Progress Report SP 2019-048

Investigating the causes of change in forest condition

BCS Ecosystem Science

Project Core Team

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Project status as of June 6, 2023, 5:32 p.m.

X X Update requested

Document endorsements and approvals as of June 6, 2023, 5:32 p.m.

X X
Project Team granted
Program Leader granted
Directorate required

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Context

A decline in vegetation density in the north-east of the Forest Management Plan area was noted in *mid-term review of performance of the Forest Management Plan 2014-2023*. The decline is broadly consistent with climate change predictions, although other factors may be contributing. Previous research suggests that *Eucalyptus wandoo* has been undergoing a series of declines associated with drought and increasing temperatures, and a buprestid beetle (*Cisseis fascigera*). *Eucalyptus marginata* and *Corymbia calophylla* have been reported to be vulnerable to acute drought and heatwave events at water-shedding sites with shallow soils, as well as frost events.

More information is needed about the landscape, site and stand characteristics that predispose forests to decline. This project will build on the information available and investigate the contributing factors. This will provide a greater understanding of the vulnerability of the forest to climate change and assist in developing evidence-based management interventions.

Aims

- Investigate the cause of decline in vegetation density in south-west forests by understanding the interactions of contributing factors.

Progress

- Information from changing forest cover was incorporated into the end term review for the current Forest Management Plan (2014-2023).
- Further analysis regarding vegetation cover trends and landscape patterns has been undertaken.
- A field based investigation of how the remote sensing data on vegetation cover changes relates to on-ground forest stand and site characteristics, in the Collie region, has commenced.

Management implications

- Techniques used for mapping of vegetation cover, and understanding which ecosystem types and location in the landscape are associated with a declining vegetation cover, have been incorporated into forest management policy and planning, and contribute to mapping forest health and reporting for the next forest management plan.

Future directions

- Extend analysis capturing the last FMP period to encompass the past 30 years of canopy cover trajectory.