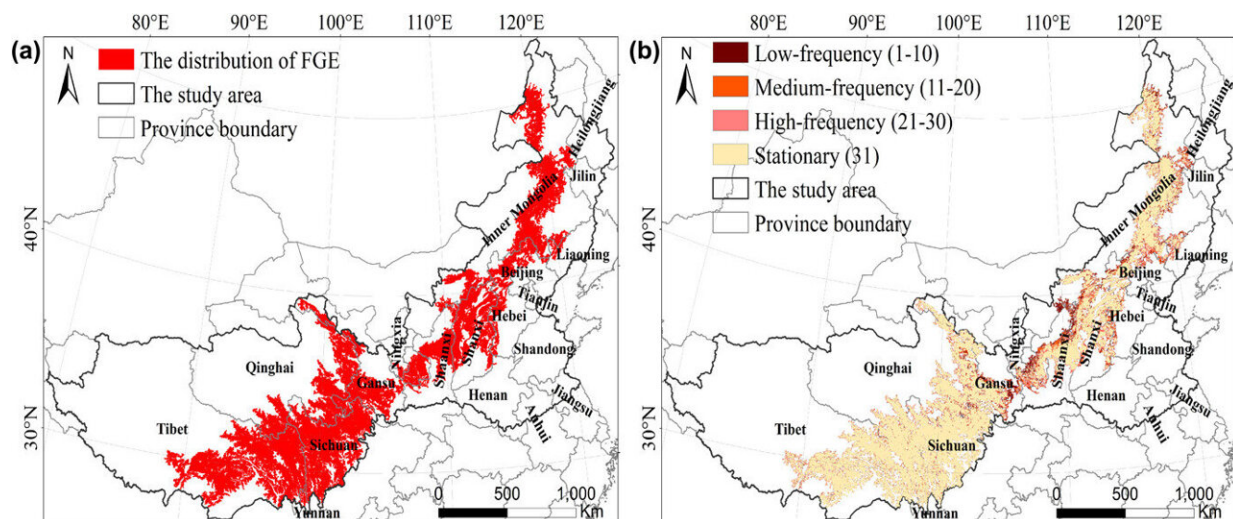


Study reveals shifting landscape and driving forces in China's forest-grassland transition zone

June 14 2024, by Zhang Nannan



The spatial distribution of the FGE in 31 years (a), and spatial distribution of the frequency of FGE occurrence in each grid cell (b). Credit: *Ecography* (2024). DOI: 10.1111/ecog.07296

Researchers from the Institute of Applied Ecology of the Chinese Academy of Sciences have published a new study detailing significant changes in China's forest-grassland ecotone. This critical zone, where forests and grasslands meet, plays a vital role in biodiversity and is sensitive to environmental shifts.

The study, published in the journal *Ecography*, uses [satellite data](#) from 1990 to 2020 to map the national distribution of the ecotone for the first time.

The results show a total area of 1,011,870 km², or about 10.54% of China's total land area. This zone has shrunk by 3.10% over the past three decades, with a notable shift in its centroid of 228.76 km to the southwest.

The researchers observed a complex interplay between [human activity](#) and climate change in driving these changes. Forest areas within the ecotone have steadily increased, while grasslands and farmlands have decreased. However, some previous agriculture land has reverted to [grassland](#), mitigating some of the overall loss.

Landscape fragmentation, a key indicator of habitat disturbance, showed a mixed pattern. While some areas showed a decrease in fragmentation, suggesting potential habitat improvement, others showed an increase.

This fragmentation appears to be driven by human activities such as reforestation projects and farmland reclamation in the northern and central regions. Climate change, particularly variations in temperature and precipitation, appears to be the dominant factor in the southern areas of the ecotone.

"These data provide important support for the study of the ecotone and for decision-making on [biodiversity conservation](#) and ecological restoration projects," said Dr. Wang Zhenwen, lead author of the study.

More information: Jia Guo et al, Changes of Chinese forest-grassland ecotone in geographical scope and landscape structure from 1990 to

2020, *Ecography* (2024). [DOI: 10.1111/ecog.07296](https://doi.org/10.1111/ecog.07296)

Provided by Chinese Academy of Sciences

Citation: Study reveals shifting landscape and driving forces in China's forest-grassland transition zone (2024, June 14) retrieved 19 June 2024 from <https://phys.org/news/2024-06-reveals-shifting-landscape-china-forest.html>

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