Progress Report STP 2018-089 (FY 2020-2021)

Ecologically tolerable fire regimes for key banksia woodland plant species

BCS Fire Science

Project Core Team

Supervising Scientist	Ben Miller
Data Custodian	Ben Miller

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Project Team	granted
Program Leader	granted
Directorate	granted

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B Miller, D Merritt

Progress Report

Fire is a dominant disturbance that shapes species and ecosystems. Many plant species have developed strategies and adaptations to cope with certain fire regimes. If fire occurs too frequently, too intensely, or otherwise outside of the limits of a species' tolerance, then populations are likely to decline or disappear. This project aims to determine the impact of varying fire regimes on the demographics of key banksia woodland plant species.

Demographic surveys have identified changes in population size structures, flowering and canopy seed bank accumulation for six woody plant species. Some species have evidence of inter-fire recruitment. Juvenile periods ranged from 1.3-4.1 years and varied by fire response, seed bank storage mode and growth form. Canopy seed banks were not observed to accumulate over time, consistent with observations of weak serotiny in banksia woodlands. A field experiment showed how timing of seed planting throughout the year (emulating the timing of fire) influences seedling recruitment, where recruitment is best when seeds are cued for germination immediately prior to winter rainfall. Data collection and analysis has been completed, and writing is close to completion. One review paper and a few response letters to this review have been published. One experimental paper is in press.