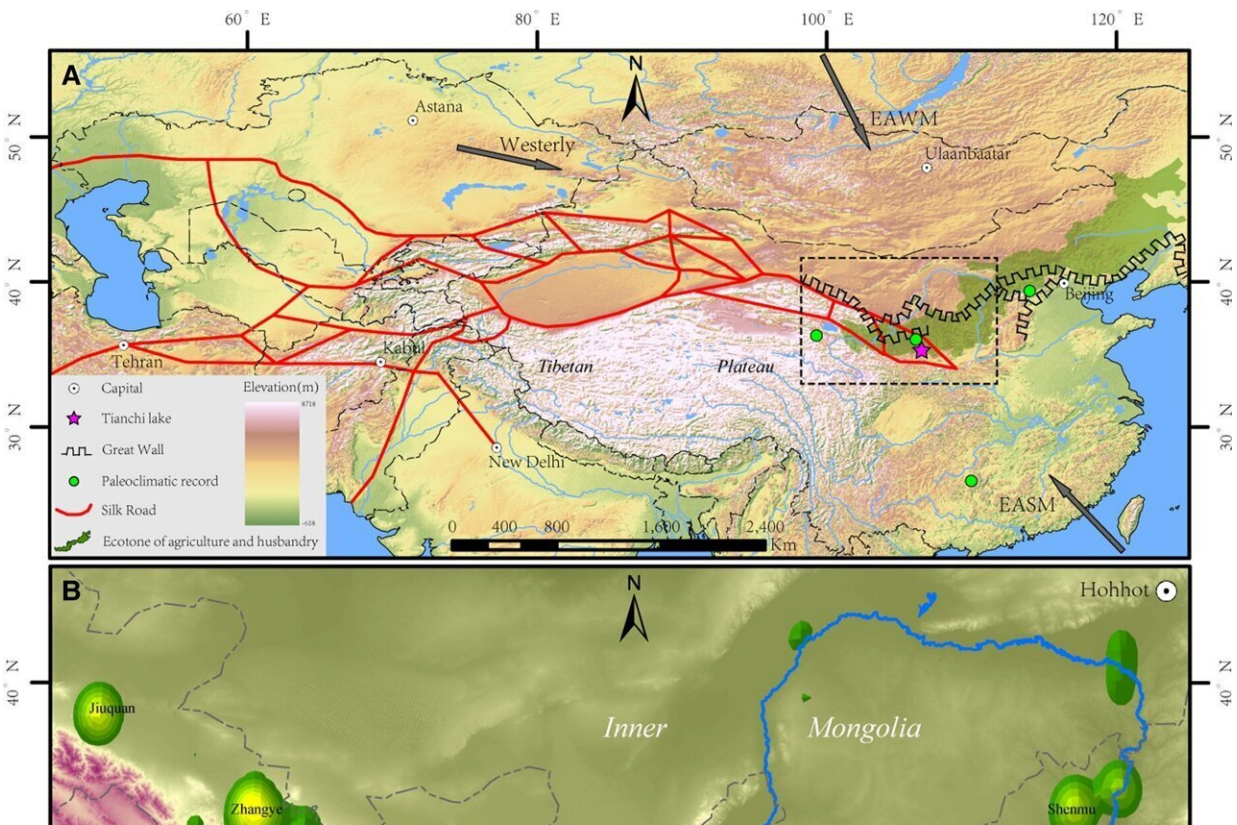


Study finds fires of war overtook climate-controlled fires along the eastern Silk Road

December 19 2023



The study area. A) The location of Tianchi Lake and the paleo-climatic records mentioned in this study are indicated by the stars and circles, respectively. The arrows illustrate the main trajectories of the Westerly, East Asian summer monsoon (EASM), and East Asian winter monsoon (EAWM). B) Kernel density analysis of warfare activities in the eastern Silk Road over the past 2,000 years (Table S3).

Human activities such as intentional burning, agriculture, pastoralism, and metallurgy can affect the frequency of fire in an ecosystem. Guanghui Dong, Aifeng Zhou and colleagues investigated whether another typical human activity has influenced fire history in the areas along the Silk Road: war.

Their study is [published](#) in *PNAS Nexus*.

Fire was a commonly used weapon in ancient Chinese [warfare](#). In the 5th century BCE, military strategist Sun Tzu, author of *The Art of War*, advised the use of [fire](#) against enemy troops and supplies. The authors measured [black carbon](#), soot, and char in sediments from a core of Tianchi Lake, which represent 6,000 years of sediment deposition.

The authors calculated the spatial range of land that would have contributed fire-related particulate to the sediment using the potential source contribution function analysis, a method typically used to determine the source areas for contemporary pollution.

Fire was infrequent in the middle Holocene, but became more frequent in the late Holocene, as the climate became drier and flammable herbaceous vegetation spread. Then, 2,000 years ago, the fire frequency became decoupled from climate or vegetation.

On centennial timescales, fires during this period are synchronous with warfare, as recorded in the List of Wars in Historical China. From 2,000–400 years ago, warfare between different political powers may have been the dominant contributor to high-intensity fires in the area, according to the authors.

More information: Shanjia Zhang et al, Warfare impact overtakes climate-controlled fires in the eastern Silk Roads since 2000 B.P., *PNAS Nexus* (2023). DOI: /10.1093/pnasnexus/pgad408

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