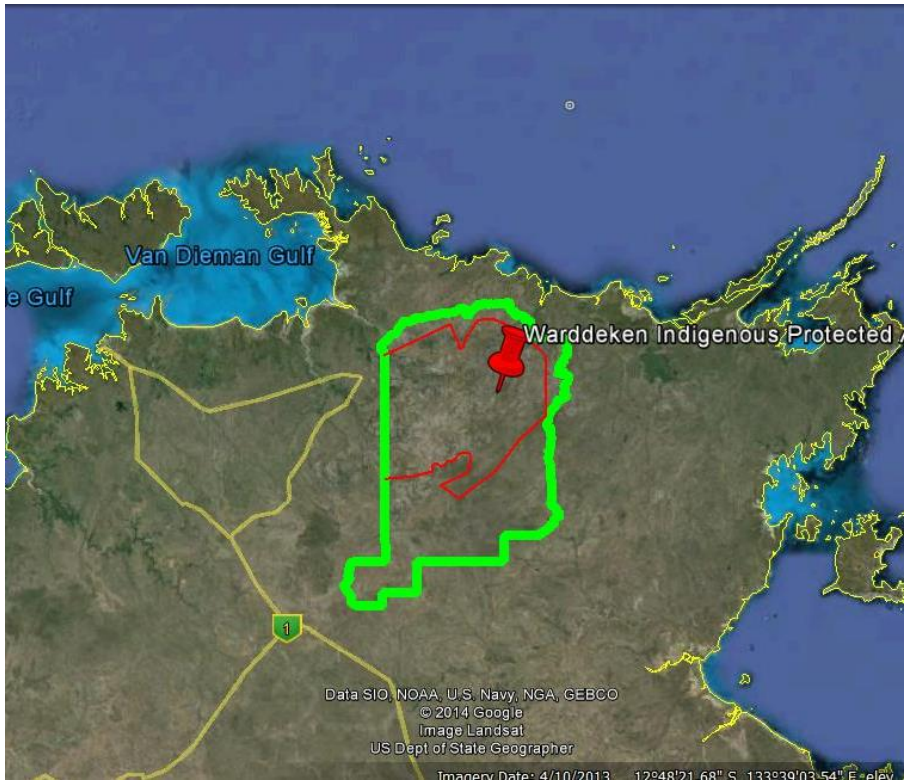
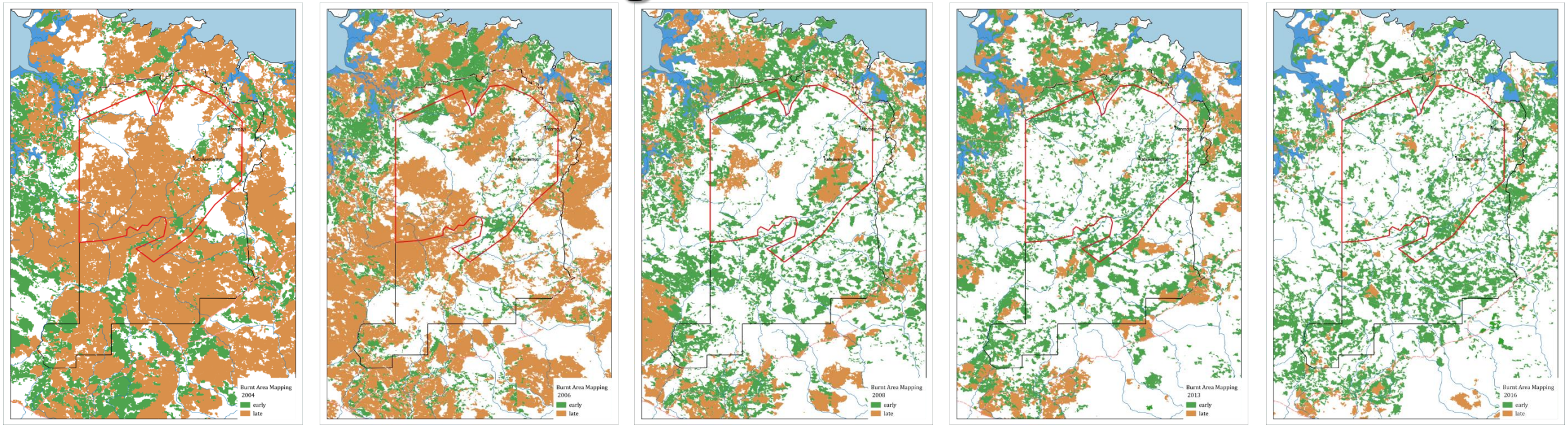
Best Practice

Background

Project	WALFA (Warddeken IPA)
Project Area	28,000km2 (WIPA = 14,000km2)
Project Start Date	2006
Presenter	Shaun Ansell
Job Description	CEO
Organisation	Warddeken Land Management Ltd
Number of Groups/People involved in fire management	5 ranger groups for WALFA 38 Estates for WIPA = 360+ Members EDS = 71 people LDS = 29 people
Costs	Fire management = $550,000 salaries = $290,000 operational = $260,000



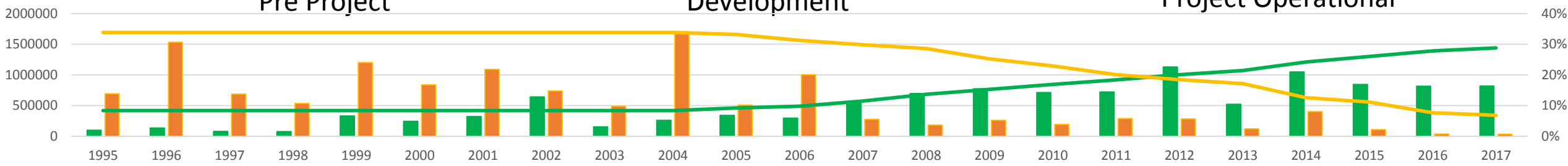
Past & Present Fire Regimes



Pre Project

Development

Project Operational

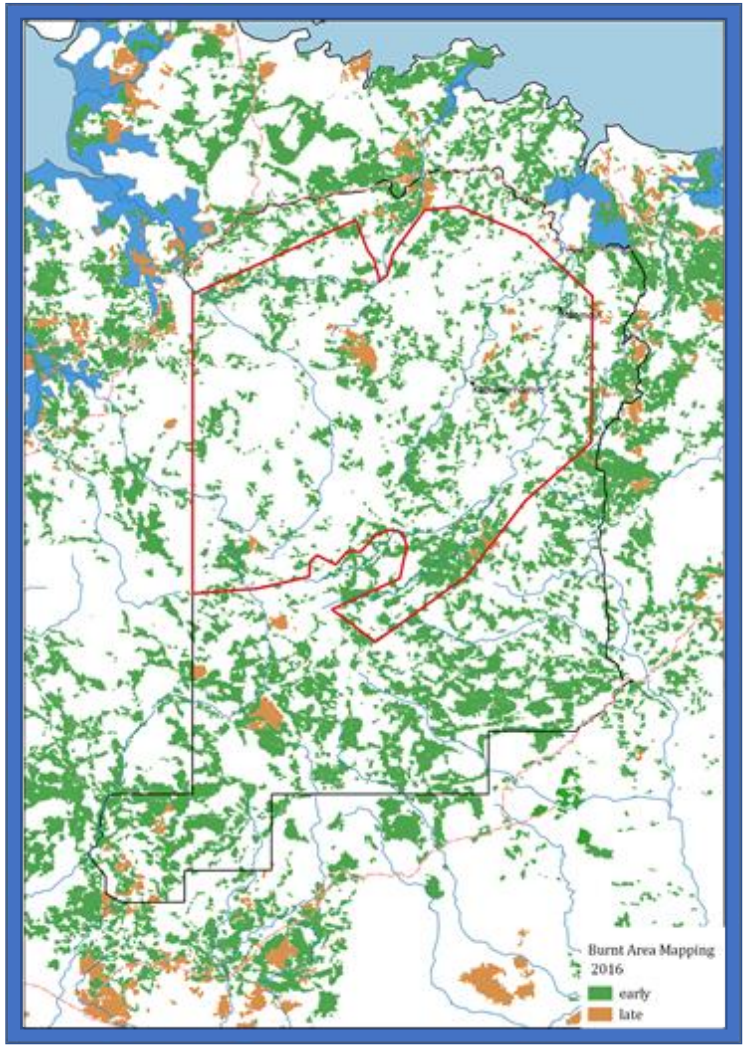


Challenges

- Larger fuel loads than pre-project
- Maintaining a good regional culture of fire management
- Getting hung up on carbon
- Measuring impact

Solutions

- Concentrate on using fire as a management tool
- Traditional Owners must lead the projects
- Manage for country
- Engage both Balanda and Binninj science in monitoring



‘Best Practice’

- TO’s are consulted and involved
- Permission is explicit
- Fires are small, low intensity
- Fire is controlled – not out of control
- Country is healthy

Monitored by:

- Regular consultation and feedback
- Assessment of each season
- *Mayh* project

We can improve by:

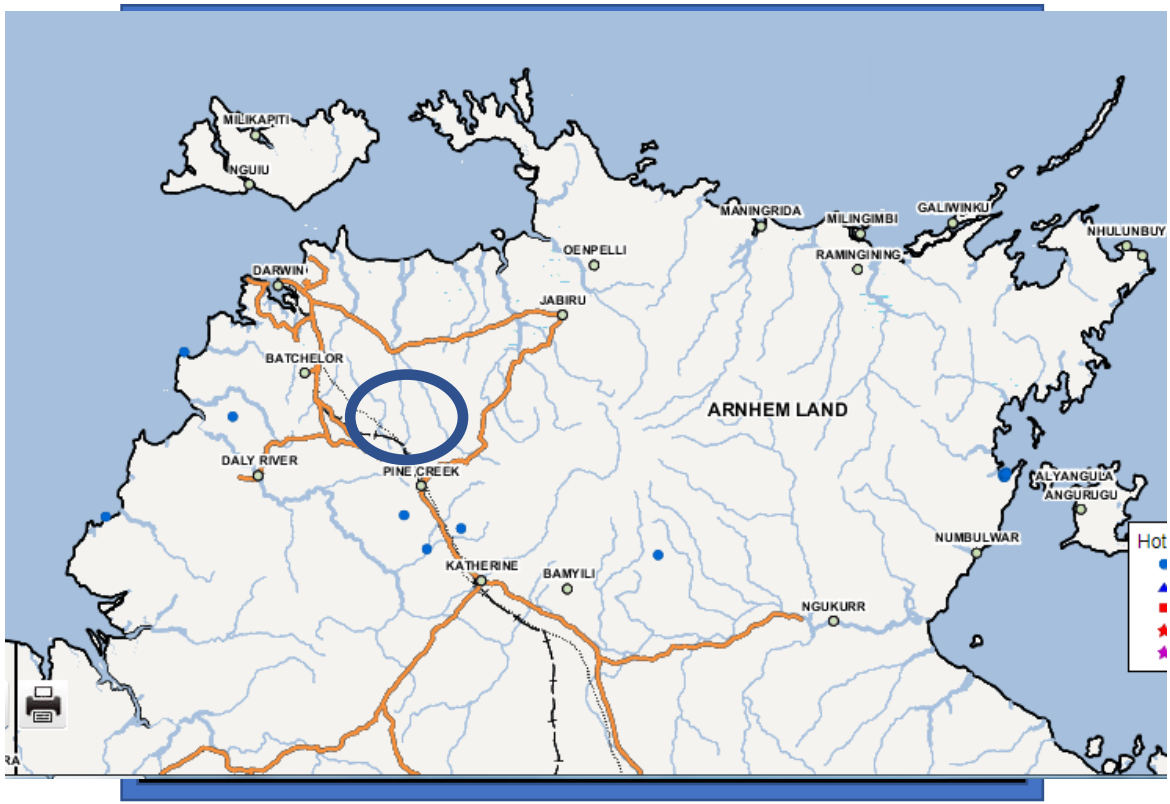
- Better measurements of the outcomes – rather than the inputs

Future needs

- 1. More rangers
- 2. Better resourced rangers
- 3. More and better resourced ranger bases

Background

Project	BanBan Springs
Project Area	3,000 km^2
Project Start Date	2013
Presenter	Ben Lewis
Job Description	Project developer/ manager
Organisation	Firestick & Associates
Number of Groups/People involved in fire management	2 Pastoral leases 1 part time staff (.2 FTE) 100s of volunteer fire managers
Costs	salaries = $25k chopper $15k operations = $20k



Past & Present Fire Regimes

- What was the fire regime/management like beforehand?

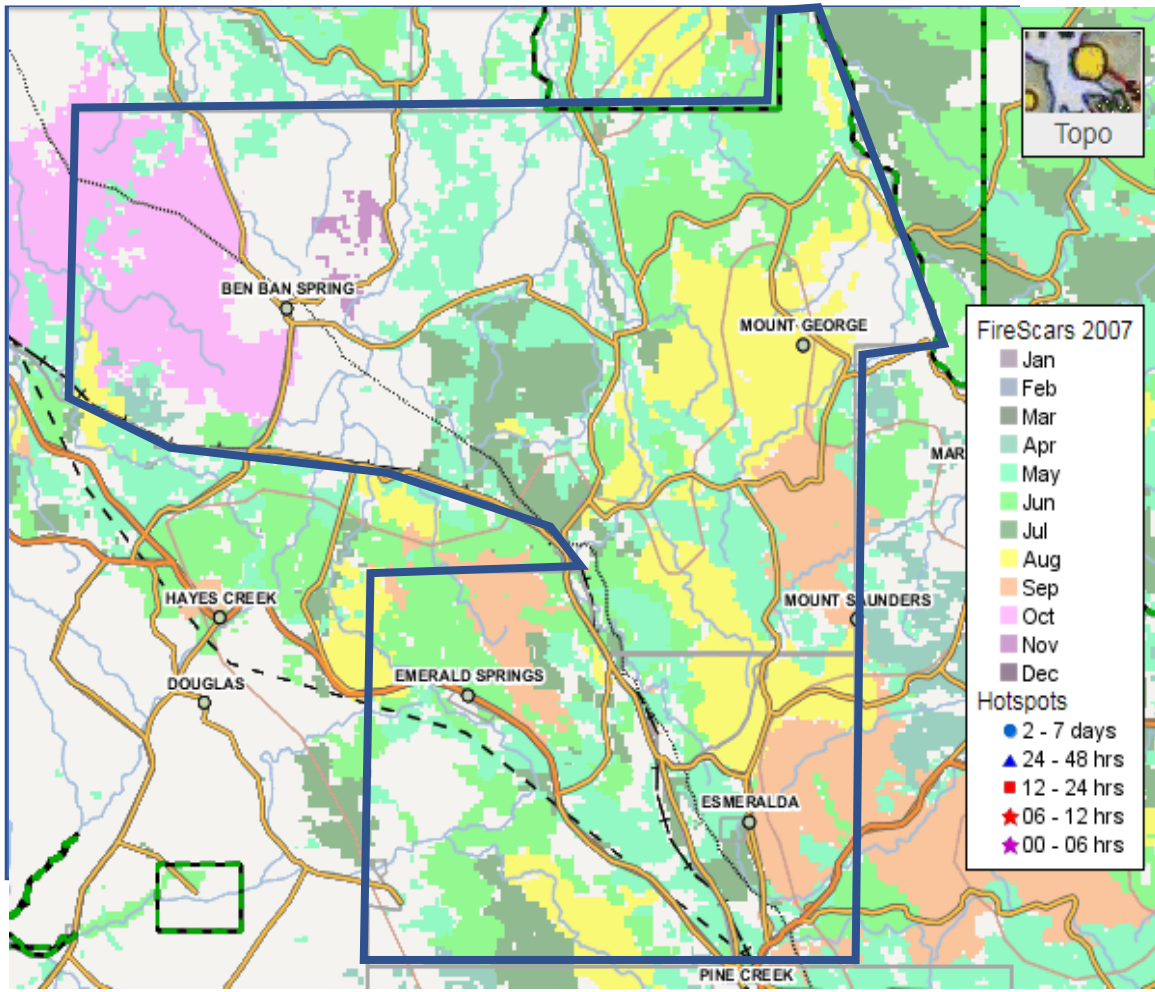
Extensive early dry season burning (50%) with late dry season fires up to 30%. Variable year to year. many interests with fire management intentions. APB on boundaries, Limited intensive grazing

- What is the fire regime and the fire management like now?

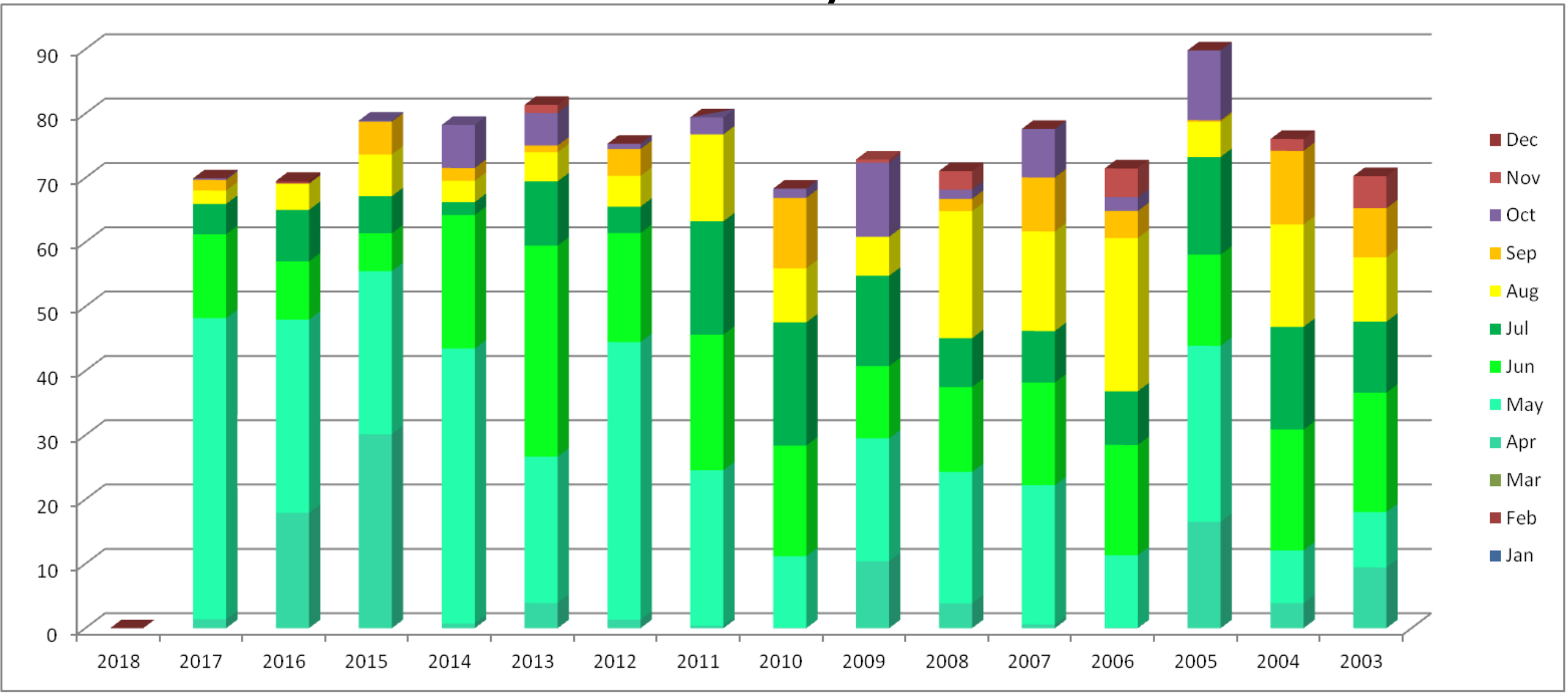
Overall area burnt is similar, proportion of EDS increase (65%), fire size decreased, stable year to year.

Reduce unplanned fire in main pastoral areas

Reduction in fires effecting neighbours



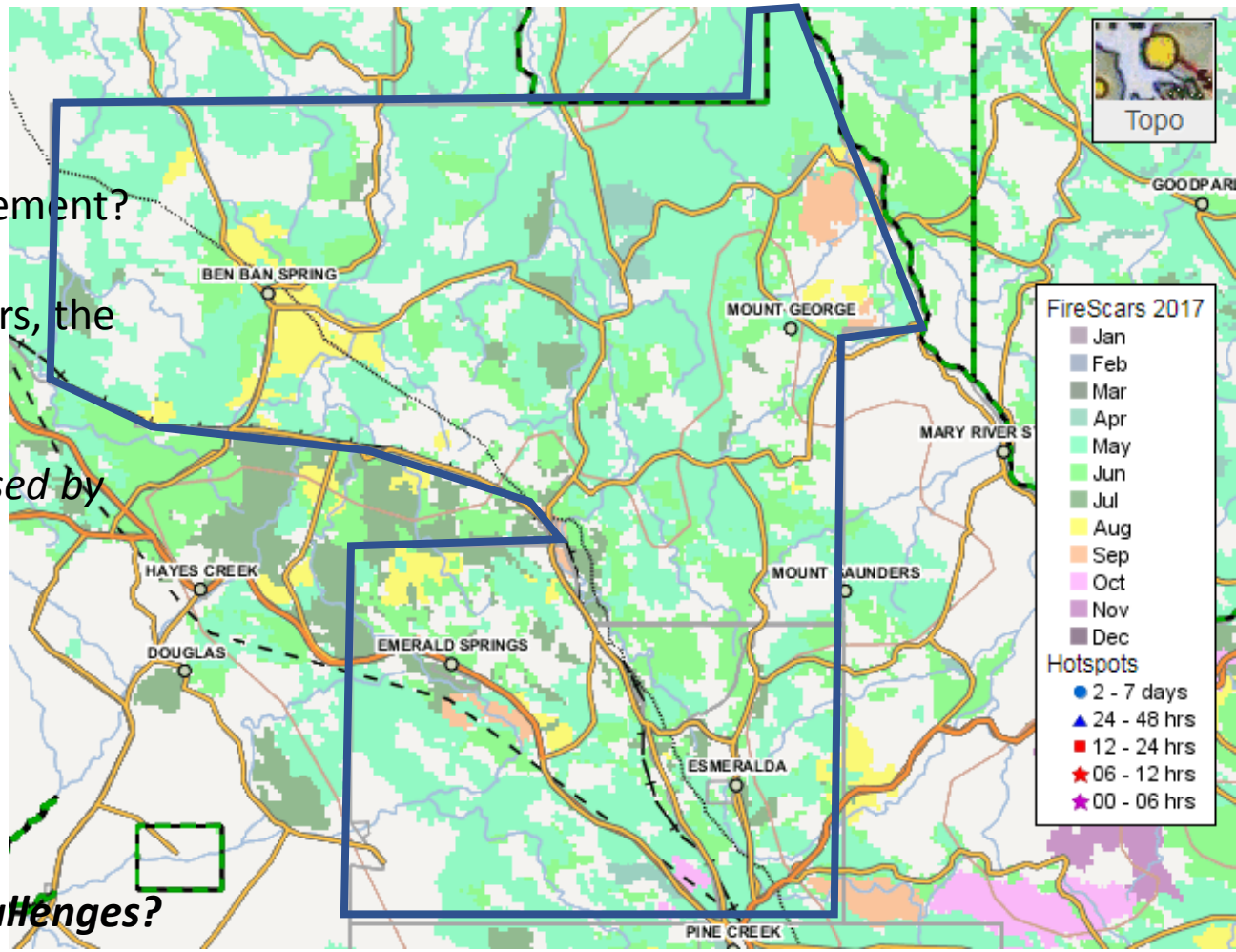
% burnt by month



Challenges

-What are the 3 most important challenges to your fire management?

1. Myriad other land interests, Pastoral, pet-meating, mining, exploration , fossicking, Indigenous, government, neighbours, the public, corridors. All lighting fire.
2. Highly fire prone landscape
3. Big country , small effort. (*carbon credit $ only, not subsidised by pastoral, or government $)*



- How do you currently deal with these 3 challenges?

1. *"*No enemy" policy,
2. low risk landscape,
3. lean operation.

- ***In an ideal situation, how would you deal with these 3 challenges?***

More time to broker partnerships. Recognition broader benifits

- *What things contribute to good fire management outcomes*

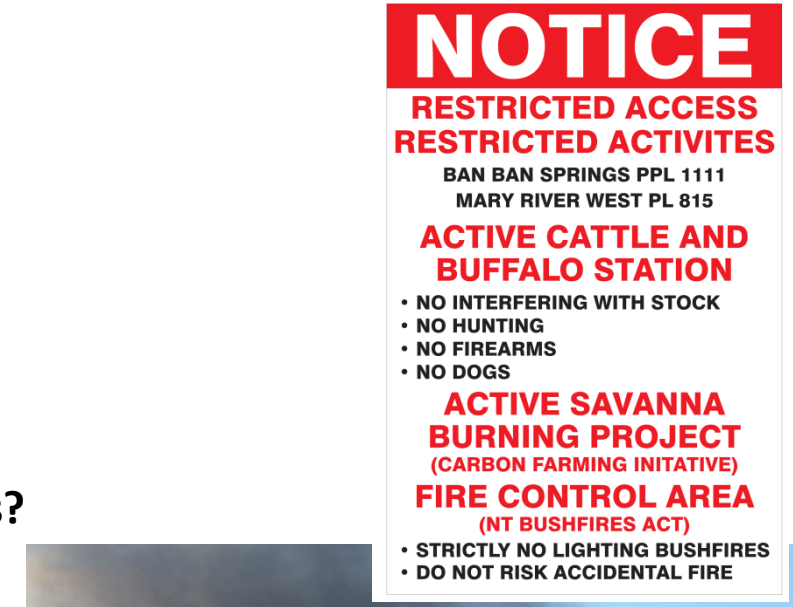
Savanna Fire and Carbon Forum

‘Best Practice’

-**Define ‘Best Practice’ in terms of your fire management?**
-Enable the coexistence of potentially conflicting land uses
-Continuity of land management
-Active/ deliberate fire management

- How do you currently measure/monitor your practices and outcomes?
-Sustainable fire carbon project
-Compatibility with pastoral activities

- What do you think would be a better way to assess your practices and outcomes?



Future needs

- Tell us the 3 main things that could be improved to improve fire management.

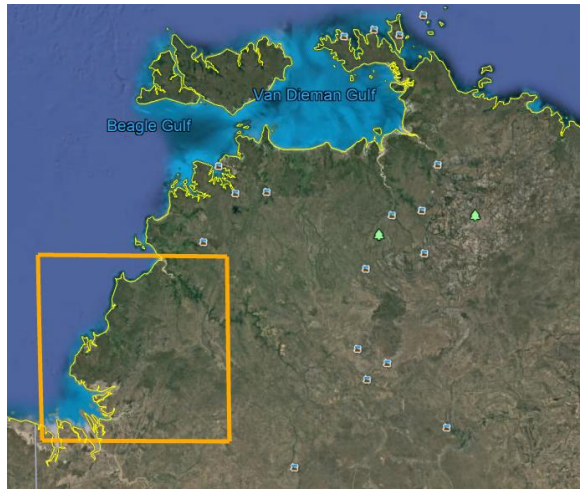
1. More engagement with other land interests towards shared responsibility.

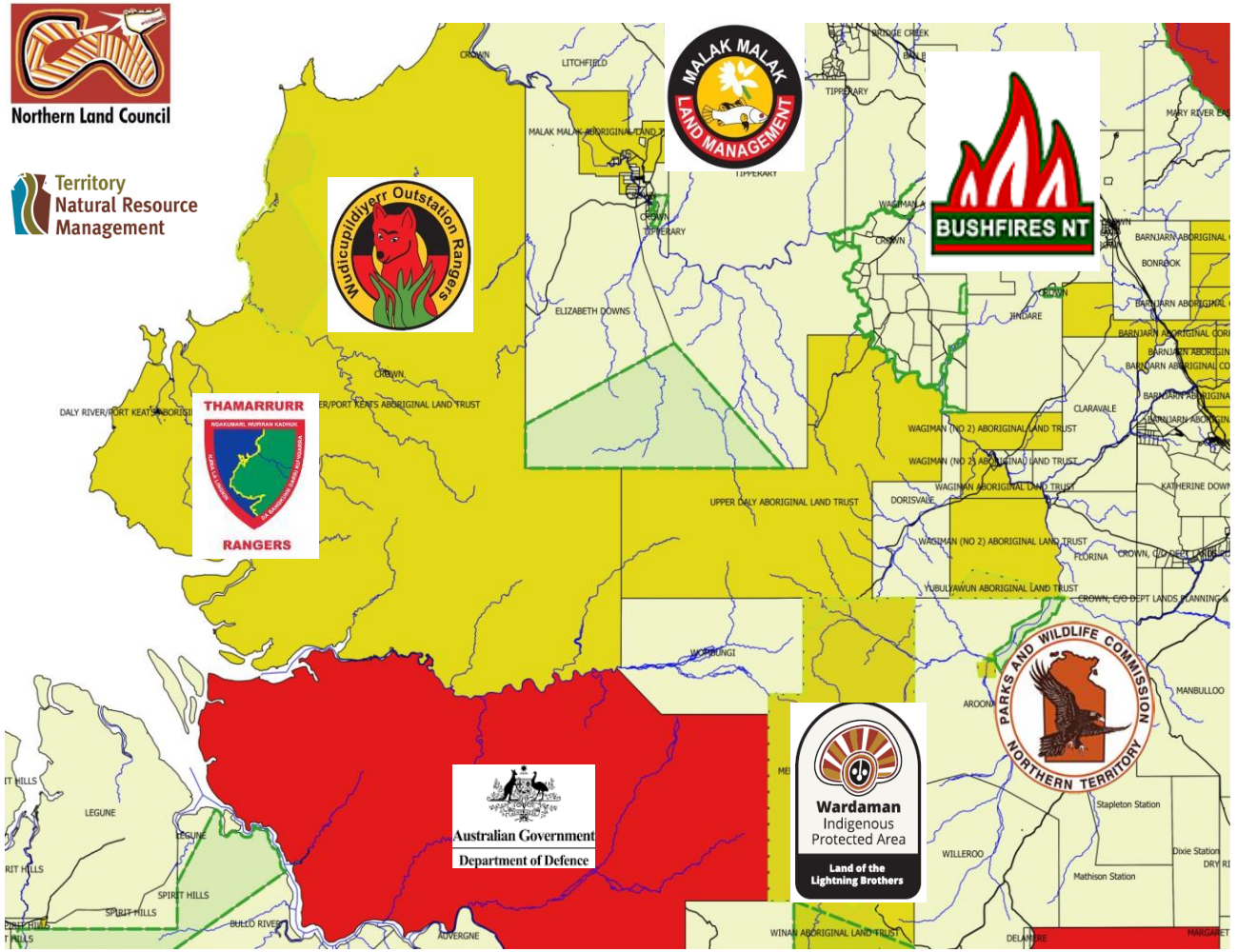
2. Gamba Grass management. long-term, strategic, multiple stakeholders.

3. Leadership on carbon rights, pastoral and native title and other interests

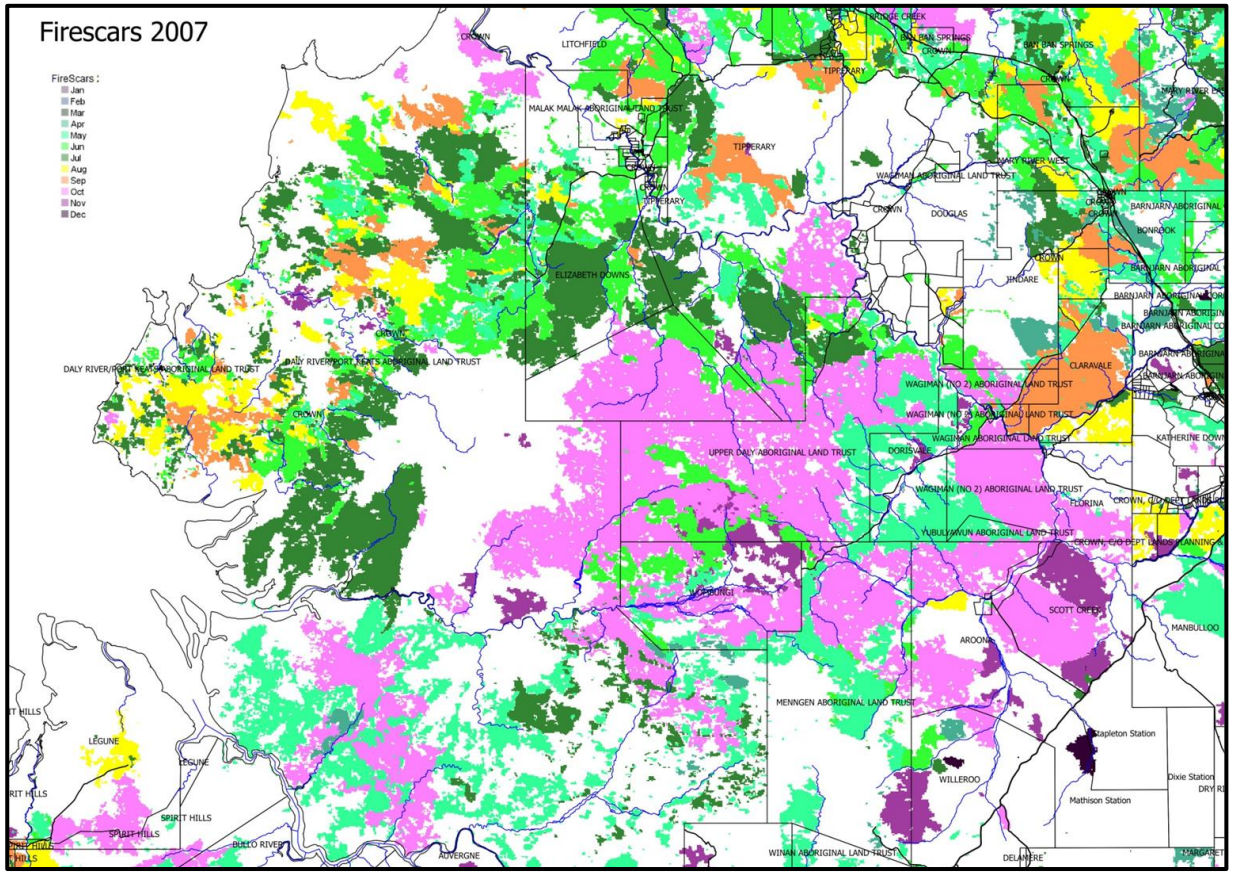
Background

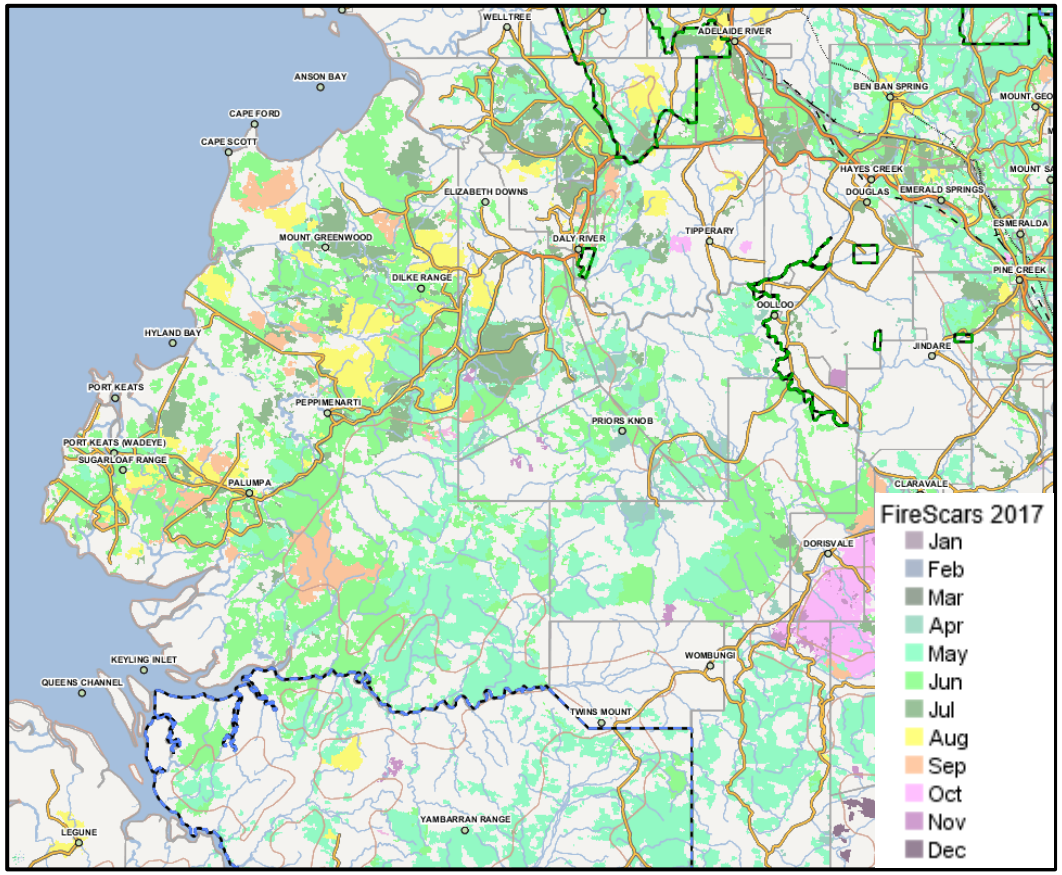
Project	Western top end region
Project Area	> 25,000 km^2
Project Start Date	Feb 2013
Presenters	Uriah Crocombe, Cariss Jones
Job Description	Thamarrurr Rangers





Past & Present Fire Regimes





Challenges

Countrymen don't understand why people are telling them to burn early.
Countrymen know when to burn their country **for reasons** like camping, hunting, bush tucker, totems and access.

History of poor engagement

People come and go with big ideas and promises of money
and not explaining properly to the people.
See them once and never see them again.
Causing lot of problems and confusion in the community.
People are sick of this.

Common ground

Countrymen know big hot fires are bad for country.
Smaller fires are good for country and good for carbon.
Should talk more about best ways of *burning for country* not just *early burning*.
Need to build a bridge between traditional knowledge and new knowledge about carbon.

What works

Rangers are working to build strong foundations and long term plans.
We need more meetings and time for people to understand.

‘Best Practice’

- Local ownership of fire management
- All areas represented
- Spend the time to ensure people understand how reducing carbon fits with Indigenous knowledges, governance and practice.
- Rangers facilitate landowners taking ownership of fire management

Measure/monitor practices and outcomes

- More people attending meetings and actively participating
- NAFI fire maps
- Continuity of programs

What do you think would be a better way to assess your practices and outcomes?

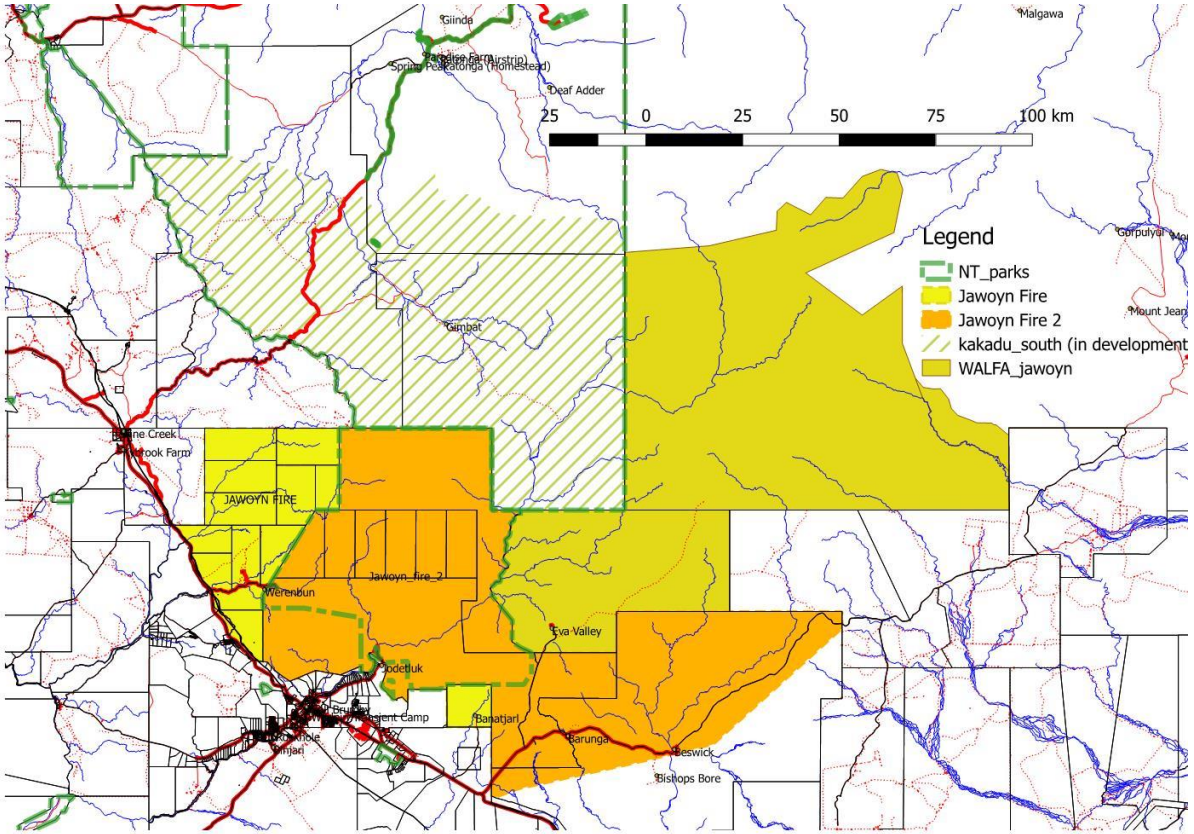
- What are Indigenous perspectives of success

Future needs

- Fire management guided by traditional practice
- Long term stability of staff, programs and funding across region to build programs
- Time and more meetings to bring new knowledges into traditional practice.

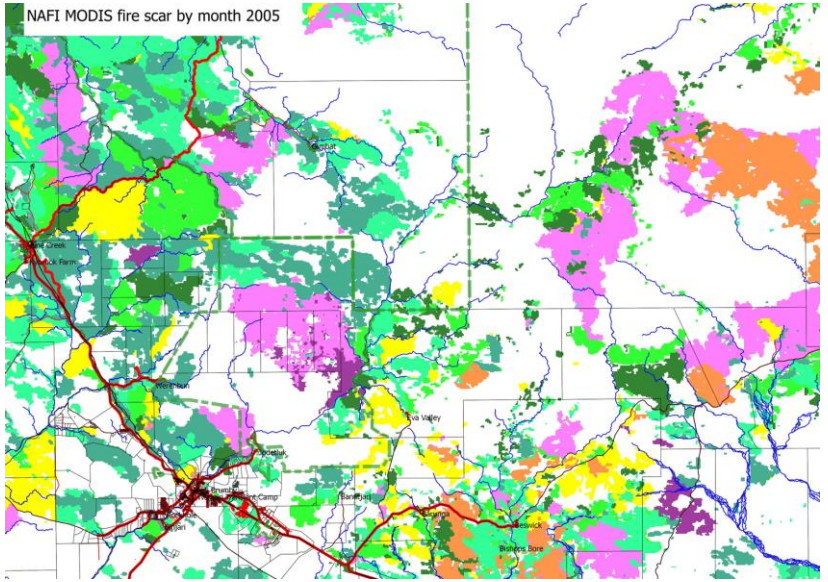
Jawoyn Fire Projects 2006-2017

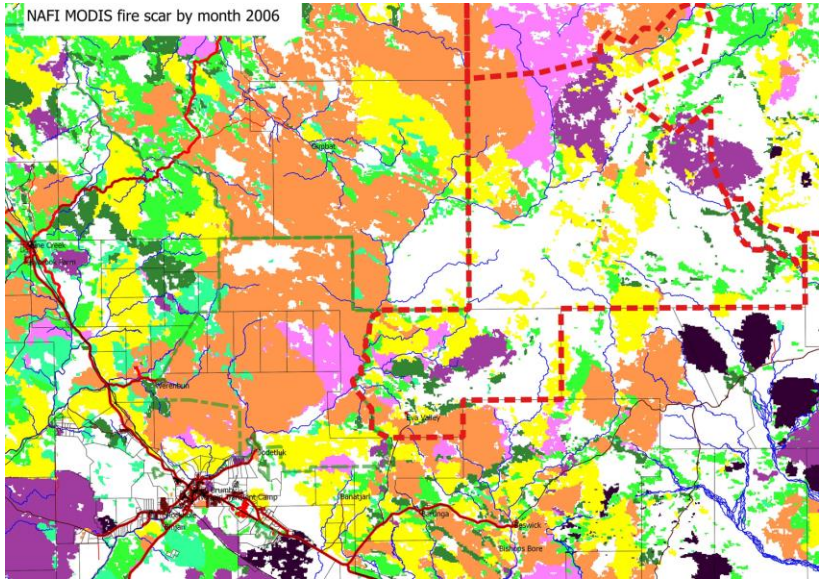
The Jawoyn rangers have been caring for country, by incorporating traditional values and culture with the latest in scientific practice, since the late 1990s.
The ranger program is a successful model to achieving our broader core values of managing country effectively, building employment and education opportunities, and protecting cultural sites of significance.
Operating out of Jawoyn headquarters in Katherine, we have 11 permanent rangers supported by a full-time coordinator. In the high season, there are more than 40 rangers working on our programs.

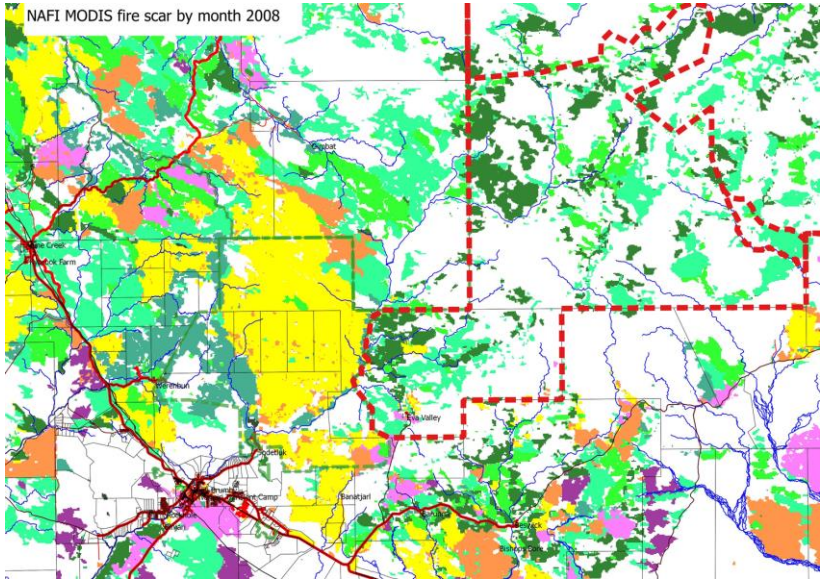


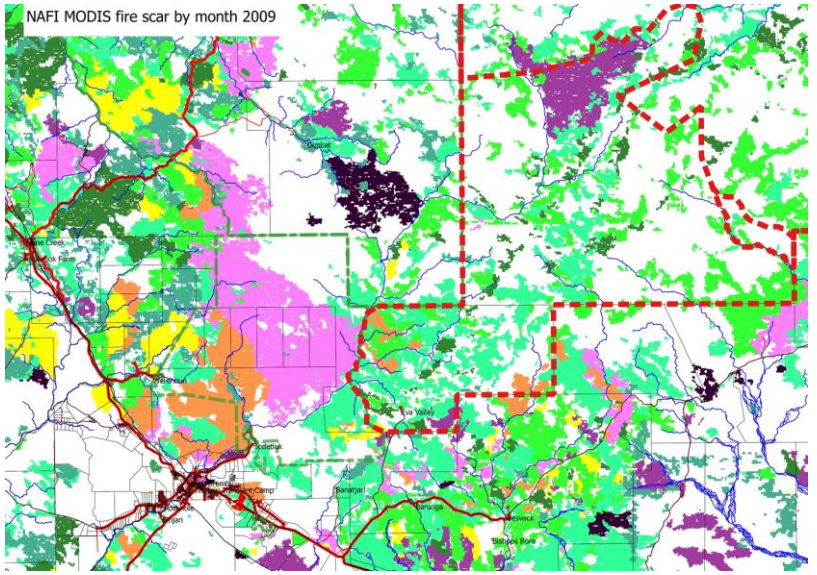
Savanna Fire and Carbon Forum

2005 to 2010 Nitmiluk National Park was affected by large late dry season wildfires in 3 out 5 years.





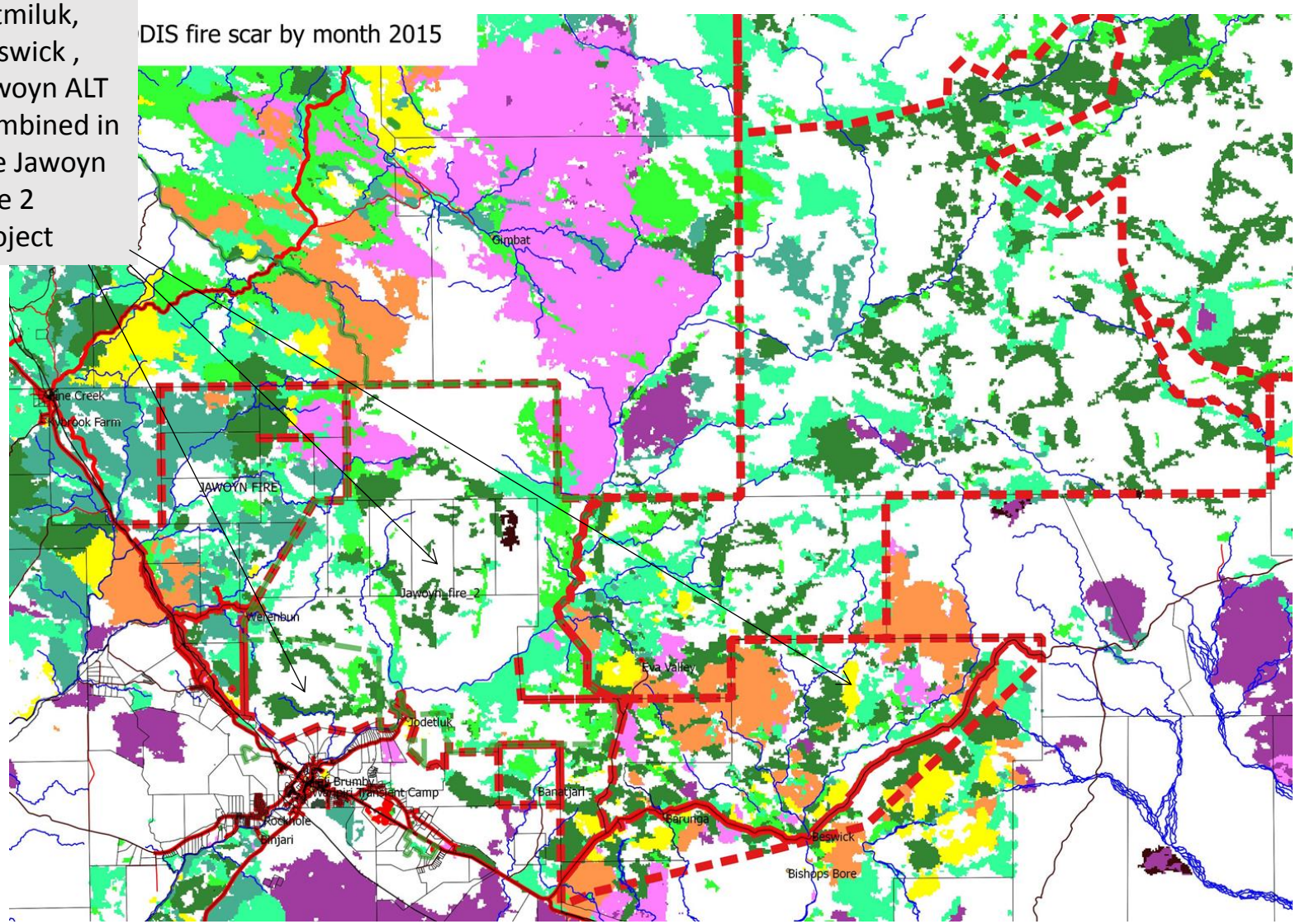




Savanna Fire and Carbon Forum

In 2015 the Jawoyn Association wrote to the NTG and Nitmiluk National park Board of Management tabling their intent to enter into joint carbon farming agreement at Nitmiluk to complement the work that they had been doing outside the park.

Nitmiluk, Beswick , Jawoyn ALT combined in the Jawoyn Fire 2 Project



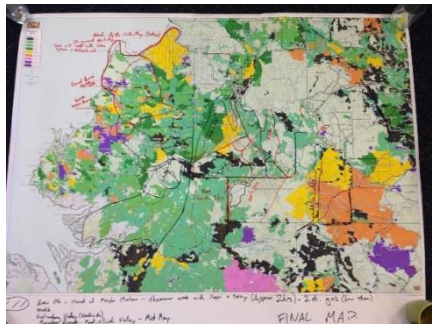
Savanna Fire and Carbon Forum

2016 the carbon farming was legally formalized where the Jawoyn Association were issued a permit to carry out Carbon Farming to earn credits under the ERF

The Fire Planning Cycle

Mid season review (June)

Planning Meeting (April)



Evaluation Meeting (November)

Planning scales

- Community consultations
- 8 communities and key individuals engaged
- External Stakeholders
- Nitmiluk and Kakadu National Parks,
- Regional Bushfires NT meeting
- ALFA Arnhem region meeting

Savanna Fire and Carbon Forum

Best practice

Participatory

Participatory tools projector, 3D model, paper maps.

Our GIS platforms

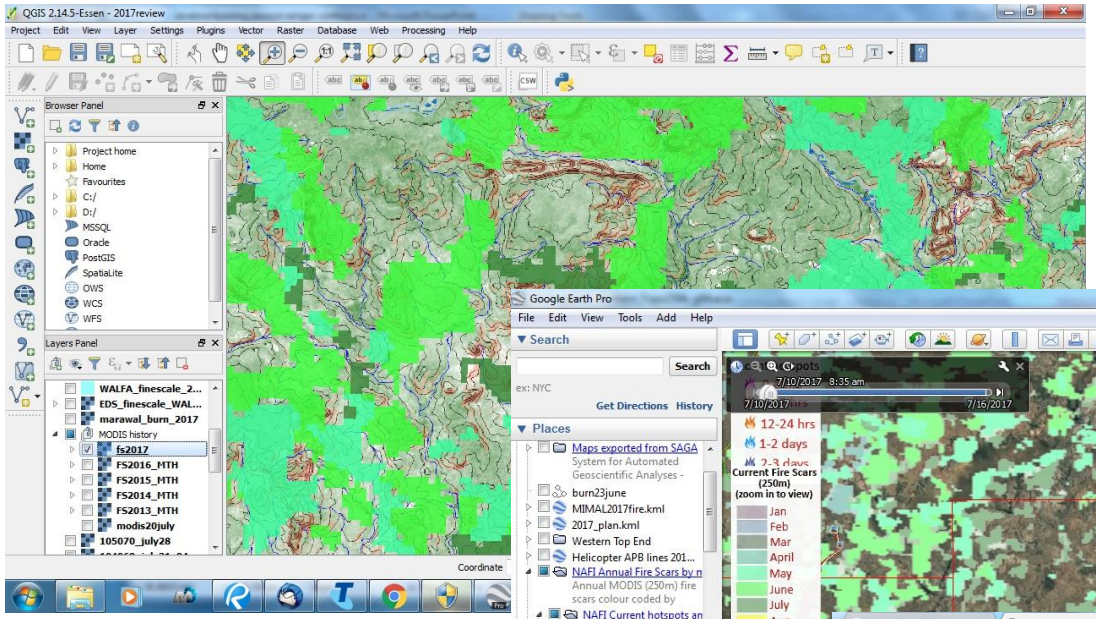
Google earth

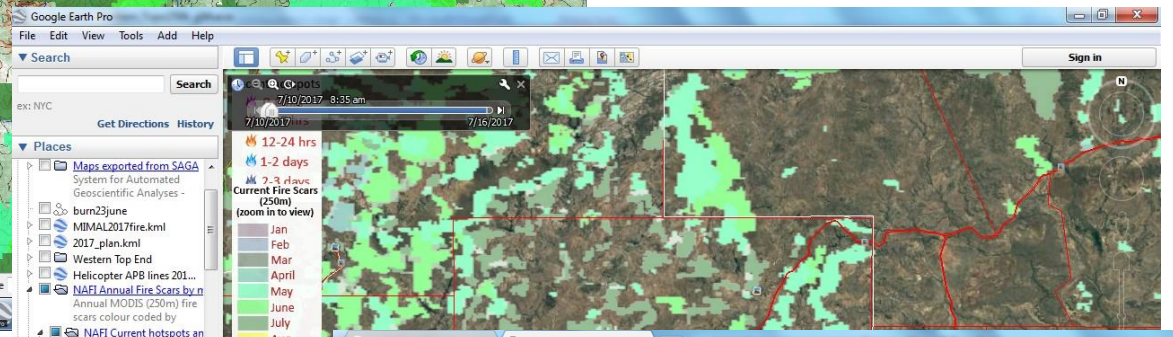
NAFI online

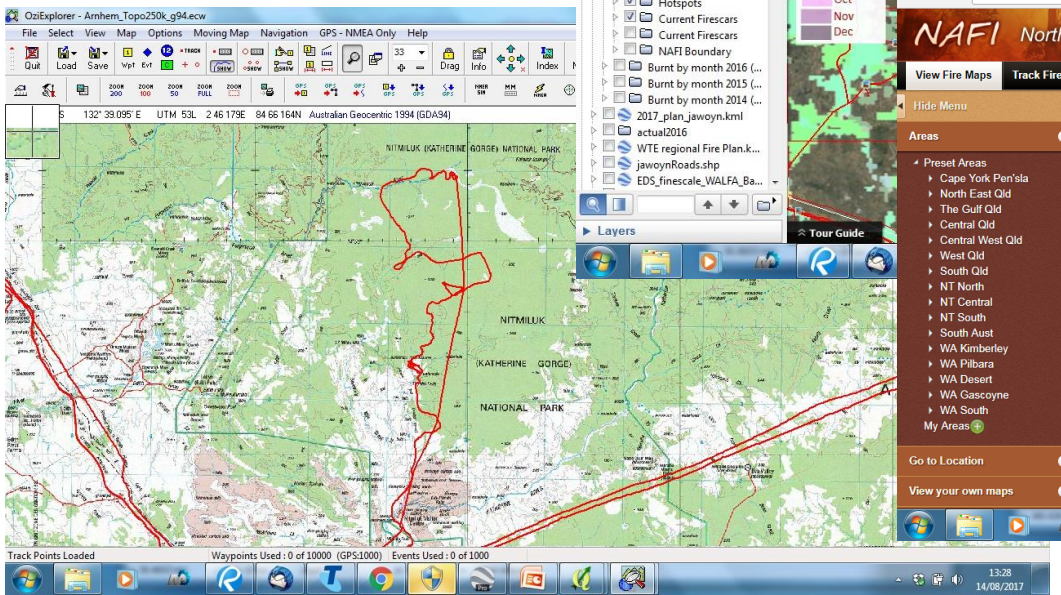
oziexplorer

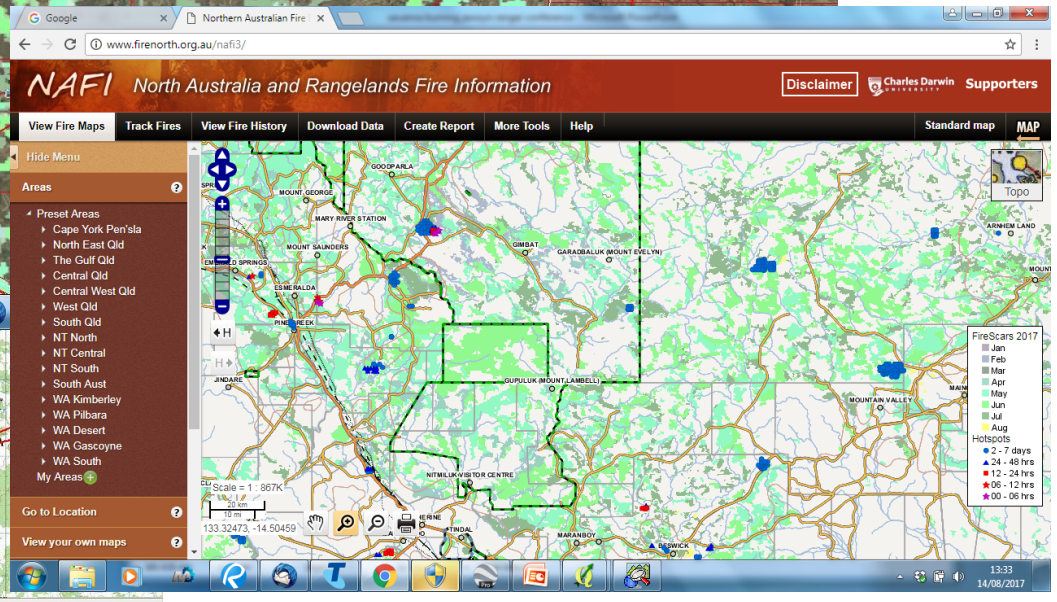
cultural Database

Qgis







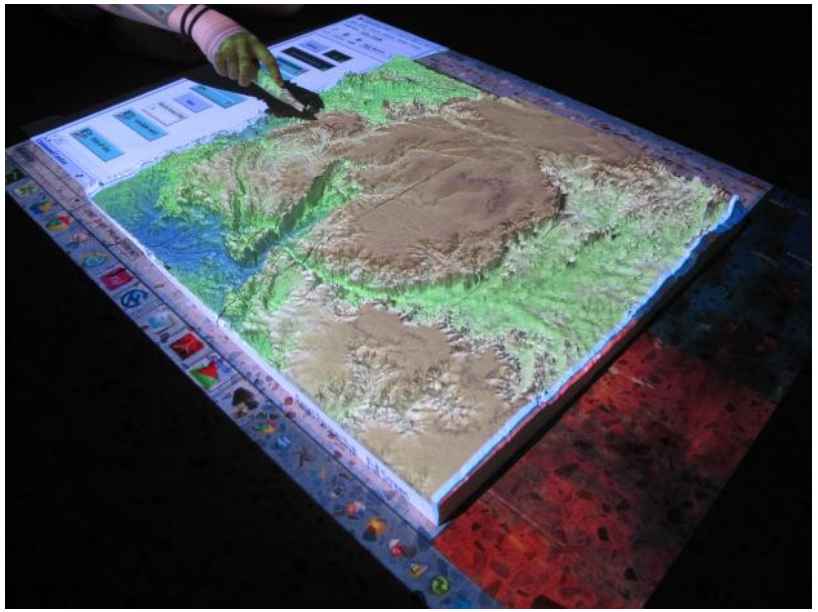


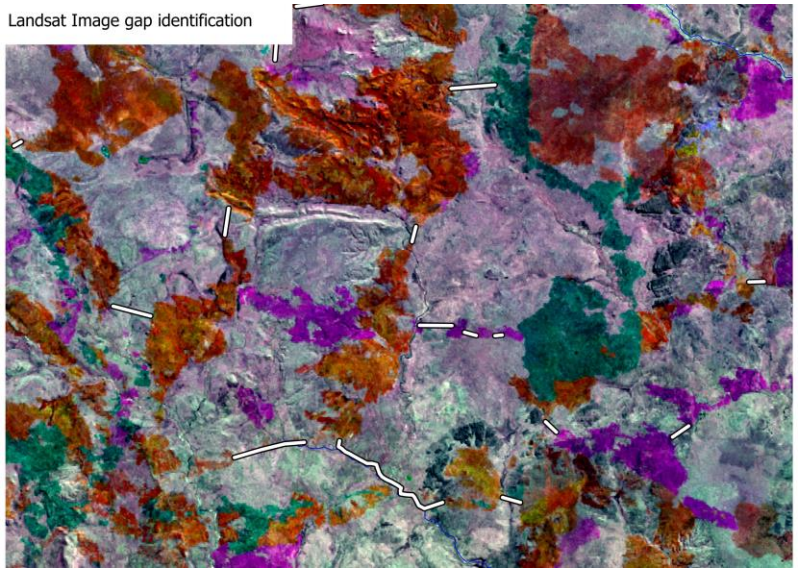
Future needs
More easy hardware

Implementation- Android tablets and Rugged PC

Planning- Projector and 3D printed surface

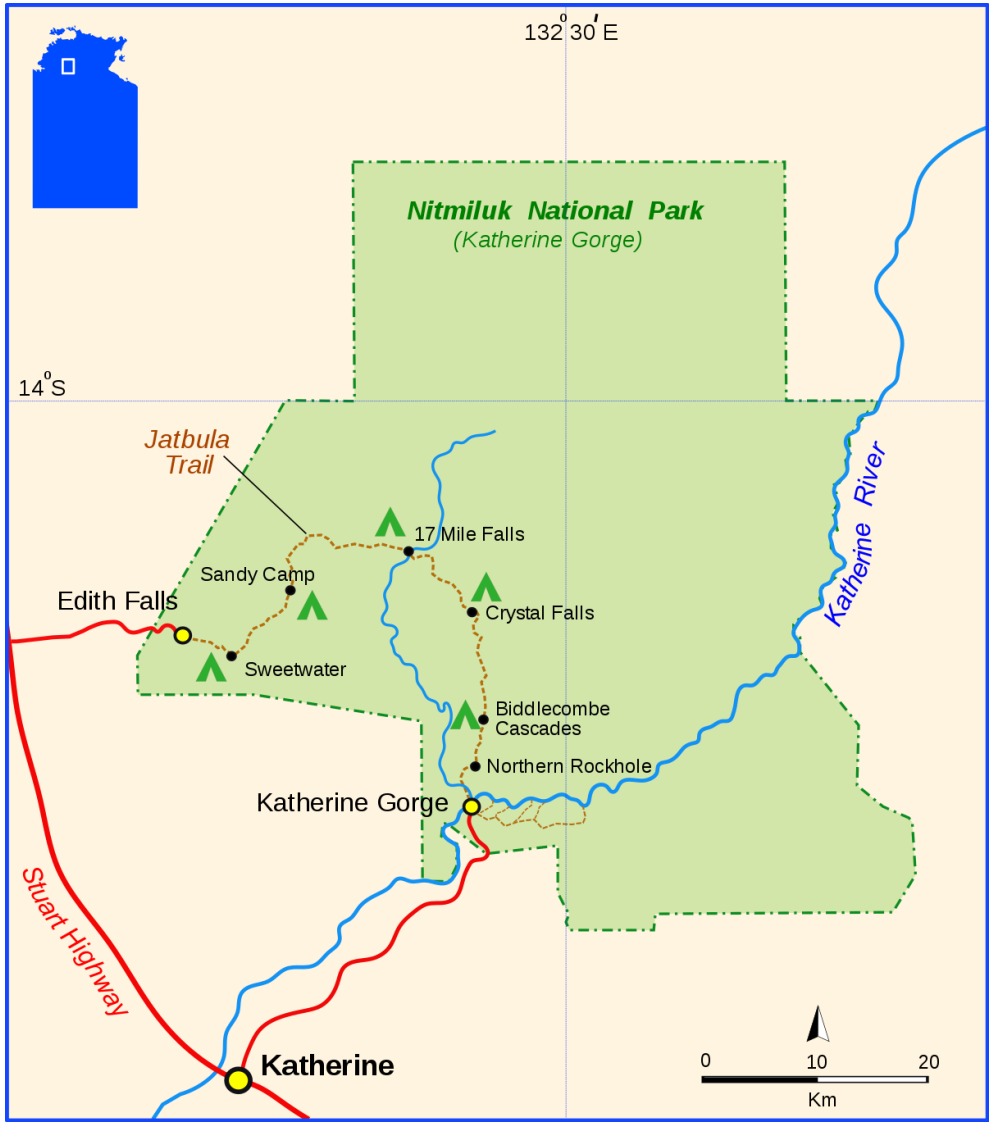
Fire fighting- Drones





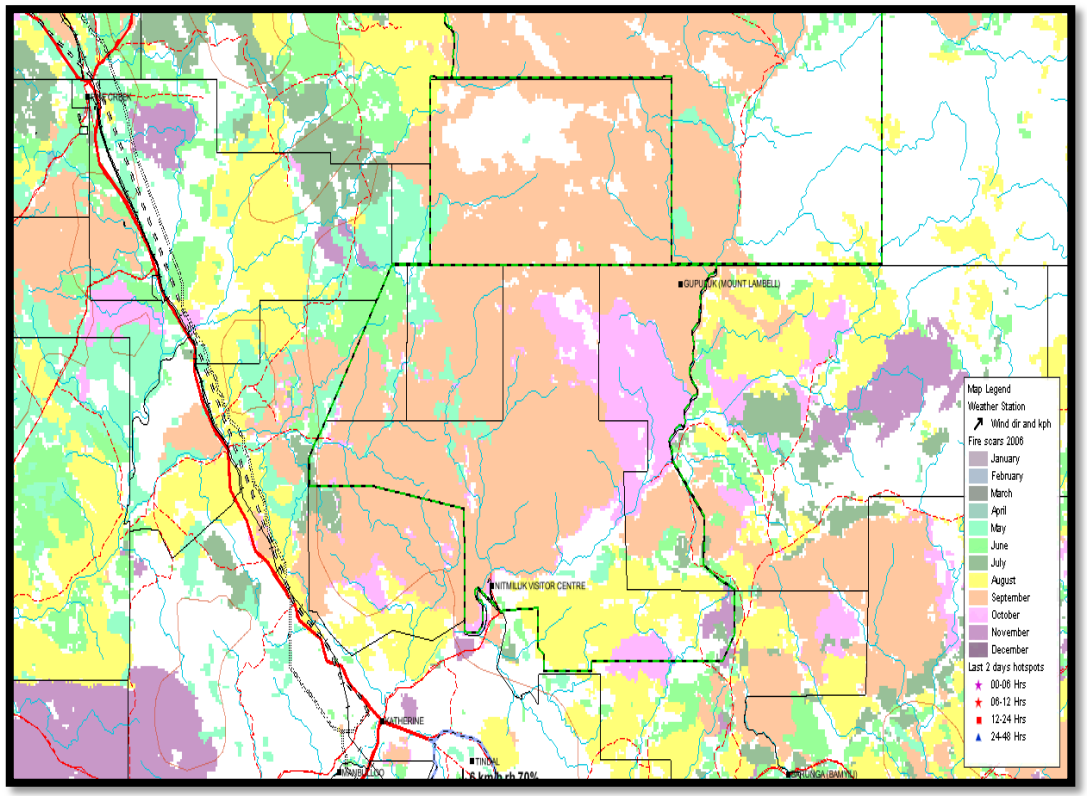
Background

Project	The Nitmiluk National Park fire project
Project Area	3000 km^2
Project Start Date	January 2017
Presenter	Aaron Ledgard
Job Description	A/Senior District Ranger
Organisation	NT Parks & Wildlife Commission
Number of Groups/People involved in fire management	2 groups NTPWS = 10 full-time staff Jawoyn Rangers = 6 staff
Costs	Fire management = $40,000.00



Past & Present Fire Regimes

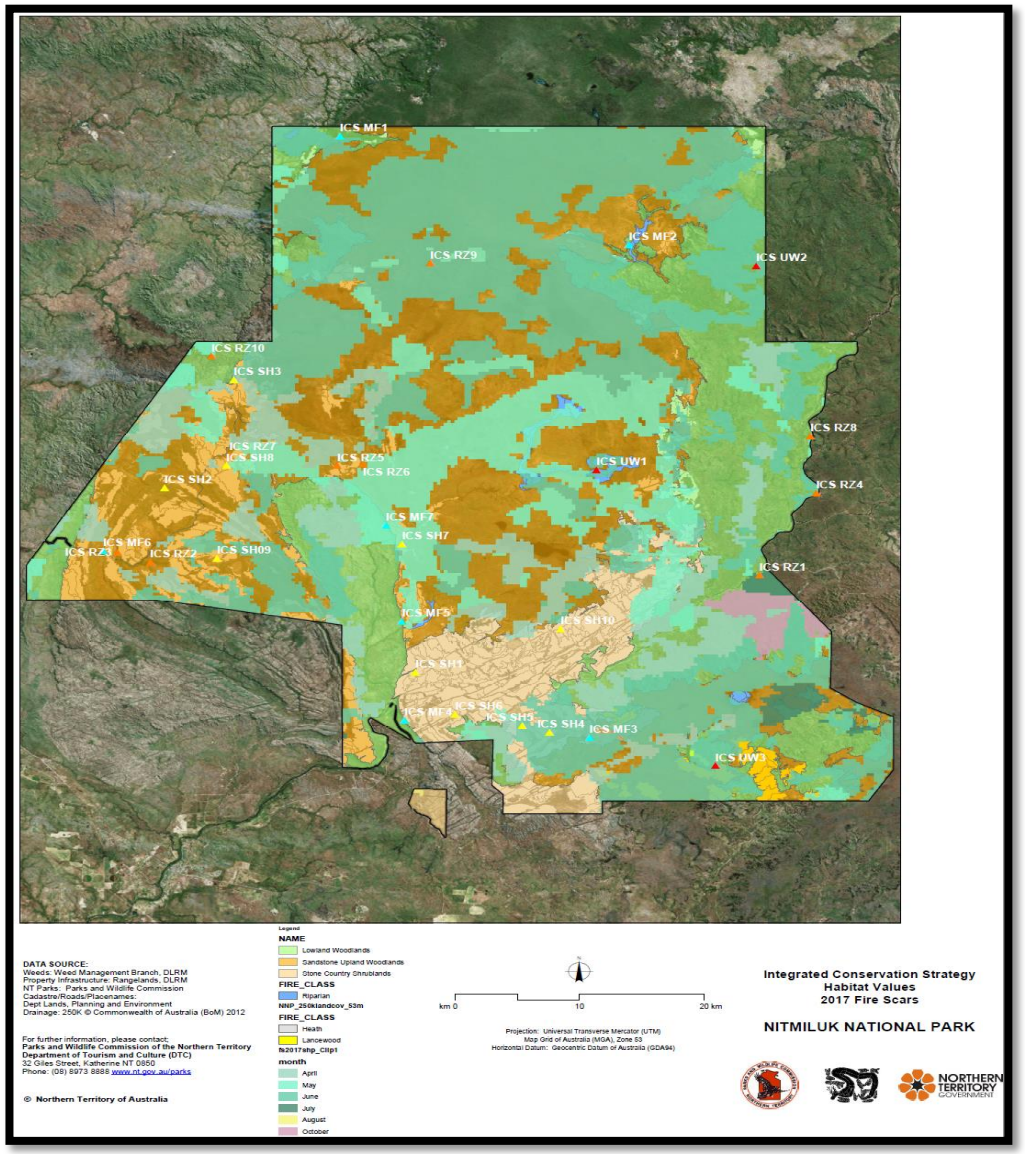
- What was the fire regime/management like beforehand?
- Poor Planning. Not recognising significance of fire in land management
- Limited fire knowledge, skill and confidence of staff to conduct appropriate burning regimes
- What is the fire regime and the fire management like now?
- Organised, detailed planning and stronger Stakeholder Engagement / Liaison /Management
- Better Corporate Knowledge & Leadership



Challenges

What are the 3 most important challenges to your fire management?
1. Maintaining a minimum level of high intensity wildfire across the park each year.
2. Ensuring burning objectives are completed and achieved through adaptive fire management .
3. Achieving biodiversity outcome through good fire management .

How do you currently deal with these 3 challenges?
1. Planning
2. Capacity building with staff which leads to more Experienced staff
3. Achieving objectives in the Integrated Conservation Strategy



‘Best Practice’

Define ‘Best Practice’ in terms of your fire management?
Good planning, ongoing monitoring, regular engagement of stakeholders, adaptive fire management & honest and open end of season reviewing process.

How do you currently measure/monitor your practices and outcomes ?
1 .Conduct annual fire plot photo monitoring and ground truthing program for CDU Darwin Centre for Bushfire Research and NT Gov Biodiversity unit.
2. 5 yearly formal scientific surveying of the NNP Fire Plots with CDU Darwin Centre for Bushfire Research
3. The ICS is also about carrying out on-ground programs, conducting periodic monitoring, evaluating progress to determine if objectives are being met and adapting management actions over time for improvement. Biennial report cards are a form of evaluation, helping to identify gaps that need addressing and providing park managers opportunities to reflect.

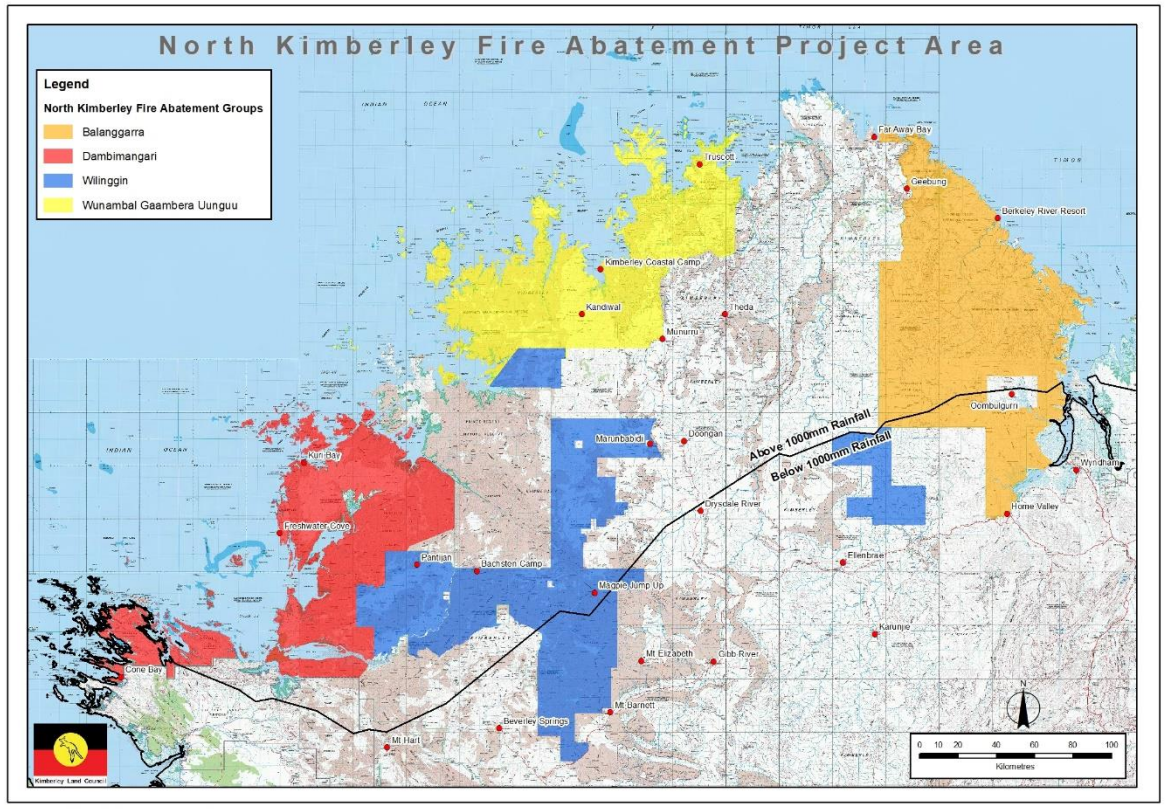
Future needs

- Tell us the 3 main things that could be improved to improve fire management.

1. Adaptive Fire management Training for Staff. Understanding change in the environment and seasonal changes.
2. Fire behaviour training for staff
3. Standardising GIS programs & mapping devices between NT Parks & Wildlife and Jawoyn Rangers

Background

Project	The North Kimberley Fire Abatement Project
Project Area	34,000 km^2
Project Start Date	2013
Presenter	Rhys Swain
Job Description	Senior Fire Officer
Organisation	Kimberley Land Council
Number of Groups/People involved in fire management	4 groups 40 part-time staff 24 full-time equivalents
Costs	Fire management = $1 million



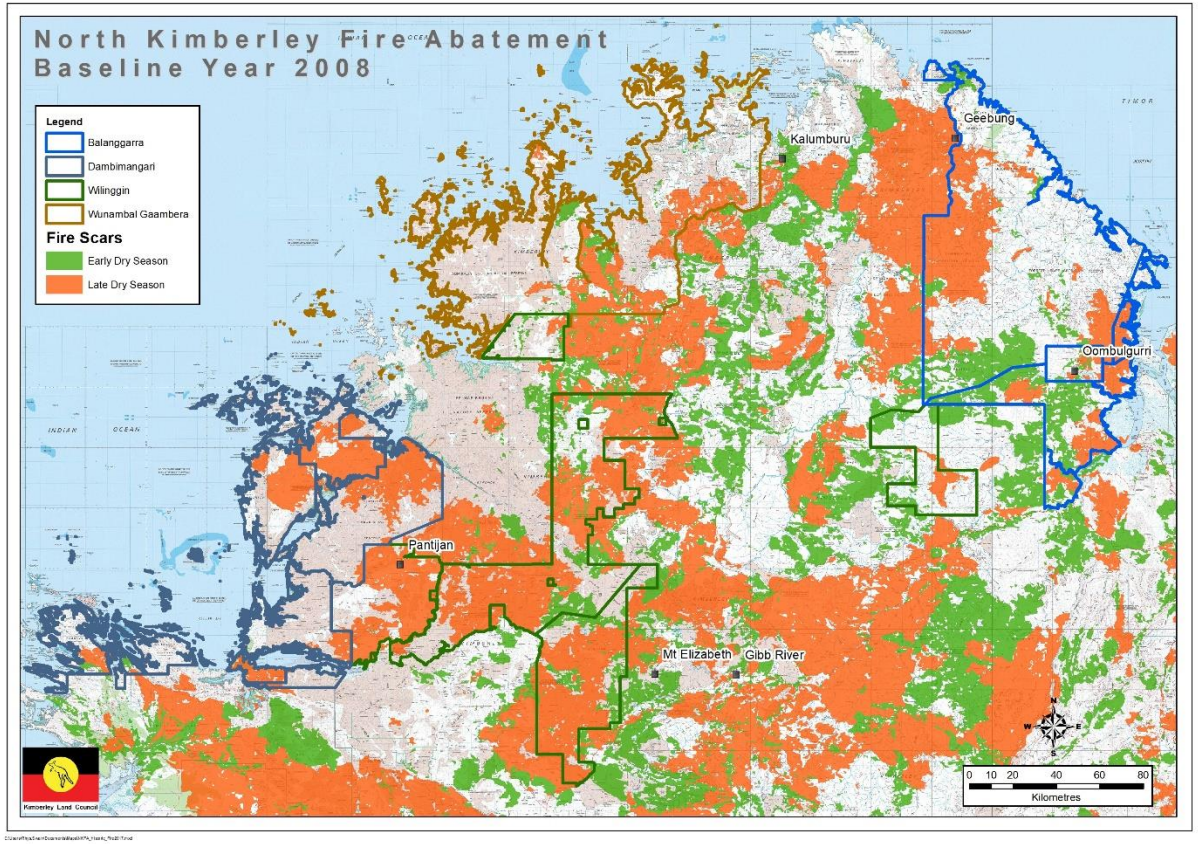
Past & Present Fire Regimes

What was the fire regime/management like beforehand?

- *People off land, not many communities still lighting up*
- *Apart from pastoral leases, most land was managed by DBCA with some involvement from Kimberley TOs.*
- *Not burning enough country/or too large an area to manage*
- *Resulting in high frequency of LDS wildfires*

What is the fire regime and the fire management like now?

- *Increased amount of practitioners working closer together and on less scale resulting in a more thorough job*
- *Increased TO involvement with all stages of planning and implementation*
- *Resulting in less frequent wildfires*



2008

Challenges

What are the 3 most important challenges to your fire management?

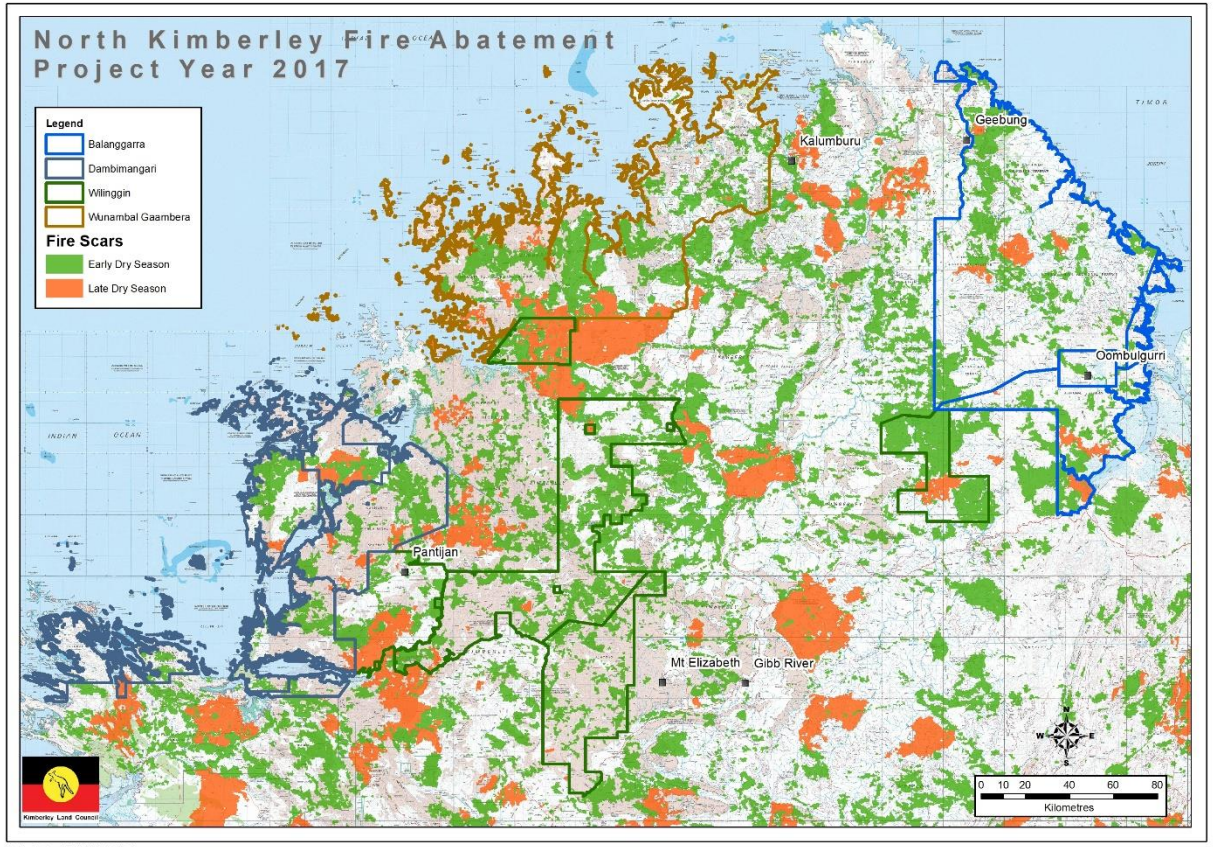
- *Restrictive state/local govt regulation*
- *Uncertainty of government policy esp Climate & WOC*
- *Tyranny of distance; low population and limited access*

How do you currently deal with these 3 challenges?

- *Work in as best we can with regulation*
- *Apply for funding through different streams*
- *Regional collaboration and partners*
- *Meditation/Prayer sessions/Hope*

In an ideal situation, how would you deal with these 3 challenges?

- *Permits for burning would be granted with confidence of rangers training and ability*
- *Government would embed ongoing funding for WOC/IPA and increase focus on Climate Change Policy*



2017

‘Best Practice’

- **Define ‘Best Practice’ in terms of your fire management?**
  - *Sustained or increased involvement by TOs in all aspects*
  - *Reduced amount of country being burnt each year*
  - *Reduced size of fire scars/distance to unburnt and long unburnt*

- **How do you currently measure/monitor your practices and outcomes?**
  - *Framework developed to record metrics using NAFI data and GIS*
  - *Employment data and qualitative review with TOs*
  - *Vegetation monitoring points/photo points*
  - *Biodiversity surveys*

- **What do you think would be a better way to assess your practices and outcomes?**
  - *High resolution mapping (free or training to do so)*
  - *Improved data collection tools (data loggers, fulcrum)*
  - *More on-ground monitoring as opposed to remotely sensed/GIS interrogation.*

Future needs

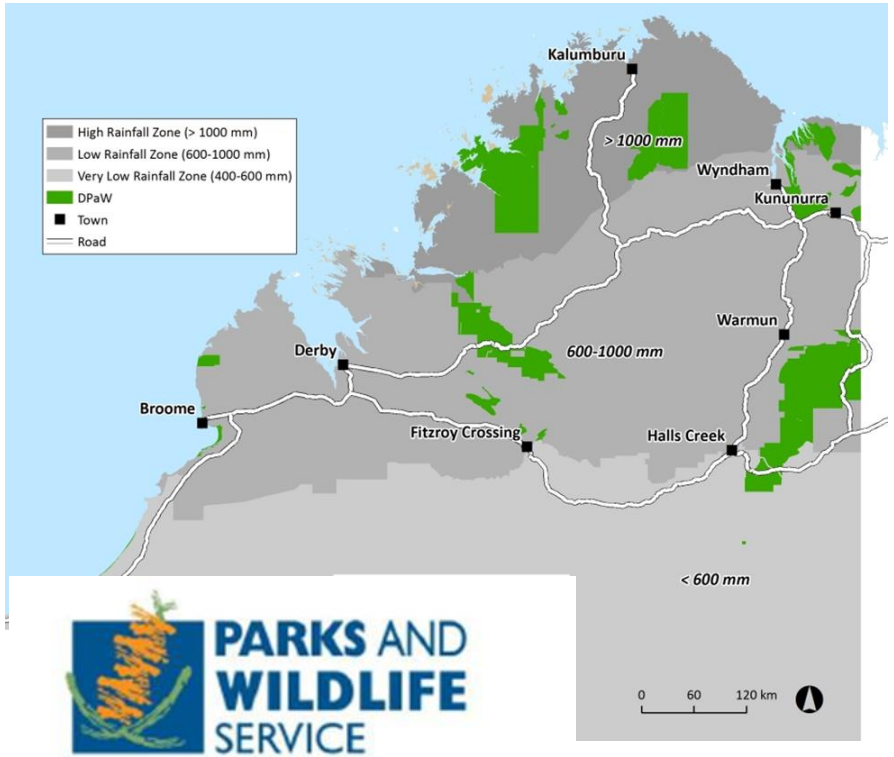
- Funding/Resources
- Training
- Certainty
- **Tell us the 3 main things that could be improved to improve fire management.**
  - *Better collaboration across boundaries*
  - *Funding for NAFI staff to map fires in northern Australia with Landsat8 mapping, or just long-term funding for NAFI*
  - *Greater public understanding of the benefits to people, culture and country*

Background

Department of Biodiversity, Conservation and Attractions

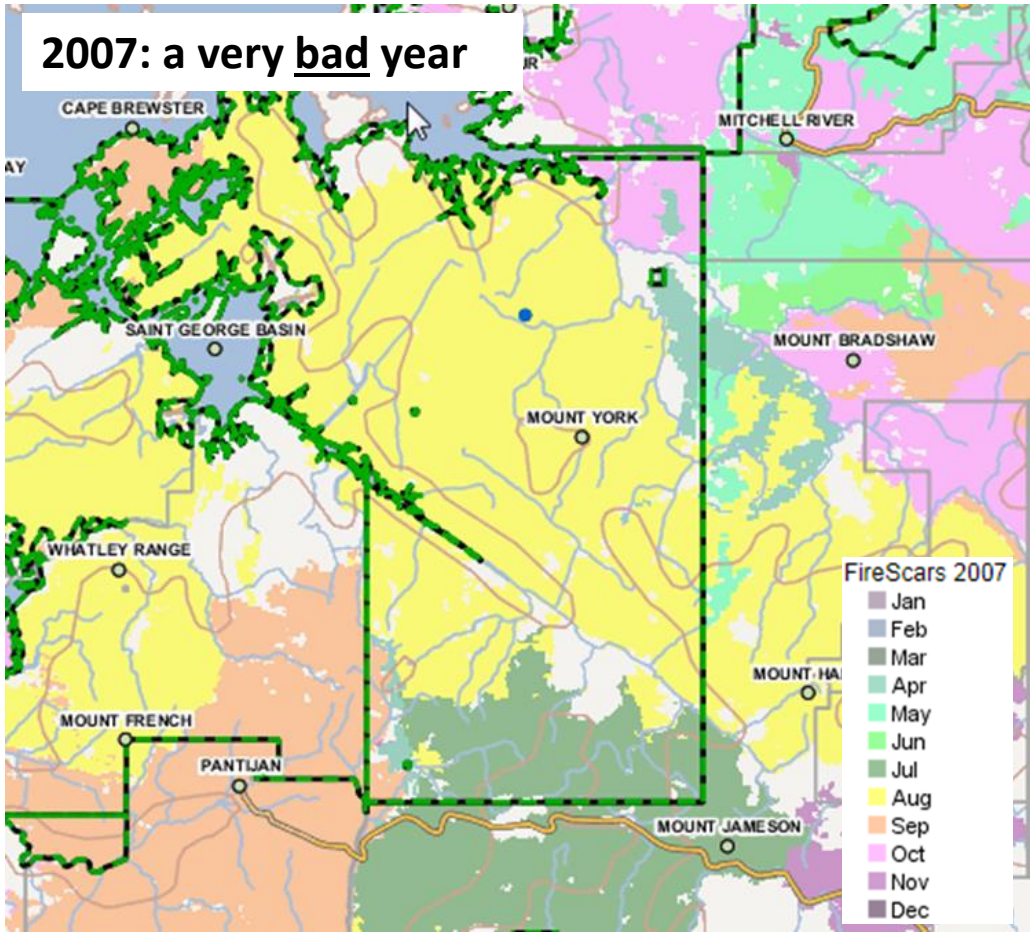
GOVERNMENT OF WESTERN AUSTRALIA

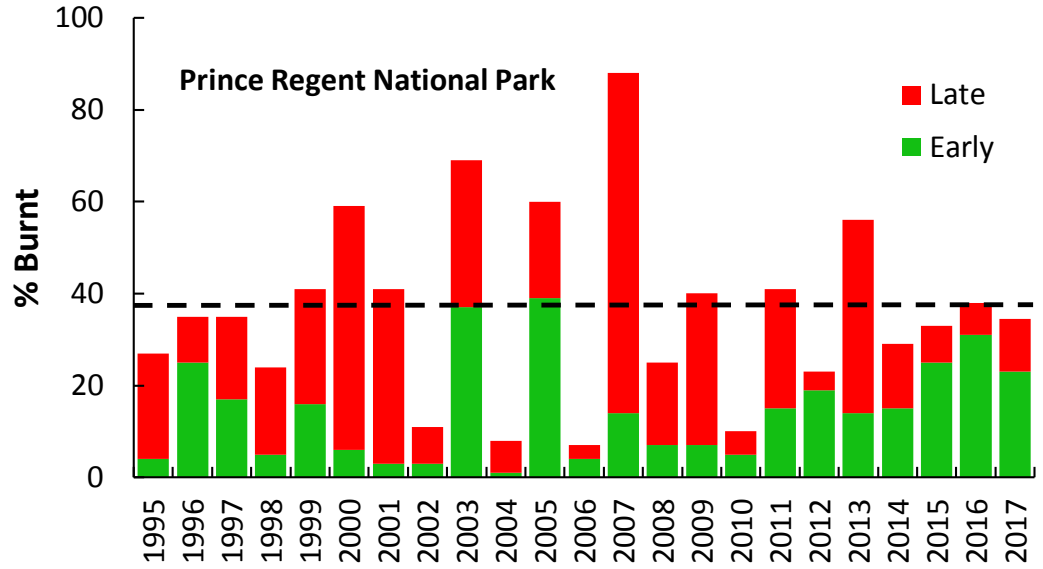
Project	Prince Regent National Park
Project Area	5,750 km^2
Project Start Date	March 2016 (Baseline 2006 - 2015)
Presenter	Philip de Bruyn
Job Description	Projects Officer (Carbon Reduction Initiative)
Organisation	Department of Biodiversity, Conservation and Attractions
Number of Groups/People involved in fire management	5 Full time staff DBCA, with Wilinggin and Dambimangarri Traditional Owners
Costs	Fire management = Total $200,000–250,000 $35–45 per km^2

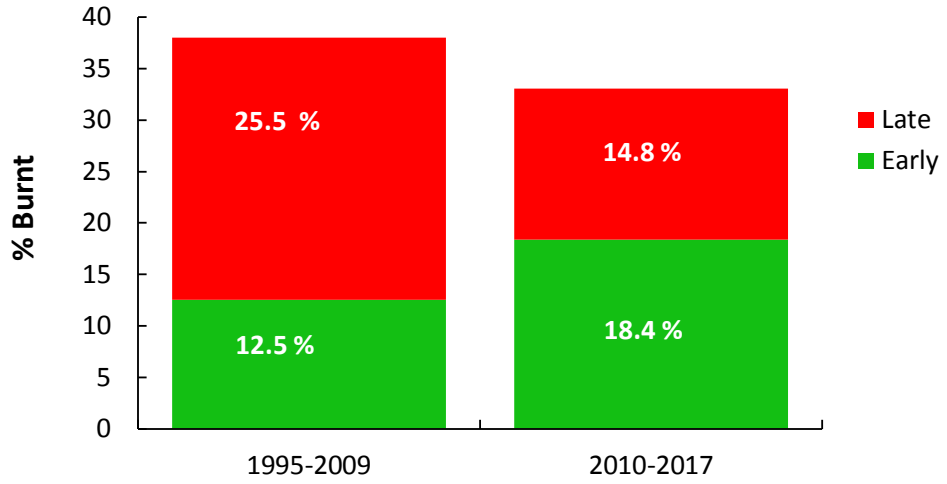


PARKS AND WILDLIFE SERVICE

Past and present fire regimes







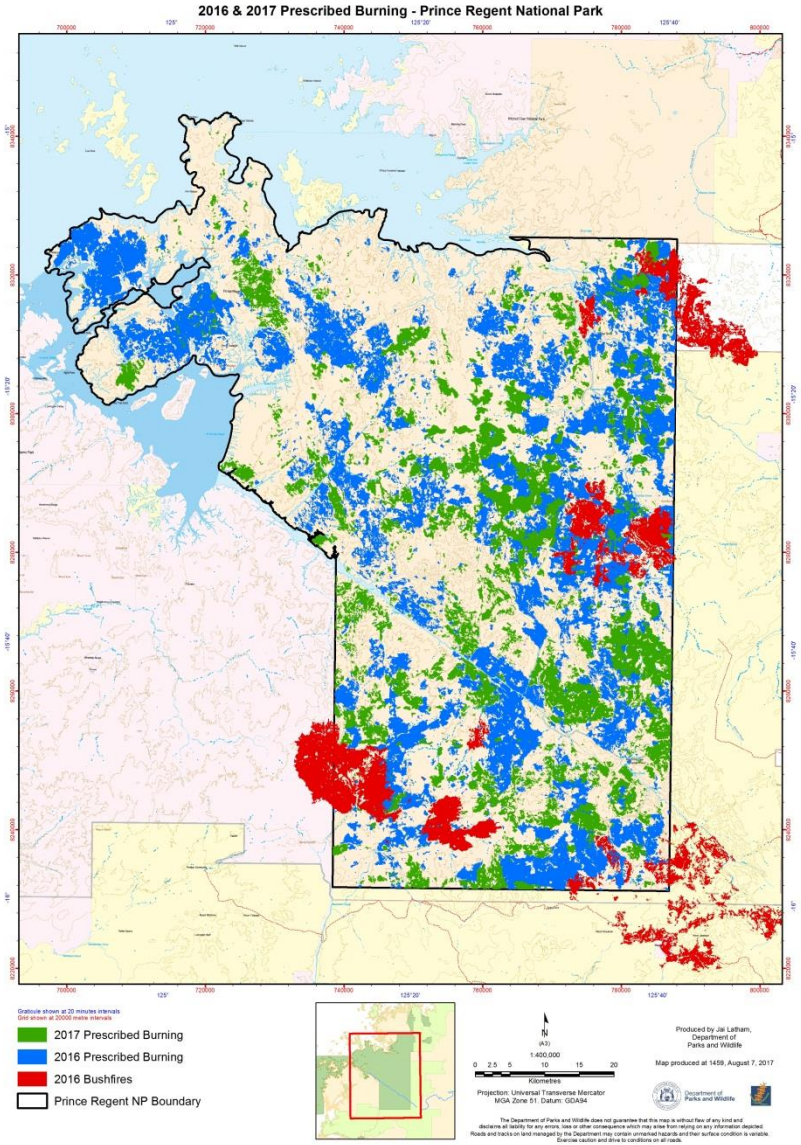
Challenges

- Reduce the extent of LDS fire
- Increase vegetation patchiness and longer unburnt vegetation (3–5+ years)
- Doing well consistently over long periods (5–10 years)
- Costs, logistics and resources

‘ Systematic Ignition’ (commenced 2016)

Results so far:

- easy to apply, cost effective, consistent and replicable
- increased pyro-diversity
- effective barrier to LDS wildfires, decreases size of fire scars
- effective method for PRNP to create patch mosaic across landscape with larger occurrence of small fire scars ranging from 1–5 years old



Best Practice

Define 'Best Practice' in terms of your fire management?

- Smaller fire sizes, increased extent of older-aged vegetation and pyro-diversity
- Not just shifting fire regimes from LDS to EDS but reducing total burnt area
- Traditional owner involvement to manage biodiversity/cultural heritage
- Numerous ignitions over curing period to keep fire scars small

How do you currently measure/monitor your practices and outcomes?

- Fire metrics, on-ground monitoring plots (small mammals and vegetation)

What do you think would be a better way to assess your practices and outcomes?

- Adding more vegetation specific data. Looking at indicator species/communities
- Landsat-mapped fire scars (finer scale)

Future needs

- Awareness and skills involving strategic prescribed burning to keep fire scars small but effective in delivering outcomes
- Operational staff sharing knowledge as to what techniques have been successful/unsuccessful from an implementation perspective in delivering prescribed burning
- Continue to expand traditional owner participation and engagement

Background

Project	AWC
Project Area	75,350 km^2 total prescribed burning; 16,800 km^2 AWC owned.
Project Start Date	Various (mid 2000s for most)
Presenter	James Smith
Job Description	Regional Ecologist NW
Organisation	Australian Wildlife Conservancy
Number of Groups/People involved in fire management	~20 groups 10+ full-time equivalents plus many others (pastoralists, traditional owners, neighbours).
Costs	~ $15 – 20 / km^2

Ecofire area

australian wildlife conservancy

Past & Present Fire Regimes

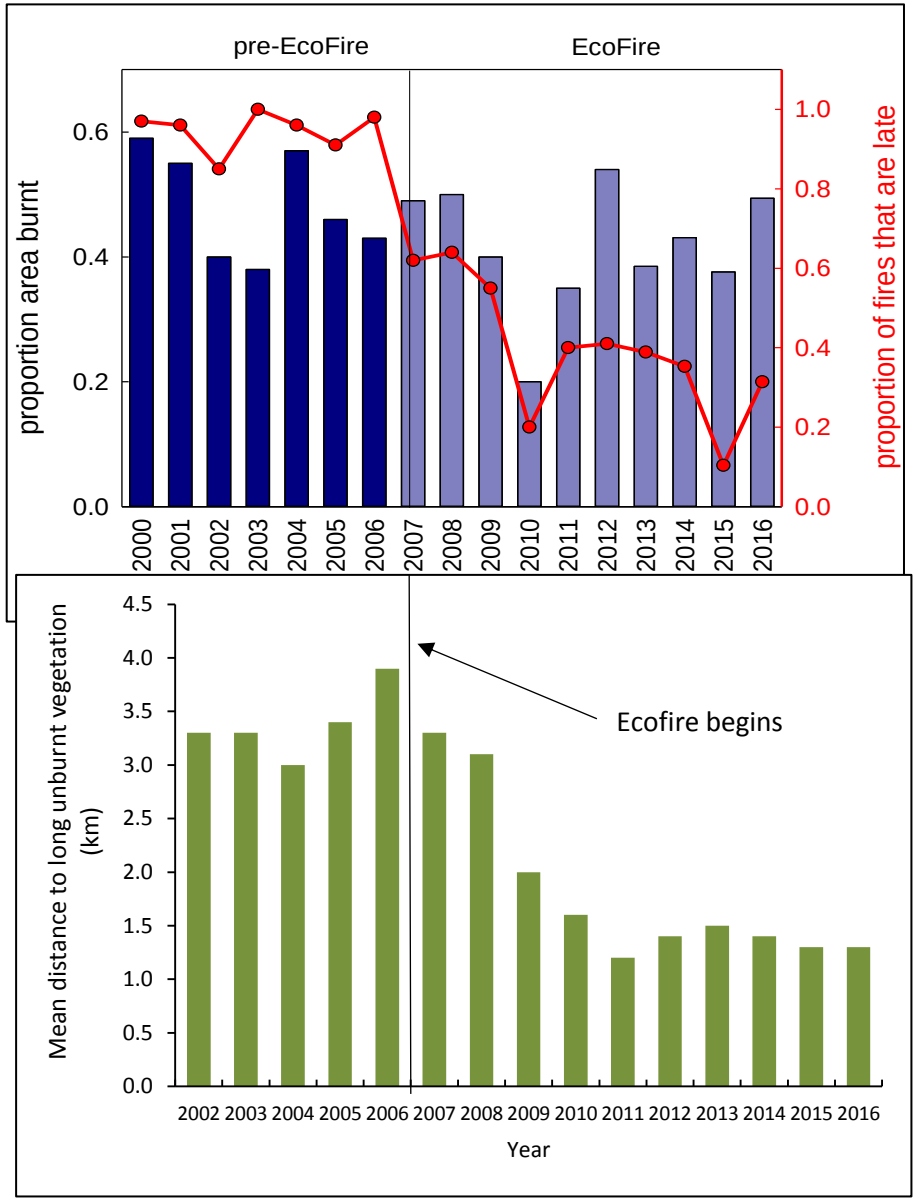
- What was the fire regime/management like beforehand?

Very little (if any) prescribed burning, little to no engagement

- What is the fire regime and the fire management like now?

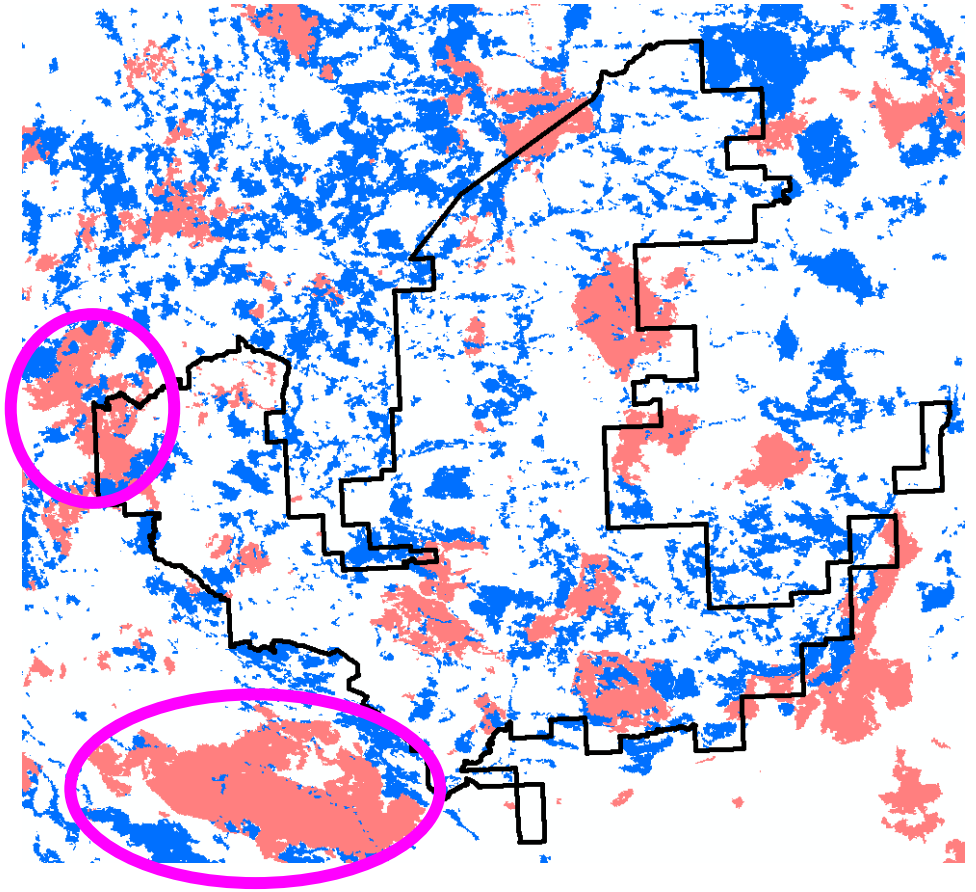
Much improved (according to our metrics);

- Decreased size and extent of late season fires.
- Increased amount and distribution of unburnt patches.
- Increased distance to long unburnt (3 years+) patches.
- Many stakeholders (11 properties, ~3m ha, mix of interests).
- Planning is done with as much engagement as people are willing to contribute (initially and during burning operations).
- Wildfire suppression is done on a case by case basis, often involves neighbours and many different techniques (fire units, leaf blowers, backburning, Raindance machine, helicopter drops of people and use of bambi buckets).



Challenges

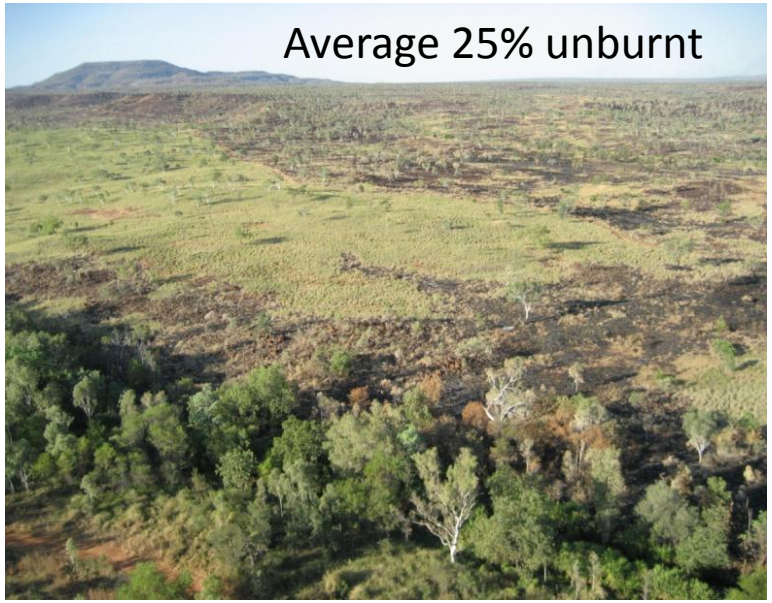
- What are the 3 most important challenges to your fire management?
    1. People (arson, no early burns, leaving wildfires to travel).
    2. Weather conditions (eg. veg regrowth after initial burning, extended dry seasons).
    3. Resourcing (particularly for wildfires).
- How do you currently deal with these 3 challenges?
    1. Try to increase communication (hard, large distances, busy people), negotiate to burn out of our boundaries (create sacrificial lines).
    2. Pray
    3. Currently working on training more staff, possibly increasing outside assistance (difficult).
- In an ideal situation, how would you deal with these 3 challenges?
    1. Get everyone to see the value in prescribed burning (for all outcomes) and to stop lighting late season fires.
    2. and 3. Massively increase resourcing (train staff, have more staff, have helicopter and grader on standby for 2 months), unlimited budget, including for more early season burning if necessary (2 choppers?).

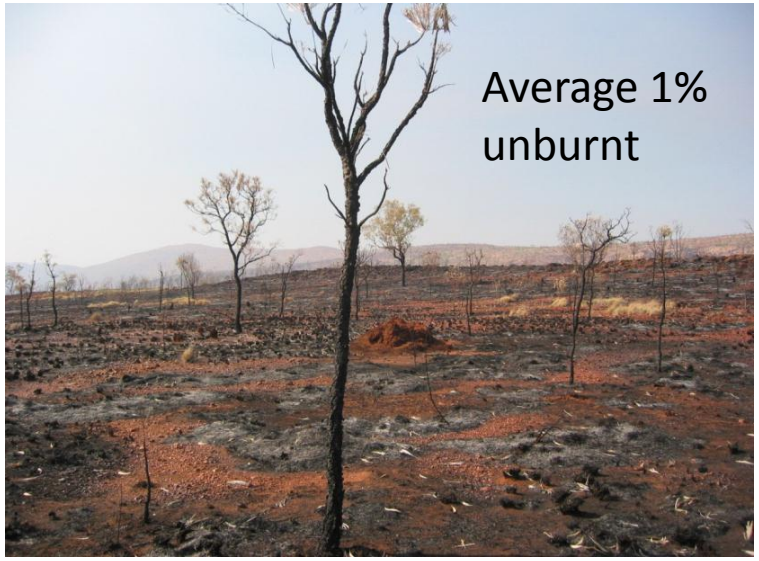


‘Best Practice’

- Define ‘Best Practice’ in terms of your fire management?
  1. Protect life and property.
  2. Conserve biodiversity.
  3. Recognise traditional owners wishes for looking after country.
  4. Reduce greenhouse gas emissions (overriding objectives are 1-3).
  - Targeted research.
- How do you currently measure/monitor your practices and outcomes?
  - Fire scars against metrics from previous slide.
  - Stratified flora and fauna surveys.

- What do you think would be a better way to assess your practices and outcomes?
  - More research into the effects of different size fires, throughout different seasons, on more varied suites of species.





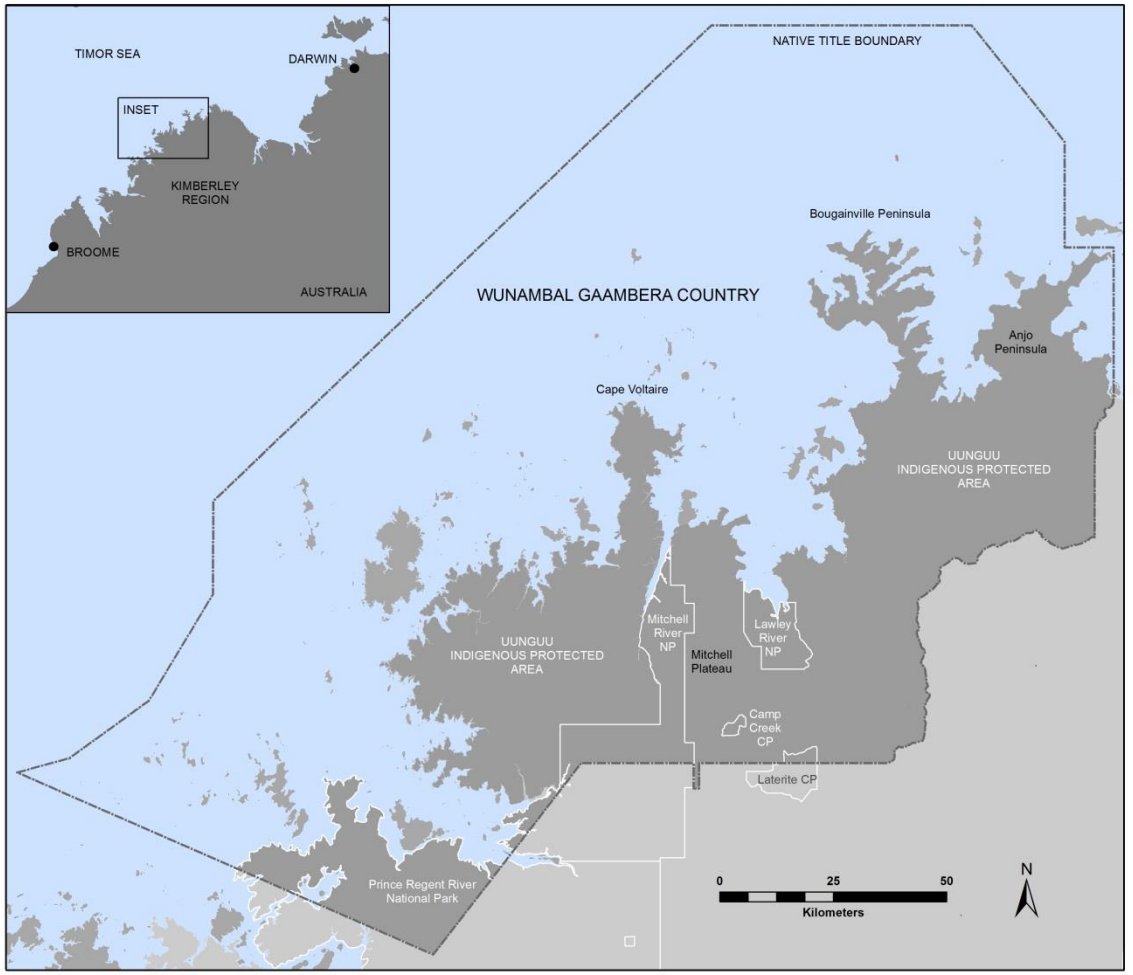
Future needs

- Tell us the 3 main things that could be improved to improve fire management.

1. Flexibility (early burning and wildfires)
2. Education
3. Continued scrutiny of effectiveness

Background

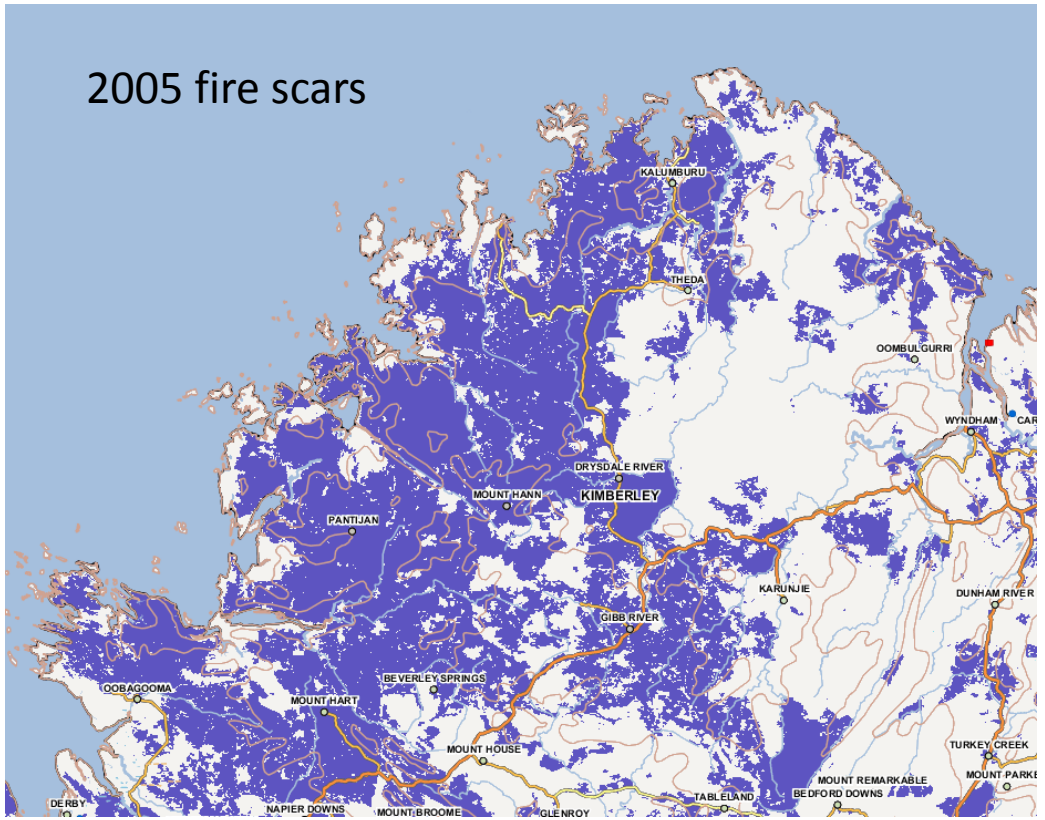
Project	WUNAMBAL GAAMBERA UUNGUU
Project Area	8439 km^2
Project Start Date	Registered in Feb 2014, claiming previous 2012 and 2013 project years
Presenter	TOM VIGILANTE + LEONIE CHEINMORA
Job Description	HEALTHY COUNTRY TEAM
Organisation	WUNAMBAL GAAMBERA ABORIGINAL CORP
Number of Groups/People involved in fire management	8 UUNGUU RANGERS
Costs	



Past & Present Fire Regimes

- In the past (before 2010) there was:
  - *Lots of big wildfires (even 100,000 ha)*
  - *No funding or support for Aboriginal land management*
  - *Government didn't work with Traditional Owners*
  - *Traditional Owners couldn't get back to country*

- Nowadays (since 2012):
  - wildfires are smaller (mostly under 10,000 ha)
  - we have a Savanna Burning Project
  - we have a Healthy Country Plan, IPA and Rangers
  - Traditional Owners make decisions about fire
  - Traditional Owners do the burning on their own country



2005 and 2007 were bad fire years in the North Kimberley

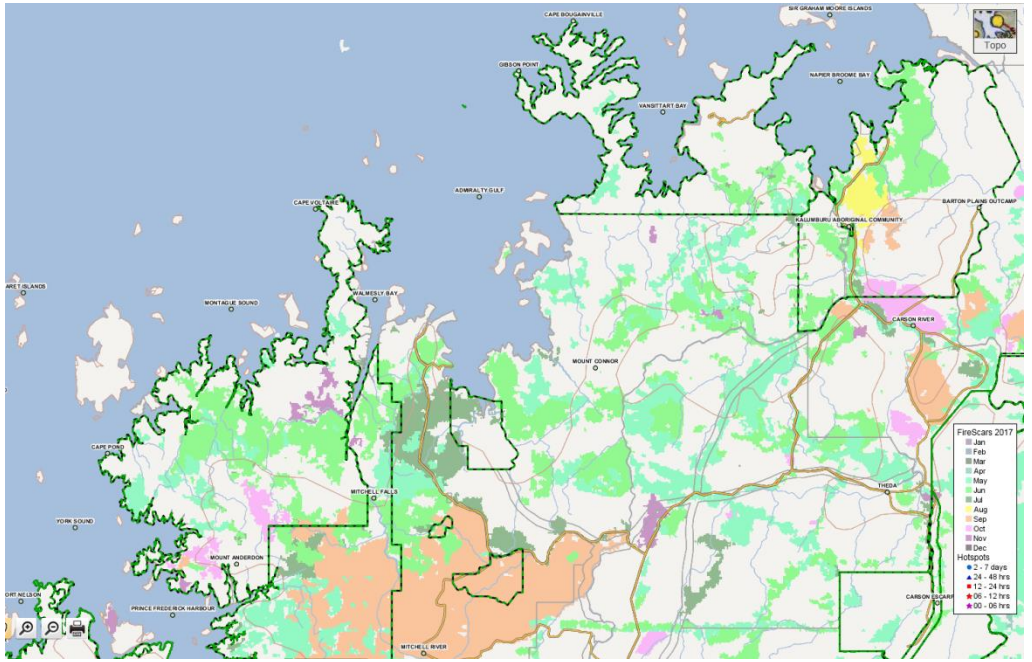
Challenges

- Three significant challenges to the project have been:

i. State Government policy positions
ii. building the size and skills of the team
iii. remote logistics/people not on country

-How do you currently deal with these 3 challenges?
(i.e. What things contribute to good fire management outcomes?)

i. we have overcome State Government opposition by asserting native title
ii. we have continued to focus on training and building our ranger team with available resources (WoC, savanna burning funds)
iii. we have established and ranger base on country to aid logistics

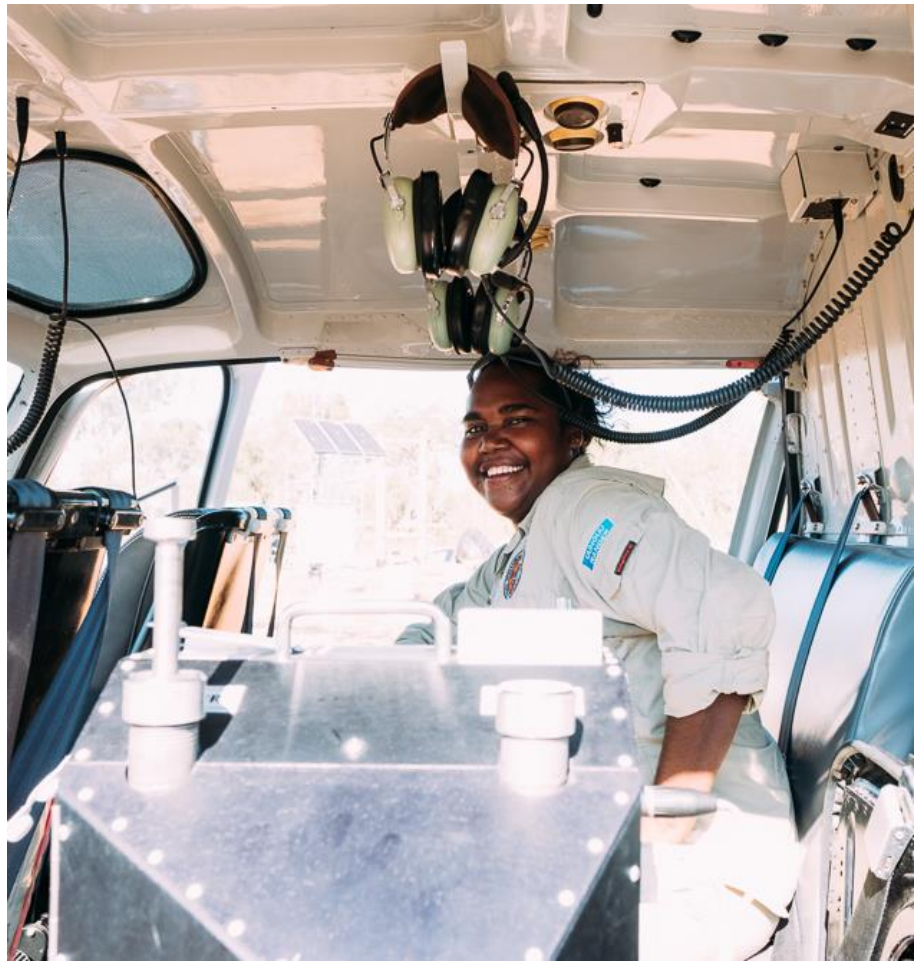


- In an ideal situation, how would you deal with these 3 challenges?

We need to establish sustainable finance model to fund the development of 2 more remote ranger bases and to expand the ranger team. The sequestration methodology will provide greater returns from savanna burning.

‘Best Practice’

- ‘RIGHT WAY FIRE’ is the term used to define best practice. It includes:
  - *Traditional Owners being decision-makers and undertaking burning, right people burning their own country*
  - *Use of Traditional Knowledge ie seasons*
- Monitoring and evaluation is achieved by:
  - Healthy Country Plan setting goals
  - ‘UUNGUU MONITORING & EVALUATION COMMITTEE’ to review
- Biodiversity
  - ‘Wulo’ rainforest mapping and monitoring
  - Threatened Species Recovery Grant
- People outcomes
  - Decision-making
  - Employment
  - Healthy country

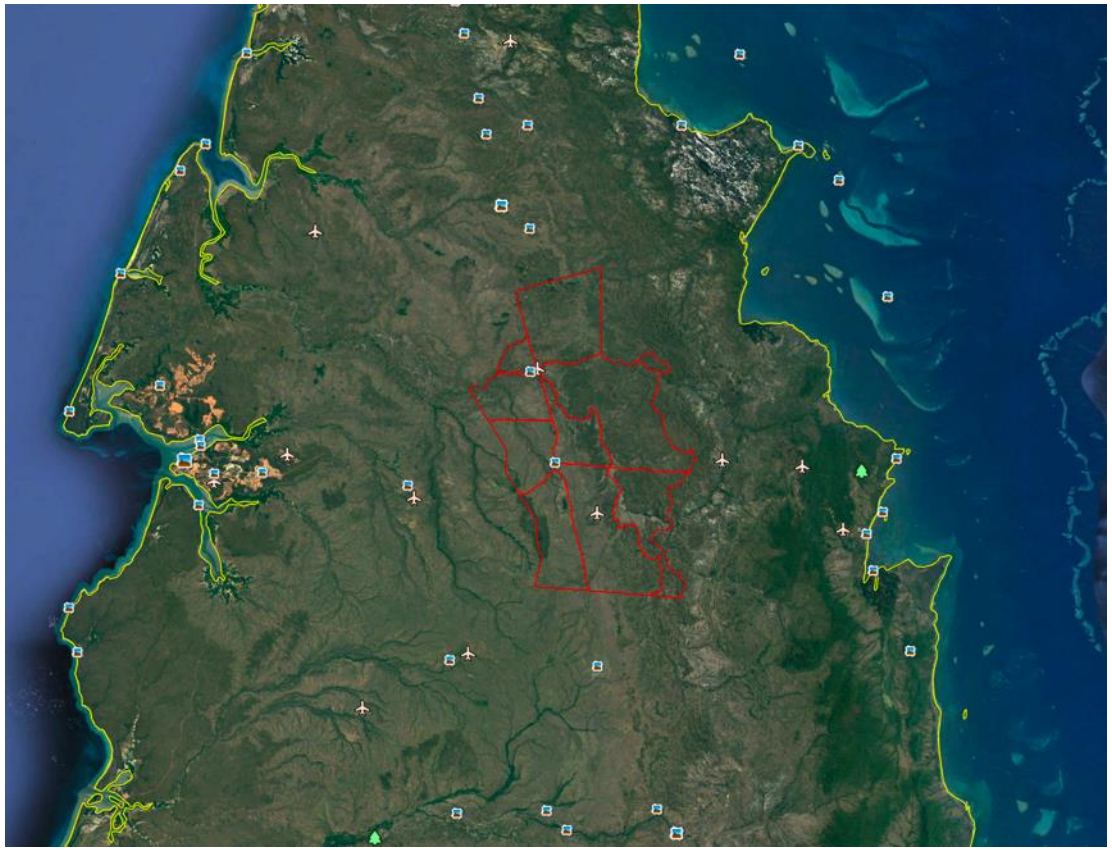


Future needs

- More support in research and development including:
    - more online tools to support fire planning (integrate fuel type and fire history to plan and predict results)
    - collective approach across Northern Australia for biodiversity monitoring and measures
    - Identify and develop new methods and approaches
- Better networking between indigenous savanna burning projects to share learnings

Background

Project	Batavia
Project Area	2,415 km^2
Project Start Date	1 Jan 2015
Presenter	“Dundee” – Robert Nelson & Daryl Killin
Job Description	Northern Kaanju Fire Master & Project Manager
Organisation	BTOAC (Batavia) & Natural Carbon
Number of Groups/People involved in fire management	3 TO groups 6-9 rangers & support
Costs	Operating Costs ~ $30,000 - $40,000/yr Then we have to buy assets….



Past & Present Fire Regimes

- What was the fire regime/management like beforehand? Opportunistic, unfunded, not coordinated, dominated by arson from uncontrolled visitors, struggle
- What is the fire regime and the fire management like now? Better planned & coordinated, still hard work but we are in charge of fire now, with support from Parks.

Figure 10: Seasonal Fire Map for Baseline Year 2012

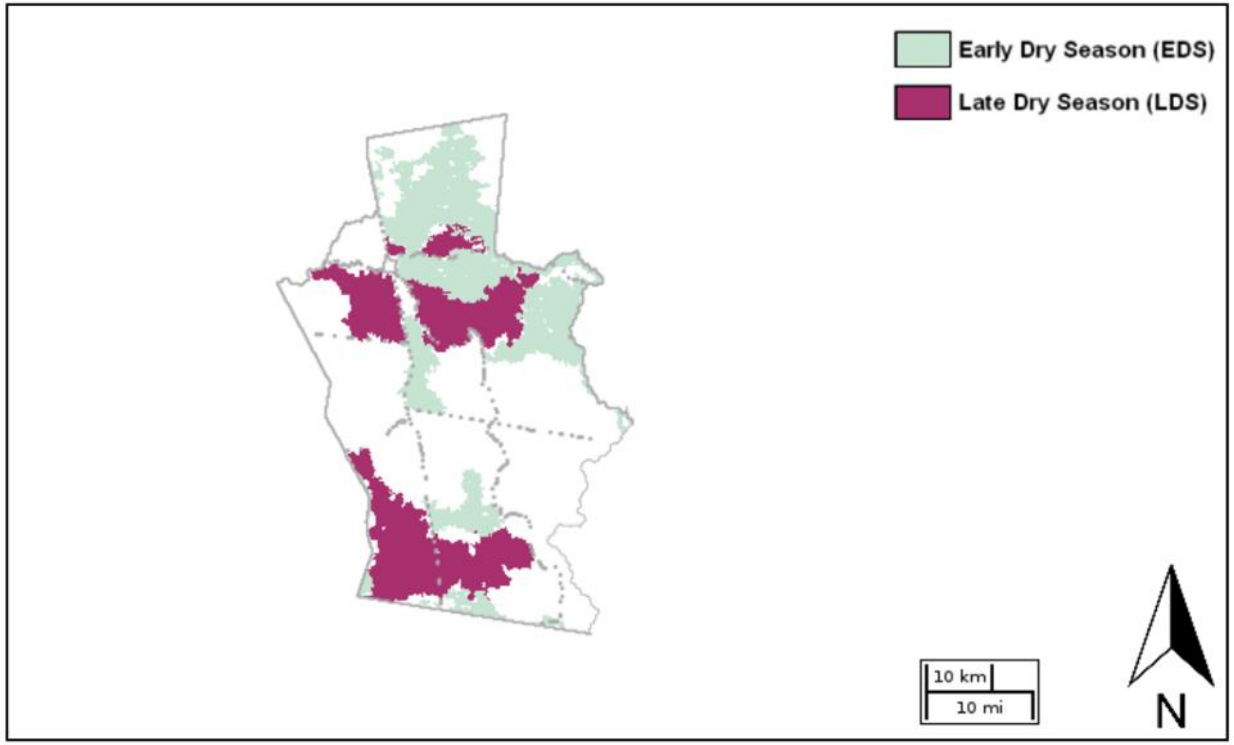
Challenges

- The 3 most important challenges to your fire management are: i) spreading the $ over purchasing assets & also paying rangers, ii) fighting LDS fires lit by uncontrolled visitors & iii) the weather!

  - How do you currently deal with these 3 challenges?
  Buy one asset at a time eg. vehicle first, LDS still a problem

  - In an ideal situation, how would you deal with these 3 challenges? More resources built up over time, some targeted training, operations support when needed

Figure 13: Seasonal Fire Map for Reporting Year 2017



‘Best Practice’

- ‘Best Practice’ is when fires are burnt at the RIGHT time which is not always in line with 1 August. Best practice is fires in July & up to mid August, depending on winter rain. We “clean burn” the ridgelines to act as firebreaks. This is all about timing the weather conditions. Wind might be needed to push fires through any thickening areas. Our country can stay wet for longer than the method allows for carbon abatement.

  - How do you currently measure/monitor your practices and outcomes? We use NAFI to track LDS fires & monitor ridgeline firebreaks. Drive around country to inspect it - the results are obvious if grass is coming back.

  - What do you think would be a better way to assess your practices and outcomes? Use GPS Photo Points to record changes over time, have more funds to patrol during the late fire season.

Future needs

- Tell us the 3 main things that could be improved to improve fire management:

1. *We get enough assets (eg. Side-by-Side) to set up properly for the fire season*
2. *We have tools for remote areas that we can use to fight LDS fires (eg. small file NAFI hotspots over satellite network*
3. We get more support from National Parks to fight fires.