

## **Bushfire and Natural Hazards Cooperative Research Centre**

**Cluster:** Prescribed Burning and Catchment Management

Lead End User Representative: Naomi Stephens aka Felipe Aires (NSW Parks)

**Project:** Savanna Fire Management and Bushfire and Natural Hazard  
Scenario Planning for North Australia

Project Leader: Adjunct Professor Dr Jeremy Russell-Smith

**Researcher:**

Dr Andrew Edwards

Research Fellow (Bushfires)

DCBR /REIL / CDU

**Researcher:**

Dr Samantha Setterfield

Associate Professor

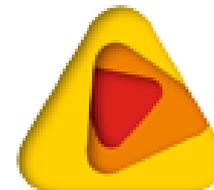
UWA

**Researcher:**

Dr Natalie Rossiter-Rachor

Research Ass./Postdoc. Fellow

RIEL / CDU



Everyone has an issue with fire at one time or another.



Perth



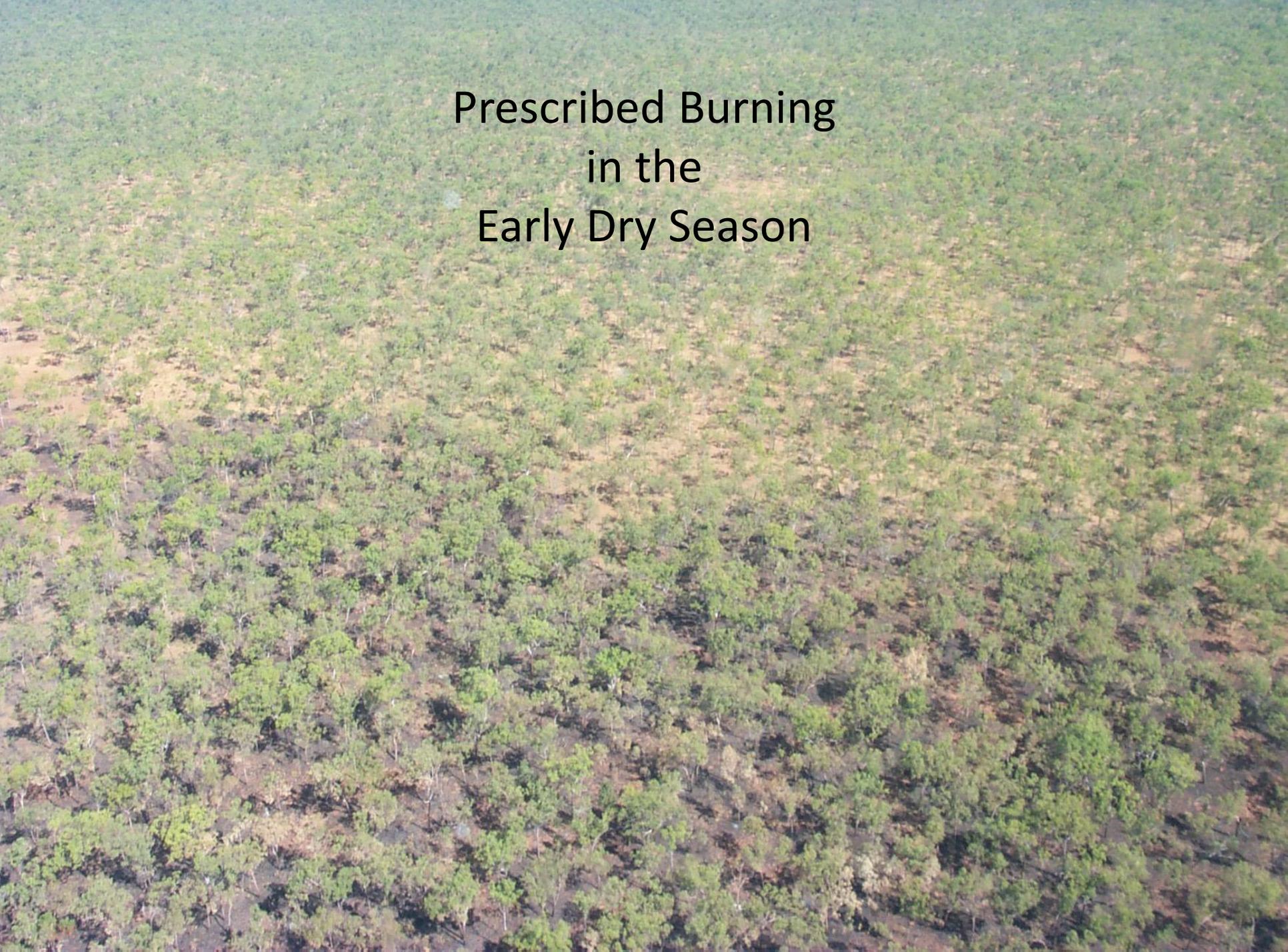
SW WA



Barossa Valley

# Prescribed Burning in the Early Dry Season



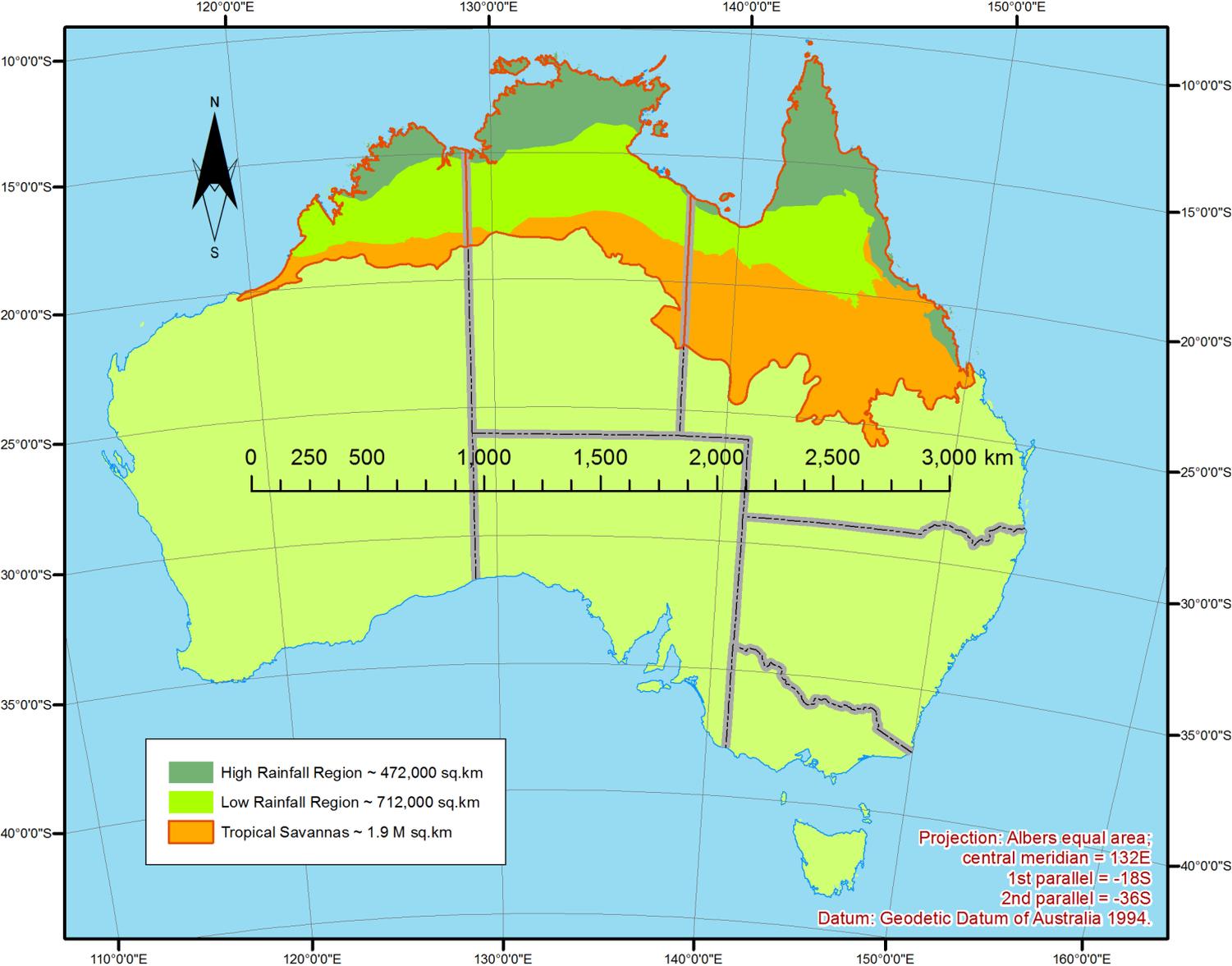
An aerial photograph of a dense forest. The trees are mostly green, but there are significant patches of brown and tan, indicating areas that have been affected by fire or are in a dry state. The text is centered in the upper half of the image.

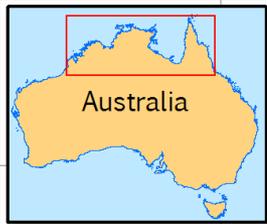
Prescribed Burning  
in the  
Early Dry Season

# The effects of wildfire

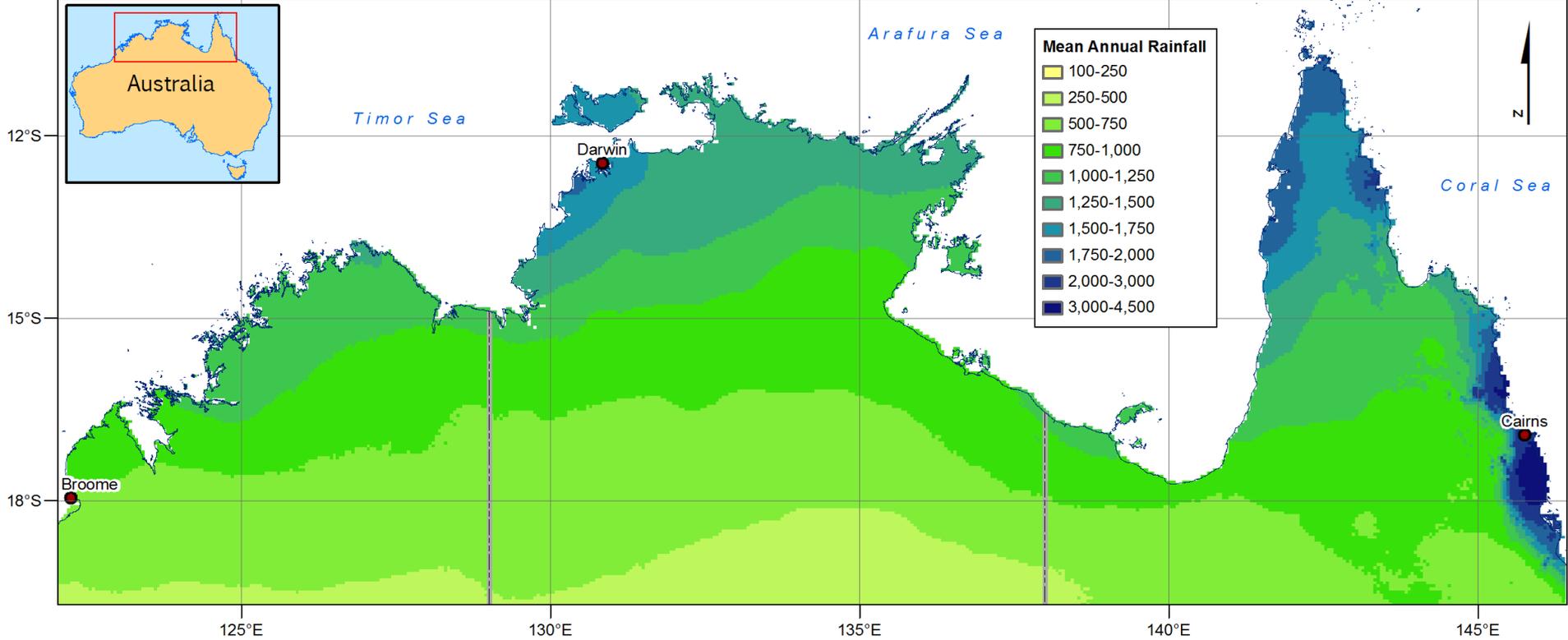


# Savanna Fire Management

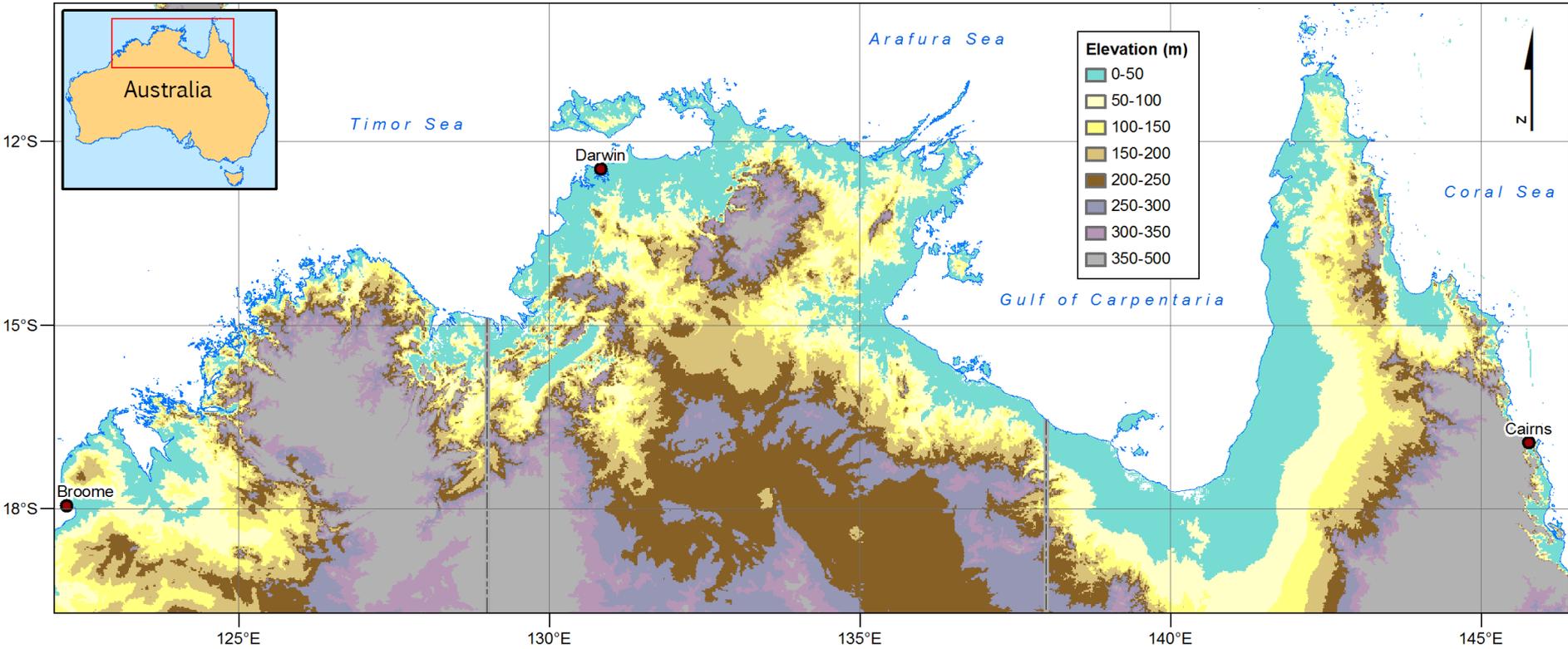




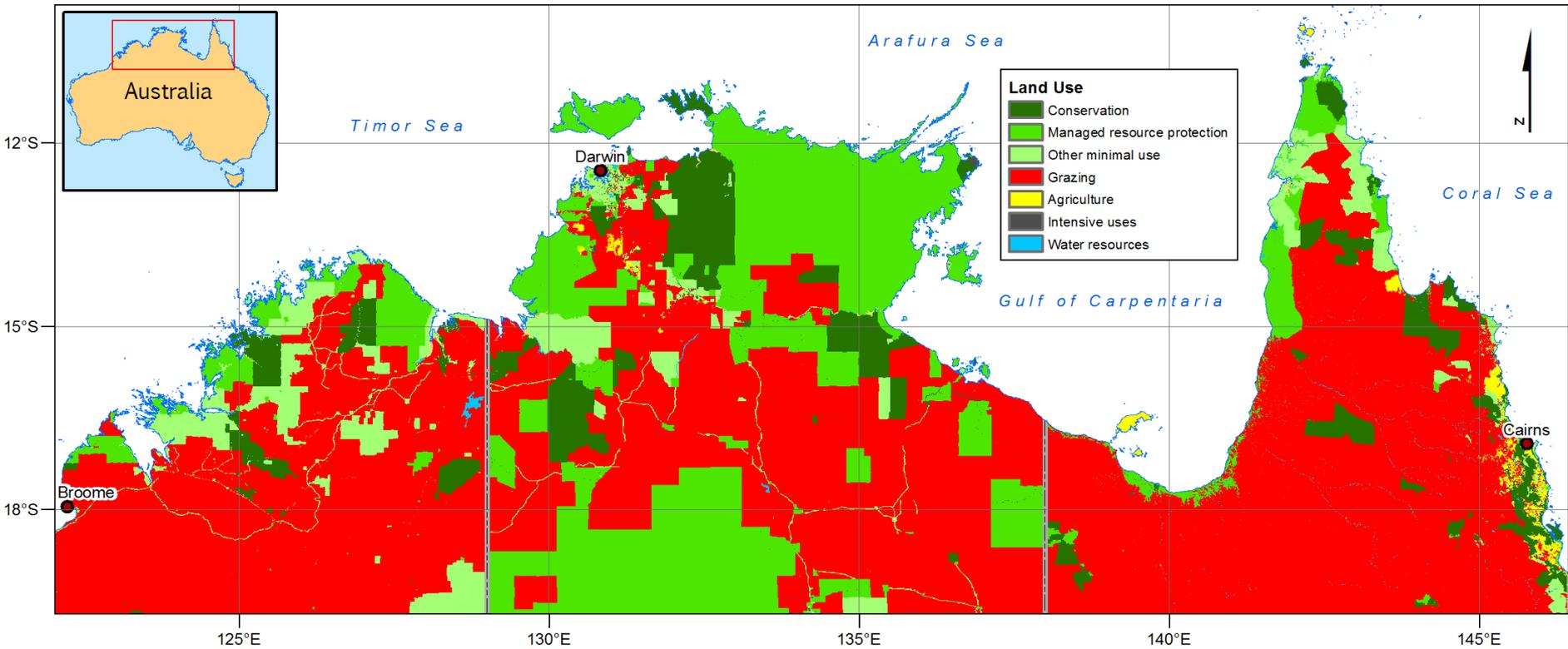
Australia



Develop the north...

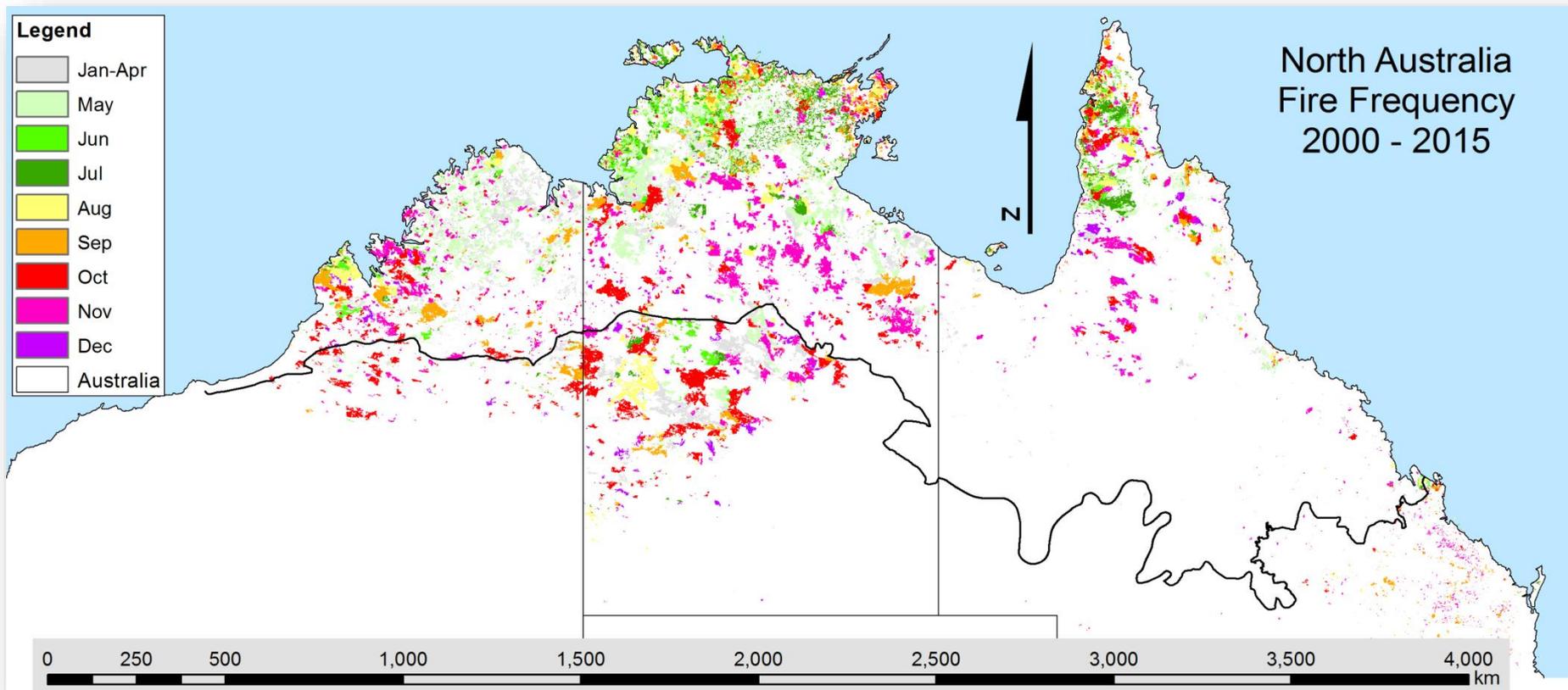


“...yeah well, you better bring your soils with you.”



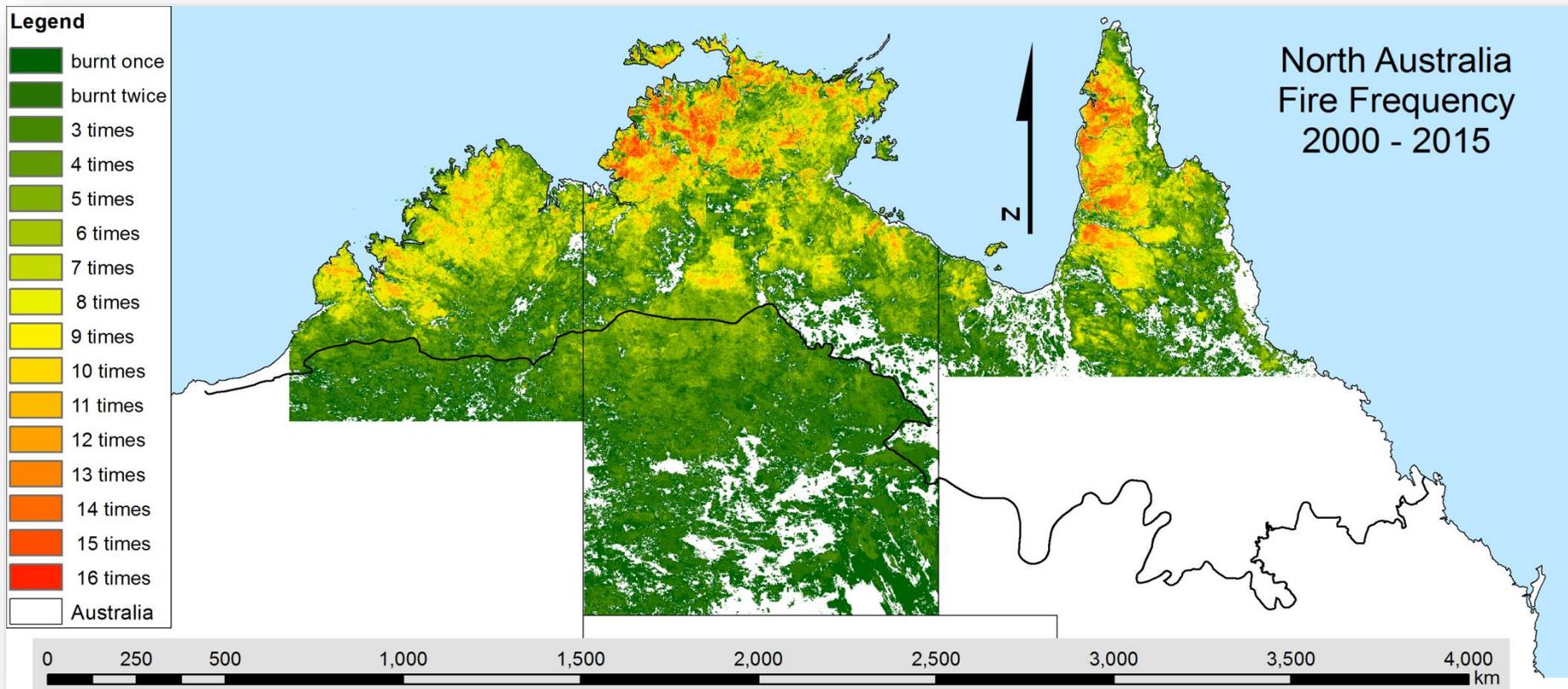
# Savanna Fire Management

- Developing Risk Management Tools
  - Fire Mapping



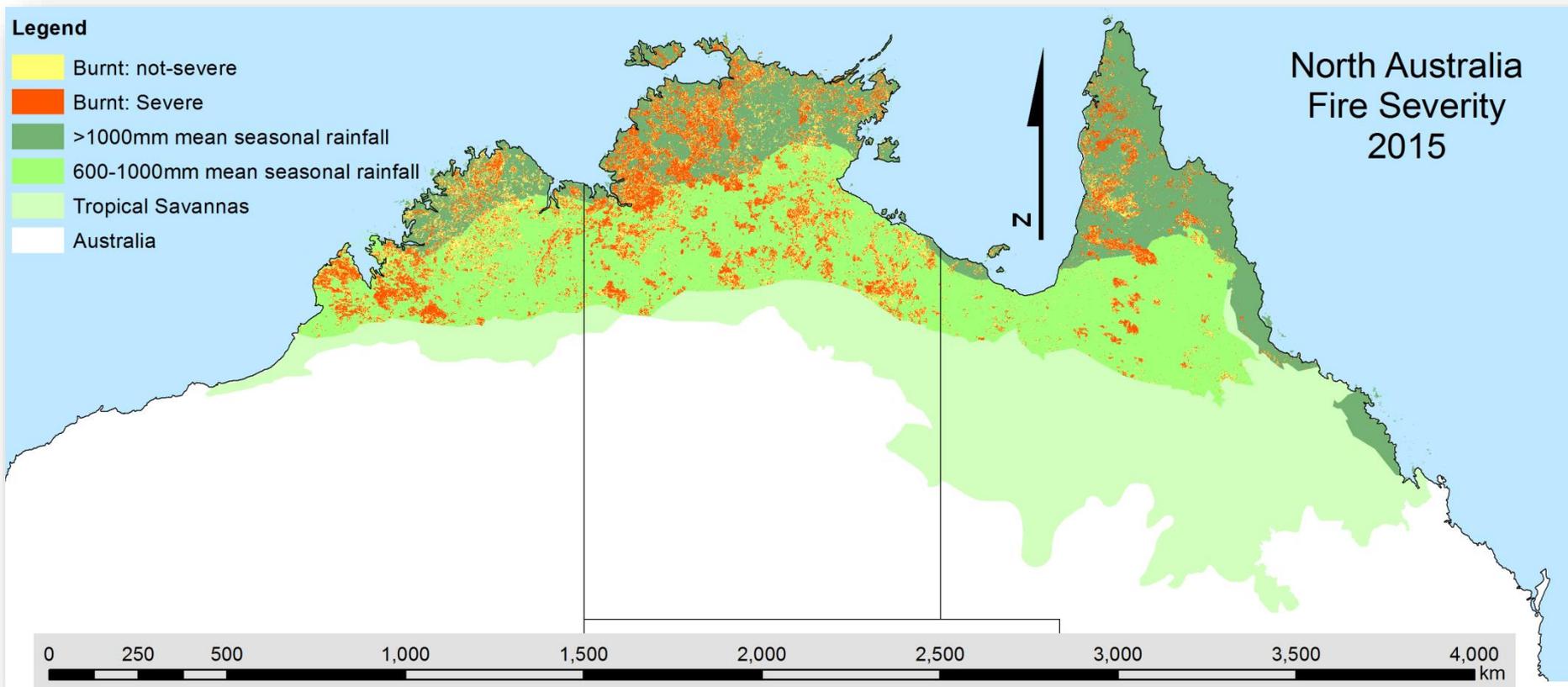
# Savanna Fire Management

- Developing Risk Management Tools
  - Fire Mapping



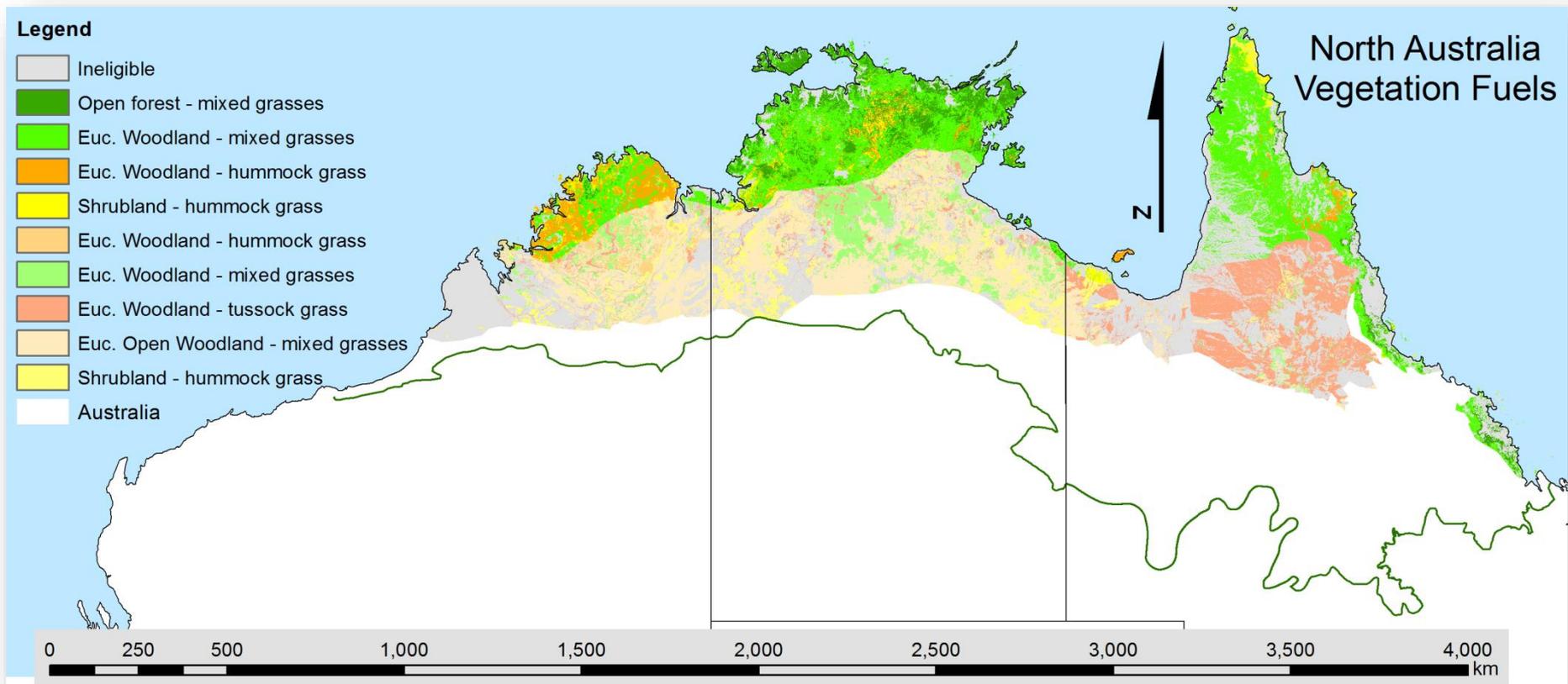
# Savanna Fire Management

- Developing Risk Management Tools
  - Fire severity Mapping



# Savanna Fire Management

- Developing Risk Management Tools
  - Greenhouse Gas Emissions Calculations





# Research Agenda Items

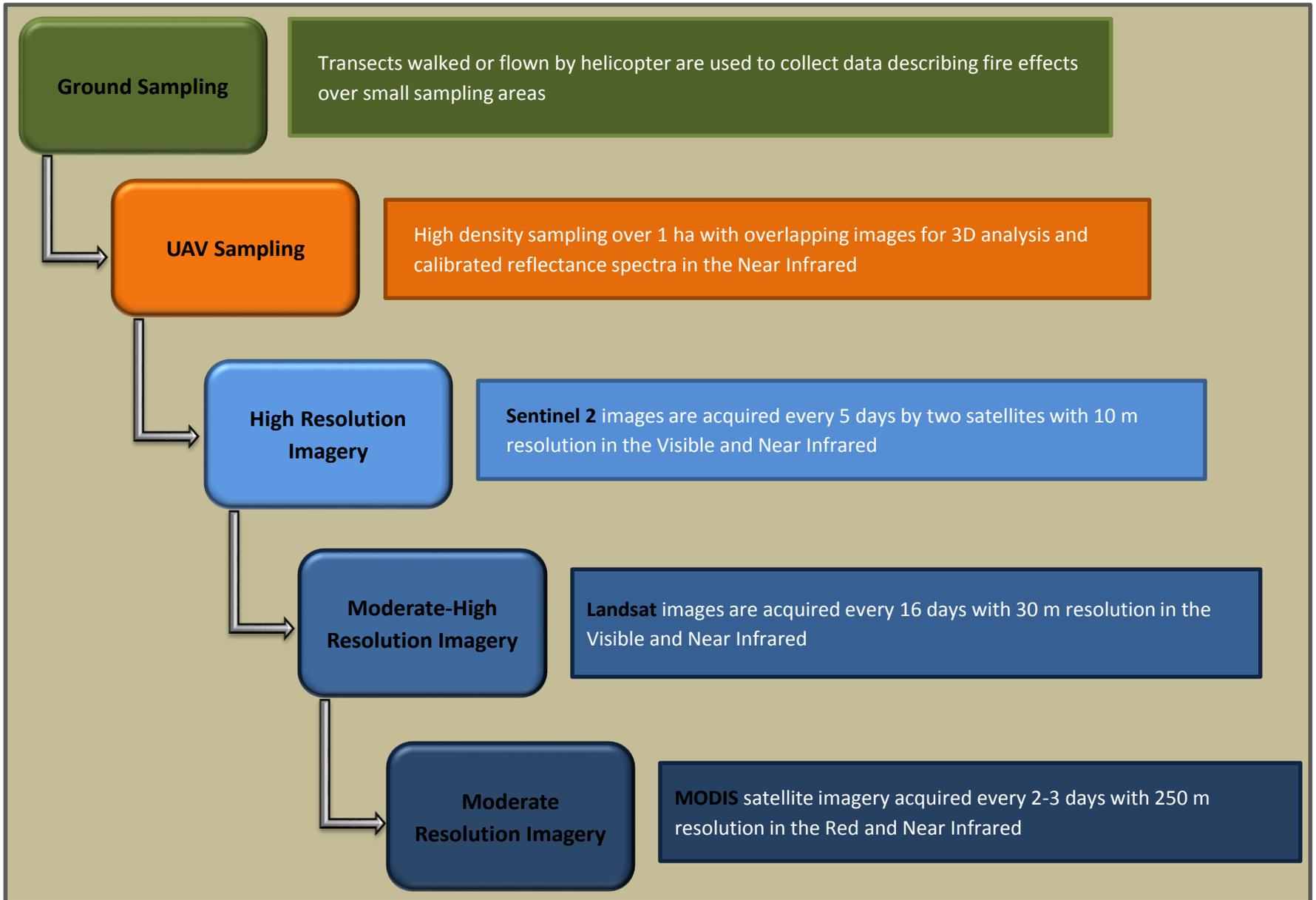
## 1. Satellite replacement research

- a. MODIS satellite has passed use-by date
- b. NAFI fire mapping all derived from MODIS
- c. Working with Landgate to replace MODIS with VIIRS
- d. However, ongoing research required with new satellites such as Sentinel-2

# Research Agenda Items

## 2. Improving Mapping Accuracy

- a. Scale disparity between MODIS and ground observations used for validation
- b. Propose to use UAV and other high to moderate resolution imagery to calibrate lower resolution imagery such as MODIS

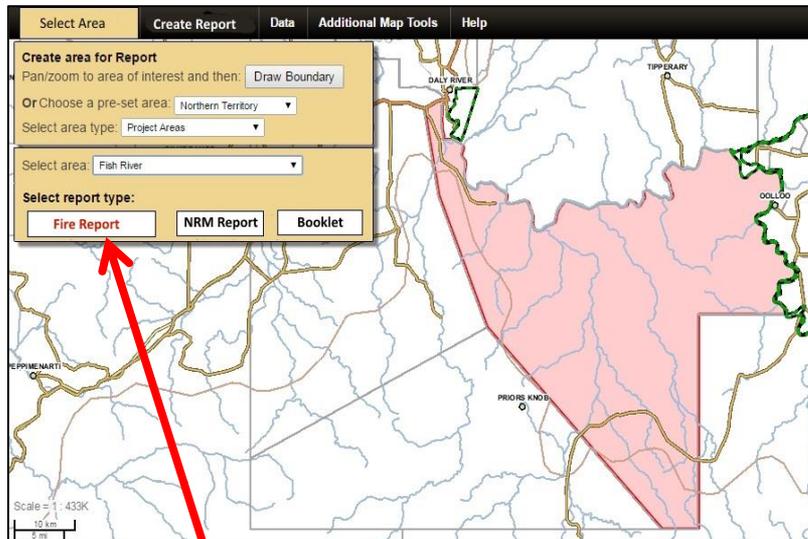


# Research Agenda Items

## 3. Fire Reports

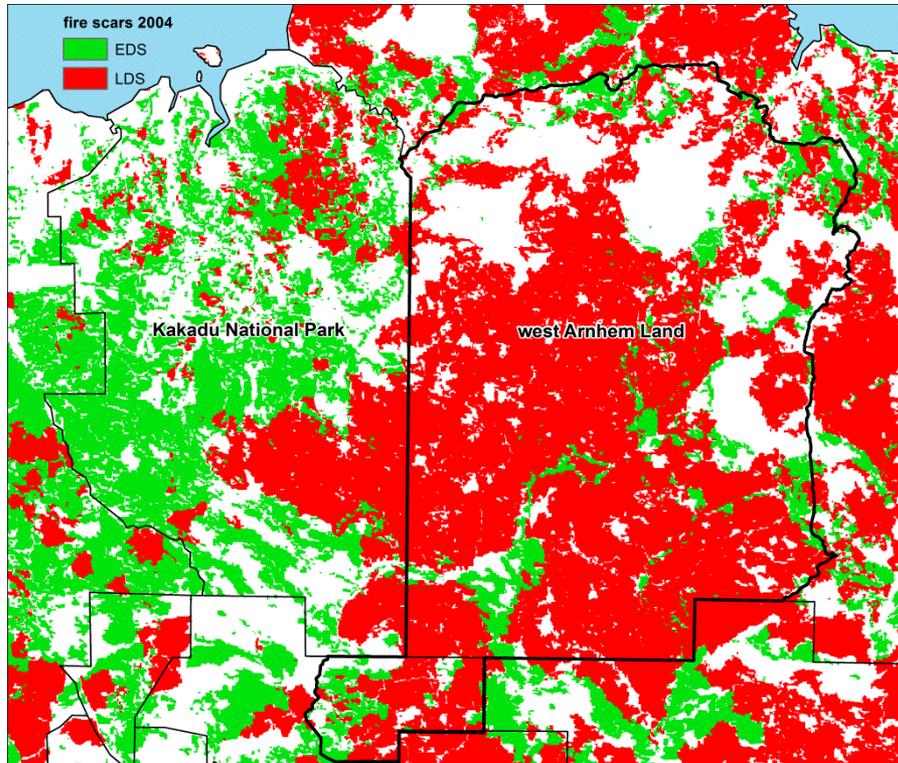
- a. Savanna wide reporting system
- b. Rudimentary → → → Sophisticated reporting
- c. KLC, KNP and others have derived a set of Monitoring and Reporting measures.
- d. We currently do the analyses
- e. Preferable if the analyses were standardised  
- we're already using a standard dataset

# Savanna Monitoring & Evaluation Reporting Framework (SMERF)



The screenshot shows the 'Create Report' section of the SMERF web application. It includes the following sections:

- 1 SELECT BASELINE OR PROJECT PERIOD OR SINGLE YEAR**
  - 2000 - 2009 ▼
  - 2010 - 2015 ▼
  - 2000 ▼
- 2 SELECT AREA TYPE**
  - Entire area
  - Sandstone Heath
  - Rainforest
  - Riparian areas
  - Small Mammal habitat
- 3 SELECT ANALYSES (You can choose more than one):**
  - FREQUENCY**
    - Fire Frequency (whole year)
    - Late Fire Frequency (after July 31)
    - Early Fire Frequency (before July 31)
  - TIME SINCE BURNT & PATCHINESS**
    - Year since last burnt
    - Long unburnt patches
    - Patchiness mix
  - SEASONALITY**
    - EDS, LDS & Total area burnt
    - Area Burnt by month
- 4**
  - Create final report
  - OR
  - Add another analysis



Improved fire management example...

