

A new tropicbird (Aves: Phaethontidae) from the late Miocene of Austria

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(With 1 textfigure)

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Abstract

A new tropicbird species, *Heliadornis paratethydicus*, is described from the late Miocene of Vösendorf in Austria. It is the second record of the family Phaethontidae in the Tertiary of the world.

Keywords: Aves, Phaethontidae, Miocene, Austria.

Zusammenfassung

Eine neue Tropikvogelart, *Heliadornis paratethydicus*, wird aus dem Jung-Miozän von Vösendorf, Österreich, beschrieben. Es handelt sich um den zweiten Beleg der Familie Phaethontidae im Tertiär der Welt.

Schlüsselwörter: Aves, Phaethontidae, Miozän, Österreich.

Introduction

The tropicbirds (family Phaethontidae) are marine, plunge-diving birds which inhabit all tropical oceans. Their fossil record is extremely meagre, going back only to the middle Miocene (OLSON 1985b).

In this paper, I will describe a new tropicbird from the late Miocene (MN 10) locality Vösendorf in Niederösterreich, Austria (48.07 N, 16.19 E). The locality Vösendorf (Brunn-Vösendorf) was excavated in the 1930s and 1940s. It yielded numerous remains of vascular plants, invertebrates and vertebrates (PAPP & THENIUS 1954, PAPP 1985), but only two avian bones were known previously (THENIUS 1954). The latter two bones are deposited in the Institute of Paleontology of the University of Wien, Austria. In 1989, I discovered in the Department of Geology and Paleontology of the Museum of Natural History in Wien, Austria, a third avian bone from Vösendorf, which is identified here as a new tropicbird species.

The stratigraphy of the Neogene used herein follows MEIN (1990).

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Systematic paleontology

Order Pelecaniformes SHARPE, 1891

Family Phaethontidae BONAPARTE, 1853

Genus *Heliadornis* OLSON, 1985b

***Heliadornis paratethydicus* n. sp.**

(Fig. 1)

H o l o t y p e : Proximal end of right ulna, Museum of Natural History, Vienna, Inv.Nr. 1996/0184/0001.

M a t e r i a l : Holotype only.

A g e a n d l o c a l i t y : Late Miocene, MN 10 (PAPP 1985, STEININGER et al. 1987, MEIN 1990) of Vösendorf, Austria.

D i a g n o s i s : A *Heliadornis* tropicbird, larger than *Heliadornis ashbyi*.

D e s c r i p t i o n : The holotype proximal end of the ulna of *Heliadornis paratethydicus* is characteristic in having incisura radialis well bordered, deep, round, and non-pneumatic. This combination of characters is typical for the Phaethontidae.

C o m p a r i s o n : The family Phaethontidae consists of two genera only: modern *Phaethon* LINNAEUS, 1758, and Miocene *Heliadornis* OLSON, 1985b. The holotype ulnar fragment of *Heliadornis paratethydicus* differs from the ulnae of all three modern *Phaethon* species (sensu DORST & MOUGIN 1979) in having: (1) margo cranialis less sharp, (2) unnamed processus on the distal border of incisura radialis more pronounced, and (3) impressio musculi scapulo-tricipitis less deepened.

The only other known genus of the family Phaethontidae is *Heliadornis* OLSON, 1985b, created for *Heliadornis ashbyi* OLSON, 1985b from the middle Miocene Calvert Formation of Maryland (OLSON 1985b). Direct comparisons are not possible because *Heliadornis ashbyi* was based on a partial coracoid, partial scapula and partial humerus, while its ulna remained unknown. Nonetheless, I consider it probable that the Austrian tropicbird belongs in the same genus because of the following circumstantial evidence: (1) It is different from *Phaethon*. (2) High generic diversity within the specialized family Phaethontidae is improbable. (3) The species are geographically allied, as both occurred in the northern part of the tropical belt of the Atlantic Ocean: *Heliadornis ashbyi* near its eastern shore, and *Heliadornis paratethydicus* in the Paratethys, the eastern epicontinental sea of the Atlantic Ocean. (4) The age difference between the two species is not too great. Nevertheless, the species rank for the Austrian tropicbird seems warranted because: (1) it was larger, and (2) younger than *Heliadornis ashbyi*.

E t y m o l o g y : After Paratethys, the central and southern European Miocene sea.

D i s c u s s i o n : The oldest fossil, originally thought to be a phaethontid, *Prophaethon shrubsolei* ANDREWS, 1899 from the early Eocene (Ypresian) of England, was later separated at the family and order levels (HARRISON & WALKER 1976). OLSON (1977, 1985a,b) supported the separation at the family level, but not that at the ordinal one.

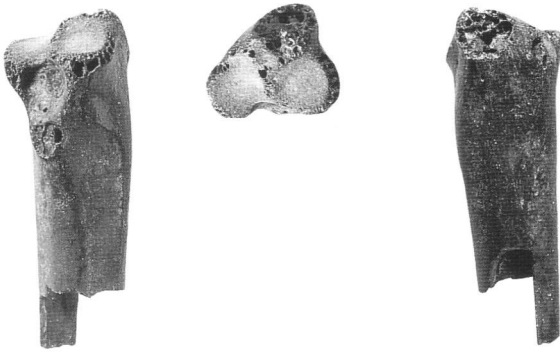


Fig. 1: Proximal part of right ulna (holotype) of *Heliadornis paratethydicus* n.sp. (Aves: Phaethontidae) from the late Miocene of Vösendorf, Austria. – x 2. – Photograph: A. SCHUMACHER (Vienna).

The only previous fossil record for the family Phaethontidae thus remains *Heliadornis ashbyi* OLSON 1985b from the middle Miocene of Maryland. It is here supplemented with *Heliadornis paratethydicus* n.sp. from the late Miocene of Austria.

Of the two tropicbird genera, *Heliadornis* is thus known from the middle and late Miocene of the northern part of the Atlantic Ocean, *Phaethon* from the late Quaternary onwards. However, in view of the extreme rarity of the fossil record of the tropicbirds, it seems unlikely that this represents the real picture of the phylogenetic and biogeographical history of the family.

A s s o c i a t e d avifauna at Vösendorf: Only two other avian bones were discovered in Vösendorf, both of which were described by THENIUS (1954), and revised by myself.

One of these bones is the distal part of a left ulna of a small indeterminate passerine bird.

The other bone is the distal part of a left tibiotarsus (THENIUS 1954), which undoubtedly belongs in the family Phasianidae. THENIUS (1954) determined it as belonging to *Palaeocryptonyx donnezani* DEPÈRET, 1892, which was originally described from the early Pliocene (MN 15) of Perpignan in France (DEPÈRET 1892, 1897). The bone, however, is too large for that species, and probably belongs in the widespread Miocene phasianid genus *Palaeortyx* MILNE-EDWARDS, 1869. However, its true identity can be determined only after a modern revision of Neogene European quails.

S u m m a r y: The late Miocene locality Vösendorf in Austria yielded three avian bones, which belong in the Phaethontidae (*Heliadornis paratethydicus*), Phasianidae (cf. *Palaeortyx*), and Passeriformes (indet.).

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References

- ANDREWS, C.W. (1899): On the remains of a new bird from the London Clay of Sheppey. – Proc. zool. Soc. London 1899: 776-785. – London.

- DEPÈRET, C. (1892): Sur la faune d'Oiseaux pliocènes du Roussillon. – C.R. hebd. Séances Acad. Sci., **114**: 690-692. – Paris.
- (1897): Les animaux pliocènes du Roussillon. – Mém. Soc. géol. France, (Paléontol.) **3**: 1-178. – Paris.
- DORST, J. & J.-L. MOUGIN (1979): Order Pelecaniformes. – In: E. MAYR & G.W. COTTRELL (Eds.): Check-list of birds of the World I: 155-193. – Cambridge (Museum of Comparative Zoology).
- HARRISON, C.J.O. & C.A. WALKER (1976): A reappraisal of *Prophaethon shrubsolei* ANDREWS (Aves). – Bull. Brit. Mus. (Nat. Hist.), (Geology) **27**: 1-30. – London.
- MEIN, P. (1990): Updating of MN zones. – In: E.H. LINDSAY, V. FAHLBUSCH & P. MEIN (Eds.): European Neogene mammal chronology: 73-90. – New York (Plenum Press).
- OLSON, S.L. (1977): A Lower Eocene frigatebird from the Green River Formation of Wyoming (Pelecaniformes: Fregatidae). – Smithson. Contrib. Paleobiol., **35**: 1-33.
- (1985a): The fossil record of birds. – In: D.S. FARNER, J.R. KING & K.C. PARKES (Eds.): Avian biology VIII: 79-238. – New York (Academic Press).
- (1985b): A new genus of tropicbird (Pelecaniformes: Phaethontidae) from the middle Miocene Calvert Formation of Maryland. – Proc. biol. Soc. Washington, **98**: 851-855. – Washington, D.C.
- PAPP, A. (1985): Holostratotypus: Vösendorf, Wiener Becken (Österreich). – In: A. PAPP (Ed.): Chronostratigraphie und Neostratotypen VII: 187-198. – Budapest (Akadémiai Kiadó).
- PAPP, A. & E. THENIUS (1954): Vösendorf – ein Lebensbild aus dem Pannon des Wiener Beckens. – Mitt. geol. Ges. Wien, **46**: 2-109. – Wien.
- STEININGER F.F., F. RÖGL & M. DERMITZAKIS (1987): Report on the round table discussion "Mediterranean and Paratethys Correlations". – Ann. Inst. geol. publ. Hungar., **70**: 397-421. – Budapest.
- THENIUS E. (1954): Vösendorf – ein Lebensbild aus dem Pannon des Wiener Beckens. II. Systematischer Teil: D. Wirbeltiere. d. Aves. – Mitt. geol. Ges. Wien, **46**: 49-50. – Wien.