

A matter of perspective: associations between *Acacia* and rhizobia across three spatial scales

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Summary A disproportionate number of *Acacia* species have become invasive outside their native range, which is partly attributed to their ability to form symbiotic associations with nitrogen fixing bacteria in the soil (rhizobia). The genus has thus become a model system to study the role of plant-soil interactions in driving invasion success. However, this role remains equivocal, not least because of the now global distribution of many *Acacia* species and potential idiosyncrasies associated with the location of introductions.

We review several recent studies that have examined interactions between *Acacia* and rhizobia in the native and introduced range and cover three spatial scales (within Australia, between Australia and the geographically close New Zealand, and between Australia and the USA). Species examined span a spectrum of invasive success from those that are not invasive

anywhere in the world to some of the world's worst weeds. While there were some idiosyncratic responses among species and scales, two generalisations emerge.

First, all *Acacia* species were able to form symbiotic associations with rhizobia in the introduced range, regardless of spatial scale and invasive status. Second, all species showed a similar growth response to soils in each range, again regardless of spatial scale and invasive status. Moreover, where examined, the rhizobial communities associated with species in their native and introduced ranges were often very similar. Our findings highlight the generalised nature of the symbiosis between *Acacia* and rhizobia, which may explain the global success of *Acacia*. There is no evidence that these interactions explain variable invasion outcomes.

Keywords Casual, naturalised, nodulation, plant-soil feedbacks.