Rambo and Co

strategies for eradicating cats and foxes within fenced exclosures

Context

2 x partnership contracts

TURNING BACK THE TIDE OF EXTINCTION

Removing cats and foxes from national parks land and returning locally extinct wildlife

Sturt National Park
NPWS with Wild Deserts
4,000 ha

Pilliga State Conservation Area
NPWS with AWC
5,800 ha

Ngambaa Nature Reserve
NPWS
3,000 ha

Yathong Nature Reserve
NPWS
40,000 ha

Mallee Cliffs National Park
NPWS with AWC
9,570 ha

Yiraaldiya National Park
NPWS
550 ha

Nungatta South East Forest National Park
NPWS
2,000 ha

Tweed Heads

Newcastle

Sydney

Wollongong

Canberra

Albury

4 NEW SITES
Tripling the area of fenced cat-and-fox-free land to nearly **65,000** ha

3 CURRENT
Feral predator-free area partnerships projects

28 locally extinct species will return to national parks on **4 new sites**

Over 50 threatened species will benefit

Feral cats kill more than **1.5 billion** native Australian animals every year.

Fenced sites not to scale

This project has been assisted by the New South Wales Government through its Environmental Trust

- A network of feral predator-free areas to reintroduce locally extinct mammals is an essential strategy to reverse the decline and improve outcomes for threatened species at risk from predation. It is a key element of delivering on a commitment to zero extinctions in NSW national parks.

- NPWS is establishing seven feral predator-free areas. When combined, it will bring the total fox and cat free area in NSW national parks to approximately 65,000 hectares.

The problem

Over 30 mammal species have been driven to extinction in the past 250 years. Cats and European red foxes have been the main drivers for at least two-thirds of these losses.

Fenced exclosures are effective at keeping cats and foxes out of large areas of habitat, enabling threatened species to thrive.

But no fence is <u>guaranteed</u> to prevent an incursion and when it happens it is much harder to remove a predator in the presence of reintroduced species and many conventional methods cannot be applied

Photo AWC

Part 1
Felixers in action
learning by doing – Sturt National Park

Presentation prepared by David Rudder NPWS and Reece Pedler Wild Deserts

Felixers are stationary devices equipped with sensors, a camera, and a delivery mechanism that fires a measured dose of poison onto the fur of a target animal, which is subsequently ingested through oral grooming.

The Felixer algorithm can be set to detect cats and foxes as specific targets and differentiate these from other, non-target, species.

Photo Wild Deserts

Felixers are solar-powered and able to operate autonomously without the need to change baits or release captured non-targets and hence are better suited to long-term management of feral cats and foxes.

While traps and baits are effective for scavengers, such as foxes and wild dogs, Felixers are most effective on wary hunters that don't take baits and are difficult to trap.

Photo Wild Deserts
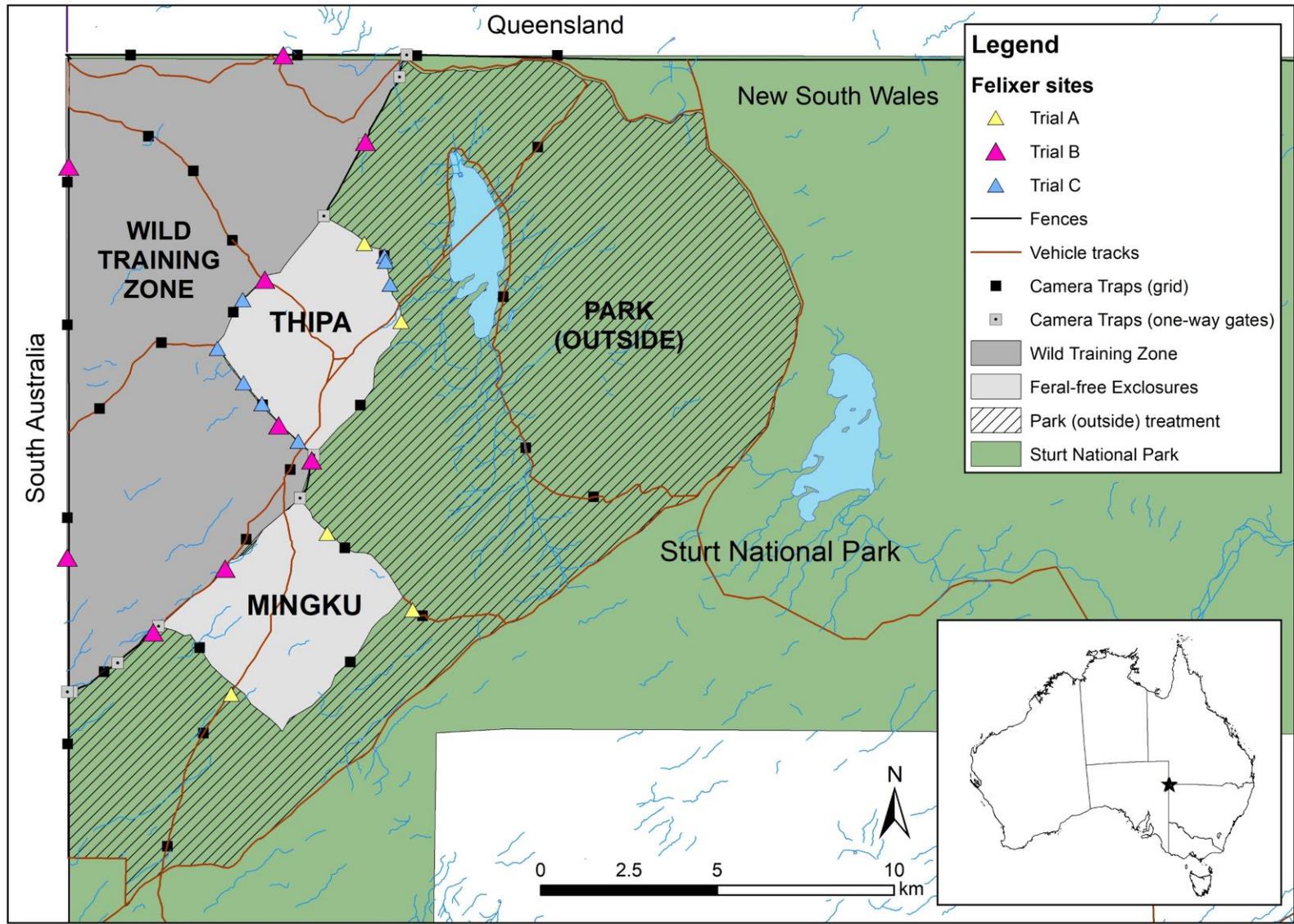
During a 2 year trial, 4,380 non-target animals of at least 35 species were photographed moving in front of loaded Felixers with 99.95% identification accuracy, including; clockwise from top left: 1,453 Dusky Hopping-mice (among 2,743 small mammals); 14 Crest-tailed Mulgaras; 407 Rabbits and 3 Echidnas.

Cat detections on the remote camera trap grid inside/outside the Wild Training Zone show cats at relatively high densities following substantial rainfall and breeding of cat prey. But a disparity is emerging between the Wild Training Zone and outside (Park) treatments.

Some encouraging results

- 220 cats fired upon in 24 months

- Felixer units are returning 99.95% target accuracy

- Cat activity in the WTZ reduced by 35-50% of outside activity levels during a cat population explosion following good rainfall and abundant prey

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This target specificity is what makes Felixers particularly effective inside exclosures where a cat incursion has occurred, or in an area of co-habitation with native species (e.g. the WTZ).

Once a feral-predator-free area is occupied by reintroduced species a number of traditional control methods either cannot be used, or their application is severely restricted. These include the use of soft-jaw leghold traps, detector dogs, ground shooting and aerial shooting. Even aerial baiting carries a measure of risk.

Photo AWC

Issues

- High incidence of technical faults
- Need for regular in-field checking, adjustment and repairs
- Associated high cost

The 'incursion cat' above was eliminated by a Felixer after 10 non-firing events

Issues

- False firing events that make cats cagier and then harder to get next time

- Set-up sensitivity (level or even ground in front of Felixer)

Takeaways

- Felixers are one more tool in the kit, not a silver bullet. They should be used in combination with other methods across an entire fenced exclosure in the eradication phase

- Felixers are most effective along fence lines and tracks

- Felixers are useful in dealing with incursions to feral predator-free areas

- New AI models are showing promise in resolving some of the technical issues and will increasingly be able to improve detection of non-target species in difficult environments (e.g. koalas in forested areas).

Rambo and Co

Part 2: Your worst nightmare - Rambo

Background

At the time of fence completion and 'lock-up' in September 2018, there were **6** cats and **6** foxes inside the 5,800 hectare fenced area.

After 12 months of eradication just **1** cat and **1** fox remained ……….………then just **1** fox.

From late 2019 to late 2022, Rambo evaded all capture attempts including:

- Leg-hold trapping
- Ground shooting
- Detector dogs
- Thermal shooting
- Ground 1080 baiting – including canid pest ejectors (CPEs)
- Aerial 1080 baiting
- Aerial shooting
- Carcase dragging & carcass dumps to lure the fox
- Whistling, calling with a wide variety of electronic calls known to attract foxes
- Thermal drone for detection.

Proposed Aerial Baiting
Pilliga AWC

Rambo displayed interesting survival adaptations over time including:

- Didn't travel <u>along</u> roads, only crossed roads as evident through road dragging

- Didn't take baits

- Used whole >5000 Ha fenced area, except fence lines (the pulse of the hotwires may have been a deterrent)

- Random movements with no logical patterns of movement identified

- Avoidance behaviour towards new objects, baits, camera traps and drones
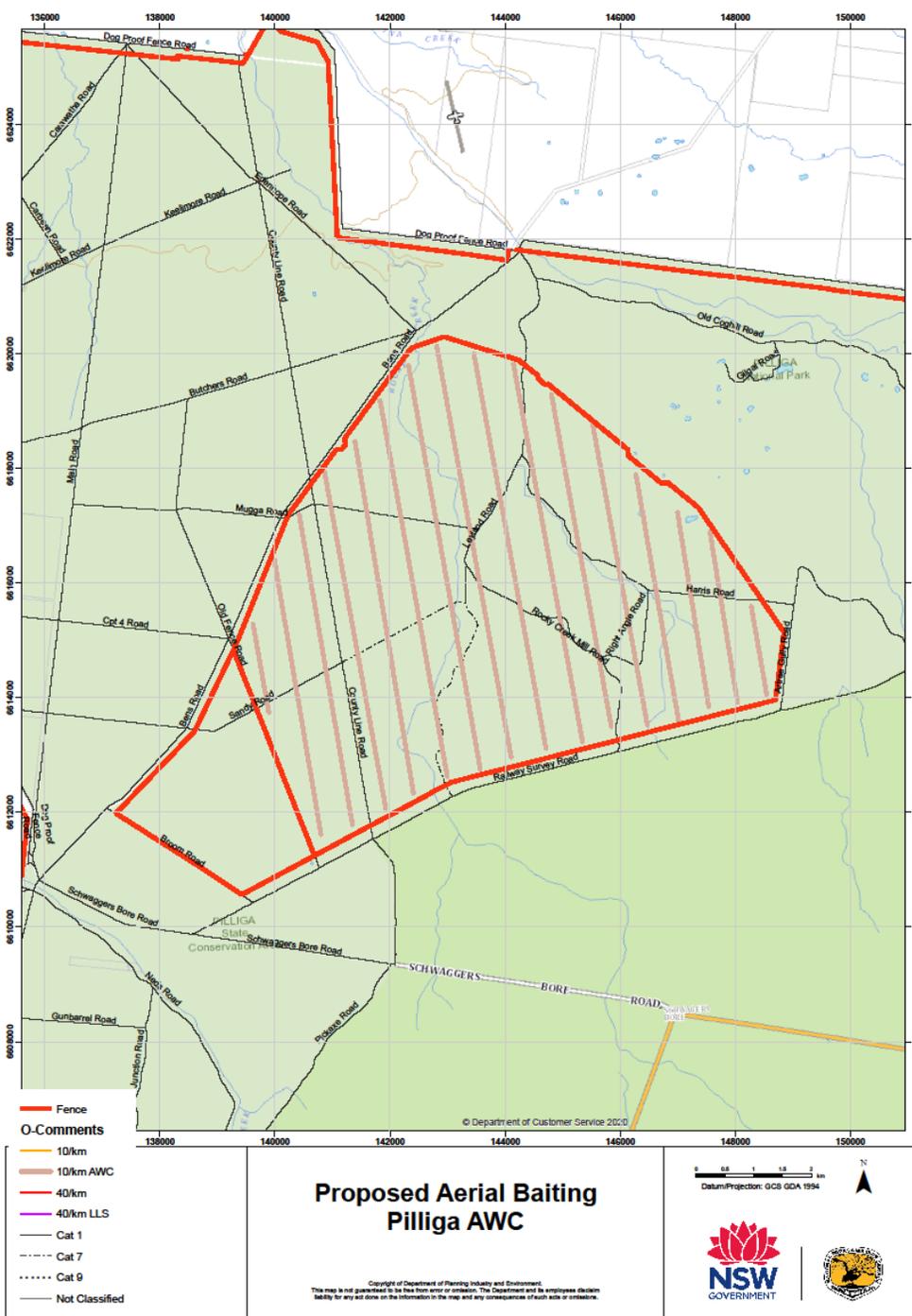
Novel techniques that were explored and used

- Fire
- Vennel trap
- Detection dogs
- Caged live lures
- Aerial shooting
- Thermal drone for detection
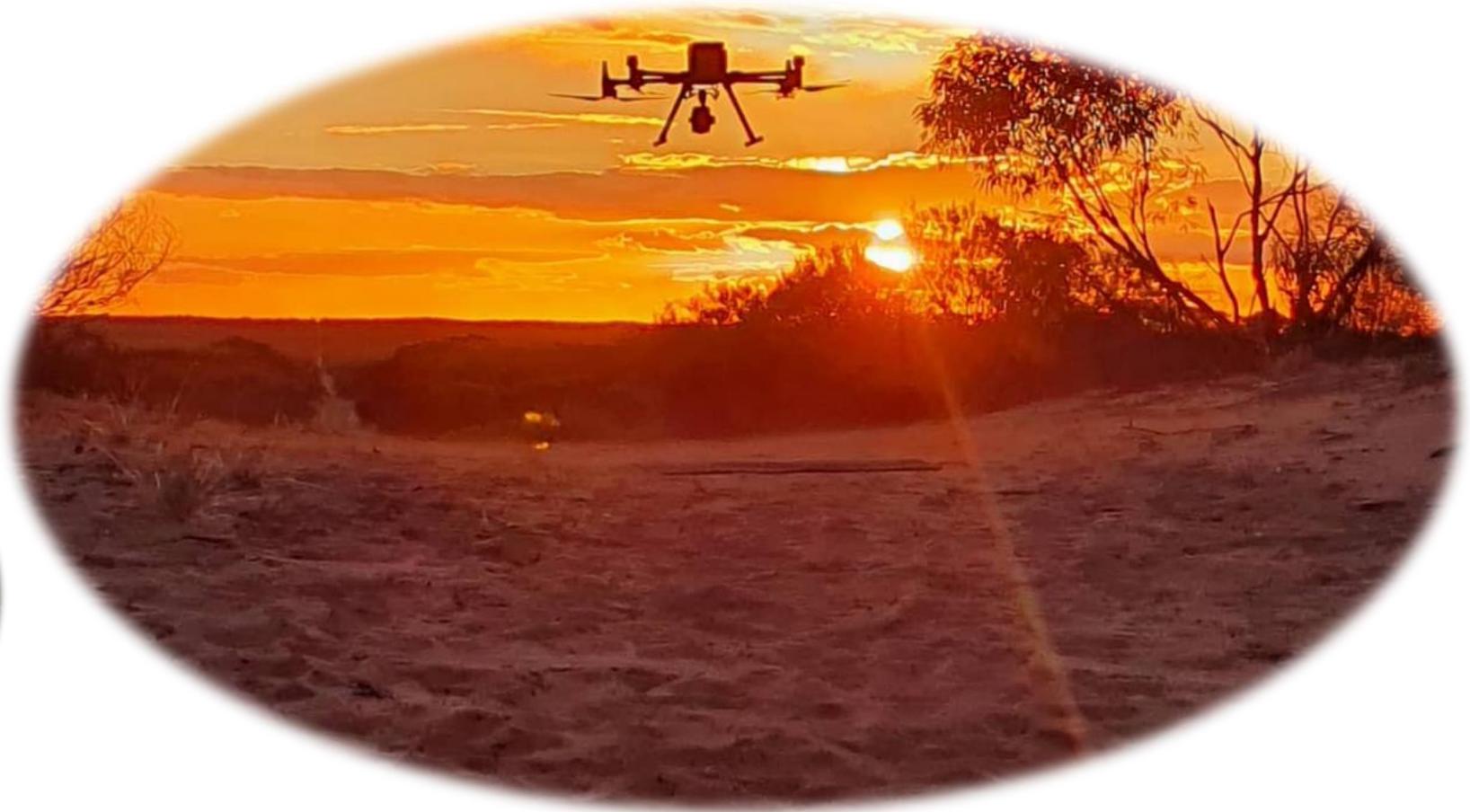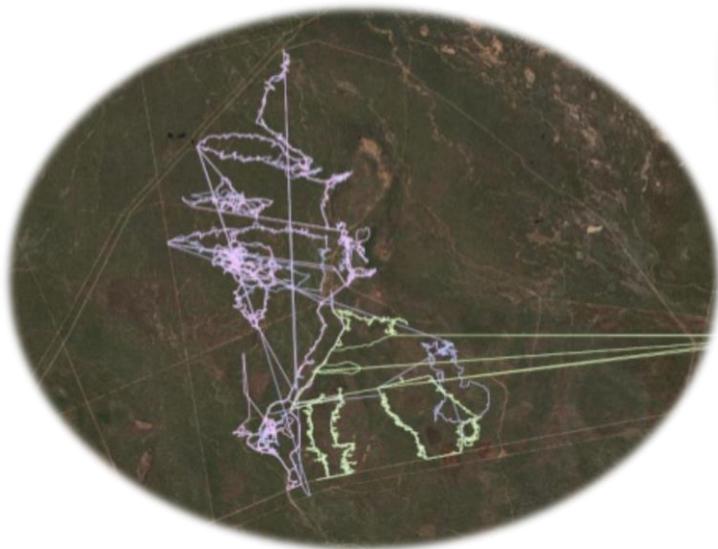
Controlled fire to open sight lines and lure the fox out of dense vegetation

Photos AWC

"stinky" vennell to attract and trap the fox (supplied by University of Queensland)

Caged domestic chickens to lure the fox

Photo AWC

Other techniques developed but not required

- Felixer grooming traps
- Toxic trojans (chickens or bilbies with toxic implants)
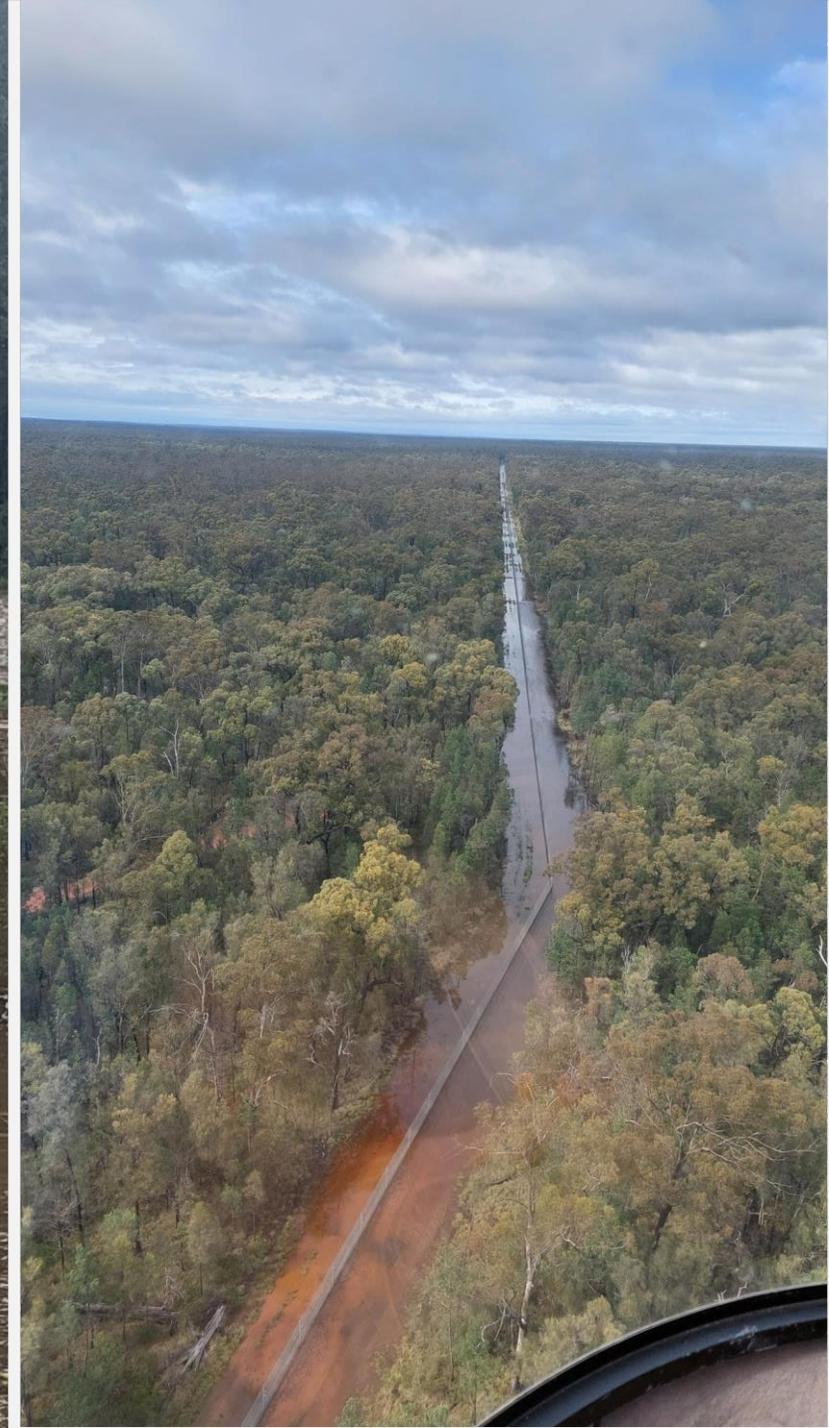- Additional fencing
- Fox drive

Photos AWC

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