



Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

Annales de Paléontologie 91 (2005) 257–266

ANNALES
DE
PALÉONTOLOGIE

<http://france.elsevier.com/direct/ANNPAL/>

Article original

The Late Neogene mammal biochronology in the Loess Plateau, China

Biochronologie mammalienne du Néogène supérieur du Plateau de Loess, Chine

Zhaoqun Zhang *, Liping Liu

*Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences,
100044 Beijing, China*

Received 10 October 2004; accepted 20 May 2005

Abstract

For lacking of absolute dating, and because of the strong mammalian faunal endemism, the Chinese late Neogene has long been subdivided into mammalian ages mostly based on isolated local faunas by evolutionary stages of fossil taxa. The correlation with European stages and or mammalian units remains unsatisfied. We report the recent advances of the land mammal biochronology of late Neogene based on fossils found from continuous sections located at Lantian, Shaanxi Province and Lingtai, Gansu Province. There recognized three biozones for the late Miocene by fossils from the Bahe and Lantian formations, and three biozones for Pliocene on the data from Lingtai. The detailed biochronology work in combination with paleomagnetic data may improve the precision of correlation in the continental scale.

© 2005 Elsevier SAS. All rights reserved.

Résumé

Par suite de l'absence de datations absolues et de l'endémisme marqué de la faune de mammifères, le Néogène supérieur de Chine a longtemps été subdivisé en âges mammaliens basés principalement sur des faunes locales isolées à partir des degrés évolutifs des taxons fossiles. Les corrélations avec les étages d'Eurasie occidentale et avec les unités mammaliennes laissaient encore à

* Corresponding author.

E-mail address: zhangzhaoqun@ivpp.ac.cn (Z. Zhang).

désirer. Nous présentons les résultats récents des recherches menées sur la biochronologie des mammifères terrestres du Néogène supérieur à partir des fossiles récoltés dans des sections stratigraphiques continues à Lantian, province de Shaanxi, et Lintai, province de Gansu. Nous mettons en évidence trois biozones pour le Miocène supérieur à partir des fossiles des formations de Bahé et de Lantian ainsi que trois biozones pour le Pliocène sur les données provenant de Lingtai. La biochronologie détaillée associée aux données paléomagnétiques peut renforcer la précision des corrélations de l'échelle continentale.

© 2005 Elsevier SAS. All rights reserved.

Keywords: Late Neogene; Biochronology; Zonation; Loess Plateau

Mots clés : Néogène supérieur ; Biochronologie ; Zonation ; Plateau de loess ; Chine

1. Introduction

Schlosser (1903) published his famous monograph on Chinese Neogene and Quaternary mammals, symbolizing the first period of study on Chinese Neogene Mammals. Most of the fossils described have no precise provenances, and the ages were determined by comparison with the European taxa. During 1920s–1930s, late Neogene mammal fossil collecting campaigns in China reached a peak by the Swedish, American, and the French teams. The collections are well-known as Lagrelius collection in the Evolution Museum of Uppsala University, Frick collection in the American Museum of Natural History, New York, collection in the Hoangho-Paiho Museum (Tianjin Natural History Museum), and collection in IVPP. The fossils were mostly bought from local farmers, fortunately with localities and or village names. The Lagrelius collection was extensively studied by Zdansky (1924); Ringström (1924); Bohlin (1926, 1935); Sevfe (1927); Pearson (1928); Hopwood (1935). The collection from Hoangho-Paiho Museum was mainly studied by Teilhard de Chardin and Young (1931). These work marked the second period of the study of Chinese Neogene mammals. The third period is marked by investigations and studies by Chinese paleontologists from 1960s to 1980s. During this period, many important localities were discovered. The mammalian faunal sequence was set up in a more detail scheme, and the correlation with European Mammalian Zones has been achieved, based primarily on 'stage-of-evolution' (Li et al., 1984; Qiu, 1990; Qiu and Qiu, 1995; Qiu et al., 1999). However, for lacking of absolute dating of the faunas and strong endemism, the resolution of classification and precision of correlation remain to be unsatisfied. With the paleomagnetic dating method merging with biostratigraphy, study on continuous depositional sequences using multidisciplinary methods was first applied in the Yushe project by the Sino-American joint team (Tedford et al., 1991; Flynn et al., 1995, 1997), starting the fourth and most progressive period.

Recent work on continuous sections at Lantian area by the Sino-Fennic cooperative team and Lingtai area by Shao Hua Zheng and Zhaoqun Zhang provided unprecedented data for the biochronologic refinement of the Late Neogene. The Lantian sections cover the most complete Late Miocene in China with diversified and abundant fossil mammals (Zhang et al., 2002; Kaakinen and Lunkka, 2003), and sections from Lingtai, about 300 km north of the Lantian area, spanning from the latest Miocene to Early Pleistocene, with rich small

Download English Version:

<https://daneshyari.com/en/article/9538515>

Download Persian Version:

<https://daneshyari.com/article/9538515>

[Daneshyari.com](https://daneshyari.com)