binocular reflected-light microscope with x5 to x32 magnifications. These samples all come from Sector 8. Although they are relatively restricted in number, they provide a representative selection from each of the main units excavated. Abundance is expressed on a three point scale only, using large empirical discontinuities in the count data (mirrored in the taxa numbers), remembering that the samples have not been normalised for stone content or likely time interval. Not all of the samples taken were processed.

Results and Discussion

These samples show a very low presence of herpetofaunal bone in the Grey Series. Only a few specimens were recovered in any one of these units, representing an equally low diversity of identified species (1-2 for most units) (**tab. 11.2.1**). A number of taphonomic factors may explain the scarcity of material, which has also been noted in the avifaunal and micromammalian assemblages from the GS. First, sedimentological data and the radiocarbon dating models presented in earlier chapters indicate the GS sequence of deposits accumulated extremely rapidly (at an estimated average rate of 1.8 m/kyr), thus allowing little time for incorporation of microfaunal remains. Indeed, the deposits are almost entirely anthropogenic in origin, consisting of thick accumulations of burnt stone, wood ash and fragments of burnt shell, burnt large mammal bone and lithic artefacts. There is relatively little evidence of burning of the herpetofaunal bone (except in Unit S8-G99), which implies that these smaller animals were infrequent visitors to the cave or that any potential predators were relatively uncommon while humans were there. It is also clear, for these same reasons, that most palaeoenvironmental signal would have been swamped by the human activity and that, in any case, the samples are too small to gain much additional information, apart from noting the presence of some species which are found in the area even today. The one exception to this pattern is provided by the lowest sample from S8-G100, which plausibly contains a physical mix of material brought up by human activity from the Yellow Series below. One may also mention here a reptile taxon not represented in the assemblage studied by the present author, namely, the tortoise, *Testudo* sp. One burnt femur has been recovered during the present campaign from S8-L3 and identified by Elaine Turner (pers. comm.) as the relatively small species, *T. graeca*, still present in the general vicinity. However, Arambourg (in Roche 1963, chapter 16) recorded "*Testudo* sp." (unfortunately with no counts) from every single one of Roche's *Niveaux I-VIII*, the only ubiquitous reptile, all others, even though identified only to family level, appearing in no more than two of these units; whilst the basis of the determinations is not given, it seems likely that many of them were made on scute fragments, one of the more easily recognisable (and anatomically numerous) remains of the tortoise.
More reliable palaeoenvironmental information is available for samples from the underlying Yellow Series sediments (**tab. 11.2.2**). Here it is interesting to point out that the decrease in herpetofaunal specimens in Unit S8-Y3 may also correspond to a particularly strong signal of anthropogenic activity and a correspond-

TAF ref. no.	Layer	Spit	Abund	Species diversity
TAF03/200	G88		+	Lacertidae, Sauria
TAF03/203	G89	2	+	*Tarentola mauritanica*, Colubridae
TAF03/204	G90	1	+	Sauria
TAF03/212	G92	2	+	Lacertidae
TAF03/213	G92	3	+	*Coronella girondica*
TAF03/214	G93	1	+	Sauria
TAF03/217	G93	2	+	*Ophisaurus koellikeri*
TAF03/224	G95	3	+	Lacertidae, Sauria
TAF03/36	G98		+	*Tarentola mauritanica*
TAF03/63	G98	4	+	*Coronella girondica*
TAF03/58	G98	4	+	Colubrinae, Sauria
TAF03/61	G98	4	+	*Coronella girondica*, Colubrinae
TAF03/73	G98	4	+	Colubrinae
TAF03/89	G98	5	+	Colubrinae
TAF03/90	G99		+	*Tarentola mauritanica*, Scincidae, Sauria, *Coronella girondica*
TAF03/100	G99		+	Lacertidae, *Coronella girondica*, Colubridae
TAF03/109	G99	base	+	Serpentes
TAF03/108	G99	base	+	Lacertidae, Colubrinae
TAF03/118	G100		+	Sauria, Serpentes
TAF04/719	G100		++	*Pelophylax* sp., *Ophisaurus koellikeri*, Lacertidae, *Chalcides* sp., Sauria, *Coronella girondica*, Colubrinae

Tab. 11.2.1 Herpetofauna from Grey Series sediments (in stratigraphic order) (abundance of specimens: + low (1-25); ++ medium (26-125)).

Taf ref. no.	Layer	Spit	Abund	Species diversity
TAF04/887	Y1		+	*Sclerophrys mauritanica*, Lacertidae, Sauria, *Coronella girondica*, Colubrinae
TAF04/888	Y1		++	Anura, *Acanthodactylus erythrurus*, Lacertidae, *Chalcides* sp., Sauria, *Coronella girondica*, Colubrinae
TAF04/1051	Y1		+	Sauria, *Coronella girondica*, Colubrinae
TAF04/894	Y1	hearth	+	*Acanthodactylus erythrurus*, Lacertidae, Sauria, *Malpolon monspessulanus*, *Hemorrhois hippocrepis*, Colubrinae
TAF10/10823	L30 = (Y1)		++	*Discoglossus* sp., Lacertidae, *Chalcides* sp., Sauria, *Coronella girondica*, *Telescopus* sp.?, Colubrinae
TAF04/1175	Y2		++	*Acanthodactylus erythrurus*, Lacertidae, Scincidae, *Trogonophis wiegmanni*, Sauria, *Coronella girondica*, Colubrinae, *Natrix maura*
TAF10/10849	L31 = (Y2)		+++	Anura, Lacertidae, *Chalcides* sp., Sauria, *Coronella girondica*, Colubrinae
TAF04/1838	Y3		+	*Acanthodactylus erythrurus*, Lacertidae, Sauria
TAF04/1895	Y3		+	*Ophisaurus koellikeri*, Lacertidae, *Trogonophis wiegmanni*, Sauria
TAF04/1901	Y4	1	+++	*Discoglossus* sp., *Pelophylax* sp., Anura, *Chameleo* sp., *Ophisaurus wiegmanni*, Lacertidae, *Chalcides* sp., Sauria, *Coronella girondica*, Colubrinae
TAF04/2140	Y4	2	+++	*Chamaeleo chamaeleon*, *Ophisaurus wiegmanni*, *Acanthodactylus erythrurus*, Lacertidae, *Chalcides* sp, Sauria, Colubrinae
TAF04/2105	Y4	3	+	Lacertidae, Sauria, Colubrinae
TAF05/2170	Y4	4	++	*Chamaeleo chamaeleon*, Lacertidae, Scincidae, Sauria, Colubrinae
TAF05/3228	Y4	4	+	*Chalcides* sp., Sauria, *Coronella girondica*, Colubrinae

Tab. 11.2.2 Herpetofauna from Yellow Series sediments (in stratigraphic order) (abundance of specimens: + low (1-25); ++ medium (26-125); +++ high (126-350)).

ing temporary rise in sedimentation rate in that unit. It may be relevant that the only example of a burnt herpetofaunal bone (of Moroccan glass lizard, *Ophisaurus koellikeri*) in the YS also comes from this unit and may be linked to deliberate exploitation of this lizard for food. Some of the largest samples of herpetofauna were recovered near the top of S8-Y1, and in S8-Y2 and S8-Y4. The presence of certain species in these units suggests that some areas outside the cave must have been well vegetated. For example the occurrence of chameleon in S8-Y4 indicates the presence of small bushes and trees, whilst, also recorded in this layer, the Moroccan glass lizard (*Ophisaurus*) is indicative of humid and vegetated habitats. Relatively warm humid conditions are also indicated by the occurrence of amphibians such as the Berber toad (*Sclerophrys mauritanica*), painted frog (*Discoglossus pictus*) and other frogs (water frog *Pelophylax* sp., indet. Anura) in this unit and in S8-Y1 and S8-Y2. The same is true of the presence of various snakes, such as the Montpellier snake (*Malpolon monspessulanus*), the horseshoe whipsnake (*Hemorrhois hippocrepis*), which favour humid conditions, and a viper (Viperidae indet.). Notably absent from any of these YS units is the Moorish gecko (*Tarentola mauritanica*), an indicator of dry conditions today. All of the YS deposits mentioned here relate to the period of Iberomaurusian occupation, including the upper part of Unit S8-Y4, spits 1 and 2.
Unit S8-Y4spit4 contains only MSA artefacts. There is a relatively high reptile abundance but the herpetofauna overall does not differ significantly from the higher (LSA) intervals of the Yellow Series.
The sedimentation rates in S8-Y4spit4 and in S8-Y4spit2 and above are demonstrably significantly higher than that in the intervening S8-Y4spit3, the latter having the lowest rate yet observed in the cave. However, this subunit has hardly any reptile bones compared to their relative abundance in the faster-accumulating spits above and below, perhaps suggesting a local 'squeeze' rather than a major faunal change. The interesting thing about this low mountainous area is that it seems to retain traces of most creatures, more or less no matter what the regional 'climate', presumably due to the wide range of persistent habitats (accidented topography and altitudinal range), as well as persistent predators.

Conclusions

If any environmental signal has survived the difficult taphonomic conditions within the cave and the habitat mosaic buffer likely represented by the local highlands, it is difficult to discern in the present samples. With respect to the Grey Series, the almost complete lack of amphibians (in theory, suggesting water stress) needs to be balanced against the risk of interpreting negative evidence (absence) in such small samples. Perhaps more reliable as a marker of slightly drier conditions is the single-specimen presence of the Moorish gecko, *Tarentola mauritanica*, towards the base (G99 and G98) and top (G89) of the Series. Slightly damper conditions would seem to be indicated in the bulk of the Yellow Series samples (containing a variety of lizards, snakes, frogs and toads requiring reasonable humidity and vegetation cover), also remembering the interval of apparent environmental constriction in S8-Y4spit3 and the fact that the suspected cool dry interval, in contorted sediment towards the top of Y2 (see **Chapter 2**), had not been recognised at the time of sampling. Such environmental conclusions must nevertheless remain speculative.
With respect to taphonomy, whilst a few species might have frequented the cave itself (cf. the amphisbaenian, *Trogonophis wiegmanni*, which is very obviously present today), most herpetofaunal remains will have been the result of predation, with occasional digestion, crunching and toothmarks showing on material from both the Grey and Yellow Series. The signs of burning in S8-G99 (as well as on the tortoise bone from S8-L3) and S8-Y3 are perhaps evidence of human predation. The numbers of specimens are much larger in the Yellow Series and the present, preliminary analysis could usefully be augmented by further comparative material study to extract more specific diagnoses.