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Conference Abstract

The dominance of non-native plants over native plants increases with the number of global change factors

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Abstract

Global environmental change and plant invasion are both recognized as key indicators of the Anthropocene. Still, how the number of co-acting global change factors (GCFs) influence invaded plant communities remains unclear, even though in nature GCFs usually act together rather than alone. Here, four non-native and four native species were cultivated jointly as communities in mesocosm pots, and we tested their responses to increasing GCF numbers (0, 1, 2, 3, 4, 5). The five GCFs were artificial light at night, drought, microplastic, nitrogen deposition and salinization. We found that GCF number had no influence on community productivity but increased the biomass proportion of non-native plants. GCF number increased biomass of the non-native plants but did not affect their height, whereas both biomass and height of native plants decreased with increasing GCF number. In addition, our study revealed species-specific effects, indicating that responses to the GCFs were not uniform across all species. Consequently, our findings indicate that dominance of certain non-native species may increase when communities experience multiple GCFs, and thus that invasion risk of non-native plants could potentially be underestimated from studies on single GCFs.

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Conflicts of interest

The authors have declared that no competing interests exist.