

Do plant-plant interactions affect functional traits? A case study of the sub-Antarctic cushion plant *Azorella selago* and the grass *Agrostis magellanica*

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Plant-plant interactions may strongly affect population and community dynamics and can be key determinants of species distributions. Despite this, little research has focused on how interspecific interactions between plants affect the expression of functional traits, which in turn can influence community composition. Cushion plants are good model systems for the study of ecological interactions because, as ecosystem engineers, they modify their immediate microhabitat. Where these modifications decrease abiotic stress, cushion plants promote survival of beneficiary species. This engineering effect is particularly pronounced in abiotically-extreme environments, including in polar and alpine habitats. At moderate and high elevations on Marion Island, the cushion-forming *Azorella selago* has strong facilitative interactions with beneficiary species, especially through sheltering from harsh winds and protection from moving sediment. Here we test if interacting with *A. selago* affects the functional traits of the widespread grass species, *Agrostis magellanica*.

Seven functional traits of *A. magellanica* were measured for individual grasses growing on *A. selago* cushion plants and in adjacent open ground, across four different elevations in exposed fellfield. Preliminary results for three traits show that this plant-plant interaction has a limited impact on functional trait expression in *A. magellanica*. Leaf dry matter content was significantly higher in grasses growing on *A. selago*, and also differed between elevations. In contrast, chlorophyll content and leaf toughness did not differ between grasses growing in the presence and absence of *A. selago*. Therefore, while *A. selago* has been shown to positively affect the size and reproductive effort of *A. magellanica*, these results show that the mechanism by which *A. selago* facilitates *A. magellanica* may not be through its impacts on functional trait expression. Thus, contrary to expectations, functional traits may not be as sensitive to biotic interactions as population and community characteristics.