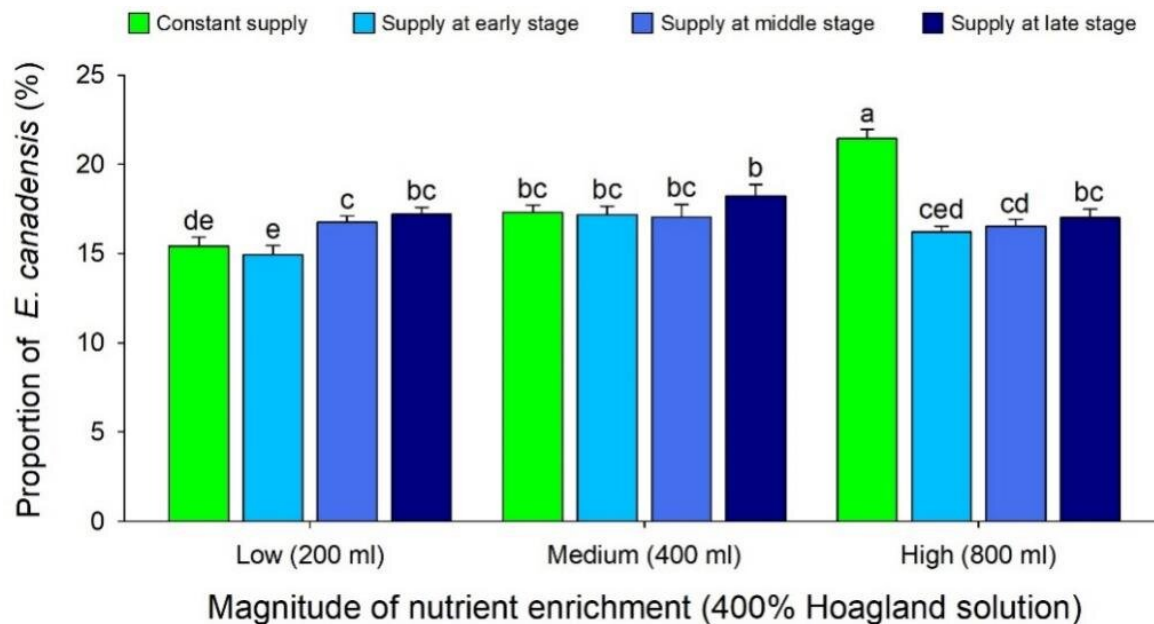


Magnitude and timing of resource pulses interact to affect horseweed invasion

November 9 2021, by Zhang Nannan



The impact of magnitude and timing of nutrient pulses on the biomass proportion of *Erigeron canadensis* in each pot. Credit: TAO Zhibin

Erigeron canadensis (horseweed) is a serious invader in disturbed habitats and agricultural fields. It may experience nutrient pulses of different magnitudes and timings due to a variety of disturbances arising from human activities and fertilizer application on target crops. However, to date, little is known about how variations in the magnitude and timing of nutrient pluses affect *E. canadensis* invasion.

Researchers at the Wuhan Botanical Garden of the Chinese Academy of Sciences exposed *E. canadensis* and six co-occurring [native plant species](#) to three magnitudes of nutrient enrichment (low, medium or high).

For each magnitude, equivalent amounts of nutrient were added at four different timings (constant nutrient supply and supply at early, middle or late stages). The [biomass production](#) and proportion of *E. canadensis* biomass in a pot among different nutrient treatment combinations were compared.

According to the researchers, the impacts of nutrient pulses on *E. canadensis* depended on magnitude, [timing](#) and their interaction.

Under low magnitude addition, *E. canadensis* produced more biomass when nutrients were supplied at the middle and late stages. Under medium magnitude addition, *E. canadensis* produced more biomass when nutrients were supplied constantly or at the early and middle stages. Under high [magnitude](#) addition, *E. canadensis* produced the highest biomass when nutrients were supplied constantly and the lowest biomass when nutrients were supplied at the late stage.

Results suggest that resource fluctuation has variable effects on plant invasions rather than always promoting plant invasions.

The findings have been recently published in *Oikos*, titled "Magnitude and timing of resource pulses interact to affect plant [invasion](#)."

More information: Zhibin Tao et al, Magnitude and timing of resource pulses interact to affect plant invasion, *Oikos* (2021). [DOI: 10.1111/oik.08381](https://doi.org/10.1111/oik.08381)

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