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The importance of Late Miocene faunal exchanges between Eastern Mediterranean areas and Central Europe

L'importance des échanges de faunes de mammifères entre la Méditerranée orientale et l'Europe centrale au Miocène supérieur

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Abstract

Recent studies of mammal faunas from the Vienna and Pannonian Basins—in particular the assemblage from Kohfidisch in Burgenland (Austria)—provide new data on the faunal turnover at the Vallesian—Turolian transition. They demonstrated a considerable influence of the faunal exchanges between Greco-Iranian, Eastern European and Central European faunal provinces on renewal of mammal communities in Central Europe, particularly at MN10/MN11 boundary around 8.7 Ma. Five new comers from the Balkano-Iranian region (*Gazella* aff. *pigrimi*, ?*Nisidorcas, Tragoportax gaudryi, Protoryx* and *Palaeoryx*) coexisted in the Early Turolian of Central Europe with the Middle Miocene autochthonous (*Orygotherium, Dorcatherium naui, Micromeryx, Euprox, Amphiprox anocerus* and *Miotragocerus pannoniae*) and Late Miocene invaders from Eastern Europe (*Procapreolus* and *Cervavitus*). Dispersal events were close related to palaeoenvironmental and climatic changes.

Résumé

Les études récentes des faunes de mammifères du bassin Pannonien et du bassin de Vienne, en particulier celle du dépôt fossilifère de Kohfidish (Burgerland, Autriche), nous fournissent des don-

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nées nouvelles sur le renouvellement faunique à la transition Vallésien-Turolien. Elles montrent l'importance considérable des échanges entre les provinces gréco-iranienne, d'Europe centrale et d'Europe orientale dans le renouvellement des communautés de mammifères d'Europe centrale à la limite MN10/MN11 (8,7 Ma). Cinq espèces de ruminants typiques de la province Gréco-Iranienne (*Gazella* aff. *pilgrimi*, ? *Nisidorcas, Tragoportax gaudryi, Protoryx* et *Palaeoryx*) coexistent, au Turolien inférieur avec les espèces autochtones issues du Miocène moyen (*Orygotherium, Dorcatherium naui, Micromeryx, Euprox, Amphiprox anocerus* et *Miotragocerus pannoniae*) et avec des taxons connus dans le Miocène supérieur d'Europe orientale (*Procapreolus* et *Cervavitus*). Les épisodes de dispersion sont étroitement corrélés aux changements paléoenvironnementaux et climatiques.

Keywords: Vallesian; Early Turolian; Ruminants; Correlation; Dispersals

Mots clés : Vallésien ; Turolien inférieur ; Ruminants ; Corrélation ; Dispersions

1. Introduction

A succession of newly stratified Pannonian (Tortonian) mammal faunas from the Vienna and Pannonian Basins (Rögl and Daxner-Höck, 1996; Daxner-Höck, 1996, 2001, 2003) enable a better correlation of the Central Paratethys and the Mediterranean regions than previously possible (Fig. 1). Recent studies of these faunas— in particular the assemblage from Kohfidisch in Burgenland (Austria) —have considerably enriched our knowledge of terrestrial mammals of Central Europe, their evolution and dispersal during the Vallesian-Turolian transition (MN10/MN11) and in the Early Turolian (MN11). In addition to very important data on rodents (Daxner-Höck, 1996, 2001, 2003), we have now new ruminant records, useful for biochronology and correlation. These records demonstrate a significant influence of migrations from Greco-Iranian and Eastern European faunal provinces and Central Europe on the renewal of mammal communities in Central Europe (around 8.7 Ma = MN10/MN11). They are not only of local interest but important for intercontinental correlation (Southwestern versus Central versus Southeastern Europe and Asia Minor).

The work was carried out in the frame of the Austrian project "Changes in Eastern Alpine Miocene ecosystems reflected by vertebrates" (FWF: P-15724-N06). In this article, the new data on occurrence and dispersals of the Late Miocene ruminants from Austria are given, with emphasis on faunal exchanges between this region and Eastern Mediterranean areas (Balkan Peninsula, northern Black Sea coast area and Asia Minor). Ruminant assemblages from Central Europe are compared with the assemblages from Eastern and Southeastern Europe and Asia Minor, and the main palaeoenvironmental and climatic changes in the Pannonian of Austria are analysed based on ruminant records.

2. Biochronology

The biochronology of the Late Miocene of Austria is considerably advanced in the last decade with the study of rodents (Daxner-Höck, 1996, 2001, 2003). From this region some