

## Middle Miocene birds of Devínská Nová Ves, Slovakia

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Received September 12, 2003; accepted November 20, 2003  
Published March 31, 2004

**Abstract.** Miocene avian record from Slovakia is limited to the locality of Devínská Nová Ves. Overall, 33 bones of 7 species from at least four families were identified. The locality yielded the earliest record of the genus *Tyto* Billberg, 1828.

**Aves, Miocene, Devínská Nová Ves, Slovakia**

### INTRODUCTION

Miocene birds are known from numerous sites in Europe (Mlíkovský 1996a, 2002), but their record in Slovakia is limited to a single locality (Mlíkovský 1992, 1996b, 2002): Devínská Nová Ves near Bratislava in southwestern Slovakia. The locality – known also as Neudorf or Neudorf an der March – was discovered already in 1848, but it was intensively excavated for fossils only since the 1940s (Švagrovský 1978). For its description see Zapfe (1949), Thenius (1952) and Švagrovský (1978).

The locality consists of two sites, known as “Sandberg” (= sand hill) and “Spalte” (= fissure). The two sites are contemporaneous, but their vertebrate fauna differs ecologically (Zapfe 1949, Thenius 1952, Švagrovský 1978). It is unknown from which of the sites bird remains originated and all records are thus merged. The site is middle Miocene, MN 6, in age (Mein 1990, Steininger et al. 1999).

Supraspecific classification of birds follows Mlíkovský (2002). Full synonymies of fossil taxa are listed in Mlíkovský (2002).

### SYSTEMATIC LIST

Order Ardeiformes Wagler, 1831

Family Phalacrocoracidae Reichenbach, 1850

Genus *Phalacrocorax* Brisson, 1760

#### ***Phalacrocorax intermedius* (Milne-Edwards, 1867)**

*Graculus intermedius* Milne-Edwards, 1867: 266 (Early Miocene, MN 4, of Orleanais, France).

*Phalacrocorax intermedius*: Lydekker 1891: 53 (new combination).

**MATERIAL.** Fragmentary shaft of right coracoid.

**REMARKS.** This immeasurable fragment falls in the size class of *Phalacrocorax intermedius*, the only cormorant species known from the Middle Miocene of Europe (Mlíkovský 2002: 70–73). This species was formerly known from the early Miocene (MN 3) of Břešňany in Czechia, early Miocene (MN 4) of Orleanais in France, and middle Miocene (MN 7–8) of Dechbetten in Germany (see Mlíkovský 2002). The present record is thus the easternmost for the species.

Tab. 1. Middle Miocene birds of Devinská Nová Ves. MNI = minimum numbers of individuals

	bones	MNI	% MNI
<i>Phalacrocorax intermedius</i>	1	1	11.1
<i>Miogallus altus</i>	22	3	33.3
<i>Tyto sanctialbani</i>	1	1	11.1
Passeriformes – large species	1	1	11.1
Passeriformes – small species	10	3	33.3
Σ	35	9	100.0

Order Galliformes Temminck, 1820

Family Phasianidae Vigors, 1825

Genus *Miogallus* Lambrecht, 1933

***Miogallus altus* (Milne-Edwards, 1869)**

*Phasianus altus* Milne-Edwards, 1869: 239 (Middle Miocene, MN 6, of Sansan, France).

*Miogallus altus*: Mlíkovský 2002: 156 (new combination).

MATERIAL (Wien). Proximal ends of two right coracoids, distal end of right coracoid, symphyseal fragment of furculum, left humerus, proximal end of right humerus, proximal end of left ulna, distal ends of two left ulnae, proximal ends of three left femora, right femur, distal end of left tibiotarsus, distal end of right tibiotarsus, proximal end of left tarsometatarsus, proximal ends of three right tarsometatarsi, distal end of right tarsometatarsus; MNI = 3.

MATERIAL (Brno). Distal end of left humerus, proximal end of right femur; MNI = 1.

MEASUREMENTS (Wien). Coracoid: distal width = 17.4 mm; left humerus: maximal length = 94.3 mm, width of shaft in center = 9.1 mm, distal width = 19.6 mm, distal depth = 10.0 mm; ulna: proximal width × depth = 16.0 × 12.4, distal width = 12.6 and 12.5 mm; femur: maximum length = ca. 90.5 mm, proximal width = 18.6 and 17.9 mm, distal width × depth = 17.1 × 13.9 mm; tibiotarsus: distal width × depth = 12.5 × 12.7 mm; tarsometatarsus: proximal width = 13.1 and 14.5 mm.

REMARKS. This species was widespread in the Middle Miocene of Europe, with confirmed record ranging from MN 4 to MN 8 and involving sites in Spain, France, Germany, Poland and Slovakia (see Mlíkovský 2002: 156–157; see also Göhlich 2002 for a new locality). Extralimital records from the early Miocene (MN 3) of Can Mas in Spain (Villalta 1963) and from the late Miocene (MN 9) of Rudabanya in Hungary (Jánossy 1993) are uncertain (Mlíkovský 2002).

Order Columbiformes Latham, 1790

Family Strigidae Vigors, 1825

Genus *Tyto* Billberg, 1828

***Tyto sanctialbani* (Lydekker, 1893)**

*Strix sancti-albani* Lydekker, 1893: 518 (Middle Miocene, MN 7–8, of Grive-Saint-Alban, France).

*Tyto sanctialbani*: Ballmann 1969: 191 (new combination).

MATERIAL. Ungual phalanx.

REMARKS. This unguual phalanx agrees in size and morphology with the same element of modern *Tyto alba* (Scopoli, 1769), and is thus attributable to *Tyto sanctialbani*, which is the only middle Miocene *Tyto* species known from Europe (see Mlíkovský 1998, 2002). The latter species is known from the middle Miocene (MN 8) of Grive-Saint-Alban in France, late Miocene (MN 10) of Kohfidisch in

Austria, and late Miocene (MN 13) of Polgárdi in Hungary (see Mlíkovský 1998, 2002). The record from Devínská Nová Ves in Slovakia (MN 6) is thus the earliest for the species and also for the genus *Tyto* (see Mlíkovský 1998, 2002).

Order Passeriformes Linnaeus, 1758  
Family indet.

**Large species**

MATERIAL. Distal end of left humerus, right tarsometatarsus; MNI = 1.

MEASUREMENTS. Humerus: distal end = 11.1 mm; tarsometatarsus: maximal length = 44.7 mm, proximal width = 7.3 mm, distal width = 5.6 mm.

REMARKS. These bones may, though need not, belong to a single species.

**Small species**

MATERIAL. Two ulnae, proximal end of ulna, distal end of ulna, three carpometacarpi, distal end of tibiotarsus, tarsometatarsus, distal end of tarsometatarsus; MNI = 3.

MEASUREMENTS. Ulna = 18.0 and 21.8 mm, carpometacarpus = 8.2, 10.6 and 12.9 mm, tarsometatarsus = 19.5 mm.

REMARKS. Each of the three ulnae and each of the three carpometacarpi belong to different species.

DISCUSSION

All avian bones identified from Devínská Nová Ves belong to species previously known from the Middle Miocene of Europe (see Mlíkovský 2002). The record of *Tyto sanctialbani* is the oldest for both the species and the genus.

The cormorant (*Phalacrocorax*) indicates presence of open water in the vicinity of Devínská Nová Ves during the deposition of the remains. Similarly, remains of *Miogallus altus* are usually found in lacustrine deposits (Mlíkovský 1996, 2002). The remaining species are not diagnostic for the reconstruction of the environment.

Bones of birds from Devínská Nová Ves are too few in number to allow for an analysis of their taphonomic origin. None of the bones showed signs of pathological modifications.

Acknowledgments

I received most of the material for study through the kindness of Helmut Zapfe (Wien), Erich Thenius (Wien) and Oldřich Fejfar (Praha). This material (all from Zapfe's collection) is stored in the collection of the Institute of Paleontology of the University in Wien, Austria. In addition, I was allowed by Luděk Seitl (Brno) to examine two avian bones from Devínská Nová Ves that are deposited in the collection of the Anthropos Institute of the Moravian Museum in Brno, Czechia. The latter two bones were formerly described by Švec (1985).

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