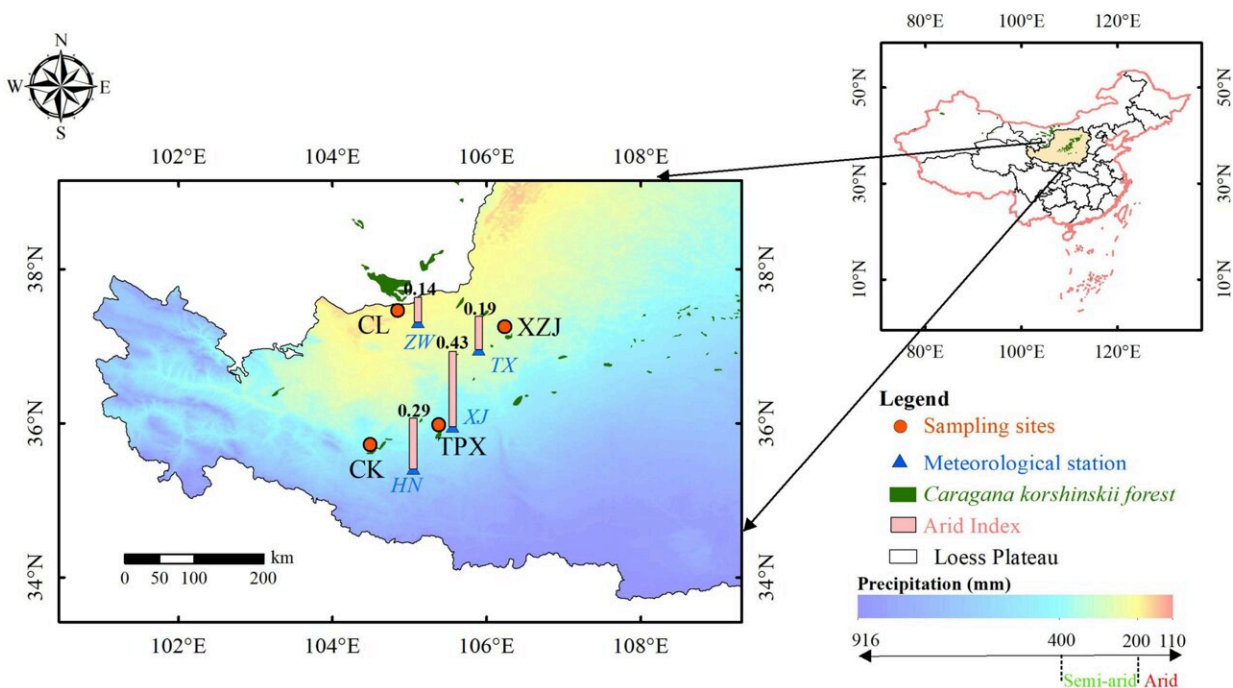


# Stability maintenance and sustainable management of shrub plantation on Loess Plateau

April 13 2022, by Li Yuan



Map of the sampling sites and nearest meteorological stations. Credit: *Frontiers in Plant Science* (2022). DOI: 10.3389/fpls.2022.862529

*Caragana korshinskii* (*C. korshinskii*) is a dominant shrub species in arid desert regions and has been widely introduced to the Loess Plateau owing to its strong sand-fixing and soil and water conservation

functioning.

However, the research on radial growth characteristics and ecological response of *C. korshinskii* under different [precipitation](#) gradients is still insufficient.

Recently, a research team led by Prof. Xiao Shengchun from the Northwest Institute of Eco-Environment and Resources of the Chinese Academy of Sciences (CAS) synthesized the stability maintenance and sustainable management of shrub plantation forests in the western Loess Plateau region.

Related results were published in *Frontiers in Plant Science* on April 8.

This study was based on tree ring width data of shrub *C. korshinskii* Kom. In some natural and plantation forest sampling sites that spanned different precipitation gradients (180–415 mm) across China's western Loess Plateau, the researchers demonstrated its radial growth dynamics, mainly limiting factors and [forest management](#).

They found that, compared with natural *C. korshinskii* in arid desert regions, the planted *C. korshinskii* in arid and semi-arid regions of the Loess Plateau were more significantly affected by drought stress during the growing season (from June to September)

Meanwhile, with increase of precipitation, the limiting of drought on the growth of planted *C. korshinskii* gradually decreased.

"In the context of climate change, regular branch coppicing management at around 12 years old will help to mitigate limitation of drought on growth of planted *C. korshinskii*," said Prof. Xiao. "Besides, the initial planting density should be tailored to local precipitation conditions."

This study may contribute to the maintenance of stability and sustainable management of plantation forests in the western Loess Plateau in the context of climate change.

**More information:** Cunwei Che et al, The Characteristics of Radial Growth and Ecological Response of *Caragana korshinskii* Kom. Under Different Precipitation Gradient in the Western Loess Plateau, China, *Frontiers in Plant Science* (2022). [DOI: 10.3389/fpls.2022.862529](https://doi.org/10.3389/fpls.2022.862529)

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