Back from the brink of extinction: improving success of endangered plant translocations in south-western Australia

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Background/question/methods: South-western Australia is one of 34 global biodiversity hotspots as a consequence of its diverse endemic flora that is threatened by human activity. The increasing number of highly threatened species occurring in small fragmented populations has led to the adoption of seedling translocation as a strategy to conserve species. This study used an experimental translocation to determine the optimal survival and growth conditions for the critically endangered *Acacia awestoniana* which is endemic to the Stirling Ranges National Park, south-western Australia. Seedlings were planted into field plots with two microhabitat types (either located <1m or >1m from mature *Eucalyptus wandoo* trees) to test with and without competition effects of mature trees. These plots were subject to one of three summer watering regimes (no, monthly and weekly watering). Survival, growth and physiological response of seedlings as well as soil moisture in plots were monitored at the site for two years.

Results/conclusions: Total seedling survival was high (78%) with no difference between microhabitats and watering regimes. Seedling growth was significantly increased in plots with weekly watering ($p<0.005$) and those located >1m from mature *Eucalyptus wandoo* trees ($p=0.01$). Infra red imagery was used to successfully detect levels of water stress in seedlings. This research coupled experimental treatments with morphological and physiological responses to provide an insight into some favourable environmental conditions for seedling translocations. Results will be used to inform future translocations and reduce the risk of species extinctions.

Christine Allen completed an undergraduate degree and honours at the University of Wollongong, NSW in 2007. She was amazed at the diversity of flora in south-west Australia after attending the ESA conference in Perth and began her PhD at the University of Western Australia in March 2010.

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