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Editorial: Behaviors and adaptations of prehistoric hunter-gatherers in the (Sub)tropical rainforest area—archaeology, chronology and paleoenvironment

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Editorial on the Research Topic

[Behaviors and adaptations of prehistoric hunter-gatherers in the \(Sub\)tropical rainforest area—archaeology, chronology and paleoenvironment](#)

Tropical and subtropical rainforests are widely recognized as a crucial ecosystem on Earth due to their unique climate and resource characteristics. Since the Paleolithic era, prehistoric humans have been exploring, exploiting and adapting to these ecological environments. Deciphering the evolutionary history of the Paleolithic hominins and human-environmental interactions in these particular regions are significant for our understanding of the universal adaptational capability of human beings. However, compared to the extensive research conducted on human evolution in the African tropical savanna and the temperate grasslands of Eurasia, our understanding of human evolutionary history in (sub)tropical rainforest regions remains relatively limited. This Research Topic expands knowledge, through gathering studies of the technological and environmental adaptations of prehistoric hunter-gatherers in (sub)tropical rainforest regions, including southern China, the Philippine archipelago in the Island Southeast Asia, and the Indian Peninsula and Sri Lanka.

Li et al. (2023) investigated a series of late Pleistocene Paleolithic sites in the Doushui River basin in Hunan Province, South China. The remnant components of Acheulean technology, such as handaxes and picks are present at these sites, together with the prepared cores with hierarchical volumetric concept. While blades and microblades, which are commonly seen in the Late Paleolithic sites in many other regions, are clearly absent at the sites in this study. Therefore, the authors suggest that the Late Pleistocene lithic technology in southern China followed a unique developmental trajectory and

in the future, more studies are needed to demonstrate the specific cultural manifestations of early modern humans in this region and their original processes and mechanism.

Pawlik and Fuentes' (2023) article synthesizes archaeological findings in the Philippines to provide a comprehensive review and analysis of human activities from Marine Oxygen Isotope Stage 17 to the late Holocene. The authors propose that early human subsistence strategies in the Philippines encompassed hunting, gathering, and the utilization of marine resources, e.g., the making and use of tools on shell. Through the exploitation of marine resources, engagement in long-distance maritime migrations, and the establishment of maritime exchange networks, early humans in the Philippines developed advanced adaptive capabilities and complex lifestyles in marine environments. In general, archaeological evidence from the Philippines offers novel insights into the adaptation of early humans to maritime environments and the influence of such environments on human cultural development.

Archaeological findings from Sri Lanka provide the earliest direct evidence of human utilization of rainforest resources in the world. Amano et al. (2023) conducted stable carbon ($\delta^{13}\text{C}$) and oxygen ($\delta^{18}\text{O}$) isotope analysis of human and animal teeth from the Fa-Hien Lena and Kitulgala Beli-lena sites, coupled with detailed zooarchaeological analysis. The results show that, although ancient humans relied on forest resources, they also accessed more open environments such as forest edges and grasslands, possibly for specific foraging strategies or for the long-distance trade and exchange with other human groups. This study deepens our understanding of human adaptation to the different ecological niches in tropical rainforest area.

Anil et al. (2023) conducted dating and technological analysis of a lithic assemblage from the Motravulapadu site in Andhra Pradesh, India. Dating back to the early Marine Oxygen Isotope Stage 3 (MIS3), the presence of typical Levallois cores indicates the co-existence of diverse lithic technologies in South Asia during this period, including microlithic technology (dating back to 48 ka) and later Middle Paleolithic technology (continuing until 38 ka). The authors suggest that the technological diversity may reflect the presence of distinct hominin groups in South Asia during MIS3.

This is important for our understanding of cultural expressions and the original patterns of early modern humans in the region and for the process of population replacements from various archaic human groups to *H. sapiens*, who is the only human species present today.

In summary, through the publication of this Research Topic, we aim to garner more attentions and interests from the international academic community on human evolution research in (sub)tropical rainforest regions. We also hope to encourage more scholars to engage in discussion of related issues, particularly those concerning the origins of early modern humans, which will further enrich and refine our understanding of the evolutionary history of humans across (sub)tropical Asia.

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Conflict of interest

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