

# The invasion of *Galinsoga quadriradiata* into high altitudes is strongly shaped by AMF communities of mountain ranges

Gang Liu<sup>1</sup>, Ruiling Liu<sup>1</sup>, Benjamin R. Lee<sup>2</sup>, Xingjiang Song<sup>1</sup>, Wengang Zhang<sup>1</sup>, Zhihong Zhu<sup>1</sup>, and Yan Shi<sup>1</sup>

<sup>1</sup>Shaanxi Normal University

<sup>2</sup>Carnegie Museum of Natural History

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## Abstract

Arbuscular mycorrhizal fungi (AMF) community changes sharply along elevation, and population-level adaptation of invasive plant to mycorrhizal communities may also occur. We conducted an experiment to compare the growth performance of elevational populations of invasive *Galinsoga quadriradiata* that were inoculating with AMF communities from across the same range of elevations. *Galinsoga quadriradiata* performed best when inoculated with AMF form the same elevation where the invader was collected, and consistently poorly when inoculated with AMF from the highest elevation that has not been invaded. The growth of *G. quadriradiata* was promoted by AMF inoculation in polyculture but suppressed in monoculture. Our results suggest that the population-level adaptation of *G. quadriradiata* to mycorrhizal communities changed along elevation. Biotic interactions with AMF communities and native plant competitors play important roles in limiting plant invasion into high-altitude area. It provides new insight to mechanisms for plant invasion in mountains.

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