

Native *Phragmites* dieback reduced its dominance in the salt marshes invaded by exotic *Spartina* in the Yangtze river estuary, China

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Vegetation dieback occurs frequently in various ecosystems and causes tremendous consequences. In the Yangtze estuary of China, the saltmarshes invaded by exotic *Spartina alterniflora* are experiencing native reed (*Phragmites australis*) dieback. How reed dieback affects the reed saltmarshes is largely unknown, given that the dieback is becoming more prevalent. Here we examined the impact of reed dieback on the saltmarshes invaded by *Spartina* through monitoring dynamics of component species of *Phragmites-Spartina* mixture, and comparing their performances in monoculture, dieback mixture and healthy mixture. Results showed that *Phragmites* performed more poorly in dieback mixture. Survival rate ($30 \pm 4.08\%$), ramet density (37 ± 9.15 plants/m²), plant height (130.71 ± 20.39 cm) and aboveground biomass (222.64 ± 5.66 g/m²) of *Phragmites* in dieback mixture were all significantly lower than those in healthy mixture ($68 \pm 4.79\%$; 99 ± 17.24 plants/m²; 185.06 ± 17.75 cm; 837.07 ± 205.13 g/m², respectively) (for all $P < 0.05$). By contrast, *Spartina* resprouted well with survival rate of 100%. Both ramet density and plant height of *Spartina* tended to be higher in dieback mixture than in healthy mixture, and its aboveground biomass (1042.19 ± 156.46 g/m²) was significantly higher than that in healthy mixture (618.76 ± 129.50 g/m²) ($P < 0.05$). Our study suggests that reduced dominance of native *Phragmites* due to its own dieback weakens its competitive ability relative to exotic *Spartina*, which favors *Spartina* invasion in the saltmarshes, and in turn makes the restoration of the saltmarshes invaded by *Spartina* more difficult.

Biography

Hui Li is a Ph.D. student at the age of 28 years from Fudan University. She is interested in ecosystem management and biological invasions. Recently, she focuses on the indirect effects of exotic plant species on the invaded ecosystem

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