

## 亚洲新近纪陆生哺乳动物生物地层 和年代学专辑:序言

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本专辑起因于 2009 年 6 月在北京召开的“亚洲新近纪陆生哺乳动物生物地层和年代学”研讨会。作为第一个也是目前最大的一个研究亚洲的古哺乳动物学家和地层学家的聚会(图 1),这次会议还同时庆贺了中国地质调查所新生代研究室(即中国科学院古脊椎动物与古人类研究所的前身)成立 80 周年。作为对目前亚洲新近纪哺乳动物年代学的一个回顾和展望,我们组织了会议参加者(及个别未能参加的专家)对亚洲所有重要产化石的国家和地区进行一次阶段性总结,共同撰写一部权威性的专著,由美国哥伦比亚大学出版社出版(Wang et al., in press)。专著编辑过程中,个别内容比较注重于细节或局限于某些门类的文章,抽出来在本专辑中发表。我们的最终目标是致力于建立一个(或多个)亚洲地区新近纪哺乳动物年代的框架,而中国丰富的化石、全时代的覆盖、悠久的历史传统及在亚洲古生物学界的显赫地位理应在这一过程中发挥重要作用。

编者在整个会议期间及会后的野外考察和编书过程中都获益于同事间的建设性反馈。我们衷心感谢本专辑诸位作者的倾心工作和认真修改。我们还感谢邓涛及古脊椎动物与古人类研究所诸多成员在人力和财力上的支持。史立群编辑的敬业精神也是本专辑最终面世的重要因素。本专辑由中国国家自然科学基金重点项目(编号:40730210)和中国科学院知识创新工程重要方向项目(编号:KZCX2-YW-Q09)资助出版。

### NEOGENE TERRESTRIAL MAMMALIAN BIOSTRATIGRAPHY AND CHRONOLOGY IN ASIA: A SPECIAL ISSUE

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This issue of *Vertebrata Palasiatica* transmits scientific contributions that are related to the proceedings of a conference held at the Institute of Vertebrate Paleontology and Paleoanthropology (IVPP) June 8-10, 2009, “Neogene Terrestrial Mammalian Biostratigraphy and Chronology

in Asia—A Workshop and Symposium toward the Establishment of a Continent-Wide Stratigraphic and Chronologic Framework.” We present them here in thanks to IVPP and the Chinese Academy of Sciences, and dedicate them to our predecessors in science who opened Asia to modern vertebrate paleontology. As the first and largest gathering of this kind (Fig. 1), the



Fig. 1 Group photo of “Neogene Terrestrial Mammalian Biostratigraphy and Chronology in Asia” conference, taken in Institute of Vertebrate Paleontology and Paleoanthropology in the morning of June 8, 2009

1. Li Chuan-kui; 2. Qiu Zhan-xiang; 3. Everett Lindsay; 4. Vivien Tedford; 5. Richard H. Tedford; 6. Raymond L. Bernor; 7. Michael O. Woodburne; 8. Mikael Fortelius; 9. Zhou Zhong-he; 10. Qiu Zhu-ding; 11. Gudrun Daxner-Höck; 12. Zhang Yi; 13. Qi Guo-qin; 14. Demchig Badamgarav; 15. Wang Yang; 16. Abdul Rahim Rajpar; 17. Engin Ünay; 18. Meng Jin; 19. Yukimitsu Tomida; 20. Wang Xiao-ming; 21. Yupa Thasod; 22. Rattanaphorn Hanta; 23. Wang Ban-yue; 24. Liu Li-ping; 25. Wu Wen-yti; 26. Faysal Bibi; 27. Xie Guang-pu; 28. Zhang Ying-qi; 29. Hernesniemi Elina; 30. Cui Ning; 31. Chavalit Vidthayanond; 32. Margarita A. Erbajeva; 33. Mauricio Antón; 34. Nadezhda Alexeeva; 35. Gina M. Semperebon; 36. Nikos Solounias; 37. Hideo Nakaya; 38. Olivier Chavasseau; 39. Hou Su-kuan; 40. Wang Li-hua; 41. Zhang Zhao; 42. Mark Beech; 43. Yuri Kimura; 44. Alexey Tesakov; 45. Dong Wei; 46. Jin Chang-zhu; 47. Vadim V. Titov; 48. Madelaine Böhme; 49. Pang Li-bo; 50. Shi Qin-qin; 51. Liu Yan; 52. Chen Shao-kun; 53. Wang Yuan; 54. Anu Kaakinen; 55. Olivier Maridet; 56. Georgios Koufos; 57. Zhang Zhao-qun; 58. Lawrence J. Flynn; 59. Lars A. Werdelin; 60. Rajeev Patnaik; 61. Yoshinari Kawamura; 62. Wu Shao-yuan; 63. Jerome Prieto; 64. Pierre-Olivier Antoine; 65. Peltonen Hannele; 66. John Barry; 67. Li Qiang; 68. Deng Tao; 69. Mahito Watabe; 70. Somnath Kundal; 71. Wang Shi-qi; and 72. Tseng Zhi-jie (All Chinese surnames and given names are in their normal Chinese order, regardless authors' preferences in English literature)

Beijing meeting also coincides with the 80<sup>th</sup> anniversary of the founding of the Cenozoic Research Laboratory under the then-active Geological Survey of China, predecessor of the modern IVPP.

In addition to the papers in this special issue, a direct product of this conference is a symposium volume to be published by the Columbia University Press (Wang et al., in press). Each of the six articles herein is closely related to themes presented at the conference, but none were presented in their entirety at IVPP. Authors were present, and some of the material was discussed, formally or less so, in vigorous and productive exchanges. All scientists at the conference were gratified by the collegial atmosphere of scientific exchange.

Authors of the manuscripts printed herein benefitted from the platform contributions at the conference, and subsequent discussions. All of us acknowledge the constructive feedback of our colleagues and friends; many of our ideas matured over the course of the conference, its field trip, and subsequent months as we continued our investigations, oftentimes following up important views raised in Beijing. We editors certainly gained from this process, and we thank sincerely the authors of all the papers in this issue for their thorough work, for their careful revisions, and for their patience. We thank sincerely the Director and Administration of IVPP and the very careful and professional editing of Shi Liquan, who helped us to develop the final product.

Manuscripts in this issue cover diverse topics, much as did the discussions at the Beijing conference. Kundal and Kundal document a Pleistocene occurrence of *Elephas* in the Indian subcontinent and review distributions, at the species level, of members of the genus *Elephas* in South Asia. Thus the authors address biogeography and likely dispersal events in late elephantid history. Şen and Erbajeva name a new species of *Gobicricetodon* and discuss its larger systematic context. This is significant because it shows that the Chinese middle Miocene fauna likely extended, albeit with some differences, to the high latitude of Lake Baikal, and it demonstrates that *Gobicricetodon* is a derived element of the species-rich *Cricetodon* group of wide distribution in Eurasia. Ataabadi et al. bring to light a new set of deposits in northern Iran, which holds much promise for filling in crucial gaps in the later Miocene record of southwestern Asia. These several localities complement the Maragheh record and will play an important role as we try to tie the Siwalik record of South Asia to temperate latitude faunas of Asia. Watabe's analysis of *Hipparion* distribution and systematics represents a great advancement in appreciating the hipparionine radiation as a radiation of biological entities with different histories and ecological preferences. He sees a quasi-endemic diversification of closely related species in late Miocene forest faunas of southern North China; additionally, these show similarity to North American *Cormohipparion*, which should stimulate fruitful future study.

The remaining papers add a historical dimension to their investigations. Wang et al. explore the key historic events in the exploration of Qaidam by Birger Bohlin, and by extensive archival research coupled with field reconnaissance, are able to place many of the historical and modern collections into a stratigraphic and temporal framework. This clarifies the compositions of successive assemblages and teases apart old composite faunal lists into their temporal components. Flynn et al. survey late Miocene localities of the Loess Plateau. These have been known widely in the western literature for nearly 80 years to yield the *Hipparion* faunas of the Red Clay deposits. However, exactly what is meant by the Red Clays, and what is the nature of these faunas is poorly understood by most researchers outside of China, other than specialists. The *Hipparion* faunas span millions of years and the late Miocene "red clays" vary greatly in lithology. The viewpoint presented is that the Red Clay, reasonably air fall in origin, was deposited often in moist to fluvial habitat, and where currents prevailed, was replaced by coarser sand and silt, yet there is no compelling evidence of aridity in most parts of the Loess Plateau at the end of the Miocene (Baodean Age).

**Acknowledgements** The editors and all contributors thank IVPP and Vertebrata PalAsiatica for this forum to present these discussions of observations and issues related to the goals of the “Neogene Terrestrial Mammalian Biostratigraphy and Chronology in Asia” conference. This has been a very satisfying and constructive experience, and one that we hope leads to further understanding and refinement of vertebrate biochronology in Asia. A large gathering such as this conference would not be possible without the logistic support from IVPP staff — we thank Deng Tao, Li Qiang, Zhang Yi and her staff, as well as numerous graduate students. We appreciate the professionalism by Shi Li-Qun, executive editor, during the editorial process. We gratefully acknowledge funding for the Asian Neogene conference from National Natural Science Foundation of China, National Science Foundation (United States), Society of Vertebrate Paleontology, Chinese Academy of Sciences, and Institute of Vertebrate Paleontology and Paleoanthropology. In particular, we appreciate the steady support of Harold R. Lane and Raymond L. Bernor of the NSF Sedimentary Geology and Paleobiology Program.

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