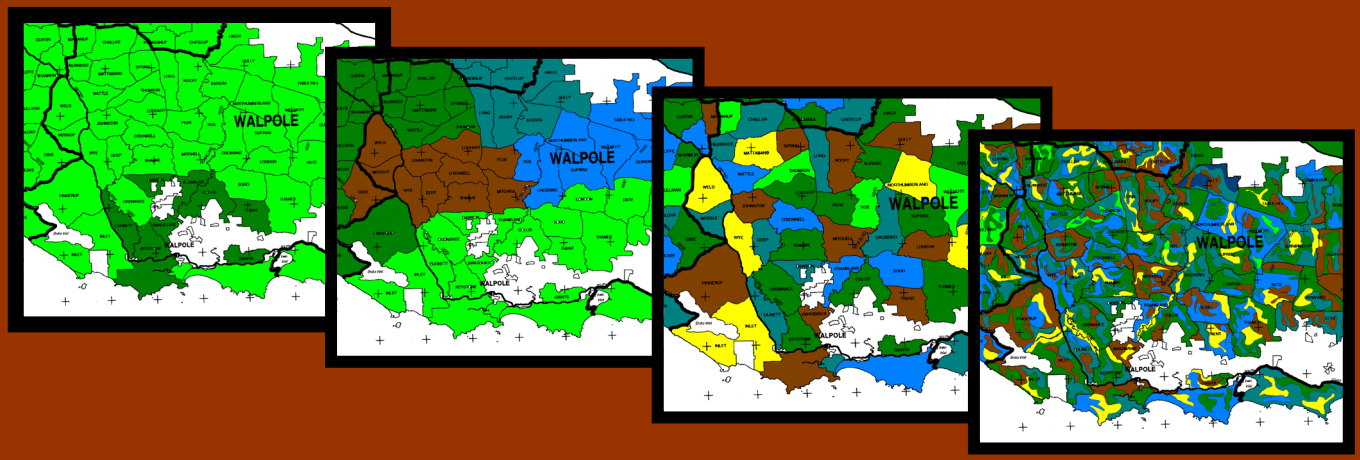
Walpole Fire Mosaic

Adaptive Management in Action

Warren Region, Science Division & Fire Management Services working together for nature conservation



Department of Environment and Conservation

Government of Western Australia

Context

- Fire-prone environment
- Fire-maintained ecosystems
- Fire Regimes can be GOOD, BAD or INDIFFERENT
- No one fire regime benefits all organisms or ecosystems
- Protection – conservation & life & property values
- Proactive fire management integral to, not incidental, to conservation & land management

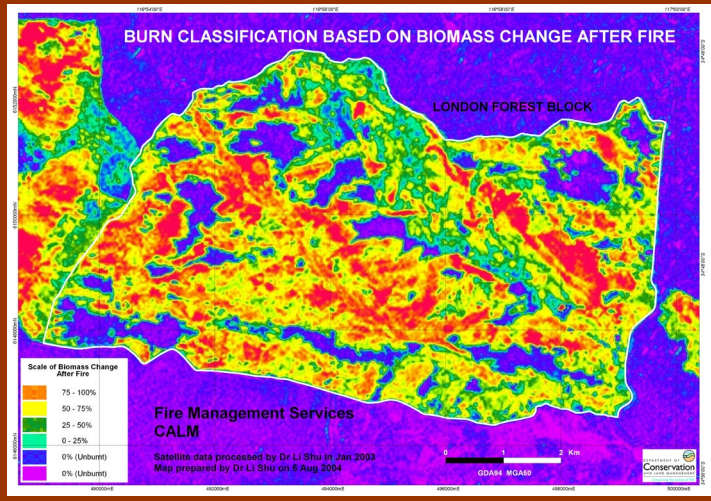
Fire-induced habitat mosaics

- **Project Objectives:**
  - Create a fine grain mosaic of patches (<500 ha) of vegetation at different seral stages, ranging from recently burnt to long unburnt
  - Conserve biodiversity (as measured by habitat/structural diversity, species richness, abundance and composition at landscape scale)
  - Reduce the severity (scale and intensity) of wildfires

Hypotheses tested

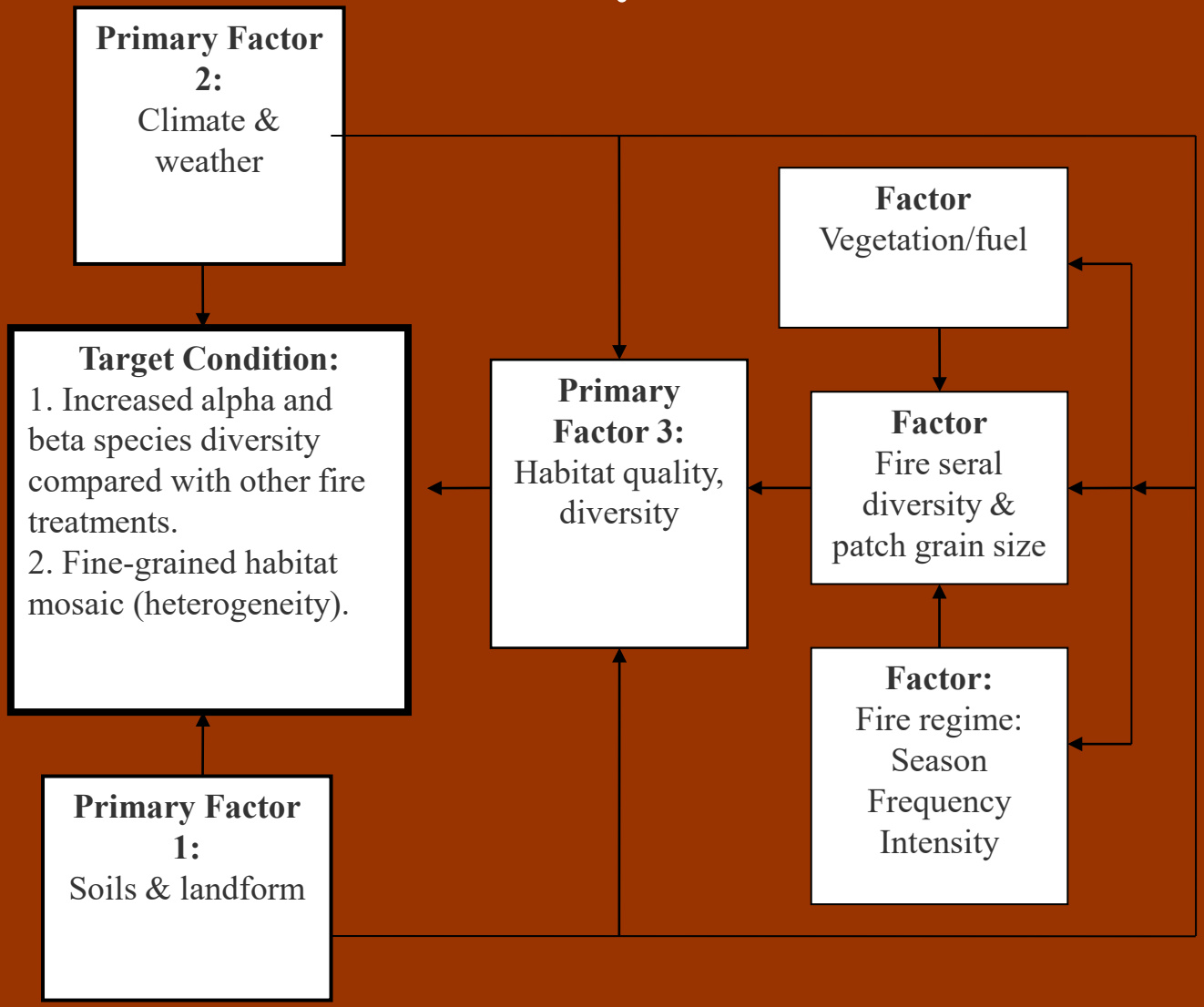
- At appropriate temporal and spatial scales, fire diversity promotes biodiversity (as measured by habitat/structural diversity, species richness, abundance and composition at landscape scale)

- At the landscape scale, a fine grain fire-induced habitat mosaic made up of a range of seral stages will:



1. promote biodiversity
2. reduce the severity (scale and intensity) of wildfires.

Conceptual Model



Management Actions

At the landscape scale, compare 3 fire treatments;

- Regular introduction of fire into the landscape (regular patch-burning)
- No planned fire
- Routine fire management

- Utilise fuel flammability differences & ignition patterns to manage fire size and intensity (season, time since last fire)
- **Monitor**
- Biodiversity monitoring grids in each of the vegetation complexes in each of the three treatments
- Satellite image analysis to accurately map burnt and unburnt areas & burn severity

Monitoring

- Biodiversity sampling grids

(FORESTCHECK design)

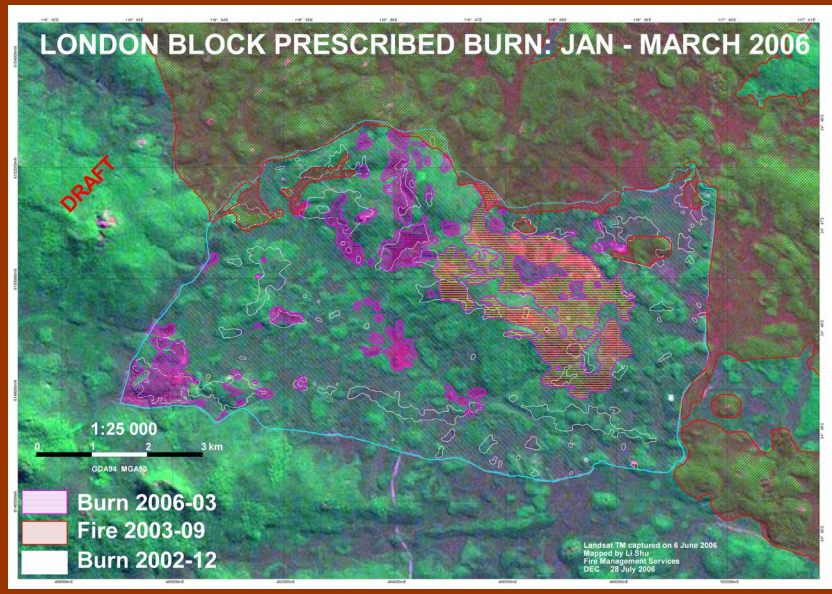
- Mammals
- Birds
- Frogs & reptiles
- Invertebrates
- Vascular plants
- Fungi
- Cryptogams

Monitoring Questions

- What is the temporal and spatial variation in the size, shape and distribution of burnt patches/seral stages – at the landscape scale & at the vegetation complex scale?
- What is the pattern of wildfire severity?
- How is the (measured) biota responding to the 3 fire treatments? (as measured by species richness, composition, functional groups, abundance)

Progress to date

- Project approvals, community consultation (WWA)
- A network of biodiversity monitoring sites has been established, pre-treatment assessments done
- Fuels measured
- Protection burning carried out
- Several patch-burning operations conducted using helicopter
- Satellite imagery analysed
- Research projects underway
- New populations of DRF discovered



Risks and uncertainties:

- Fire escapes, re-ignitions
- Inability to create fine-grain mosaic
- Hypothesis under test flawed
- Patch-burning provides insufficient wildfire protection