

Bud bank confers post-drought recovery across grasslands

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Grasslands are important terrestrial ecosystems and provide many ecosystem services. As global climate change has accelerated in recent years, the increased frequency of extreme droughts has negatively

affected the aboveground net primary productivity (ANPP) of grasslands.

Plant bud and shoot densities play an important role in regulating population persistence and community recovery after drought. In most grasslands, bud bank traits play a more important role than the seed bank in maintaining and regenerating communities following disturbances and [environmental changes](#).

For example, more than 99% of aboveground shoots were recruited from belowground axillary buds, while only 1% were from seeds. However, it remains unclear how bud bank traits respond to drought and how such responses affect ANPP.

To address this [knowledge gap](#), a research team from the Institute of Applied Ecology of the Chinese Academy of Sciences conducted a six-year drought manipulation experiment in four arid and semi-arid grasslands, consisting of four years of drought followed by two years of recovery. They assessed the resistance and resilience of ANPP and community bud bank traits to drought and recovery.

Results have been published in *Journal of Ecology*, titled "High below-ground bud abundance increases ecosystem recovery from drought across arid and semiarid grasslands."

The team found that experimental drought had small and inconsistent effects on bud bank traits. Interestingly, they observed a [strong relationship](#) between ANPP resilience and bud bank.

Taken together, these results highlight the important role of bud bank traits in understanding the effects of drought and recovery on grassland functions.

These results will generally improve our understanding of ecosystem resistance and resilience to extreme drought, and could motivate further studies on the impacts of bud bank traits on ecosystem functions.

More information: Wentao Luo et al, High below-ground bud abundance increases ecosystem recovery from drought across arid and semiarid grasslands, *Journal of Ecology* (2023). [DOI: 10.1111/1365-2745.14160](https://doi.org/10.1111/1365-2745.14160)

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