

# The early Vallesian vertebrates of Atzelsdorf (Late Miocene, Austria)

## 6. Lagomorpha

By Chiara ANGELONE<sup>1,2</sup>

(With 1 figure)

Manuscript submitted on July 9<sup>th</sup> 2008,  
the revised manuscript on July 16<sup>th</sup> 2008

### Abstract

A preliminary study of the lagomorph material found in the early Vallesian fossil site of Atzelsdorf (Austria) is presented here. The scanty remains, among the youngest attributable to a primitive lagomorph in continental Europe, have been provisionally classified as “*Amphilagus*” sp. pending a revision of European primitive lagomorphs.

**Key words:** Lagomorpha, *Amphilagus*, Lake Pannon, Vienna Basin, Hollabrunn-Mistelbach Formation

### Zusammenfassung

Es werden die Lagomorphen aus der früh-vallesischen Fundstelle Atzelsdorf (Österreich) vorgestellt. Das spärliche Material stellt die jüngsten Vertreter einer primitiven Lagomorphen-Gruppe im kontinentalen Europa dar und wird vorläufig „*Amphilagus*“ sp. zugeordnet, einem Taxon das einer Revision sämtlicher europäischen primitiven Lagomorphen bedarf.

**Schlüsselwörter:** Lagomorpha, *Amphilagus*, Pannon See, Wiener Becken, Hollabrunn-Mistelbach-Formation

### Introduction

The Atzelsdorf site, an abandoned gravel pit, is located about 34 km NE of Vienna in Lower Austria and is geologically situated at the western margin of the Vienna Basin. The deposits of the Atzelsdorf site belong to the Hollabrunn-Mistelbach Formation - delta deposits, which have been discharged by the palaeo-Danube into Lake Pannon during the Late Miocene.

Biostratigraphic investigations (HARZHAUSER 2009) and well-logging correlations led to a correspondence of the Atzelsdorf fauna with the Vienna Basin Pannonian Zone C, basal MN9, and an absolute age of about 11.2-11.1 Ma (for more details see HARZHAUSER 2009).

---

<sup>1</sup> Dipartimento di Scienze della Terra, Università di Torino, via Valperga Caluso 35, 10125 Torino, Italia

<sup>2</sup> Dipartimento di Scienze Geologiche, Università Roma Tre, Largo San Leonardo Murialdo 1, 00146 Roma, Italia; e-mail: angelone@uniroma3.it

The aim of this paper is to analyze the lagomorph remains of the Atzelsdorf fossil fauna.

### Methods

The presented material was partly discovered during a digging campaign (2003) of the Natural History Museum of Vienna (NHMW), and partly by the collector G. PENZ (Vienna). Specimens (and casts of specimens of collection G. PENZ) are all housed and inventoried at the NHMW. The nomenclature and measurements follow LÓPEZ MARTÍNEZ (1989). Abbreviations: L: length, W: width.

### Systematic Palaeontology

Order Lagomorpha BRANDT, 1855

Family Ochotonidae THOMAS, 1897

Genus “*Amphilagus*” POMEL, 1853

#### “*Amphilagus*” sp.

(fig. 1)

**M a t e r i a l :** I<sup>1</sup> sin (NHMW 2008z0046/0001); P<sup>4</sup> dext (NHMW 2008z0046/0002, colln Penz P25); M<sup>1</sup> dext (NHMW 2008z0046/0003); P<sub>4</sub> sin (NHMW 2008z0046/0004); 1 mandible fragment with M<sub>1</sub>-M<sub>2</sub> sin (NHMW 2008z0046/0005, colln Penz P26).

**D e s c r i p t i o n :** I<sup>1</sup>: squared proportions, thin enamel on anterior portion, groove not too deep and inner lobe (slightly broken in its inner part) thinner than outer one. Measurements: L: 1.52 mm, W: ~1.95 mm.

P<sup>4</sup>: straight hypoflexus of medium depth, V-shaped; mesial hypercone slightly thicker than distal one; open metafossette and parafossette; lagiloph bifurcated at its labial end. Measurements: L: 2.34 mm, W: –.

M<sup>1</sup>: straight hypoflexus, not very deep, V-shaped, and likely to deepen in further stages of development; mesial hypercone slightly thicker than distal one; C-shaped metafossette, with bifurcated anterior labial end; labial part; the labial part of the tooth is broken preventing further observations. Measurements: L: 2.41 mm, W: –.

P<sub>4</sub>: extremely ill-preserved specimen; the labial part of the hypoconulid is still recognizable, and appears detached from the talonid.

M<sub>1,2</sub>: flattened trigonid, with enamel hiatus in the anterior part; on M<sub>1</sub> talonid the hypoconulid is not present, while on M<sub>2</sub> talonid occlusal surface, as well on its lateral lingual side, the hypoconulid is still visible. Measurements: M<sub>1</sub>: L: 2.46 mm, W: 2.62 mm. M<sub>2</sub>: L: 2.61 mm, W: 2.56 mm.

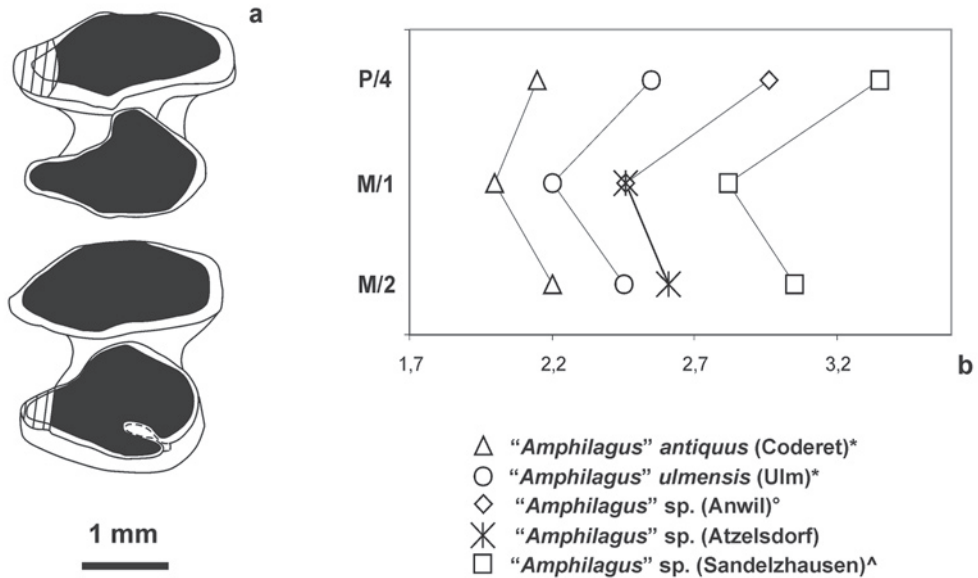


Fig. 1. A: M<sub>1</sub>-M<sub>2</sub> (NHMW 2008z0046/0005, colln Penz P26) of "*Amphilagus*" sp. from the early Pannonian (MN9) of Atzelsdorf (Lower Austria), occlusal view. B: length (mm) of P<sub>4</sub>-M<sub>2</sub> of some European populations referred to the genus "*Amphilagus*" compared with "*Amphilagus*" sp. from Atzelsdorf (\*data from TOBIEN 1974; °data from ENGESSER 1972; ^data from ANGELONE 2009).

## Discussion

In the scanty remains from Atzelsdorf it is possible to recognize in the available material the features of the "*Amphilagus*" group: rooted teeth, large size, presence of a lingually oriented hypoconulid on lower molariform teeth (fig. 1a). For this reasons, the analyzed material has been classified as "*Amphilagus*" sp. pending a revision of genus "*Amphilagus*" (in which have been lumped representatives of several different lineages) (LÓPEZ MARTÍNEZ 1989, ANGELONE 2009). The dimensions of the dental remains from Atzelsdorf are larger of those of the French and German populations attributed to "*Amphilagus antiquus*" (MP30) and "*A. ulmensis*" (MN1-5) (TOBIEN 1974), but smaller than "*Amphilagus*" sp. from Sandelzhausen (southern Germany, ANGELONE 2009); the length of M<sub>1</sub> is similar to "*Amphilagus*" sp. from Anwil (MN6; formerly attributed to the genus *Eurolagus*, ENGESSER 1972) (fig. 1b).

The Atzelsdorf remains are among the youngest of the European primitive lagomorph record. Another doubtful record of a primitive lagomorph in MN9 of Austria is given in DAXNER-HÖCK (1990; Bullendorf fossil site).

Actually, after MN7/8 primitive lagomorphs (quite widespread, even if never very abundant in continental Europe), become extremely rare. According to ŞEN in BERNOR et al. (2002; without further reference) their last record is in MN10 of Terrassa (north-eastern Spain). However, in the latest, updated database of rodents and lagomorphs of the Spanish Neogene no primitive lagomorph from Terrassa is mentioned, and their record lasts up to the late MN9 (SESÉ 2006, citing LÓPEZ MARTÍNEZ 1989).

### Acknowledgements

I wish to thank Drs. G. DAXNER-HÖCK and U. GÖHLICH for giving me the opportunity to study the fossil lagomorphs from Atzeldorf. I am grateful to Dr. U. GÖHLICH also for the German translations, for the discussion about the geological setting of the Atzeldorf fossil site, and for the critical revision of the manuscript, as well as to the referee Dr. M. ERBAJEVA and to the editor Dr. A. KROH.

### References

- ANGELONE, C. (2009): Lagomorphs from the Miocene of Sandelzhausen (southern Germany). – *Paläontologische Zeitschrift*, doi: 10.1007/s12542-009-0010-z.
- BERNOR, R.L., KORDOS, L., ROOK, L., AGUSTÍ, J., ANDREWS, P., ARMOUR-CHELU, M., BEGUN, D.R., CAMERON, D.W., DAMUTH, J., DAXNER-HÖCK, G., DE BONIS, L., FEJFAR, O., FESSAHA, N., FORTELIUS, M., FRANZEN, J., GASPARIK, M., GENTRY, A., HEISSIG, K., HERNYAK, G., KAISER, T., KOUFOS G.D., KROLOPP, E., JÁNOSY D., LLENAS, M., MESZÁROS, L., MÜLLER, P., RENNE, P., ROČEK, Z., ŞEN, S., SCOTT, R., SZYNDLAR, Z., TOPÁL, G., UNGAR, P.S., UTESCHER, T., VAN DAM, J.A., WERDELIN, L. & ZIEGLER, R. (2002): Recent Advances on Multidisciplinary Research at Rudabánya, Late Miocene (MN9), Hungary: a compendium. – *Palaeontographia Italica*, **89**: 3-36.
- BRANDT, J.F. (1855): Beiträge zur nähern Kenntniss der Säugethiere Russland. – *Mémoires de l'Académie impériale des sciences de St. Pétersbourg*, **9/6**: 125-365.
- DAXNER-HÖCK G. (1990): Bericht 1989 über das Projekt “Kleinsäuger” der begleitenden Grundlagenforschung. – *Jahrbuch der Geologischen Bundesanstalt*, **133**: 508-510.
- ENGESSER B. (1972): Die obermiozäne Säugetierfauna von Anwil (Baselland). PhD Thesis, Universität Basel, 363 p.
- HARZHAUSER, M. (2009): The early Vallesian vertebrates of Atzeldorf (Late Miocene, Austria). 2. Geology. – *Annalen des Naturhistorischen Museums in Wien, Serie A*, **111**: 479-488.
- LÓPEZ MARTÍNEZ, N. (1989): Revisión sistemática y biostratigráfica de los Lagomorpha del Terciario y Cuaternario de España. – *Memorias del Museo Paleontológico de la Universidad de Zaragoza*, **3**: 1-342.
- POMEL, A. (1853): Catalogue méthodique et descriptif des vertébrés fossiles découverts dans le bassin hydrographique supérieur de la Loire et de L'Allier. – 193 p., Paris (J. B. Ballière).
- SESÉ, C. (2006): Los roedores y lagomorfos del Neógeno de España. – *Estudios Geológicos*, **62**: 429-480.
- THOMAS, O. (1897): On the genera of rodents: an attempt to bring up to date the current arrangement of the order. – *Proceedings of the Zoological Society of London*, **1896**: 1112-1128.
- TOBIEN, H. (1974): Zur gebißstruktur, Systematik und Evolution der Genera *Amphilagus* und *Titanomys* (Lagomorpha, Mammalia) aus einigen Vorkommen im jüngeren Tertiär Mittel- und Westeuropas. – *Mainzer geowissenschaftliche Mitteilungen*, **103**: 103-186.