A NEW SPECIES OF VULTURE (AVES, AEGYPIINAE) FROM THE UPPER PLEISTOCENE OF SPAIN

F. HERNÁNDEZ CARRASQUILLA*

SUMMARY.—A new species of vulture (Aves, Aegypiinae) from the Upper Pleistocene of Spain. A new species of vulture (Aegypius prepyrenaicus nov. sp., Aegypiinae, Aves) is described from an ulna discovered in an Upper Pleistocene cave (marine isotopic stage 3) from Northeast Spain (Gabasa, Huesca). This new species is characterised by its large size, larger than any known species of the genus Aegypius. Its morphology resembles recent Black Vultures (Aegypius monachus) but differs, mainly, by the lack of pneumatization in depressio radialis proximalis and depressio m. brachialis inferioris and in the shape of the depressio radialis that is long and rounded while in A. monachus it is long and triangulate. The finding of remains clearly belonging to A. monachus from the same period in a site 250 km far from Gabasa points out the probable sympatry of these species during the Upper Pleistocene.

Key words: Aegypius prepyrenaicus nov. sp., Upper Pleistocene, Spain.

INTRODUCTION

The site of Gabasa I is located 2 km north of Gabasa village in the province of Huesca, Spain (42°00′N, 0°25′E). This cave is situated in a limestone outcrop which dominates a river valley and its entrance is orientated towards the south-southeast (Hoyos et al., 1992). The excavations have yielded eight archaeological layers (a-h from top to bottom) in a stratigraphic column about 3 m deep with human artefacts and abundant fossil material (Montes, 1988; Utrilla & Montes, 1989). The lithic tools are assigned to the Mousterian and the human occupation of the cave seems to have been irregular, it probably being used as a seasonal hunter’s dwelling place (Montes, 1988). A sedimentological study assigned the archaeological layers to six levels (Hoyos et al., 1992) as follows: I (layer h), II (layers g and f), III (layer e), IV (layers d and c), V (layer b) and VI (layer a). This study also supplied information about the climatic conditions under which the deposits were accumulated. According to the authors, there is a succession of three cold (I, II and VI) and three warm (III, IV and V) phases. Regarding the absolute age of the deposits, there is a C14 date of level III (layer e) of 46500 + 4400-2800 years BP (GrN 12809). This is probably best regarded as a minimum age as it is close to or at the limit of this dating method. Hoyos et al. (1992) attempted to correlate the stratigraphic sequence with the marine oxygen isotopic data, and placed the deposit in Marine Isotopic Stage (MIS) 3, between 42000-34000 years BP.

Between the bird remains from level II has appeared one bone of vulture that does not match with any described species. Other bird

* Oficina de Anillamiento, Dirección General de Conservación de la Naturaleza, Ministerio de Medio Ambiente. Gran Vía de San Francisco, 4. E-28004 Madrid, Spain. e-mail: oficina.anillas@dgcn.mma.es
species from this level include Bearded Vultures *Gypaetus barbatus*, Golden Eagles *Aquila chrysaetos*, Kestrels *Falco tinnunculus*, Red-legged Partridges *Alectoris rufa*, Pigeons *Columba livia/oenas*, Great Owls *Bubo bubo*, Ravens *Corvus corax*, Yellow-billed Choughs *Pyrrhocorax pyrrhocorax*, Yellow-billed Choughs *Pyrrhocorax graculus* and Magpies *Pica pica* (Hernández, pers. obs.). The aim of this paper is to describe this new extinct species of vulture.


**SYSTEMATIC PALEONTOLOGY**

Order *Accipitriformes* (Vieillot, 1816)
Family *Accipitridae* (Vieillot, 1816)
Subfamily *Aegypiinae* Peters, 1931
Genus *Aegypius* Savigny, 1809
*Aegypius prepyrenaicus*, nov. sp.

Holotype: right ulna including the proximal epiphysis and 10 cm of shaft (Figs. 1 and 2). MNCN 37148, Paleontological Collection, Museo Nacional de Ciencias Naturales-CSIC, Madrid.

Type locality: Gabasa I, Gabasa, Huesca, Spain (42° 00′ N, 0° 25′ E).
Horizon and Age: Level II (Hoyos et al., 1992), Layer g (Montes, 1988; Utrilla & Montes, 1989). Upper Pleistocene, Marine Isotopic Stage (MIS) 3.
Etymology: The name refers to the geographic area (Prepyrenees) where the site is located.

Measurements of holotype: see Table 1 and Fig. 3.

Material examined: The holotype has been compared with the following species: *Aquila chrysaetos* (MNCN 23256), *Haliaeetus albicilla* (NRM A936630), *Gypaetus barbatus* (MNCN 23330), *Neophron percnopterus* (MNCN 25840), *Aegypius monachus* (MNCN 18497, 18771, 19063, 23119, 23809 and 15 additional uncatalogued specimens), *Aegypius tracheliotus* (IPM 1, MRAC 31012), *Aegypius occipitalis* (NRM unnumbered, IRSNB 3039), *Aegypius calvus* (IPM 1, MRAC 31012), *Aegypius occipitalis* (NRM unnumbered, IRSNB 3039), *Aegypius calvus* (IPM 1, IRSNB 2189), *Gyps fulvus* (MNCN 23810), *Gyps himalayensis* (IPM 1), *Gyps africanus* (IPM 1, IPM 2) and *Gyps bengalensis* (IPM 1, IPM 2).

Other material examined: *Gyps melitensis* (BMNH 49356).

Diagnosis: Larger than any known species of *Aegypius* (Table 1, Figure 3).

Description and comparison: The size and morphology of the specimen excludes all the species but the largest vultures. The fossil is attributed to *Aegypius* because of the following characters: (1) the olecranon is longer in *Aegypius* than in *Gyps* (Figs. 1 and 2) and (2) the *depressio radialis proximalis* is much deeper in *Aegypius* than in *Gyps* (Fig. 1).

The morphology of *A. prepyrenaicus* resembles recent *A. monachus* but lacks the pneumatization in the *depressio radialis pro-
ximalis and depressio m. brachialis inferioris typical of this species (Fig. 1). The shape of the depressio radialis proximalis is long and rounded in the new species while in A. monachus it is long and triangulate and in A. tracheliotus rounded and short (Fig. 1) This shape is not correlated with size within the genus (pers. obs.). In internal view, the edge of the facies lig. interni reaches the ventral cotyla more caudally in A. monachus and in A. tracheliotus than in the new species (Fig. 2). The morphology of the smaller species of Aegypius (occipitalis and calvus) resembles tracheliotus and monachus, respectively, for the discussed characters.

Remarks: Some authors have pointed out that the extinct Gyps melitensis Lydeker 1890 is a mosaic form between Aegypius monachus.

Fig. 1.—Proximal ulna in palmar view. A: Aegypius prepyrenaicus nov. sp., B: A. monachus, C: A. tracheliotus and D: Gyps fulvus. Scale bar: 1 cm.
[Ulna proximal en vista palmar: A: Aegypius prepyrenaicus nov. sp., B: A. monachus, C: A. tracheliotus y D: Gyps fulvus. Escala: 1 cm.]
and *Gyps fulvus*, with some bones resembling *A. monachus* counterparts and others elements approaching *G. fulvus* morphology (Jánossy, 1974; 1989; Weesie, 1988). Given these characteristics of *G. melitensis* and its large size (about one fifth larger than *G. fulvus*; Weesie, 1988), it could be argued that the ulna described above might be adscribed to this species. After examining the tibiotarsus (BM 49356) from the holotype series, we consider that *G. melitensis* is well placed in *Gyps* since the morphology of this bone agrees well with other *Gyps* species (which, for this bone, are distinctly different from *Aegypius*), and the same is true for other appendicular bones of *G. melitensis* described so far (Mourer-Chauviré, 1975). Therefore, the mosaic status of *G. melitensis* might have to be reconsidered in

Fig. 2.—Proximal ulna in internal view. A: *Aegypius prepyrenaicus* nov. sp., B: *A. monachus*, C: *A. tracheliotus* and D: *Gyps fulvus*. Scale bar: 1 cm.

the light of the new taxon described herein and, even, it seems possible that the material from *G. melitensis* with *Aegypius* features described from Europe (Jánossy, 1974; 1989; Weesie, 1988) might actually belong to *A. prepyrenaicus*.

**DISCUSSION**

The fossil record of Vultures in the Old World is fairly good for extant species, but with only one generally recognised species becoming extinct during the Pleistocene (*Gyps me-
The geographical distribution area of *A. prepyrenaicus* is, at present, restricted to the type locality, although there is an ulna from Gibraltar, whose locality is uncertain (J. Cooper, pers. com.) housed in the Natural History Museum of London (numbered A 510) that could be tentatively assigned to this species, as discussed above, and a tibiotarsus from Labeko Koba (Mondragón, Guipúzcoa, Basque Country, dated to Würm II/III) that has been assigned to *A. monachus* (M. Elorza, pers. com.). This last record is quite interesting since its age is similar to the new species and the distance between the two sites is about 250 km only. Besides, the measurements of this tibiotarsus fall within the smallest recent *A. monachus*, indicating that both species were contemporary. Also, several sites from France have yielded bones from *A. monachus* that apparently do not exhibit any differences, metrical or morphological, with respect to recent populations (Mourer-Chauviré, 1975). Several studies have shown how sympatric species of vultures avoid competition through differences in body size, feeding-related morphology, behaviour and habitat selection (Kruuk, 1967; Houston, 1975; 1988; Hiraldo, 1977). This is especially true for species from the same genus, where the most important differentiating factor is body size (Hiraldo, 1977) since their morphology is similar. The difference in size between *A. monachus* and *A. prepyrenaicus* is not as large as that observed today between sympatric species of *Aegypius*, but they could have contributed to avoid competition, maybe together with some type of spatial segregation like that found today between *G. fulvus* and *G. himalayensis* (Hiraldo, 1977). Also, the large mammal carcasses available at that date could have offered enough resources to support more than one congeneric species of vulture, since Hiraldo (1980) has shown that the number of sympatric species of vultures is correlated with the number of species of herbivores.

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