

## Do plants positively affect each other by changing their leaf characteristics?

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Plants may have positive impacts on each other in many ways, including, for instance, providing resources and protection for their neighbours. Understanding why and how these positive interactions occur between plants is important for predicting how plant communities will respond to environmental change, particularly since changing conditions may alter how dependent plants are on their neighbours for survival. In alpine environments, cushion-forming plants are often involved in such positive interactions, as they provide favourable habitats for other plant species by increasing nutrient and water availability and providing protection from severe weather conditions (compared to adjacent bare soil). However, we do not yet fully understand how cushion plants positively affect their co-habitants. One potential process could be that species exhibit different leaf characteristics (i.e. leaf traits) when rooted in cushion plants, growing larger, thinner and less tough leaves to take advantage of the improved conditions. We tested this by comparing leaf traits between individuals of the same plant species growing in cushion plants *versus* growing in bare soil in two environmentally severe study sites. For the seven species examined, we found, contrary to expectations, weak (and inconsistent) impacts of the cushion plants on the leaf traits. Therefore, this suggests that the process through which local environmental modification by plants positively affects other species is not



via altering their leaf traits, and may instead be related to a change in, for example, plant growth rate or survival. More generally, this points to the challenge of understanding which conditions drive variation in plant traits, which is important to predict how plants may respond to environmental change.