



## **Environmental and human dynamics in the semi-arid NE China 6000-2000 years ago reconstructed from pollen and archaeological data**

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A pollen record from the Taishizhuang site (40°21.5'N, 115°49.5'E) located in the transitional forest-steppe zone near the limit of the summer monsoon is used to reconstruct vegetation and climate. Biome reconstruction suggests that between ca 5700 and 4400 cal. yr B.P. temperate deciduous forest dominated the vegetation cover around the Taishizhuang. After that time the landscape became more open and the scores of the steppe biome were always higher than those of the temperate deciduous forest except for two peaks dated to ca 4000 cal. yr B.P. and ca 3500 cal. yr B.P. However, ca 3400-2100 cal. yr B.P. the common vegetation became steppe and the landscape was more open than before. The results of the pollen-based precipitation reconstruction suggest that annual precipitation was ca 550-750 mm (ca 100-300 mm higher than present) during the mid-Holocene 'forest phase', and ca 450-650 mm during the following 'forest-steppe phase'. From ca 3400 cal. yr B.P. during the 'steppe phase' annual precipitation was similar to modern values (ca 300-500 mm). Archaeological records from 101 sites prove the habitation of northeastern China during the prehistoric and early historic periods from ca 8200 cal. yr B.P., but do not provide evidence of the use of wood resources intensive enough to influence the regional vegetation development and to leave traces in the pollen assemblages. Both archaeological and palaeoenvironmental data support the conclusion that changes in pollen composition in northeastern China between 5700 and 2100 cal. yr B.P. reflect natural variations in precipitation and not major deforestation caused by humans.