



Fire Management

A pastoral perspective

A joint initiative of:



Department of Agriculture and Food



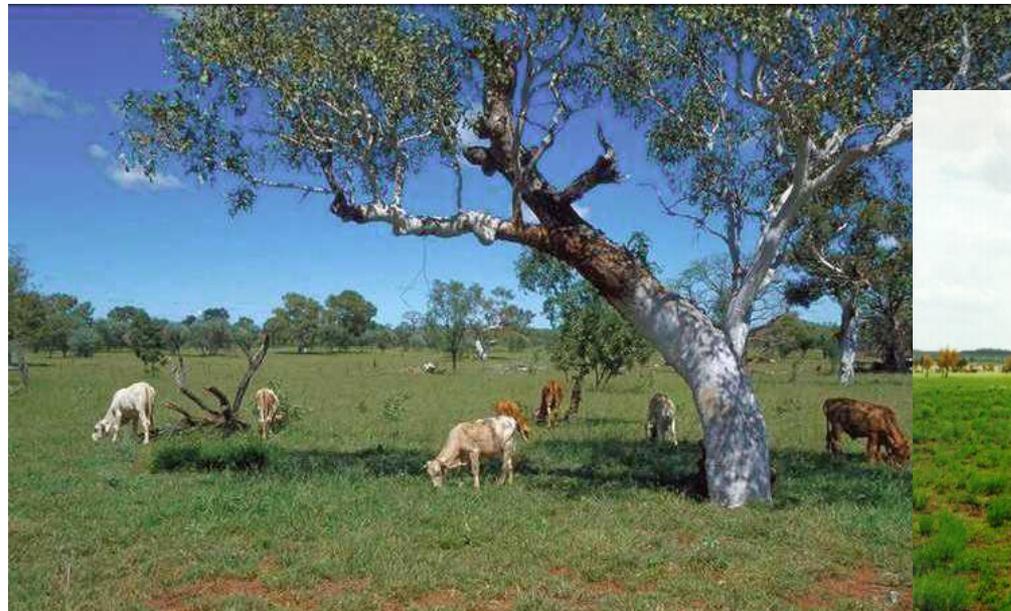
The 5 roles of prescribed fire

1. Managing pastures
2. Managing the tree-grass balance
3. Preventing wild fires
4. Controlling weeds
5. Maintaining biodiversity



Managing pastures

- **Improve pasture vigour and quality**
 - Removes old, rank material
 - Stimulates new, fresh growth
 - Increases protein content



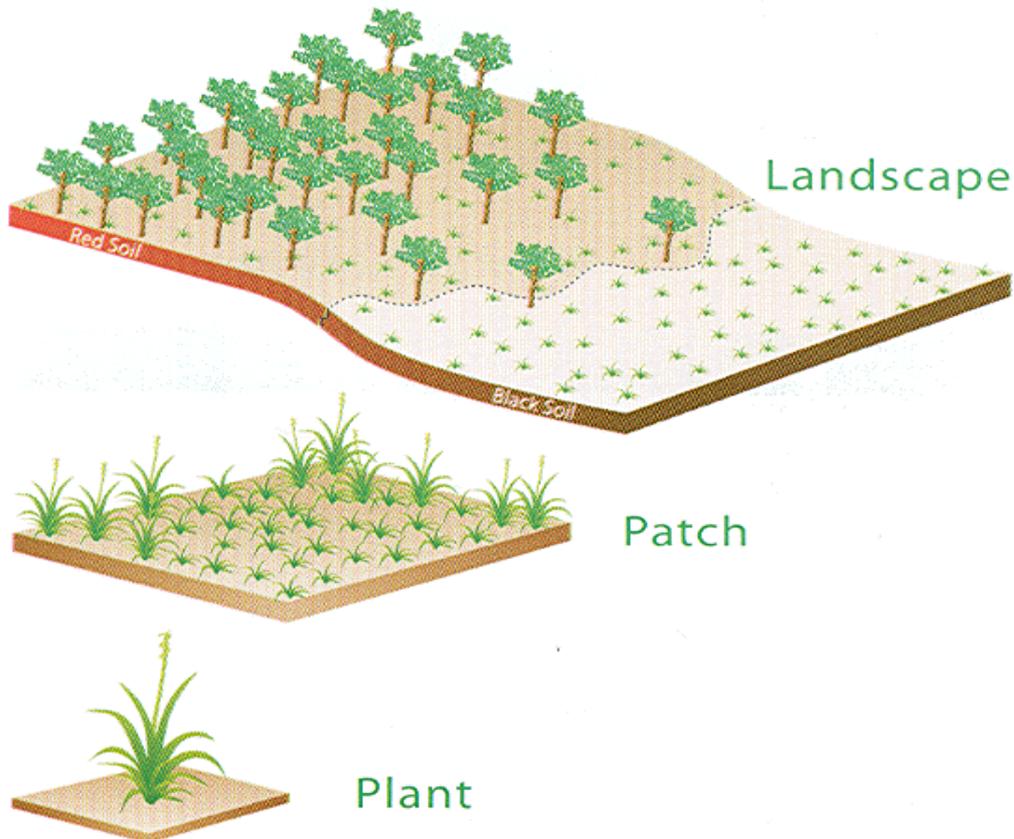
Managing pastures

- **Control grazing distribution**
 - Persistent grazing weakens perennial grasses
 - Bare, scalded areas may develop
 - Encourages the invasion of weeds
 - Ungrazed areas underutilised = rank



Selective grazing

Diet selection occurs at the plant, patch and landscape scales



Source: Ecograzed Project

Managing pastures

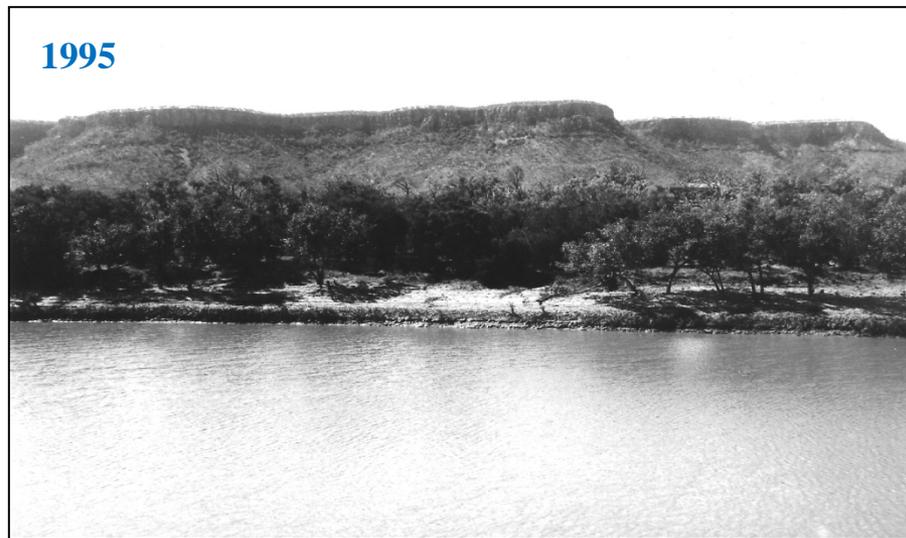
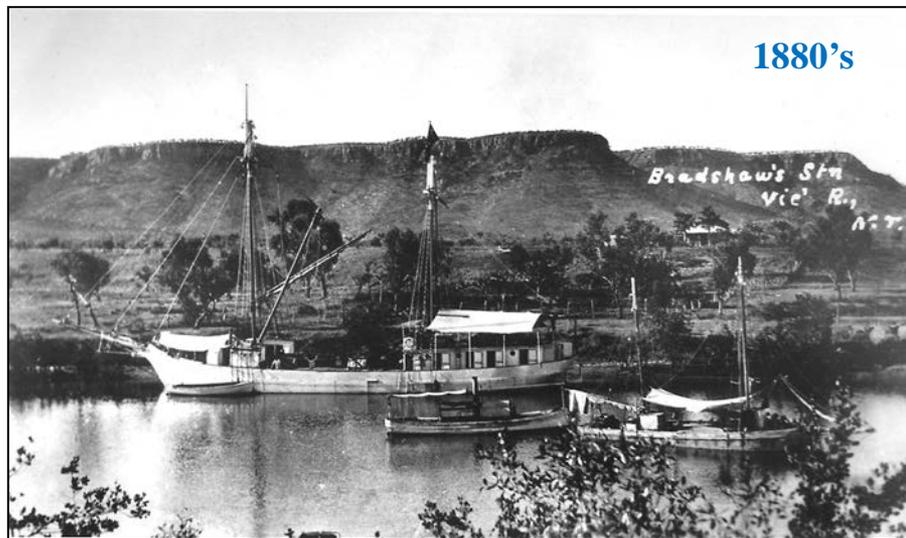
- **Manage species composition**
 - Reducing annual sorghum
 - Reduce wire grass in black soil pasture?
 - Reduce dominance of black spear grass by avoiding hot fires?



Managing the tree-grass balance



- Evidence shows that woody vegetation increases unchecked when fire is removed



Notice how the trees on the banks of the river have become much more dense

Why are trees a problem?

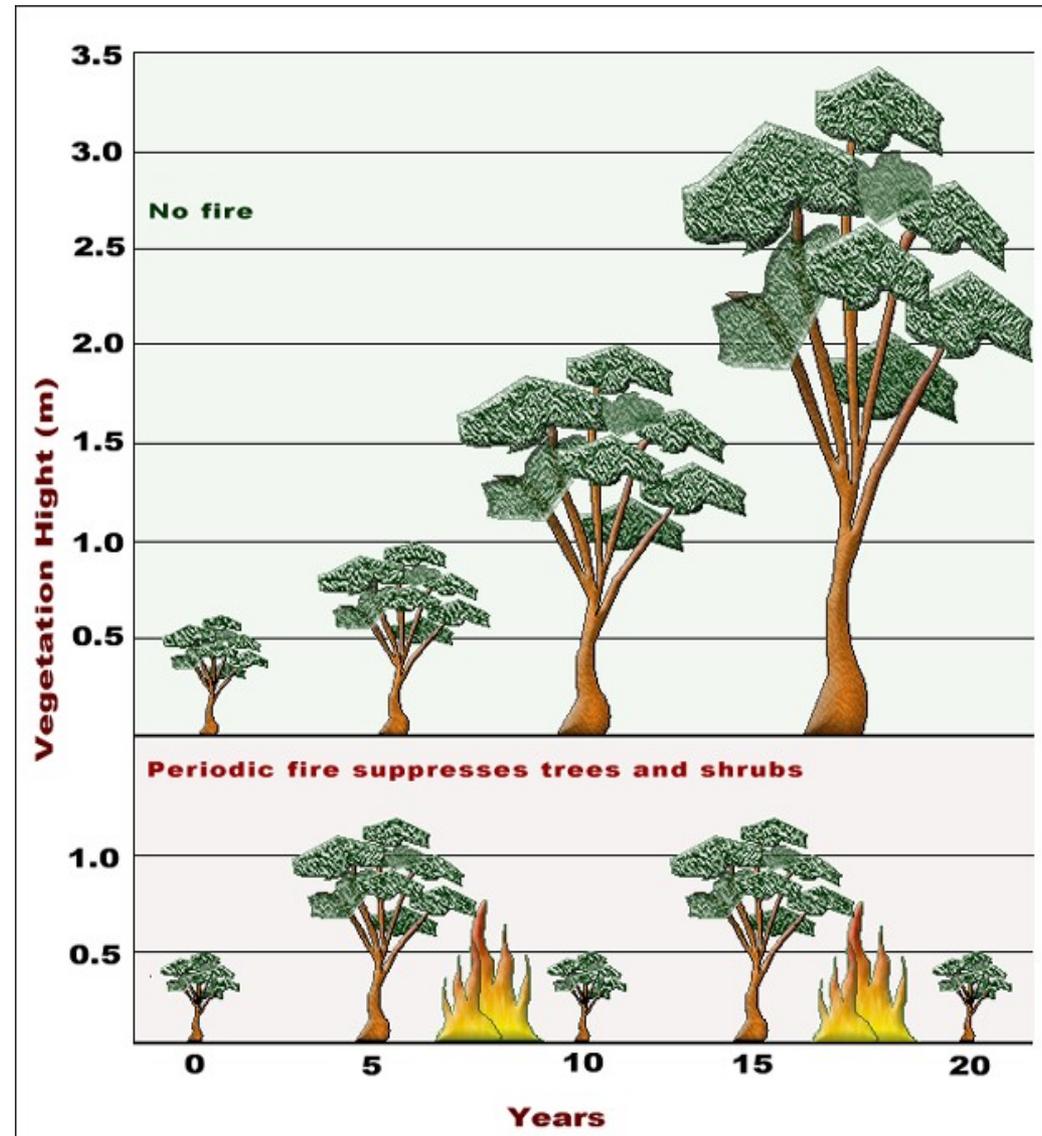


- Can compete with grasses for water and/or nutrients
- Decreases pasture growth and carrying capacity
- Can increase the difficulty and cost of mustering
- Reduces fuel loads and burning opportunities
- Leads to high costs for future control
- Results in a loss of habitat for some native species

Managing trees

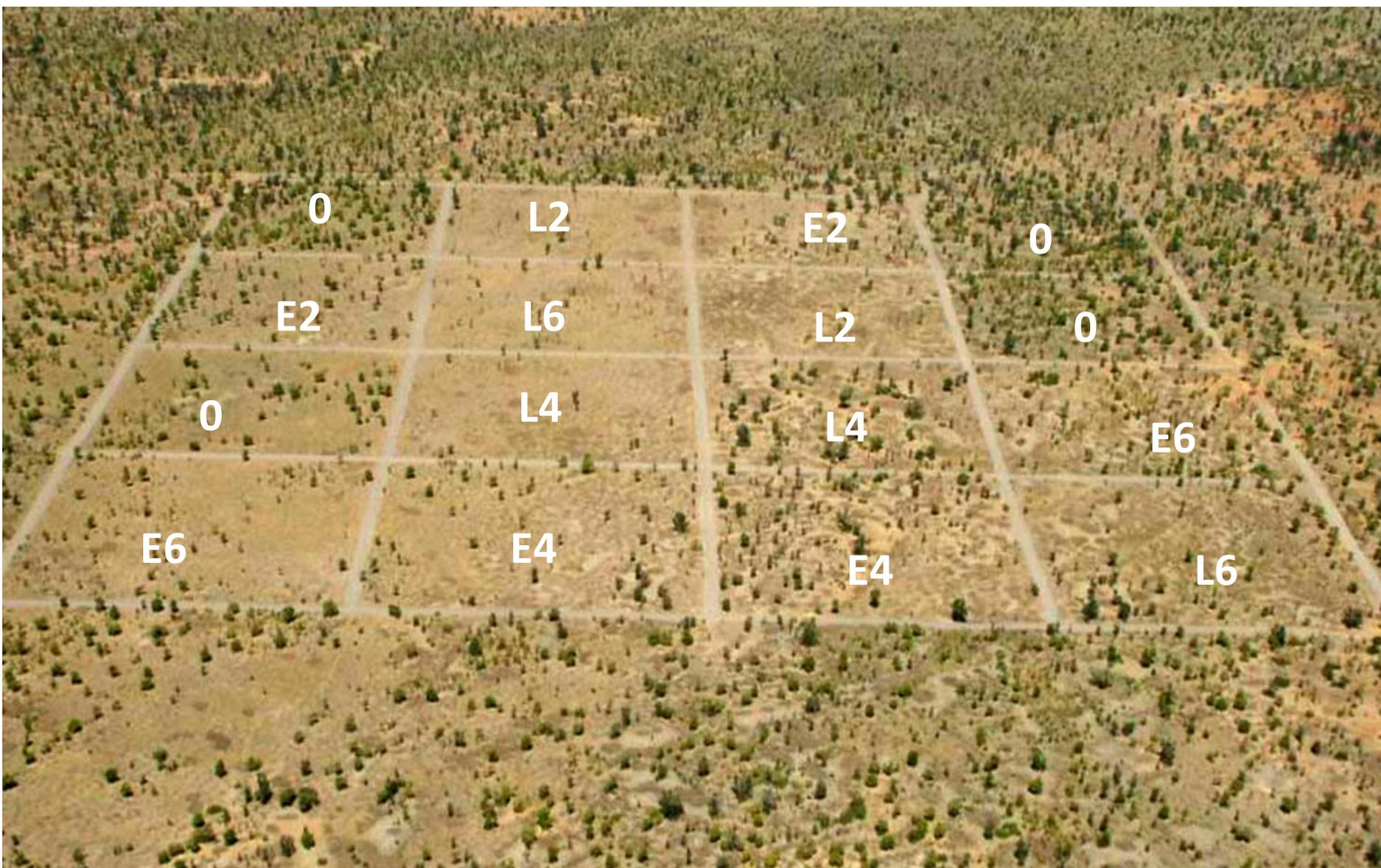
How often to burn?

- regrowth rate
- rainfall
- fuel accumulation
- age to maturity





Managing the tree-grass balance





Preventing and fighting wild fire



- Previously burnt areas are great fire breaks
- Other useful breaks include graded breaks, roads, creeks and rocky ridges



Prescribed burning

- Prescribed burning is the deliberate ignition of vegetation and the subsequent control of fire spread, to achieve a desired management objective.



Controlling weeds

- Some species of weeds are killed outright by fire, making it a cost-effective control measure
- Rubber vine, parkinsonia and bellyache bush are exotic weeds killed by fire



Maintaining biodiversity

- Mosaic burning throughout the year allows different habitats to be maintained for biodiversity



Fire and biodiversity



- Increased fire frequency is impacting on spinifex seeding, leading to a reduction in suitable habitat for the Gouldian finch



Fire and biodiversity

- Reduced fire frequency is leading to an invasion of open grasslands by paperbarks which threatens the survival of the golden shouldered parrot in north Queensland



Maintaining biodiversity

- Example of keystone species – burrowing bettong
 - Created distinct nutrient rich patches
 - Decline in numbers led to shrub encroachment in semi-arid rangelands



When is the best time to burn?



Management Objective	Fire Intensity	Season of Burn
Change woody vegetation structure, control exotic weeds	High – Very High	Late dry season
Maintain woody vegetation structure	Moderate	Early wet season
Hazard reduction – reducing the risk of wild fires	Low - Moderate	Early dry season
Remove old, rank pasture, modify grazing distribution	Low - Moderate	Early wet season

What we need to consider

- Weather – temperature and humidity
- Wind speed and direction
- Curing (greenness) of fuel
- Safety – good fire breaks
- Equipment – grader, water cart etc
- Permit
- Method – ground or air
- **Post fire grazing management**





What happens if we don't burn?



- Pasture becomes rank and unpalatable
- Pasture seedling establishment is reduced
- Nutrients remain tied up in old leaves and roots
- Increased fuel loads can lead to hotter, more intense fires





What about when it goes wrong?

- Some wattles germinate after fire
- Planned fires may suddenly become unplanned wild fires
- Bare ground may lead to erosion after storms
- Some fragile areas are damaged by fire
- **Cattle may overgraze burnt areas**



The 5 roles of fire

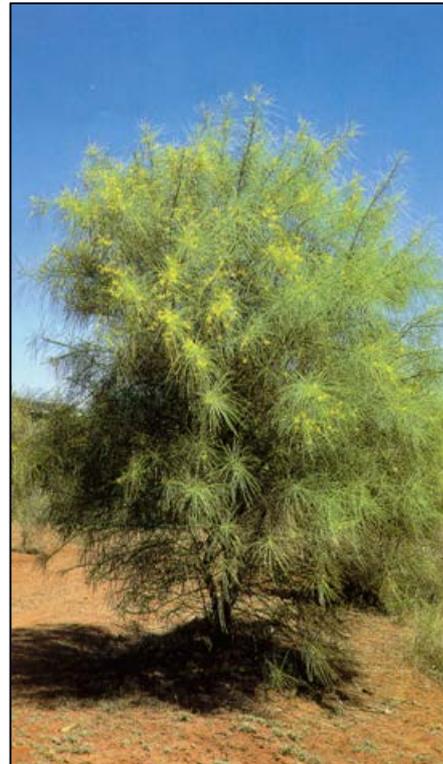


Managing pastures

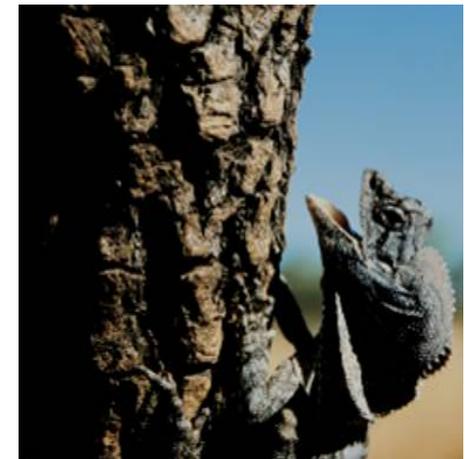


Tree-grass balance

Preventing
wild fire



Controlling weeds



Maintaining
biodiversity