What are the trade-offs for savanna fire management?

A structured Decision Making approach

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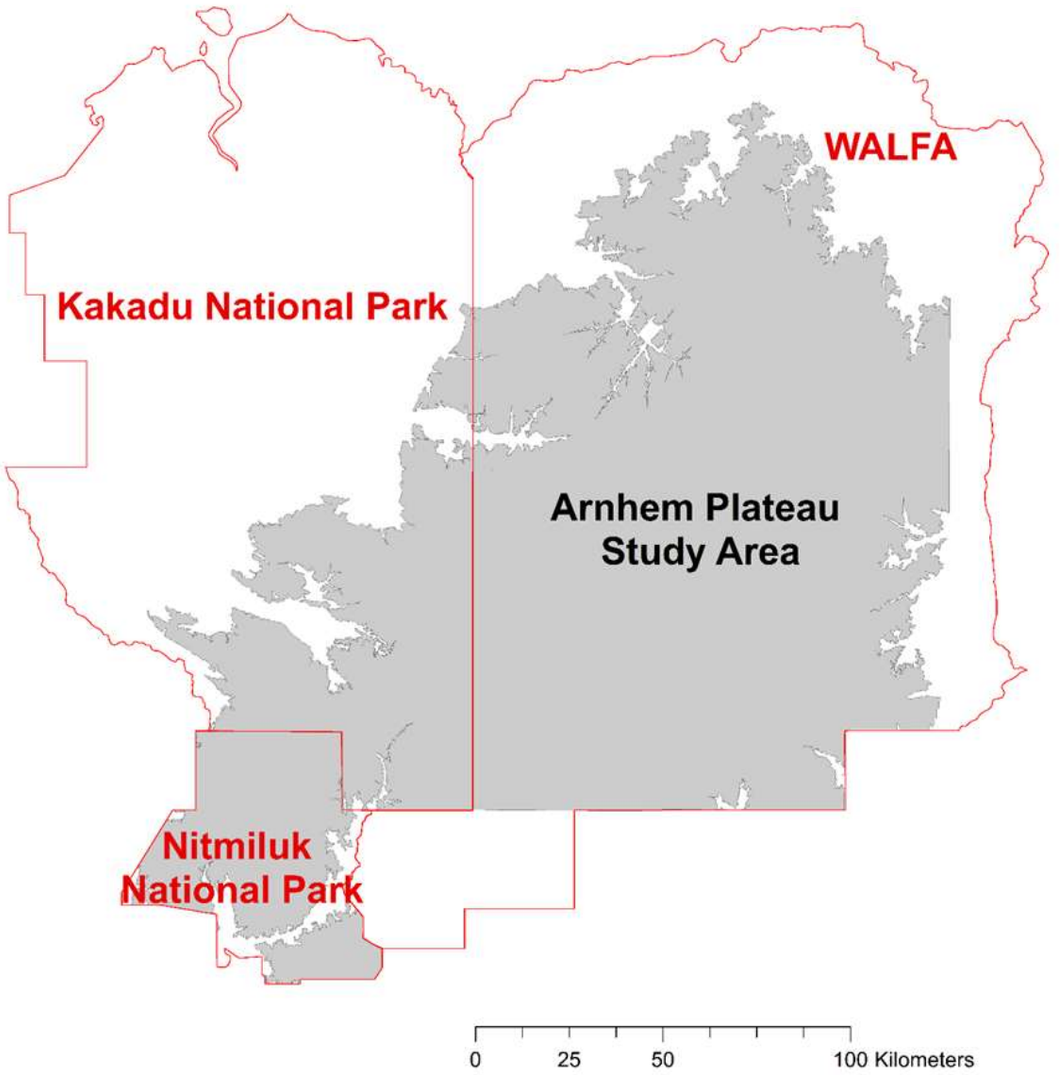
Background

- Native taxa are declining across the Arnhem Plateau, possibly due to inappropriate fire regimes.
- Fire regimes are managed using prescribed burning.
- There are trade-offs between fire regimes that favour animals, plants or carbon, but these have not been fully examined



Multiple competing objectives:

Vegetation communities

Improve condition of target vegetation communities

Small Mammal species

Reduce declines of target mammal species

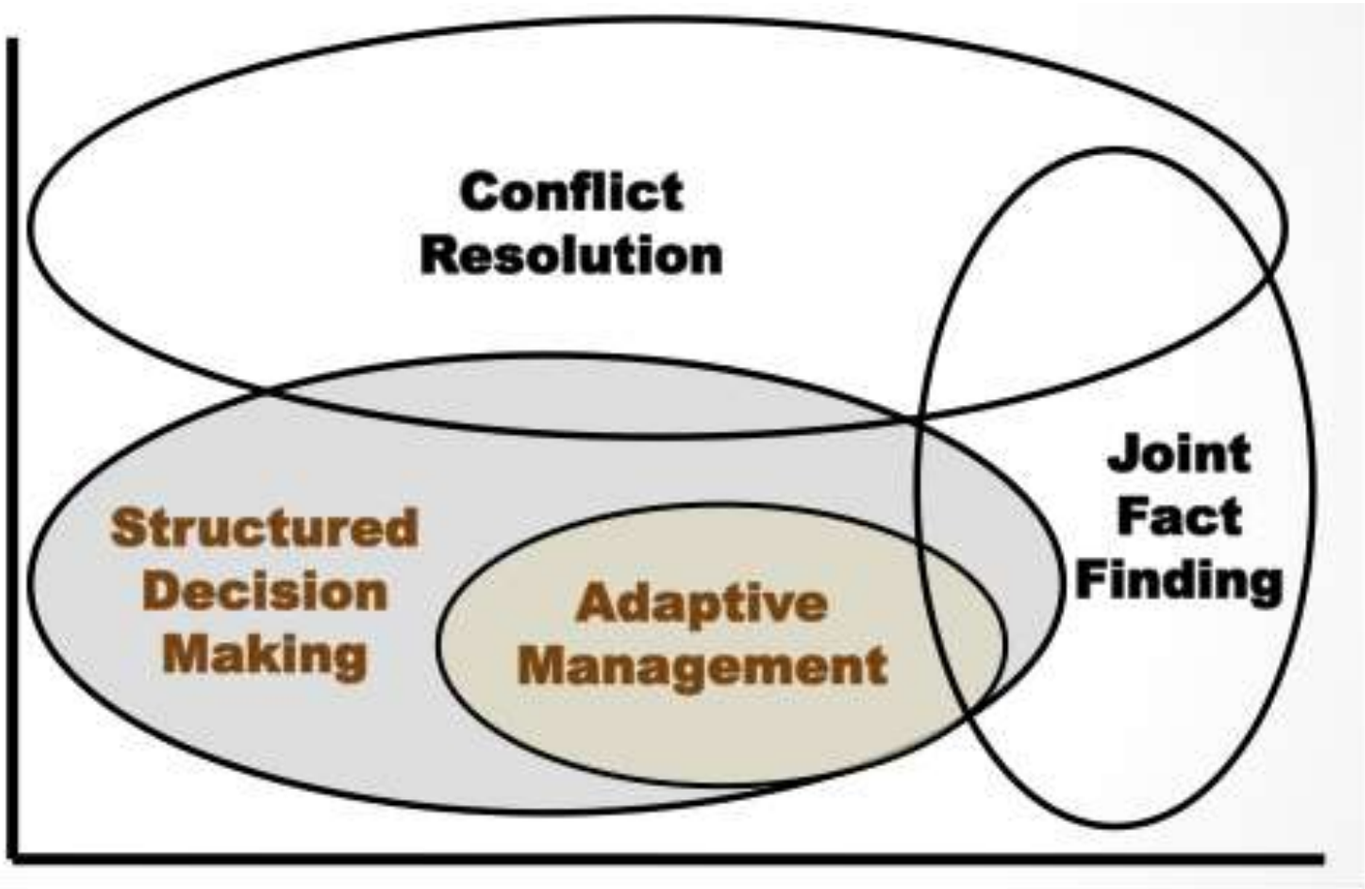
Carbon Credits

Maximise the generation of carbon credits

What's Structured decision making?

Unclear

Objectives



Clear

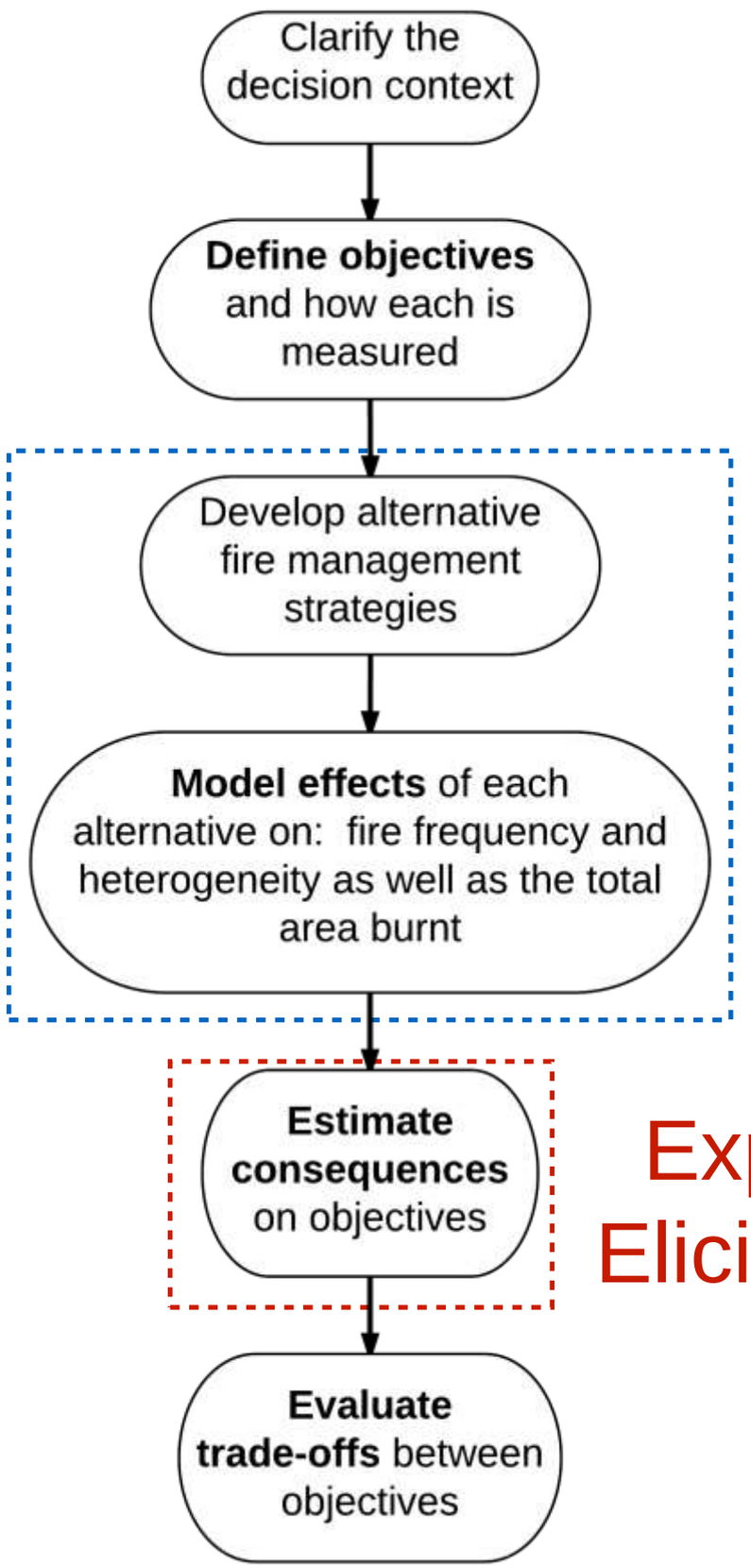
Well Understood

Uncertain

Disputed

Science

From Williams *et al.* (2007)

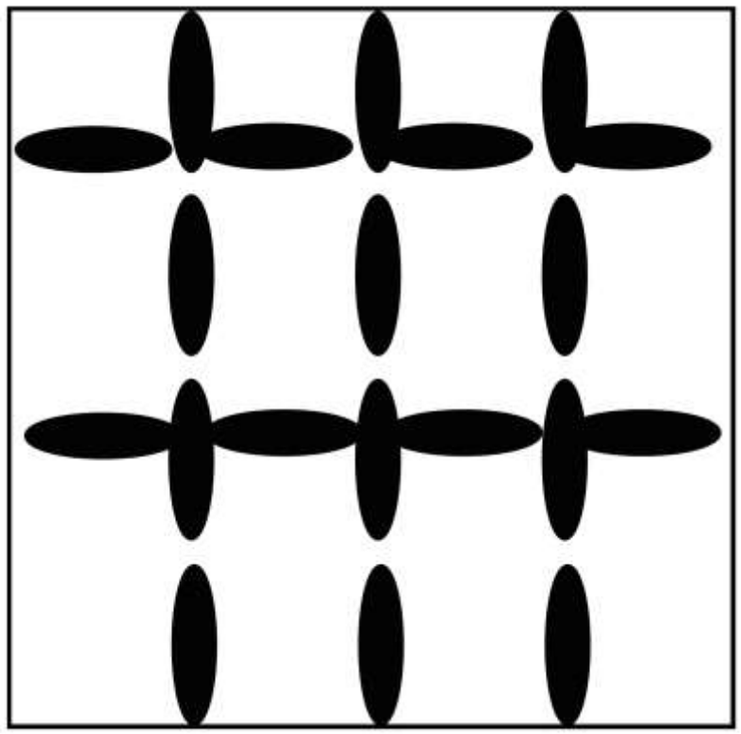


Spatial Modelling

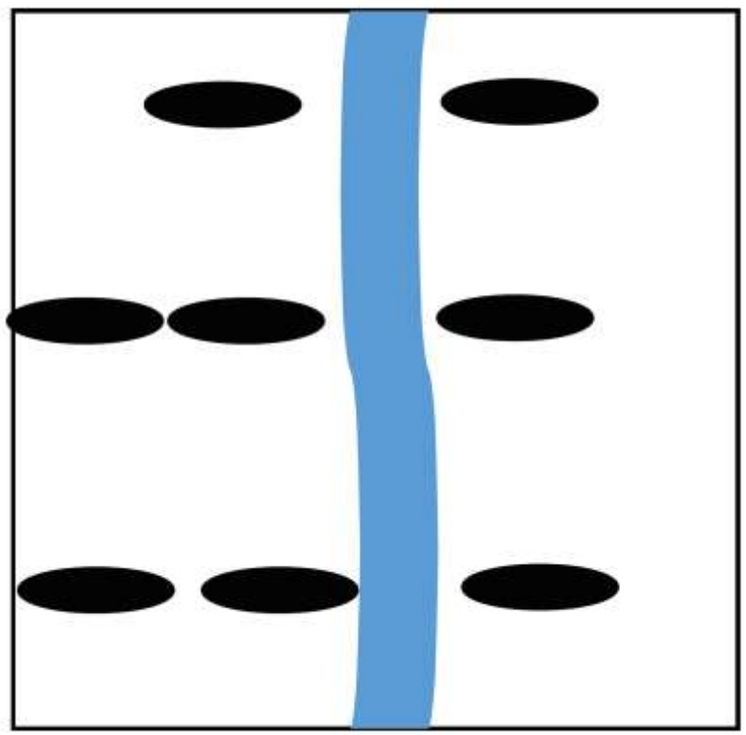
Expert Elicitation

Fire management alternatives:

- Along with maintaining status quo and no management:



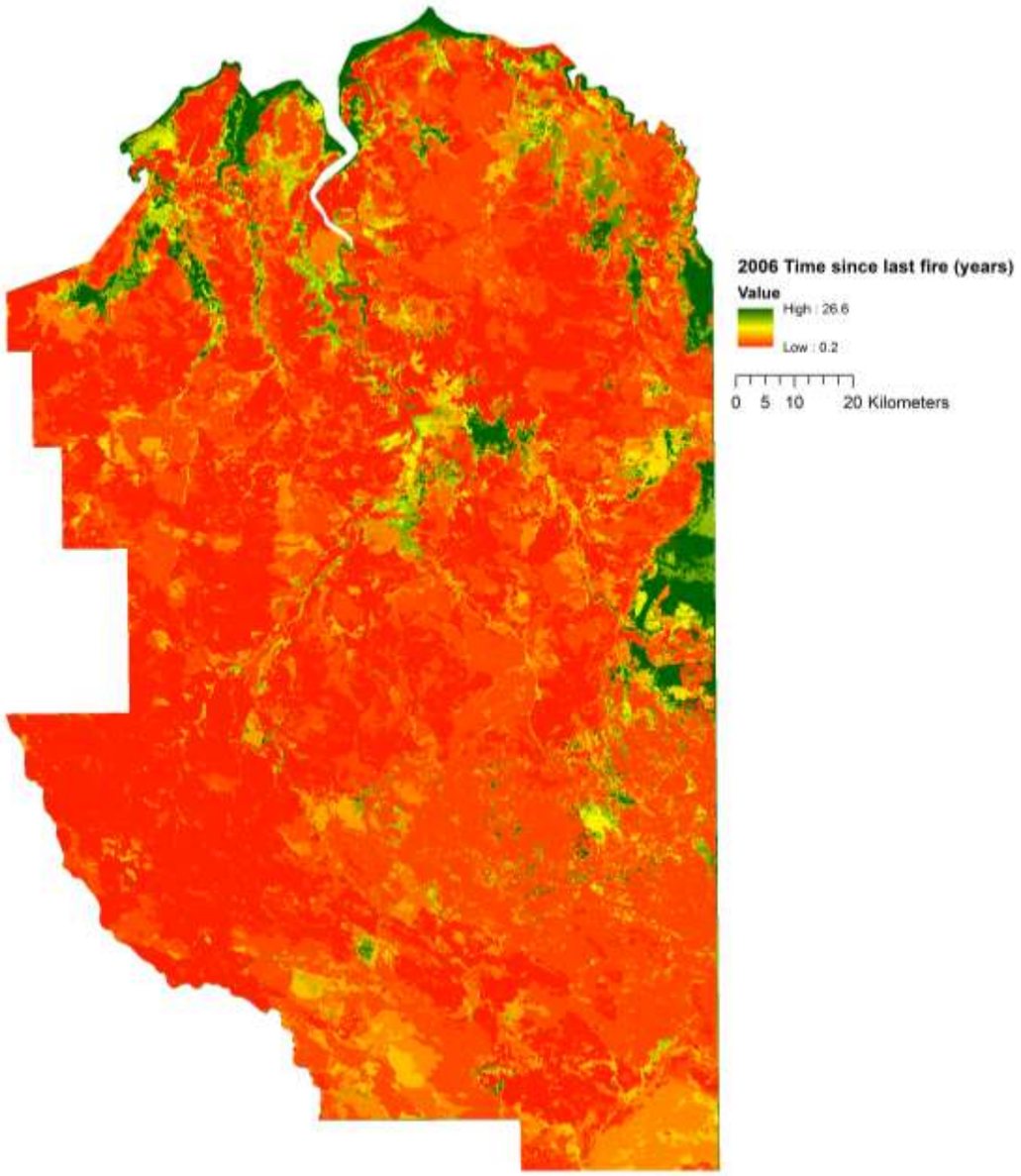
Linear firebreaks

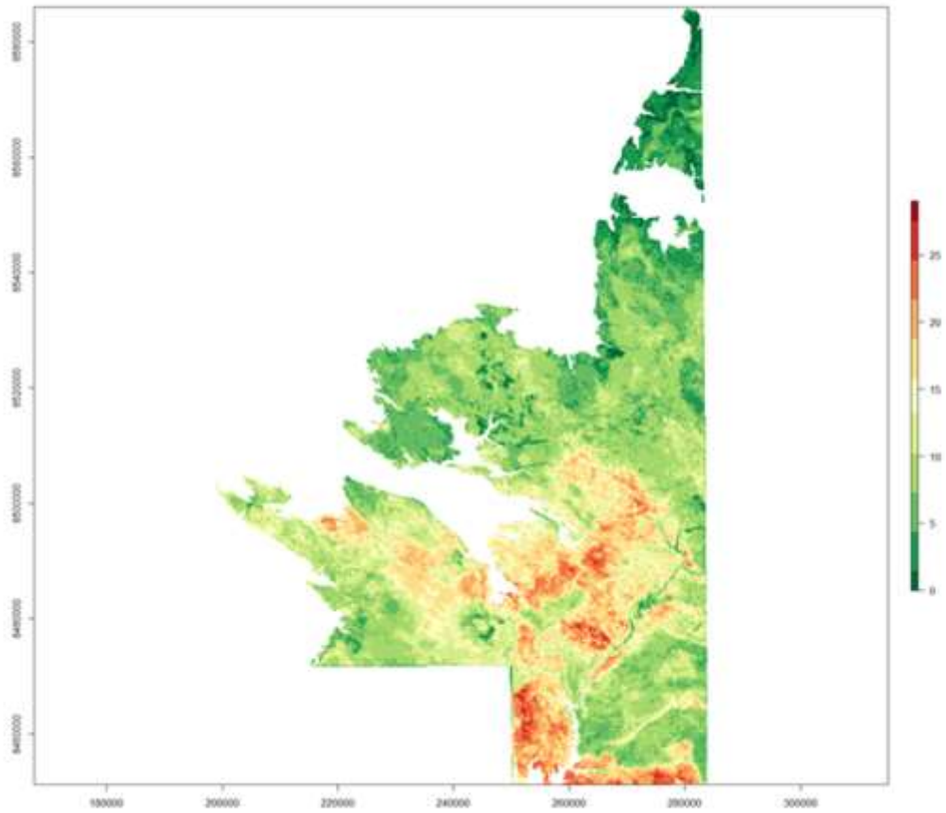


Strategic firebreaks (making use of natural fire barriers)

Patch mosaic burning

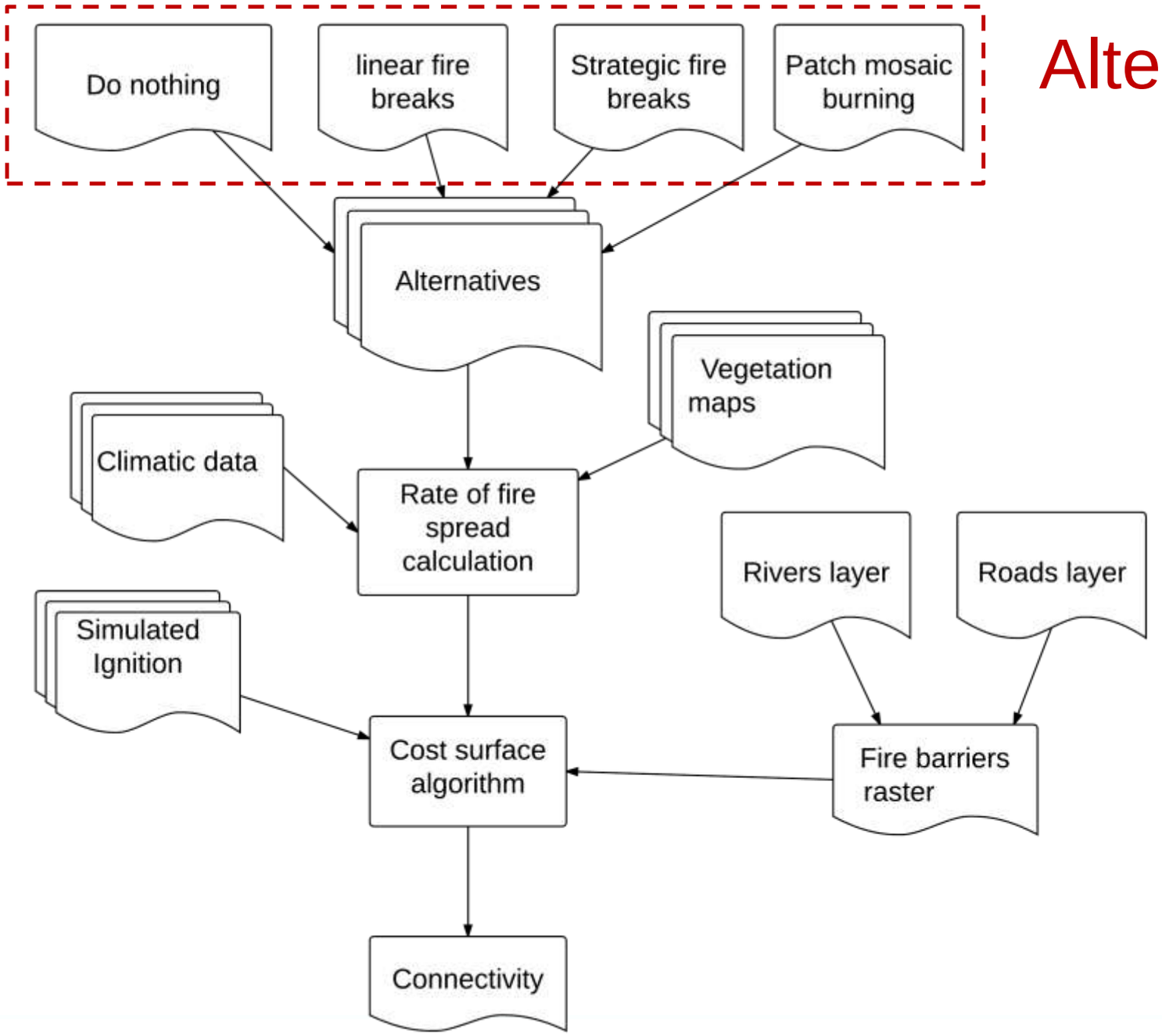
What influences bushfires in the Arnhem plateau?





Fire frequency in the
Kakadu part of the Arnhem Plateau
from 1980-2011

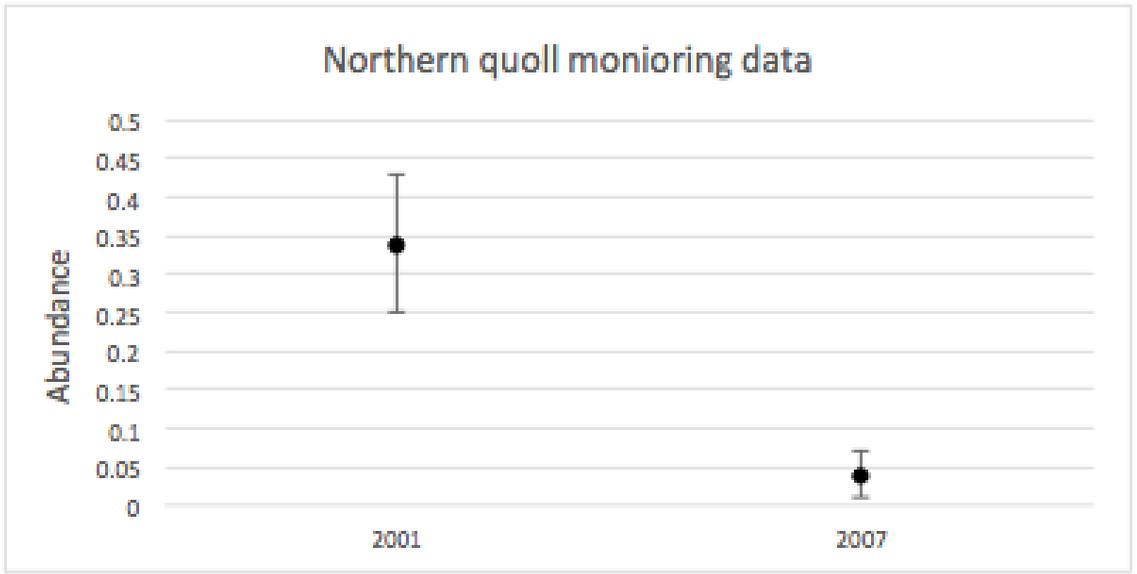
Modelling alternatives using connectivity

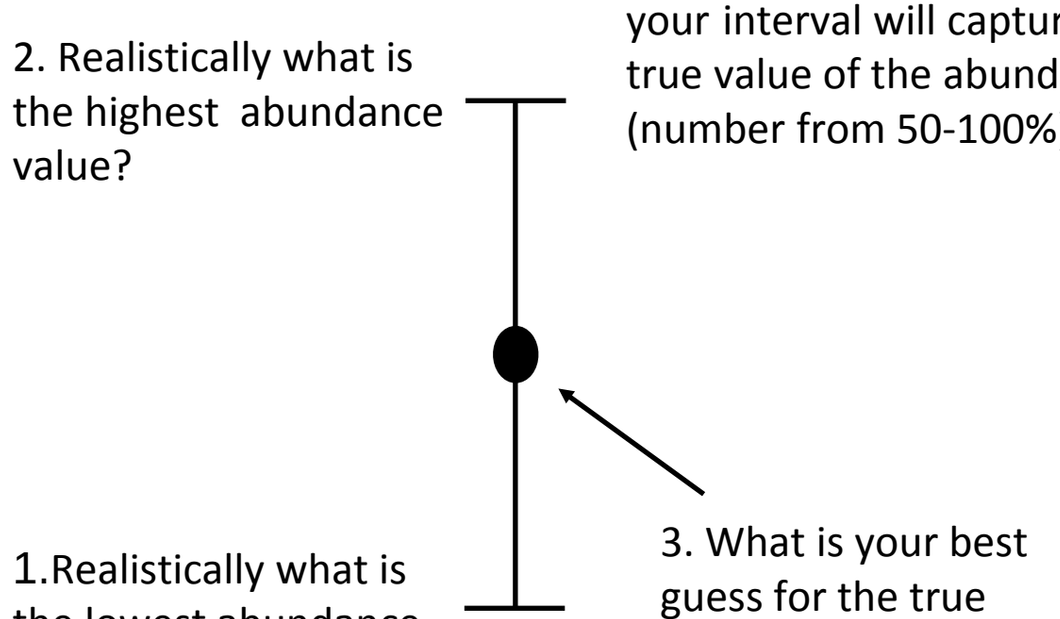


Pr of burning t =
β0 + β connectivity +β vegetation type… + ε

Next steps:

Estimate the effects of each fire management alternative on mammal species and vegetation communities using expert elicitation





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