Seed sourcing for plant restoration: performance of provenances along a climate gradient under water treatments.

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Biography:
Poster 060 - Bahram Mirfakhraei is a PhD candidate at the School of Biological Sciences-The University of Western Australia, Kings Park Science and The ARC Centre for Mine Site Restoration. His research interests are: seed sourcing, genecology and plant responses to changing environment.

Decisions on the source of seeds can have a major impact on the success of plant community restoration. Local provenancing has been widely implemented to deliver locally adapted seeds. However, a climate-adjusted method has been recently promoted to deliver seeds adapted to climate change. This method suggests to move in the direction of climate change and source some seeds from provenances with climatic conditions similar to expected future conditions, such as warmer and drier provenances. In this study, these seed sourcing methods were tested using Banksia menziesii, a key species in the restoration of Banksia woodland on the Swan Coastal Plain in Western Australia. Response of seedlings from six provenances along a climate gradient to various water treatments was tested. Seedlings from provenances with low to high (443 to 813 mm) annual rainfall were exposed to low, medium and high water treatments to evaluate their plasticity and performance using plant physiological traits. This study will illustrate if seedlings of drier and wetter provenances perform better under low and high available water respectively and need to be considered as a seed source. The outcomes of this study will assist to improve seed sourcing guidelines for efficient and successful long-term plant community restoration.

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