



Northern
Territory
Government

DEPARTMENT OF
PRIMARY INDUSTRY AND FISHERIES



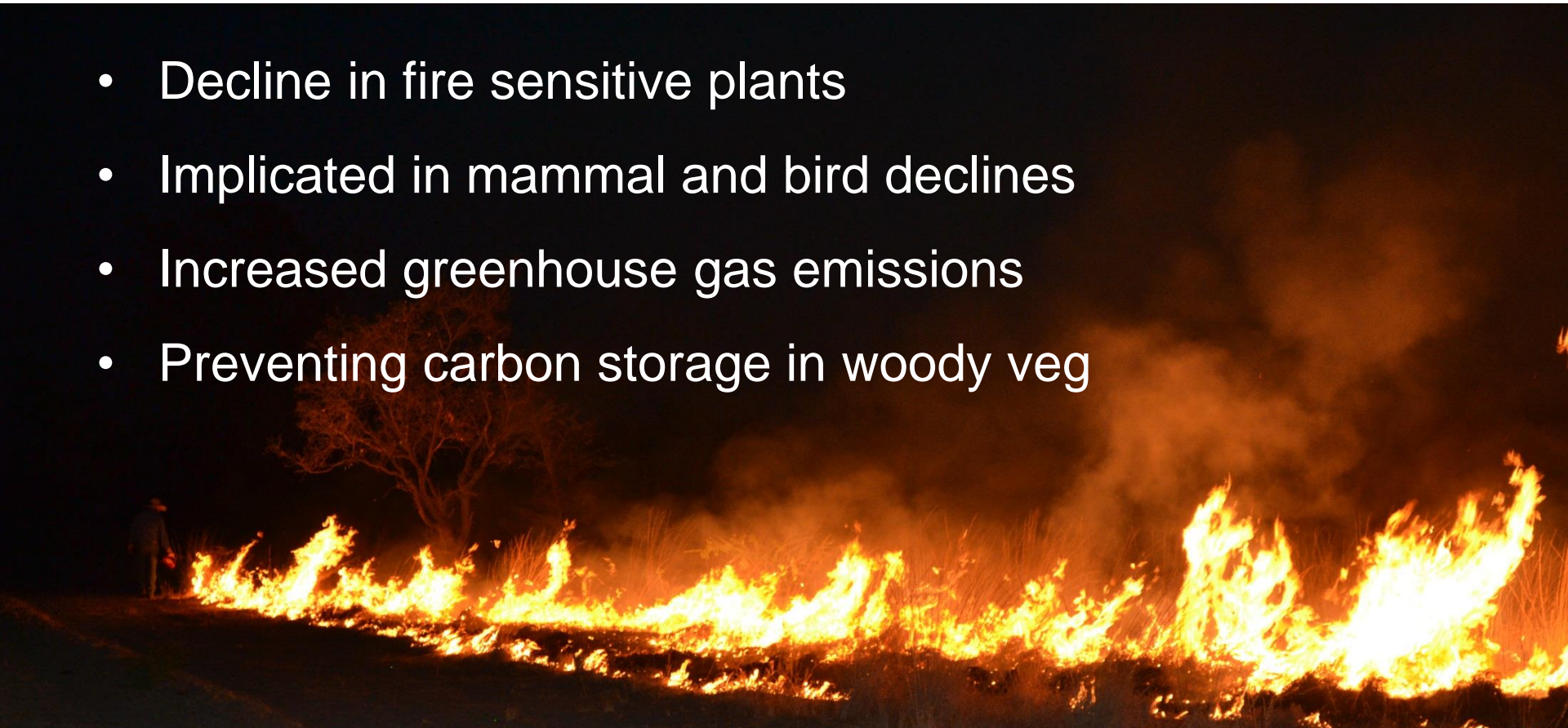
When cool fires aren't *cool*

Victoria River Region case study

Robyn Cowley and Dale Jenner

Too much fire

- Decline in fire sensitive plants
- Implicated in mammal and bird declines
- Increased greenhouse gas emissions
- Preventing carbon storage in woody veg



Inflammatory statements

1. Early fires cause pasture decline and woody thickening on grazed land
2. Grazed land does not burn enough
3. Grazed land needs more hot fires



VRD fire experiment 1993-2015

- Fire season – late dry
- Fire interval – 4 yearly



VRD fire experiment 1993-2015

Late fire

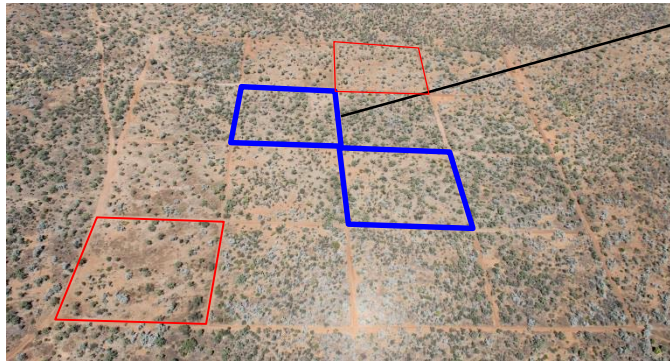
- ↓ woody cover
- ↑ grass basal area
- ↑ perennial grass



VRD fire experiment 1993-2015

Early fire

- ↑ forbs & woody cover
- ↓ grass basal area
- ↓ perennial grass



Early burnt every 4
years

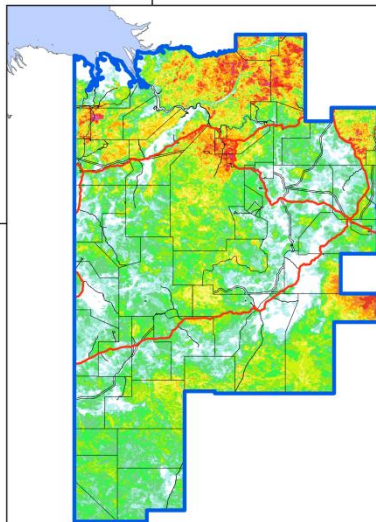
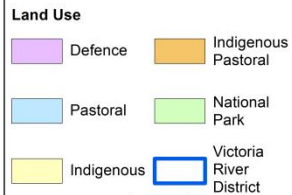
VRD fire experiment 1993-2015



What burns where?

Average fire frequency 1997-2010

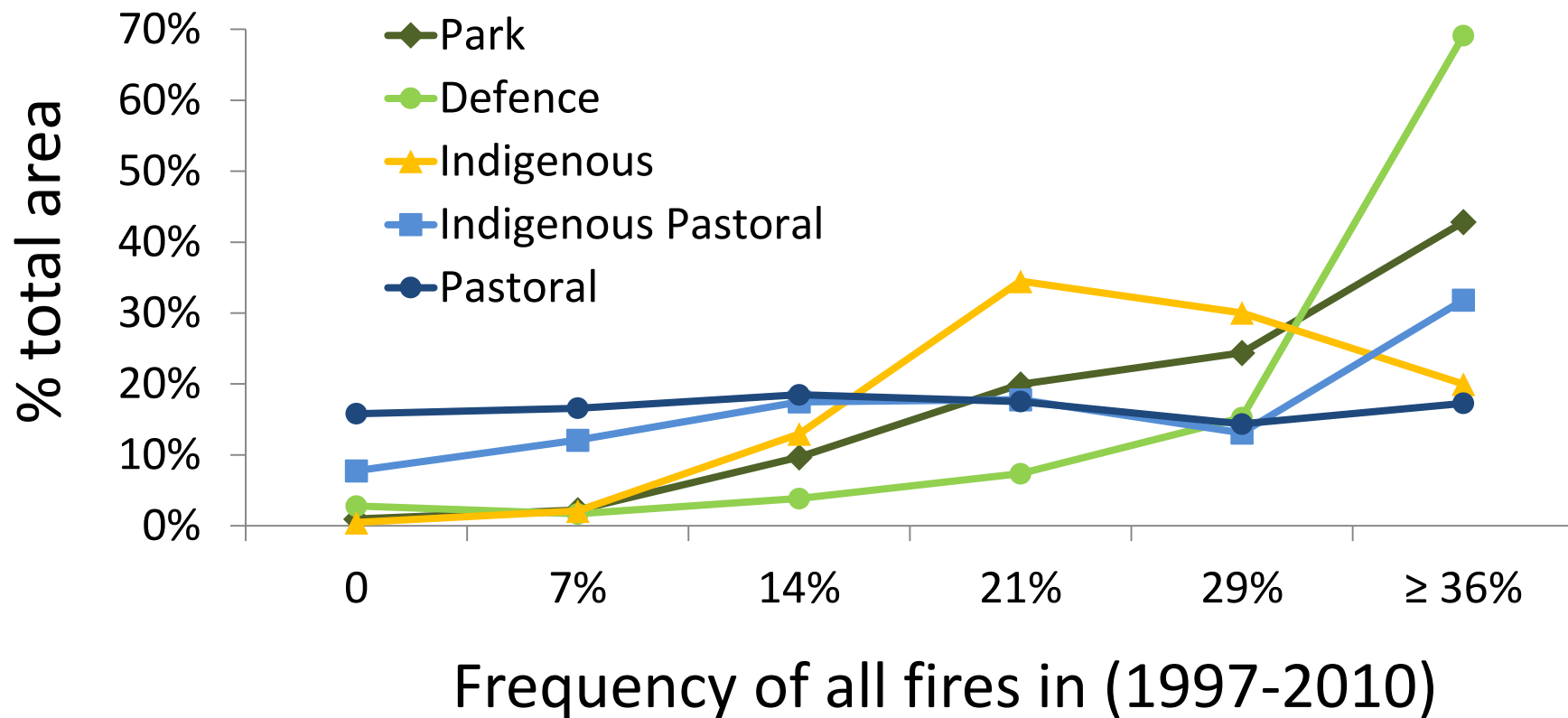
Land Use	All year	Late dry season
Defence	39%	11%
Park	31%	15%
Indigenous	26%	21%
Indigenous Pastoral	26%	16%
Pastoral	19%	14%



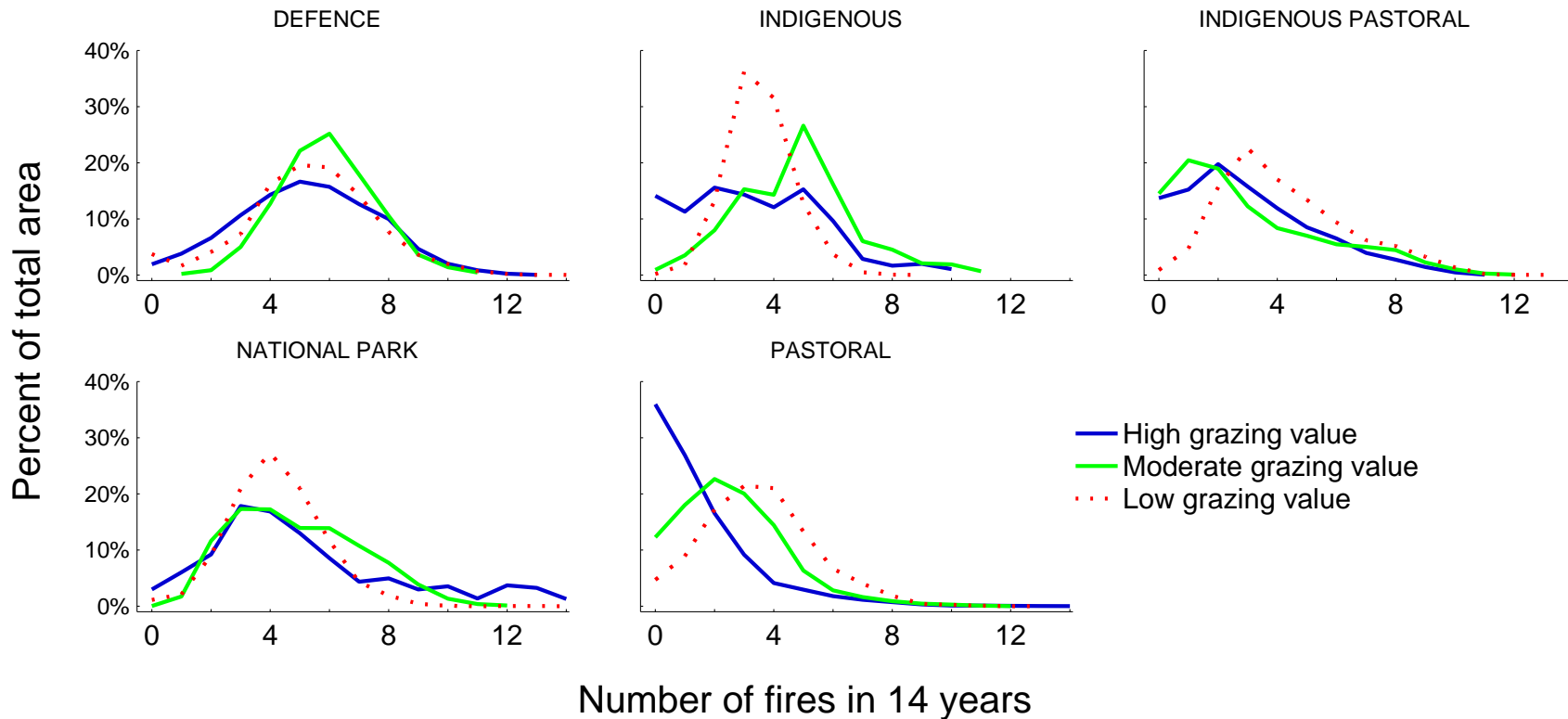
Fire Frequency
Number of years burnt 2000-2014



VRD all fire frequency by land use



VRD fire frequency by land type



More or less fire?

- On grazed pastoral land
 - 89% of the best pastoral land
 - 73% moderate productivity pastoral land
- burnt less than the four-yearly fire required to manage woody cover
- need more late dry hot fires to manage woody cover

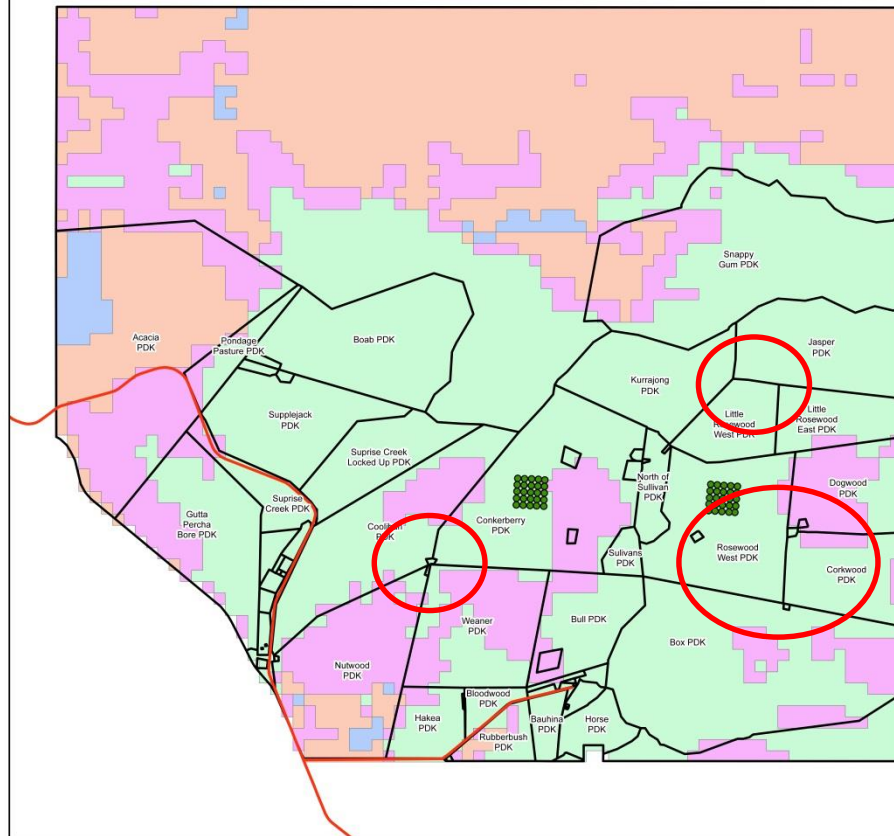
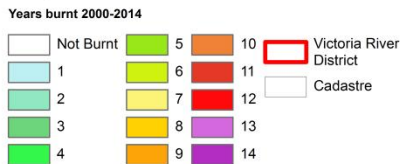
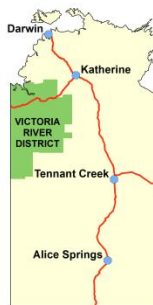
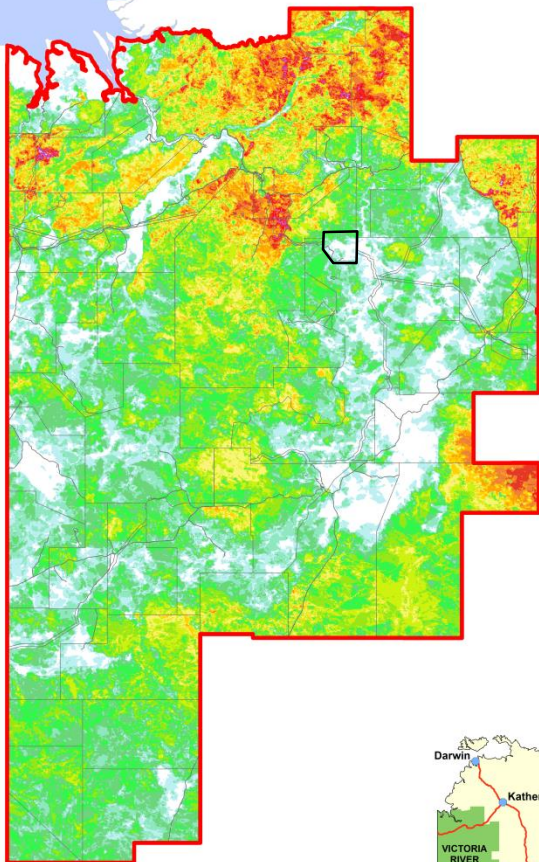
More or less fire?

- Ungrazed land
 - current fire frequencies are often high
- opportunity to reduce fire frequency and associated GHG emissions, with biodiversity and carbon storage benefits

Early fires not always the answer because

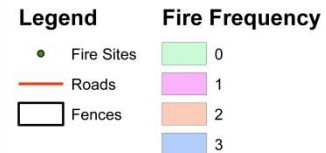
- Applying early fire to grazed landscapes → woody thickening and pasture decline
- Best grazed lands don't burn enough
- Grazed lands need hot fires to manage woody cover

What could this look like in practice?



Kidman Springs Research Station

Fire Frequency



2004-2011

Source Data: North Australian Fire Information
<http://www.firenorth.org.au>



Acknowledgements

A large herd of cattle, mostly white with some brown patches, is gathered in a field. The cattle are looking towards the camera. In the background, there are trees and a clear blue sky. The scene is brightly lit, suggesting a sunny day.

– NAFI fire data

<http://www.firenorth.org.au/nafi2/>

Photography - Robyn Cowley, Mark Hearnden, Elaine Mitchell, Caz Pettit