Does spatial patterning determine survival of seedlings in ecological restoration after sand mining?

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Biography:
Poster 089 - Lauren Svejcar worked in various fields of ecology including weed science and restoration ecology, and is currently pursuing a PhD at Murdoch University and Kings Park Botanic Garden with Drs. Rachel Standish, Ben Miller, Jason Stevens and Joe Fontaine.

Plant-plant interactions drive plant community structure and dynamics. In the last 20 years, a renewed interest in facilitation, rather than competition, has driven a change in perspective from one of all species being independent to a more integrated community perspective. Facilitation is likely to play a large role in environments where abiotic factors limit establishment. For example, in post-mine restoration sites in the Swan Coastal Plain seedlings are exposed to high surface soil temperatures, frequent wind and low nutrient soils. The goal of our research is to test the intraspecific interactions of a N-fixing and non N-fixing species in a post-mine restoration site, and to determine whether a comparison of spatial patterns at emergence and after the summer drought suggest N-fixers help one another more than non-N-fixers to establish. We planted 640 seeds of Acacia pulchella (N-fixing) and Regelia inops (non N-fixing) in random spatial patterns within two separate plots (each 2 m × 4 m) to obtain a range of different distances between seedlings. Seedling emergence and height was measured periodically from spring 2016 to autumn 2018. We utilized point pattern analysis to determine spatial relations of seedlings over time. Results suggest spatial patterns of emergence play a critical role in seedling persistence.

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