

Taxonomic comments on the Quaternary vultures (Aves: Accipitridae, Aegypiinae) of Central Europe

Taxonomické poznámky o čtvrtohorních supech (Aves: Accipitridae, Aegypiinae) ze střední Evropy

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ABSTRACT. Two new species and two new subspecies of vultures were described from the Quaternary deposits of Central Europe. Their revision yielded the following results: *Vultur fossilis* KEFERSTEIN, 1834 was relegated to the Aves incertae sedis until its holotype is located and restudied. *Vultur fossilis* GIEBEL, 1847 is both a junior homonym and a junior objective synonym of *Vultur fossilis* KEFERSTEIN, 1834. *Torgos tracheliotus todei* KLEINSCHMIDT, 1953 and *Gyps melitensis aegypioides* JÁNOSSY, 1989a are synonymous with the modern *Aegypius monachus* (LINNAEUS, 1766). First vultures appeared in Europe only in the middle Pleistocene, when all the three genera now inhabiting the western Palearctic were recorded (*Gyps*, *Aegypius*, *Neophron*).

Quaternary deposits of Central Europe yielded remains of many fossil species, incl. the vultures (Aegypiinae sensu WOLTERS 1977-1982). On the basis of these remains, two new species and two new subspecies of vultures were described. The taxa include *Vultur fossilis* KEFERSTEIN, *Vultur fossilis* GIEBEL, *Torgos tracheliotus todei* KLEINSCHMIDT, and *Gyps melitensis aegypioides* JÁNOSSY. Their taxonomic identity is discussed in the present paper.

Vultur fossilis KEFERSTEIN

Vultur fossilis KEFERSTEIN, 1834: 243, not figured

Holotype: KEFERSTEIN (1834: 243) did not mention remains, on which he based the species, but referred to GERMAR (1826: 612), who specified, that the bone in question is a femur, lacking distal end. At that time, the bone was in the Keferstein's collection (GERMAR 1826), but its current whereabouts is unknown.

Age and locality: Karstic fissure near Westeregeln, Sachsen-Anhalt Province, Germany (GERMAR 1826, KEFERSTEIN 1834); ca. 51°57' N, 11°23' E. GERMAR (1826) observed that the remains of fossil vertebrates from Westeregeln were intermixed with the bones of modern vertebrates, but specified, that the femur in question is indeed fossil, and that it was found in the close proximity of the bones of rhinos, hyaenas, and horses. This makes probable, that the holotype is late Pleistocene in age (see also TYRBERG 1998: 242).

Remarks: According to GERMAR (1826: 612), the femur from Westeregeln "completely agrees with the same bone of *Vultur cinereus* [= *Aegypius monachus* (LINNAEUS, 1766)] ... in size, general appearance, position of the pneumatic foramen etc.," and that "only the pneumatic foramen in the fossil bone is smaller [than in the femur of *Aegypius monachus*]" (my translation). The fossil was never figured, and the description itself does not allow one

to decide, whether the bone indeed belonged to a vulture, all species of which were lumped in the genus *Vultur* during much of the 19th century (see e. g. GIEBEL 1877: 754-758), or not. Hence, until the holotype is located and restudied, it is necessary to relegate *Vultur fossilis* KEFERSTEIN, 1834 to the Aves incertae sedis. The synonymization of *Vultur fossilis* with the modern *Aegyptius monachus*, as proposed by LYDEKKER (1891: 32; tentatively) and BRODKORB (1964: 286), is possible, but cannot be taken for granted, because it was not based on a restudy of the holotype or its (non-existing) illustration. HOLL (1829: 76, 1843: 76) listed the fossil as *Vultur cinereus* GMELIN, 1788 [= *Aegyptius monachus*], while NEHRING (1877, 1880) as *Vultur* (?*cinereus*).

The publications by GERMAR (1826) and KEFERSTEIN (1834) are rare in libraries, which caused some of the subsequent authors to cite the data related to *Vultur fossilis* inaccurately, or fail to list the species at all. (1) MILNE-EDWARDS (1863: 170, 1869: 469) attributed the name to GERMAR, mentioning that it was published in "Lethaea, t. 2, p. 824". Later, another French author (PARIS 1912: 288) attributed *Vultur fossilis* to GERMAR, 1837. Both these citations apparently refer to the second volume of BRONN's *Lethaea geognostica*, published in 1838 (but often cited as if published in 1837 - e.g. LYDEKKER 1891: 32). In the latter publication, BRONN (1838: 824) listed the fossil as a "*Vultur* (Germ.)" from Westeregeln (my italics), without mentioning any species name. It follows from the context, that authors given by BRONN in parentheses after the names of animal taxa were those reporting on the fossil record, not those responsible for the formal creation of the name. (2) LYDEKKER (1891: 32) correctly observed that there is no name *Vultur fossilis* in BRONN (1838: 824), and - being unable to trace it back to its proper author - ascribed it to unknown "Auct[ores]". (3) BRODKORB (1964: 286) attributed the name *Vultur fossilis* to GERMAR (1826), without giving the source of this information. However, there is no such name mentioned in GERMAR (1826), who assigned the fossil only to the genus *Vultur*, not mentioning its species name. (4) *Vultur fossilis* was omitted from the catalogues by LAMBRECHT (1921, 1933), BOCHENSKI (1997), and TYRBERG (1998).

Vultur fossilis GIEBEL

Vultur fossilis GIEBEL, 1847: 9, not figured.

Remarks: GIEBEL (1847: 9) described this species on the basis of the same femur upon which KEFERSTEIN (1834) based his *Vultur fossilis* (see above). There is no doubt that GIEBEL described the species as a new taxon, because he did not mention its author in the original publication (following the custom of his time), while he later (GIEBEL 1852: 697) listed the species with his own name as its author. Hence, *Vultur fossilis* GIEBEL, 1847 is both a younger homonym and a younger objective synonym of *Vultur fossilis* KEFERSTEIN, 1834.

For some reason (omission?), *Vultur fossilis* was not mentioned in GIEBEL's (1877) catalogue of birds.

Torgos tracheliotus todei KLEINSCHMIDT

Torgos tracheliotus todei KLEINSCHMIDT, 1953a: 23, fig. 1-4.

Syntypes: Fragmentary sternum, proximal part of left tibiotarsus, fragmentary shaft of right ulna, and fragmentary shaft of left radius. KLEINSCHMIDT (1953a) did not mention where the syntypes are deposited. Perhaps, they could be in the Landesmuseum Braunschweig,

Germany, which was in charge of the excavations of the archaeological site Salzgitter-Lebenstedt. Fragmentary shafts of the ulna and the radius are almost non-diagnostic, whilst the imperfect sternum was reconstructed from seven (KLEINSCHMIDT 1953a: 24, 1st line) or nine (KLEINSCHMIDT 1953a: 24, 4th line) pieces. Hence, I select here the proximal part of the tibiotarsus as the lectotype of the subspecies. Herewith, the remaining three elements become paralectotypes.

Age and locality: Late Pleistocene (Würm I) of Salzgitter-Lebenstedt, Niedersachsen Province, Germany (KLEINSCHMIDT 1953a,b); ca. 52°13' N, 10°23' E.

Remarks: KLEINSCHMIDT (1953a) correctly observed that the syntypes of his *Torgos tracheliotus todei* differ from the corresponding elements of *Gyps*, and generally agree with those of *Aegypius* and *Torgos*. He decided to identify the fossil as belonging to *Torgos* mainly on the basis of his belief, that the basin of the syntypical sternum is narrower towards its posterior end. However, the posterior part of this sternum is very imperfect, and reconstructed from so many splitters, that I seriously doubt this character (see KLEINSCHMIDT's figs. 1-2). In general, *Aegypius* and *Torgos* are osteologically rather similar to each other (see also JOLLIE 1976, 1977a,b). Nevertheless, taking into account the syntypes, they can be discerned on the basis of the inner cnemial crest of the tibiotarsus, which is broad and lacking an antero-ventral hook in *Torgos*, while it is narrower and possessing an antero-ventral hook in *Aegypius*. KLEINSCHMIDT's (1953) illustration (Fig. 3) and measurements (Tab. 2) clearly show, that the fossil differs from *Torgos*, and is similar to *Aegypius* in this respect.

In summary, the fossil agrees in all observable details and in dimensions (see KLEINSCHMIDT 1953a), with the modern *Aegypius monachus*, the only known representative of the genus *Aegypius*. Hence, I synonymize here *Torgos tracheliotus todei* KLEINSCHMIDT, 1953a with the modern *Aegypius monachus* (LINNAEUS, 1766).

Gyps melitensis aegyptioides JÁNOSSY

Gyps melitensis aegyptioides JÁNOSSY, 1989a: 118, pl. I, fig. 1-3.

Syntypes: Distal part of left tarsometatarsus (MG 54.625), and two phalanges digiti pedis (MG 54.628, and MG 57.759). Of these elements, the tarsometatarsal fragment is most diagnostic, and I select it here as the lectotype of the subspecies. The two phalanges become thus its paralectotypes. The syntypes are deposited in the Landesmuseum "Joanneum" in Graz, Austria (MG).

Age and locality: Latest middle Pleistocene (Riss/Würm interglacial) of Repolust Cave near Graz, Steiermark Province, Austria (MOTTL 1951, FLADERER 1993, RABEDER and TEMMEL 1998); ca. 47°19' N, 15°21' E.

Remarks: JÁNOSSY (1989a: 117) observed that the lectotypical tarsometatarsus fragment differs from the same element of *Gyps fulvus* and agrees with that of *Aegypius monachus* in having shaft more slender, and a differently shaped fossa metatarsi I. An additional character is the position of the distal foramen, which is closer to the distal end of the tarsometatarsus in *Gyps* than in *Aegypius*. In all of these three characters, the lectotype tarsometatarsus of *Gyps melitensis aegyptioides* agrees with the same element of *Aegypius*, and differs from that of *Gyps*.

differently shaped distal end of the phalanx. However, the latter end is damaged (see MOURER-CHAUVIRÉ 1977, pl. 1, fig. 5), which opens a possibility, that the fragment is referable to *Gyps fulvus*.

Summarizing this evidence, it can be concluded that there is no convincing evidence for the existence of *Gyps melitensis* in the Quaternary of Central Europe, although the species probably did exist in the Mediterranean region during the middle Pleistocene.

DISCUSSION

The earliest aegyptian vultures (sensu JOLLIE 1976, 1977a,b) from Europe were found in Hundsheim, Austria, the site being earliest middle Pleistocene in age (MNQ-zone 22 sensu GUÉRIN 1982 = biozone Q 3₁ sensu HORÁČEK and LOŽEK 1988). Species recorded from the middle Pleistocene of Europe include two modern and one extinct species. The modern species, *Aegypius monachus* (Black Vulture) and *Gyps fulvus* (Griffon Vulture), still inhabit the southern part of Europe (FISCHER 1974, CRAMP & SIMMONS 1979, del HOYO et al. 1994), and both were recorded for the first time in Hundsheim (see above). This may indicate, that both of them invaded Europe roughly at the same time.

The extinct species, *Gyps melitensis*, was recorded from the Mediterranean islands of Crete and Malta, and from the mainland in Monaco and France, with an uncertain record from Germany (see above). All of these records probably fall in the middle Pleistocene, although the dating of some island deposits is not yet confirmed.

Neophron percnopterus (Egyptian Vulture), the third vulture currently inhabiting Europe (FISCHER 1974, CRAMP & SIMMONS 1979, del HOYO et al. 1994), is only distantly related to the core vultures of the genera *Aegypius*, *Gyps* etc. (JOLLIE 1976, 1977a,b,c, SEIBOLD & HELBIG 1995). Its oldest record comes from the middle Pleistocene locality Elaichoria 3 in Greece (MLÍKOVSKÝ 1995), but most of the records in Europe and the adjacent parts of Africa and Asia came from post-glacial deposits (see JÁNOSSY 1989b).

ACKNOWLEDGMENTS. I was allowed to study avian bones from Hundsheim through the courtesy of Gernot RABEDER (Wien). My research at the Smithsonian Institution in Washington, D.C., was done, when I was short-term fellow of the Institution in January/February 1997 (curator of birds: Storrs L. OLSON). Additional bones of *Gyps fulvus* were measured in the National Museum in Praha (curator of osteology: Petr BENDA). Ivan HORÁČEK (Praha) identified the mammalian phalanx, and provided helpful comments on the manuscript. I thank all the named persons.

SOUHRN

Ze čtvrtohor střední Evropy byly popsány dva druhy a dva poddruhy supů. Jejich taxonomická revize vedla k těmto závěrům: *Vultur fossilis* KEFERSTEIN, 1834 ze svrchního pleistocénu Německa (lokalita Westeregeln) není na základě popisu identifikovatelný, nikdy nebyl vyobrazen a jeho holotyp se ztratil. Druh je tedy nutné přefadit mezi Aves incertae sedis. *Vultur fossilis* GIEBEL, 1847 je mladším homonymem i mladším objektivním synonymem druhu *Vultur fossilis* KEFERSTEIN, 1834 (byl popsán na základě téhož femuru). Formy *Torgos tracheliotus todei* KLEINSCHMIDT, 1953 ze svrchního pleistocénu Německa (lokalita Salzgitter-Lebenstedt) a *Gyps melitensis aegyptioides* JÁNOSSY, 1989a ze svrchního pleistocénu Rakouska (lokalita Repolusthöhle) jsou obě synonymy současného supa hnědého *Aegypius monachus* (LINNAEUS, 1766).

Supové se podle fosilních dokladů objevili v Evropě až počátkem středního pleistocénu, kdy jsou z lokality Hundsheim v Rakousku doloženi jak sup hnědý *Aegyptius monachus*, tak sup bělohavý *Gyps fulvus*. Nejstarší nález třetího ze současných evropských supů, supa mrchožravého *Neophron percnopterus*, pochází z blíže nedatované středopleistocénní lokality Elaichoria 3 v Řecku. Středomořské ostrovy a jižní část západní Evropy obýval ve středním pleistocénu zřejmě i vyhynulý druh *Gyps melitensis*, původně popsán LYDEKKE-REM (1890) z Malty. Byl ještě o něco větší než sup bělohavý. Revize údajných nálezů tohoto supa ze střední Evropy ukázala, že mu žádný z nich prokazatelně nepatří. *Gyps melitensis* nebyl tedy z této oblasti doložen.

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(Received 28.6.1998, accepted 28.8.1998)