

LIBRARY

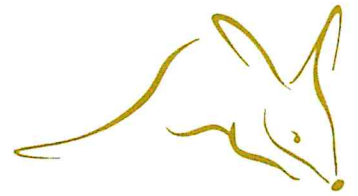
Department of Biodiversity,
Conservation and Attractions

This PDF has been created for digital preservation. It may be used for research but is not suitable for other purposes. It may be superseded by a more current version or just be out-of-date and have no relevance to current situations.

EcoFire

Prescribed burning program 2009

australian



wildlife
conservancy



EcoFire

A report on the prescribed burning program March to June 2009

AWC: Sarah Legge, Richard Kingswood, Dan Swan, Steve Murphy
All North Helicopters: Butch Maher

The prevailing Kimberley fire pattern of extensive, mid-to-late dry season fires is damaging biodiversity, degrading soil health and pasture for cattle, affecting cultural sites, and resulting in higher greenhouse gas emissions.

EcoFire aims to change these fire patterns in the central and north Kimberley. The project is outcome-focused: it delivers a strategic regional prescribed burning program and coordinates fire management across property boundaries and tenures. The effectiveness of the program is monitored using archived satellite imagery to describe fire patterns.

EcoFire is a collaborative project between a group of neighbouring landholders (pastoralists, Indigenous communities, government and non-government conservation agencies) and various regional bodies. The Australian Wildlife Conservancy manages the project from its base at Mornington Wildlife Sanctuary. The project began in 2007, and now includes 13 properties and intervening Unallocated Crown Land covering 5 million hectares of the central and north Kimberley.

This report provides a pictorial and map-based overview of the prescribed burning program during March to June 2009. A full analysis of the impact of the prescribed burning, based on analysis of satellite imagery, will be carried out at the end of 2009. Similar analyses at the end of 2007 and 2008 demonstrated that EcoFire markedly changed fire patterns by:

- limiting the extent of mid-to-late dry season (intense) fires; and
- increasing the number of unburnt vegetation patches through the project area.

This change in fire patterns is expected to benefit biodiversity as well as short and longer-term pastoral production, reduce greenhouse gas emissions, and help protect cultural sites.

EcoFire is administered by the Rangelands NRM Co-ordinating Group (RCG). It is guided by a Steering Committee made up of representatives from organisations and stakeholder groups with an interest in fire management in the Kimberley. The support and positive commitment of all these individuals and groups contributes to the success of EcoFire. Above all, the project is sustained by the enthusiasm and engagement of the project participants, as shown in the pictorial record of this report.



Department of Environment and Conservation
Fire and Emergency Services Authority of Western Australia
Department of Agriculture



Operational overview of the 2009 prescribed burn program

Planning

- Pre-season logistics:
 - Fuel distributed to Ellenbrae, Doongan, Theda, Mt Elizabeth, Charnley River, Marion Downs and Mornington at the end of the 2008 dry season for the 2009 program.
- From March AWC staff began discussing burn plans, weather and grass curing conditions with property owners and managers. The prescribed burn preparation involved:
 - Distribution of firescar maps to all property owners and managers to help with planning.
 - Production of burn plans based on iterative discussion of flight paths with property owners and managers - this included pre-season discussions as well as modifications made whilst in the air, based on observations of fire behaviour and fuel loads etc.
- The burn plans had the following objectives:
 - Achieve the specific objectives of each property (eg. cattle management, asset protection, etc).
 - Coordinate activities across property boundaries.
 - Produce a firescar pattern that would limit the size of mid to late dry season fires and protect areas of 3+ year old vegetation from later, extensive fires.

Prescribed burning delivery

Project area:

- Approximately 5,000,000 ha.
- 13 properties (pastoral, aboriginal pastoral, conservation land, and Unallocated Crown Land).

Duration:

- 9 April 2009 to 8 June 2009; note the early start to burning, as a result of the curtailed wet season.

Weather conditions and fire behaviour:

- The middle and southern end of the project area received above average rainfall (the wettest in five years); the northern section of the project area had roughly average rainfall.
- The entire project area experienced an early end to the wet season which hastened the onset of the prescribed burning period.
- Fire behaviour was highly variable over the prescribed burning period, due to erratic and fluctuating ambient temperatures, humidity and wind speed.

Aerial burning implementation

- Incendiary technique - hand injection.
- Helicopter contractor - All North Helicopters.
- Moved back and forth repeatedly over the project area, focussing first on:
 - The southern section (lower rainfall, faster curing rates);
 - Areas with high fuel loads;
 - Spinifex dominated vegetation (more flammable).
- Returned repeatedly to any one property to work progressively through areas of different vegetation type and age.

Aerial burning summary operational statistics (and see map below):

- 54,900 incendiaries deployed
- 36,058 km flown (equivalent to 90% way round the equator, or Sydney to London return)
- 194.7 hours flown over 31 days in the air
- 282 numbers of balls injected per hour of flying (on average)
- 55 litres of ethylene glycol
- 3 aerial incendiary operators (Richard Kingswood, Dan Swan, Sarah Legge)
- 1 pilot (Butch Maher)

On-ground burning implementation:

- Supplementary on-ground work was carried out by many property owners and managers.
- Extensive on-ground burning was carried out over a 3 week period on Mornington, Marion Downs and Tableland by AWC staff and members of the Yulumbu and Tirralintji communities (see property reports below).

Basic firescar statistics:

- Ecofire 2009 project area = 5,142,719 ha
- Firescar area to July = 1,003,649 ha (ie. 19.5%)

Other activities carried out during the season:**Communications**

- With Kimberley Land Council, we carried out a demonstration of aerial burning techniques with traditional owners of Karunjie (ILC property east of EcoFire Project area).
- Since December 2008, EcoFire has featured in:
 - 1 television feature (ABC Stateline)
 - 5 magazine articles
 - 1 radio interview
 - 2 workshops/meetings
 - Educational presentations delivered to c. 2000 people at Mornington Sanctuary

Monitoring

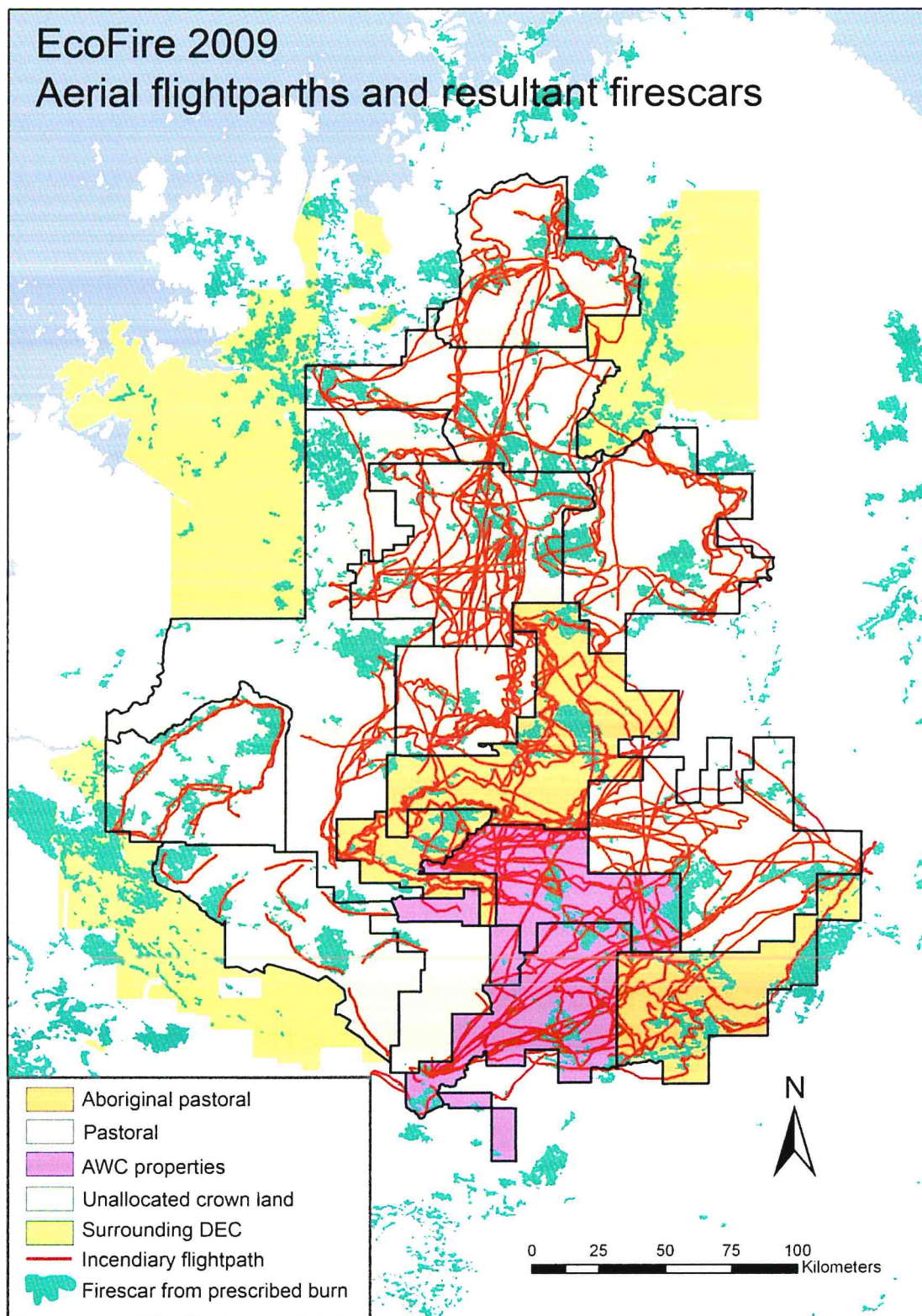
- Acquired Landsat imagery to enable fine-scale mapping of the prescribed burning program.
- Carried out extensive firescar ground-truthing to verify satellite imagery interpretation.
- Trialled quantifying a level of firescar patchiness which is too fine-scale to be picked up by satellite imagery (ie. for patches that are less than c. 1 ha in area). This involved:
 - Taking photographs of the firescar from 1500 feet above ground level
 - Digitising the burnt vs. unburnt areas and producing basic spatial statistics.

This is important because early dry season burns are much less thorough than later dry season burns, which means that for equivalent firescar sizes, the late burns affect a larger area. For example, preliminary analyses show that:

- Early dry season firescars contain 43% unburnt vegetation
- Late dry season firescars contain 4% unburnt vegetation
- The modal unburnt patch size within an early dry season firescar is much larger than for a late dry season firescar

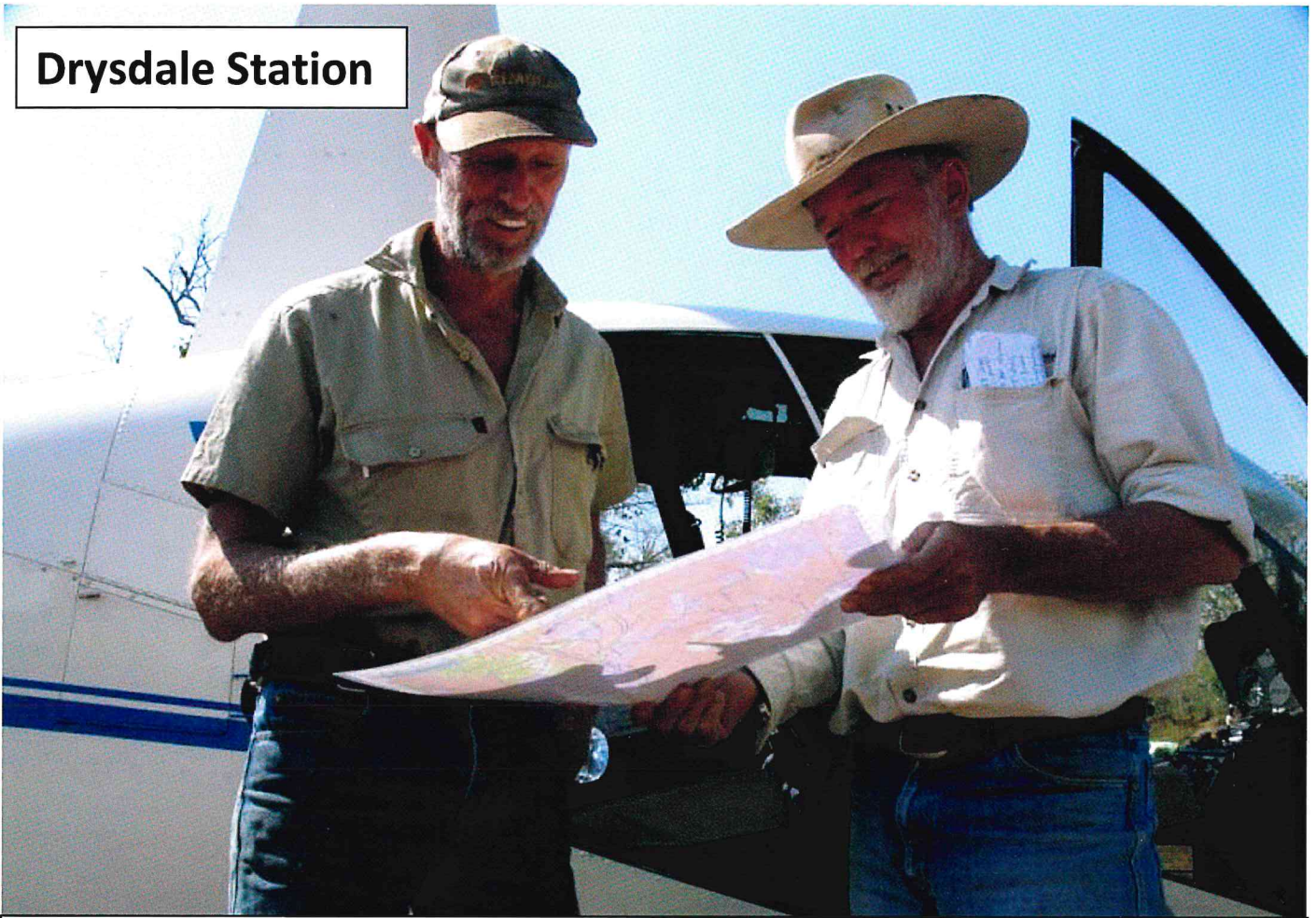
A full analysis of EcoFire's monitoring program will be presented after December 2009.

The map below shows the flightpaths during aerial incendiary work plus the resultant firescars as detected by MODIS (data supplied by North Australia Fire Information Service) over the EcoFire project area in the central and north Kimberley.

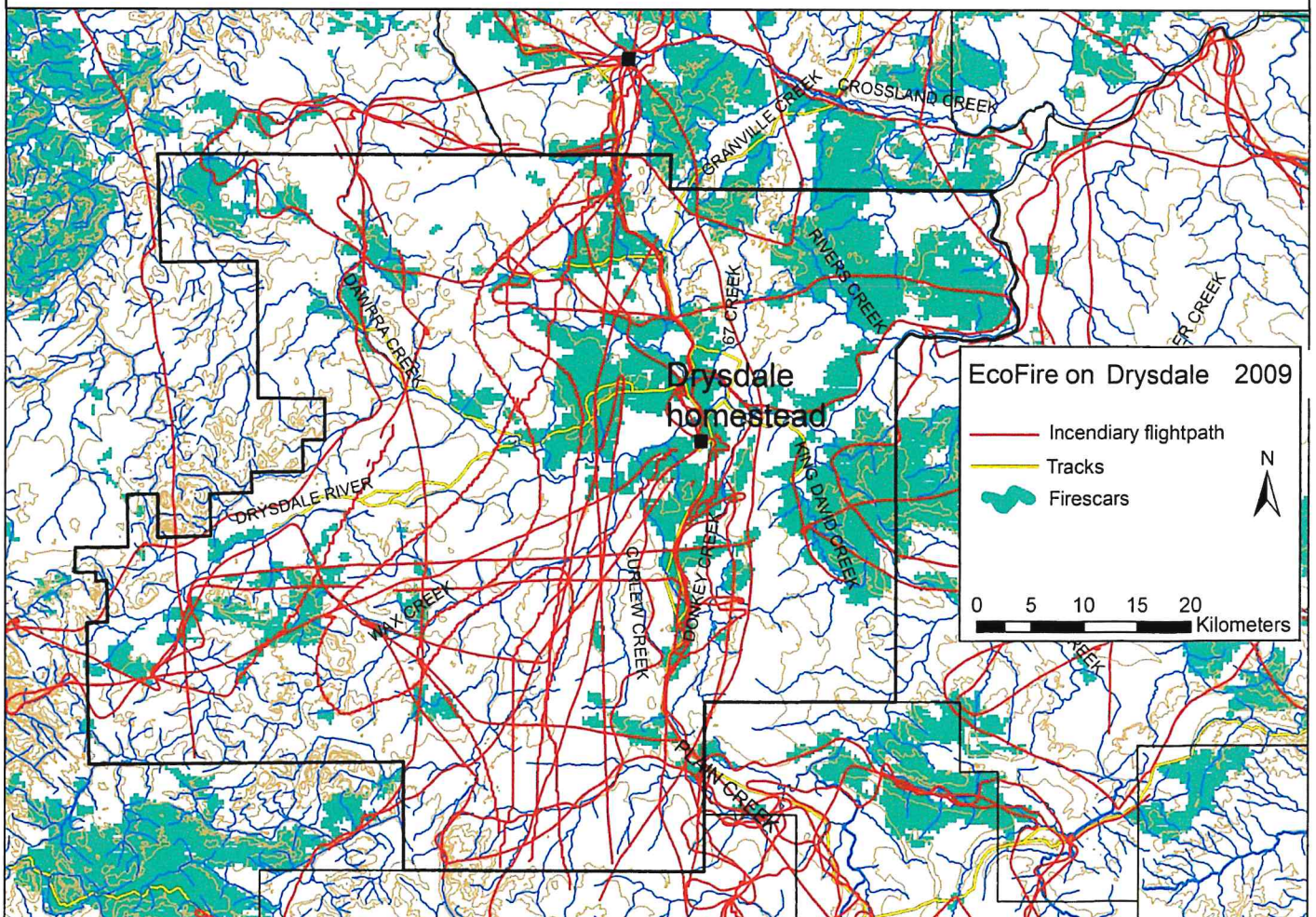


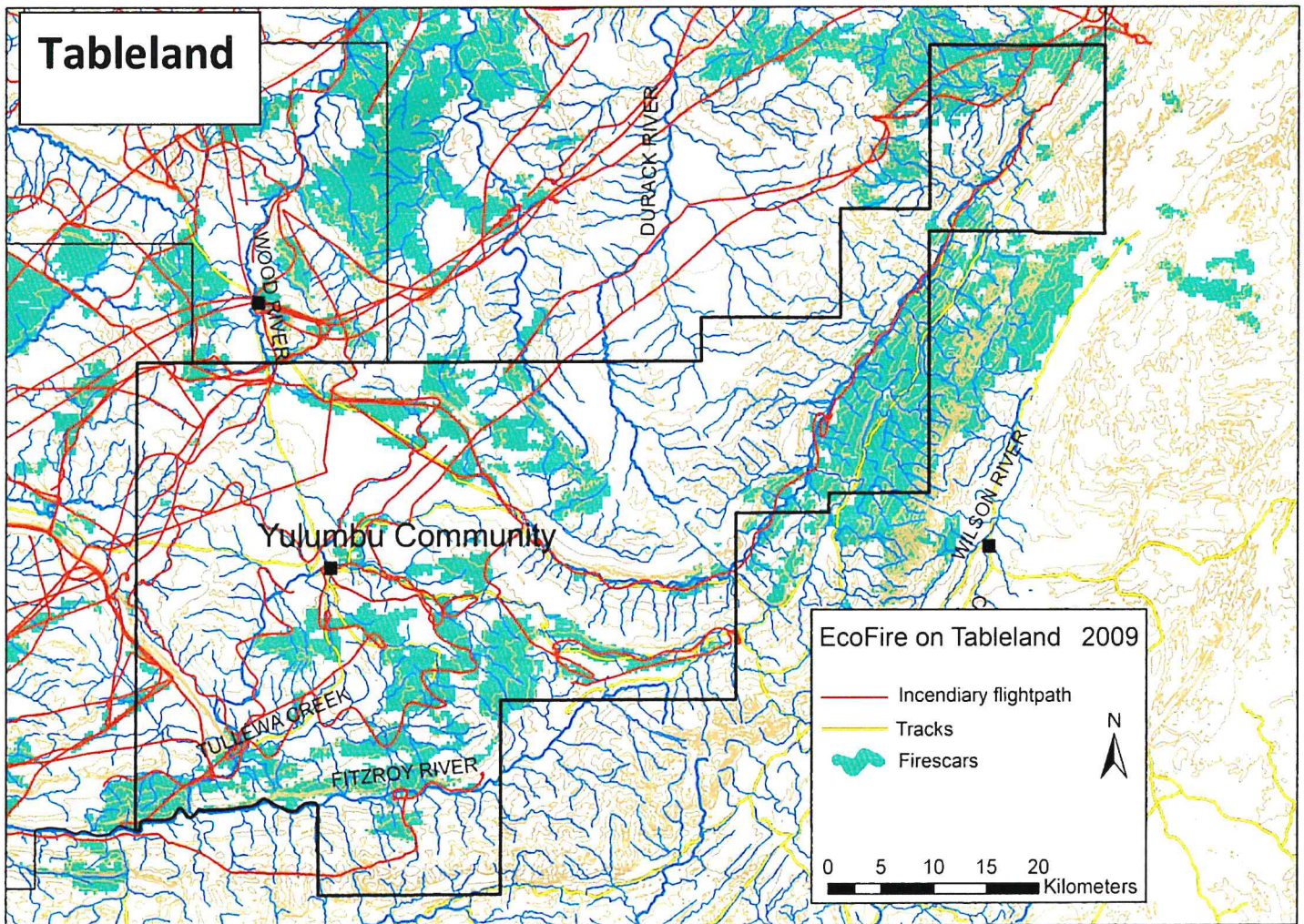
The following pages summarise the flight paths and resultant firescars for each property, with photographs to illustrate the activities.

Drysdale Station



John Koeys and Butch plan the helicopter route. We had to burn over Drysdale repeatedly, as the grass was relatively green on this property, and hard to get going. You can see this from the high density of flightpaths on the map below!



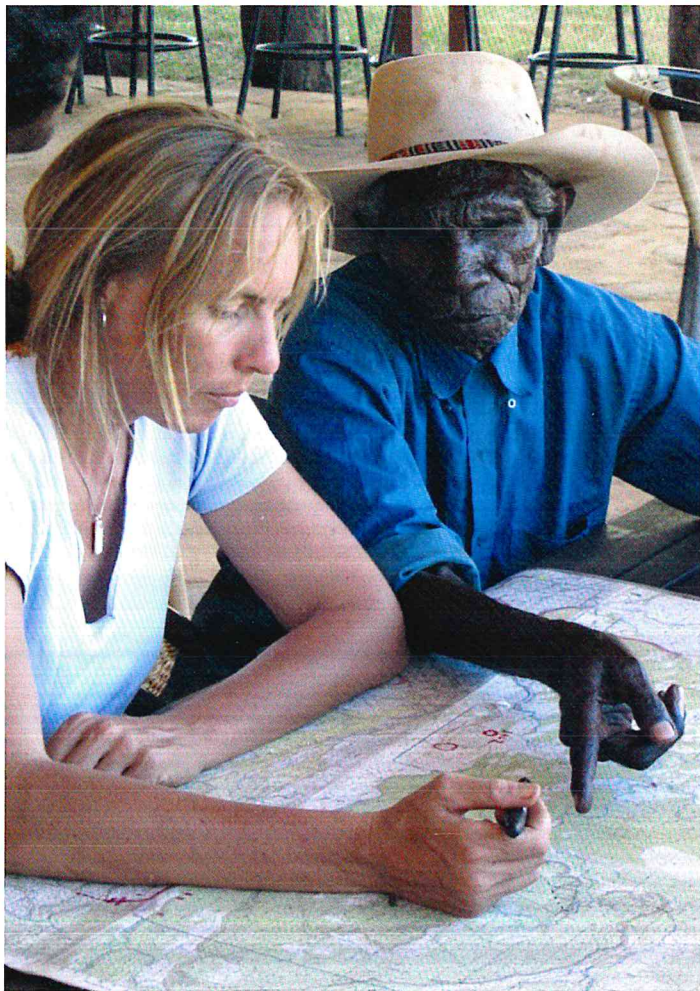


Richard, Sarah, Jock, Wallace, Daniel, Sammy at Yulumbu (photo: Butch).



Above: Louise, Diane, Francis, Doug, Corey, David, Bruce geared up before some on-ground burning.
Below: Wallace and Butch after an aerial burn; Corey and Francis lighting up from the back of the slip-on.
Below left: the Spirit Tracks between Mornington and Tableland.





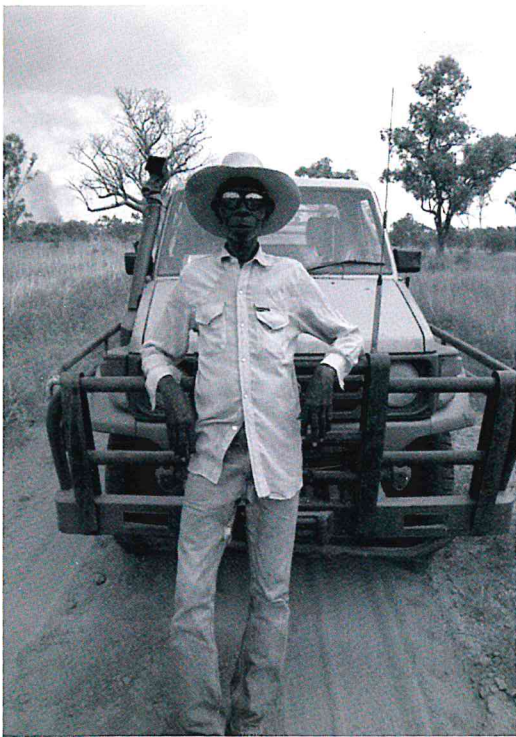
Marion Downs and Mornington

Left: Sammy and Sarah planning the prescribed burning on Mornington.

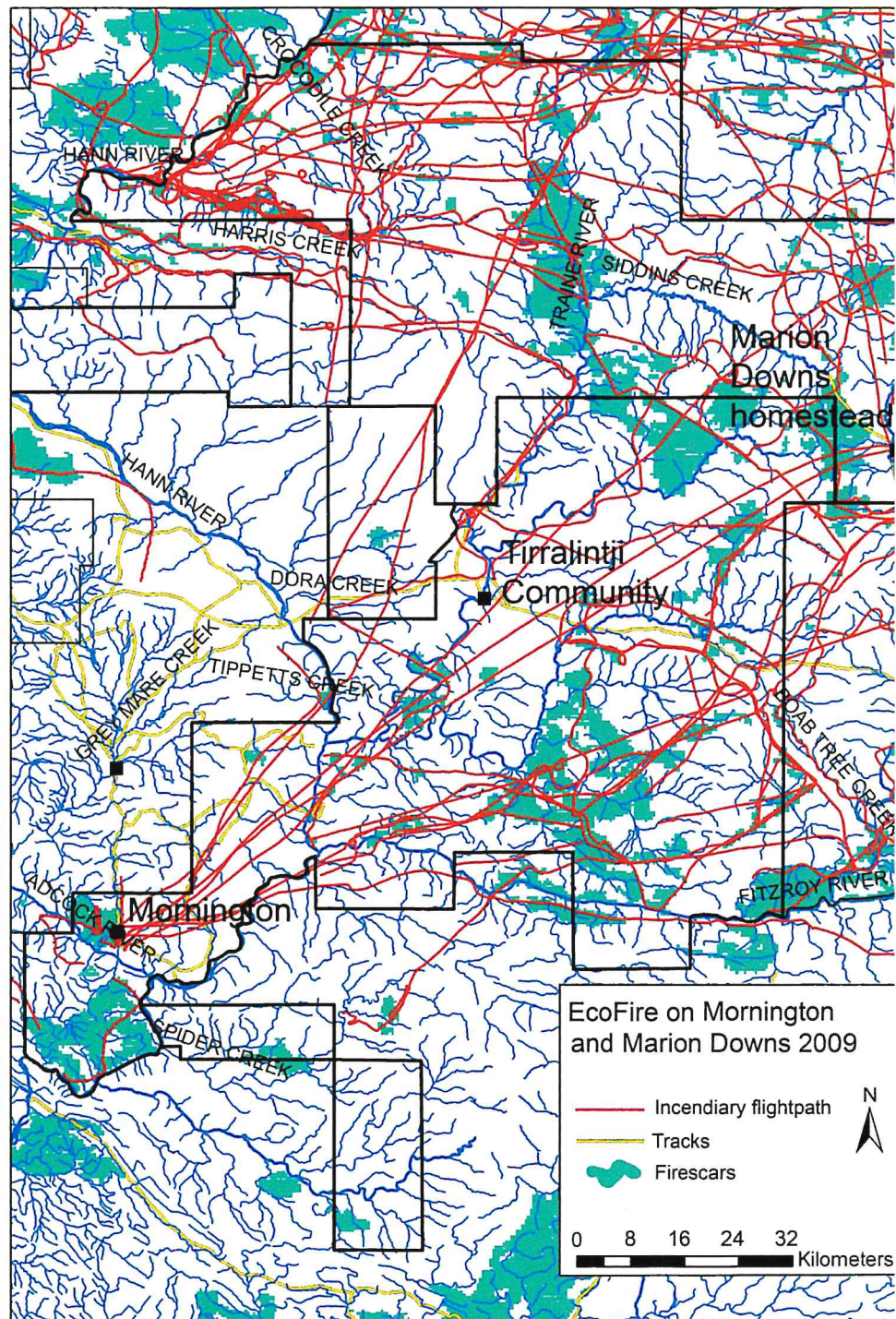
Below right: Lindsay and Sammy.

Below: Swanie, Sammy, Bruce and Corey with slip-on.





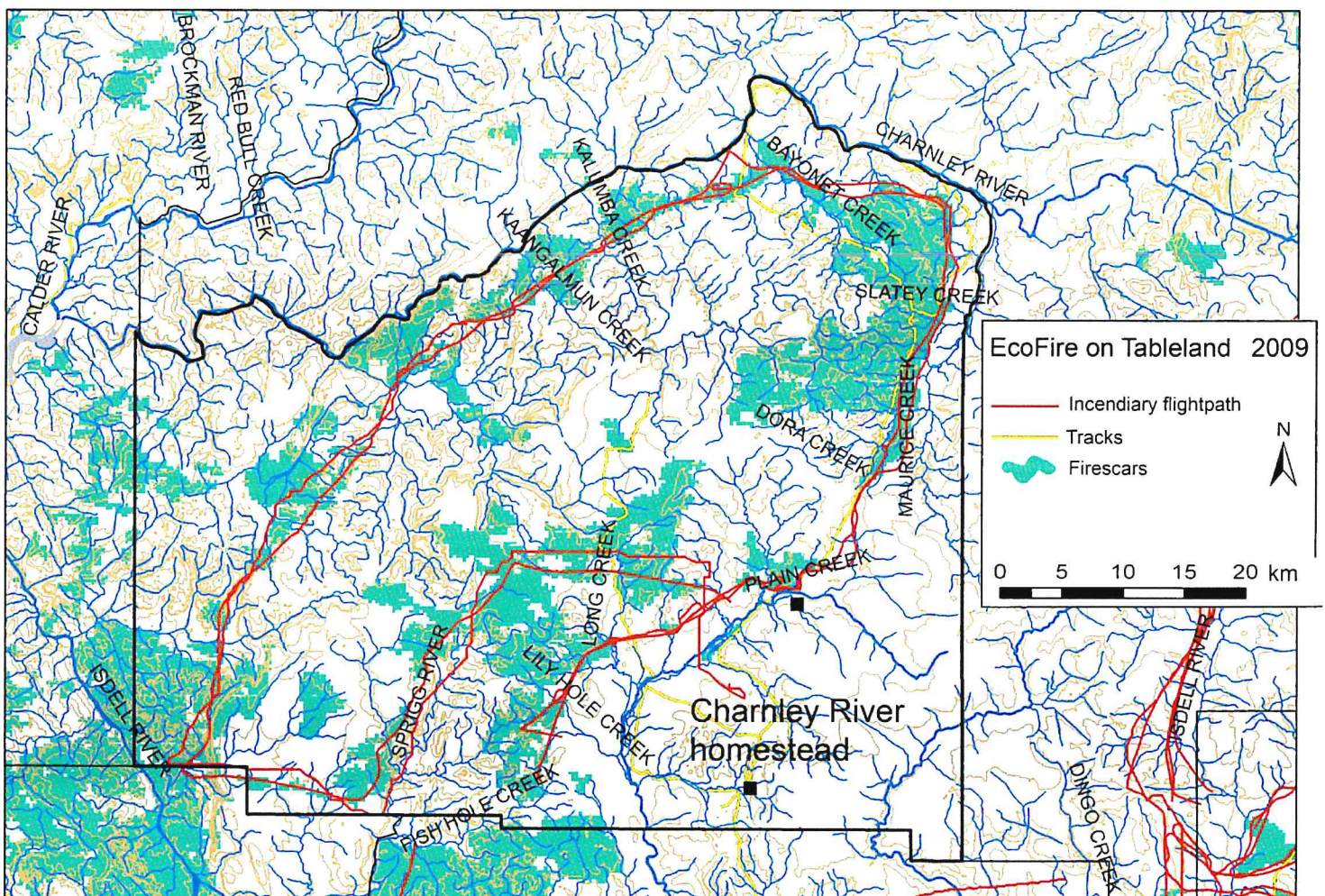
Above: Sammy Walker.
Middle: Jeremiah in the helicopter
Below: Lindsay and Butch take a break
from aerial burning.

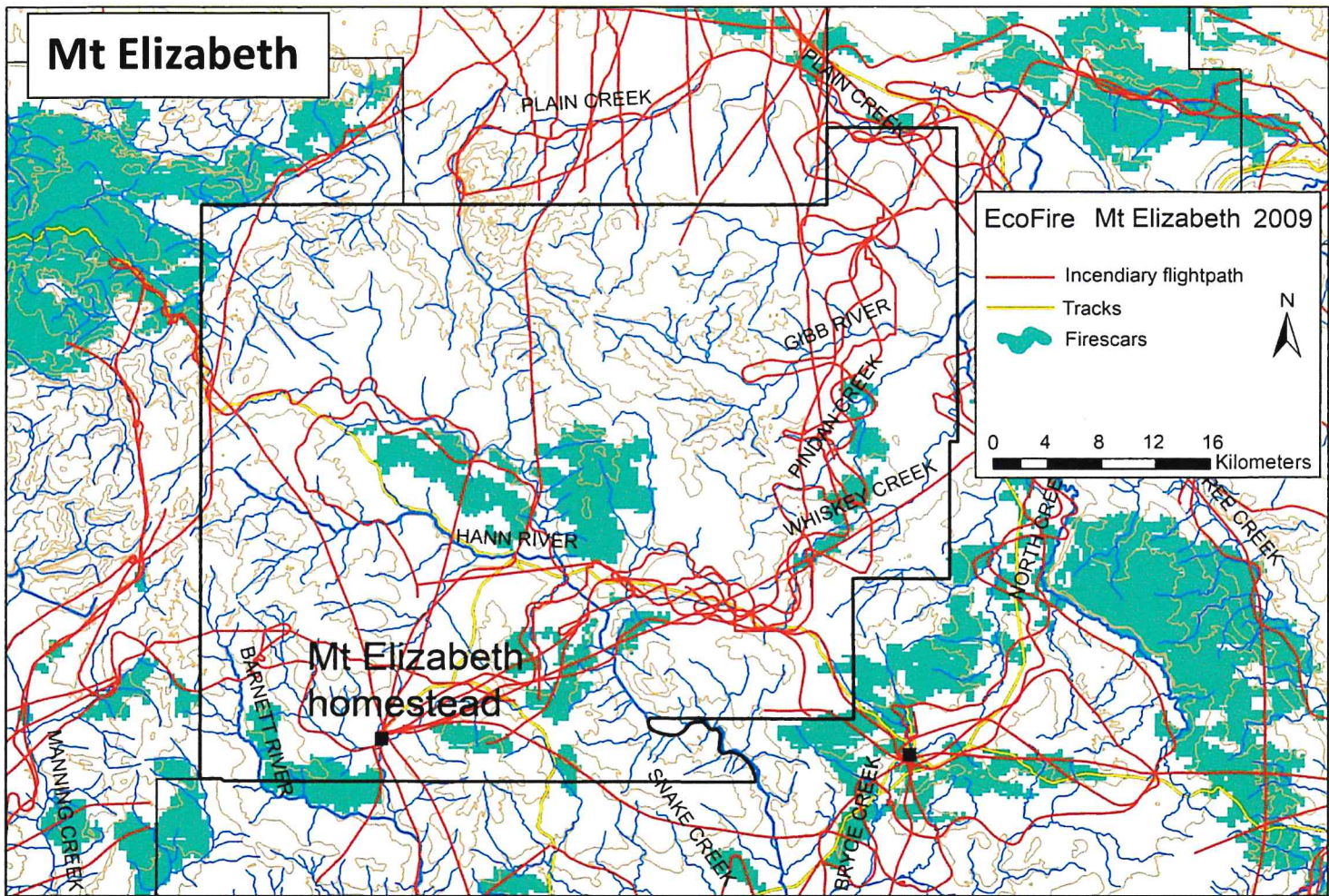


Charnley River



Peter Camp refuels at Charnley River between helicopter runs.

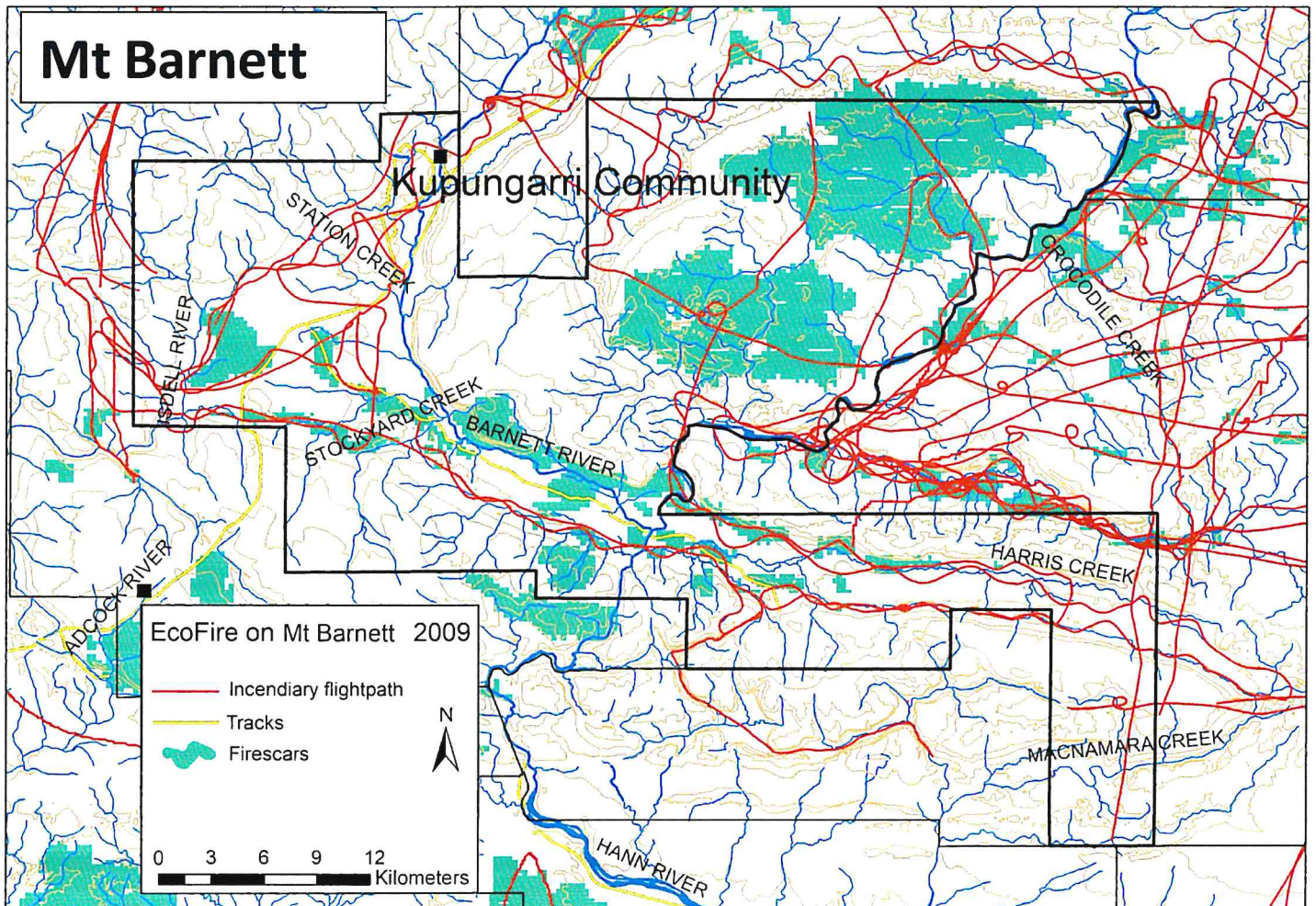




Above left: Peter Lacy fuels up the helicopter between runs.

Above right: Brett, Peter and Richard.

Left: Brett being interviewed by Paul for ABC Stateline.



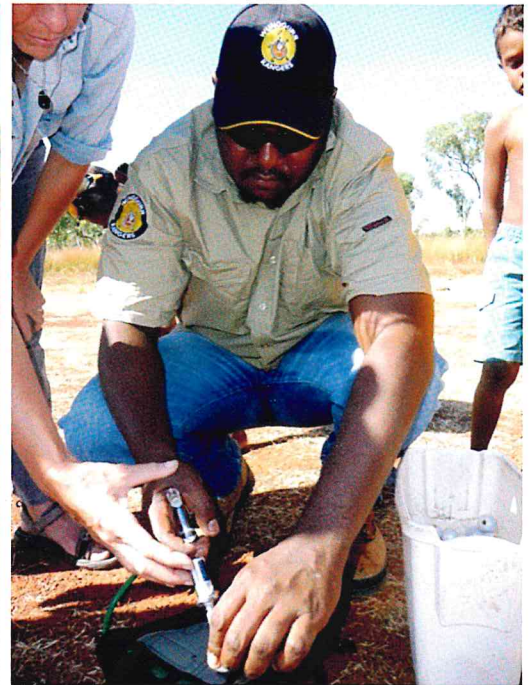
Dwain Donation (right), Mt Barnett pastoral manager, and Clive.



Lloyd Nulgit (Wunggurr Rangers), Cracker (Phillip Duckhole; community council Chairman) and Butch.

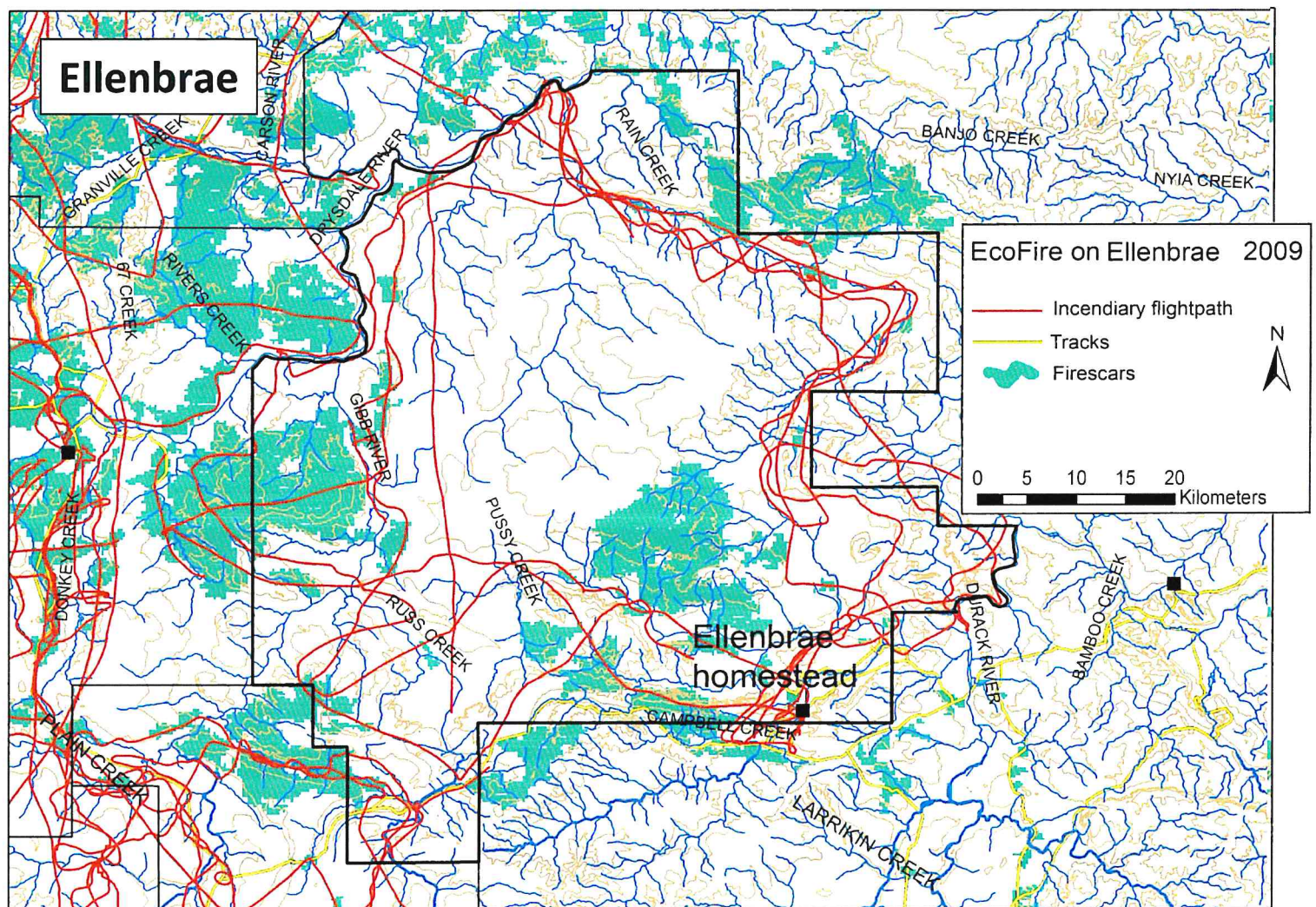


Pre-flight planning and incendiary ignition practice (Photos: P. Palmer).



Rangers work from ground (Photo: P. Palmer) whilst chopper drops aerial incendiaries.

Cracker, Lloyd, Butch and Sarah after an aerial incendiary run in the chopper (Photo: P. Palmer).

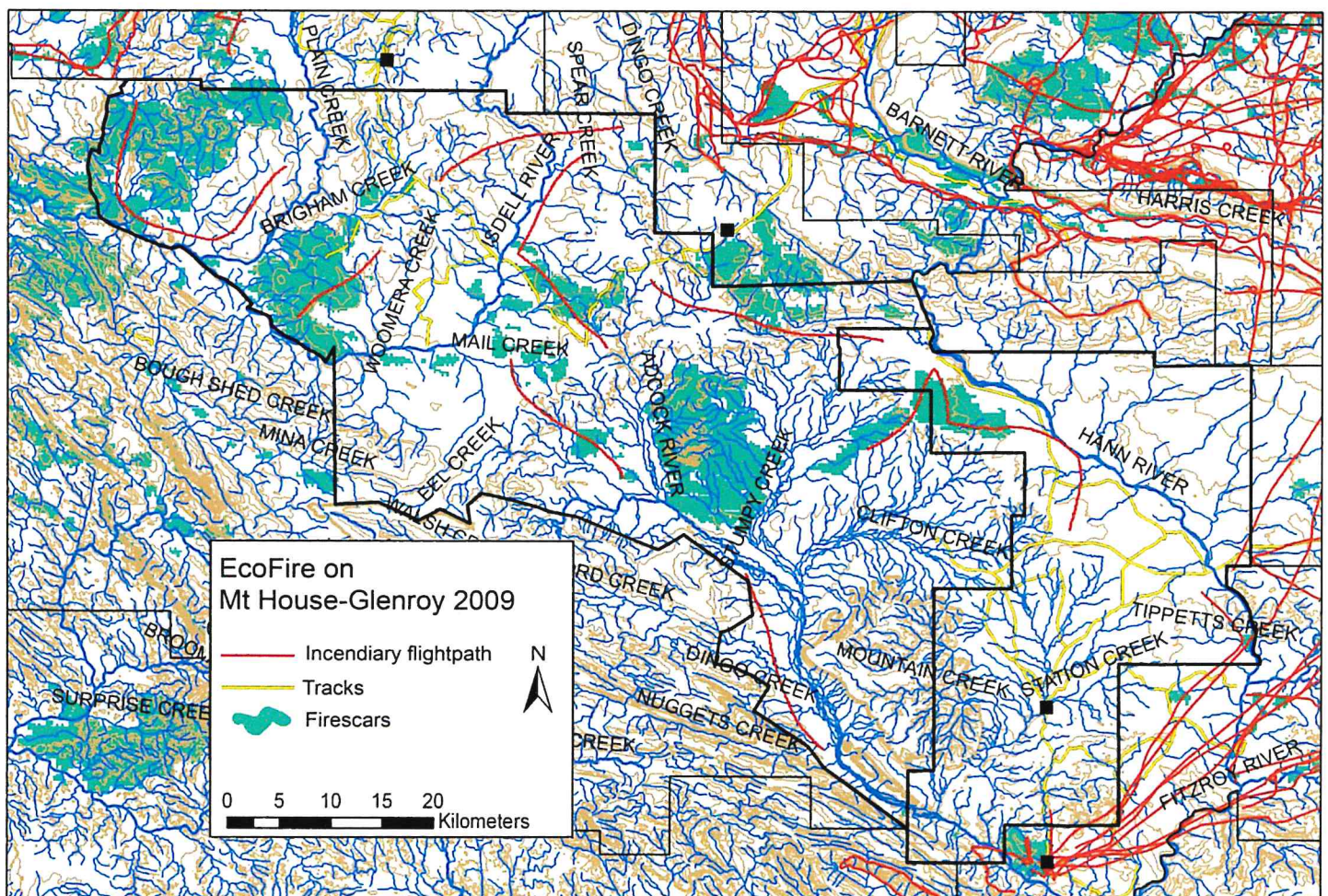


Left: aerial ignitions taking off; Right: Brian and Sarah refilling the glycol bladder.

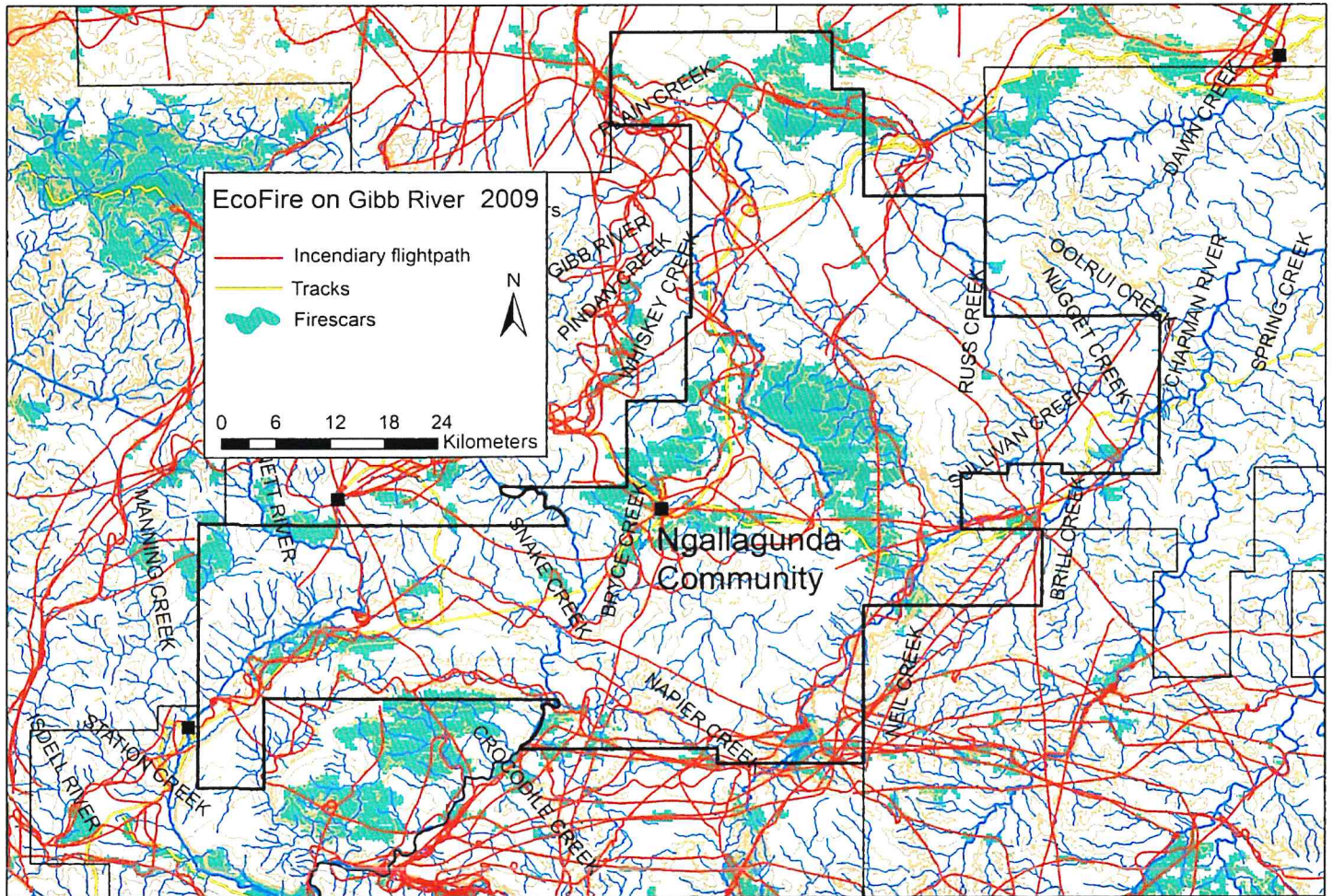


Mt House and Glenroy

Smoke rolls off the slopes of Mt House following an aerial incendiary run carried out by Nigel Westlake.



Gibb River



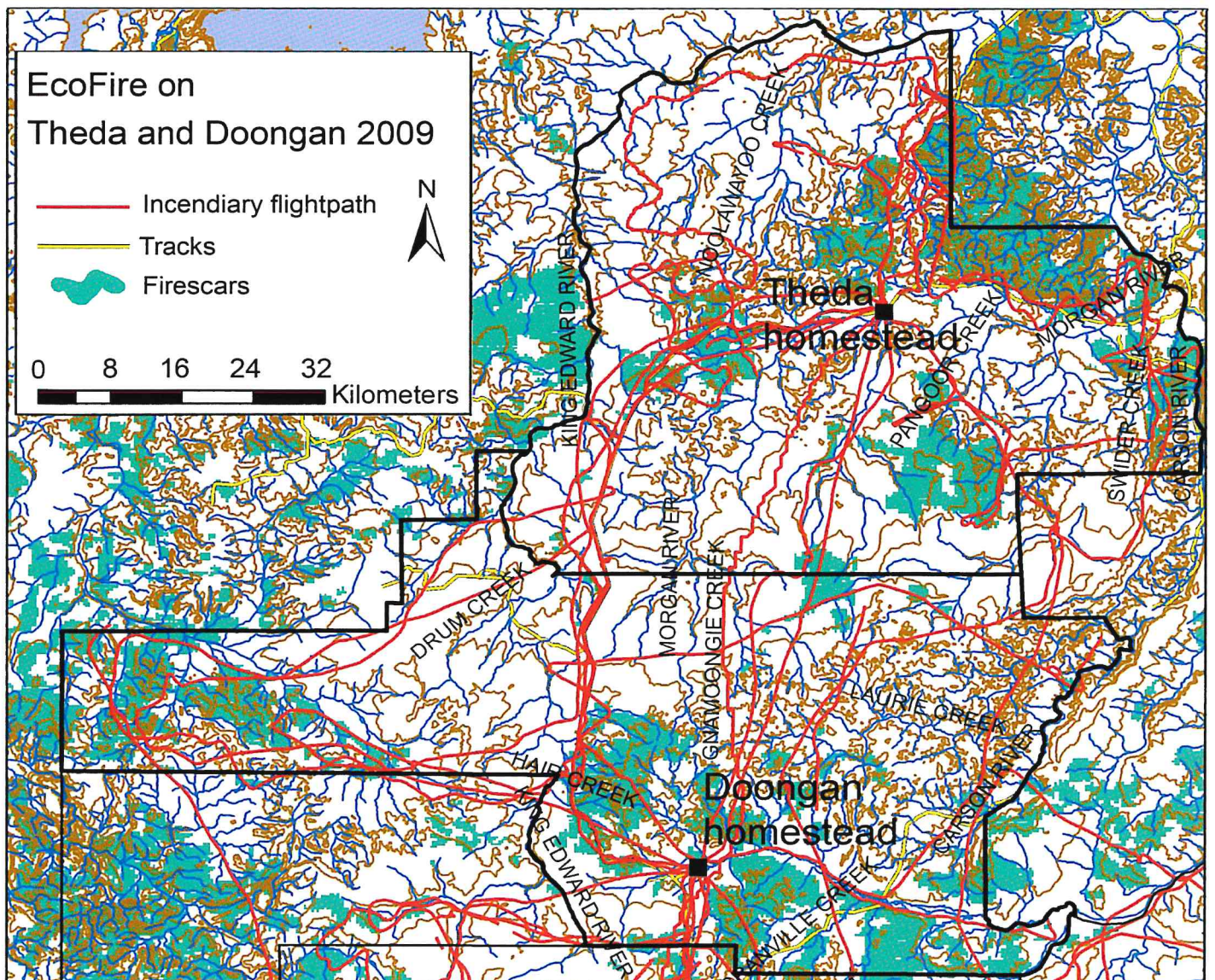
Left: Butch, Frederick, Shannon.
Below: Danny and Alfie White.



Theda and Doongan



Butch: ace fire manager,
navigator and helicopter pilot



EcoFire Steering Committee (organisation and primary contacts)

Rangelands NRM – Liz Brown, John Silver, Brian Warren
Australian Wildlife Conservancy - Sarah Legge, Richard Kingswood
All North Helicopters - Butch Maher
Fire and Emergency Services Authority – Rob Cox, Lee Vallance
Department of Environment and Conservation – Ed Hatherley, Troy Sinclair, Daryl Moncrieff
Department of Agriculture and Food, WA – Paul Novelly, Michael Jeffery, Andrew Craig
Kimberley Land Council – Jane Blackwood, Phil Palmer
Pastoralists and Graziers Association – Jim Motter
Pastoralist and fire manager – Alan Lawford
Derby-West Kimberley Shire – Phil Avery
East Kimberley Shire – Peter Stubbs
KNRM - Peter Kneebone

EcoFire participants 2009

Mornington and Marion Downs Wildlife Sanctuaries - Australian Wildlife Conservancy
Butch Maher - All North Helicopters
Nigel and Cait Westlake - Mt House-Glenroy Stations
Peter and Cheryl Camp – Charnley River Station
Peter, Pat and Brett Lacy – Mt Elizabeth Station
Alfie and Frederick White, Wayne Wilson - Ngallagunda Community, Gibb River Station
Dwain Donaton, Phillip Duckhole (Cracker) Lloyd Nulgit – Kupungarri Community, Mt Barnett Station
Sammy and Betty Walker and family - Tirralintji Community, Mornington Wildlife Sanctuary
Wallace Midmee and family – Yulumbu Community, Tableland Station
Cici, Alan and Maria Myers, Susan Bradley – Theda and Doongan Stations
Grollo family, Susan Bradley, Brian and Marcia Withell – Ellenbrae Station
John, Anne, Joanna Koeyers – Drysdale Station



WESTERN AUSTRALIAN
environment
AWARDS 2008

WINNER