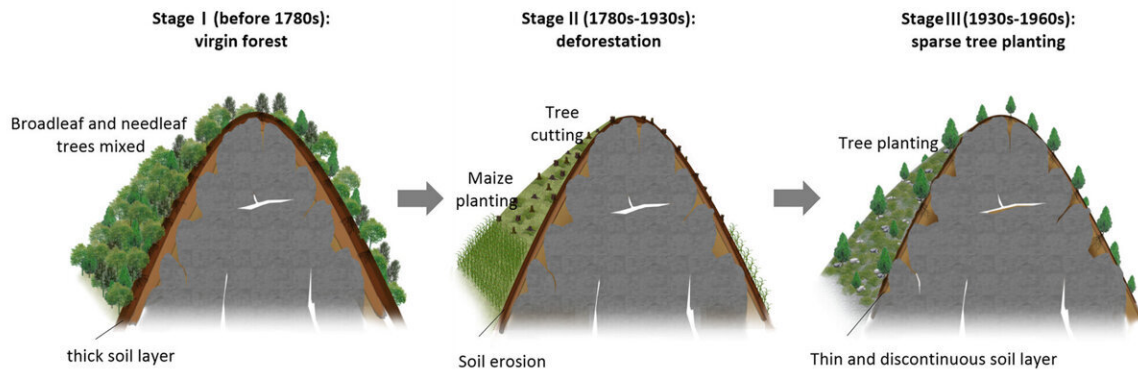


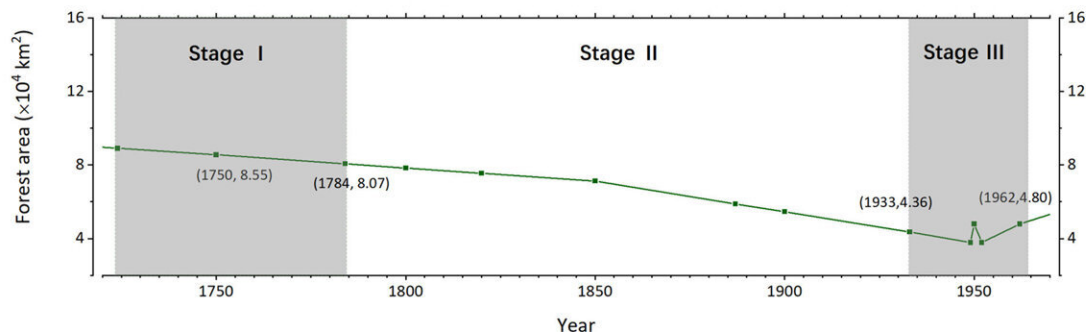
Maize cultivation 300 years ago resulted in karst rock desertification, suggest researchers

April 17 2024, by Chen Na

A



B



The forest evolution history over the past three centuries. (a) A diagram of tree covers and soil environments at three stages at our sampling site. (b) Forest area variations in Guangxi province during 1730–1970. Credit: *Earth's Future* (2024). DOI: 10.1029/2023EF004349

Understanding regional vegetation dynamics and historical changes in rocky desertification is crucial for assessing the sustainability and potential of afforestation in karst regions.

In a study published in [Earth's Future](#) on April 5, researchers led by Prof. Wang Kelin from the Institute of Subtropical Agriculture of the Chinese Academy of Sciences have found that maize cultivation and tree felling three hundred years ago triggered severe rocky desertification in the [karst](#) area of southwest China.

Scientists have developed a method to identify historical human disturbances using dating methods from karst depression sediments, including ^{137}Cs , $^{210}\text{Pb}_{\text{ex}}$ and charcoal ^{14}C . The first-ever pollen record in karst depression sediments, combined with comprehensive dating methods and [historical documents](#) was presented.

According to the researchers, the forest evolution in southwest Guangxi is divided into three stages of "virgin forest-deforestation-sparse tree planting," over the past three centuries. It was probably a lush mixed deciduous and coniferous forest at the beginning. However, maize cultivation, along with explosive [population growth](#) and migration, accelerated mountain reclamation and deforestation, leading to severe rocky desertification around the 1780s. Since the 1930s, sparse afforestation has taken place, increasing economic benefits.

They conclude that the introduction of maize, population growth, and migration accelerated mountain reclamation and deforestation, leading to historical rocky desertification in the region, making it difficult for some karst areas to restore forest landscapes.

"Previous studies on historical rocky [desertification](#) and human activities in karst areas were mainly relied on historical literature records," said Prof. Yue Yuemin, corresponding author of the study.

"Our findings, for the first time, provide important scientific evidence and basis for establishing ecological restoration baselines and implementing precise afforestation and grassland restoration in karst areas."

More information: Yuemin Yue et al, Maize Cultivation Three Hundred Years Ago Triggered Severe Rocky Desertification in Southwest China, *Earth's Future* (2024). [DOI: 10.1029/2023EF004349](https://doi.org/10.1029/2023EF004349)

Provided by Chinese Academy of Sciences

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