Collin Ahrens

Biography

Collin Ahrens is a postdoctoral researcher at Western Sydney University and is broadly interested in how plants interact with their local environment and understanding the various mechanisms that plants use to achieve success.

EcoTAS abstract

SYMPOSIUM: Assisted migration under climate change

Wednesday, November 29, 2017

4:00 PM - 6:00 PM

Brokenback Room

Oral presentation

The climate of southwestern Western Australia (WA) is becoming warmer and drier, increasing some species vulnerability to local extinction events. Marri is an important constituent of the south-west forests and woodlands of WA and has already been negatively impacted as demonstrated by recent mortality events. To mitigate further impacts of climate change, knowledge of genetic structure and evolution could be incorporated into adaptive management strategies. Marri populations across the species geographic and climatic distribution were surveyed for landscape genomic analyses. After conservative filtering, a final genomic dataset of 10k SNPs was used to estimate population structure, measure contemporary gene flow, and identify adaptive genetic variants associated with climate. The allelic turnover for SNPs associated with climate were mapped throughout the landscape. The species has low levels of genetic structure (FST = 0.05) with isolation by distance in a north-south orientation. Controlling for population structure, we identified SNPs associated with temperature, rainfall and aridity . For temperature, the allelic turnover occurs in the hotter region of the distribution, while the allelic turnover for rainfall occurs in the wettest or driest parts of the distribution. Annotation of adaptive variants suggests that some functional genes may play roles in the species' adaptation to differential environments. These results indicate that assisted migration could aid local populations devoid of variants associated with hotter and drier climates, increasing the likelihood of the tree's persistence in a changing climate.

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Identification of adaptive variation associated with climate for the improvement of adaptive management strategies

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Kiri (Reihana) Spraggs

EcoTAS abstract

The widespread degradation of water quality and quantity and its state of mauri, is a significant issue for Māori. This issue is represented by widespread degradation of

Open session (1)

Monday, November 27, 2017

3:45 PM - 5:45 PM

Sugarloaf Room

Oral presentation