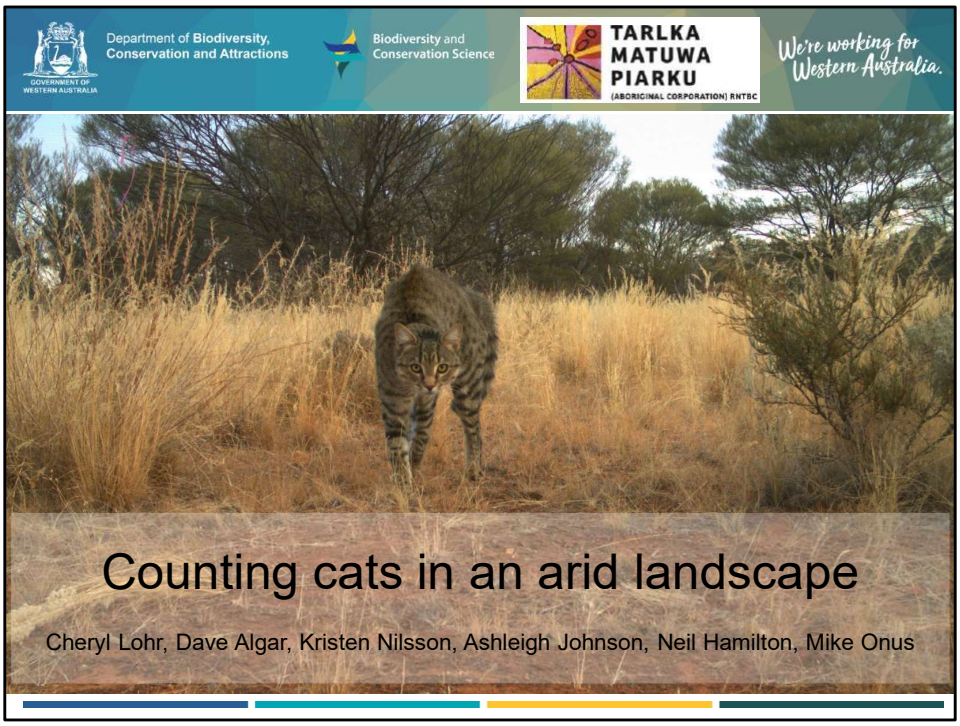
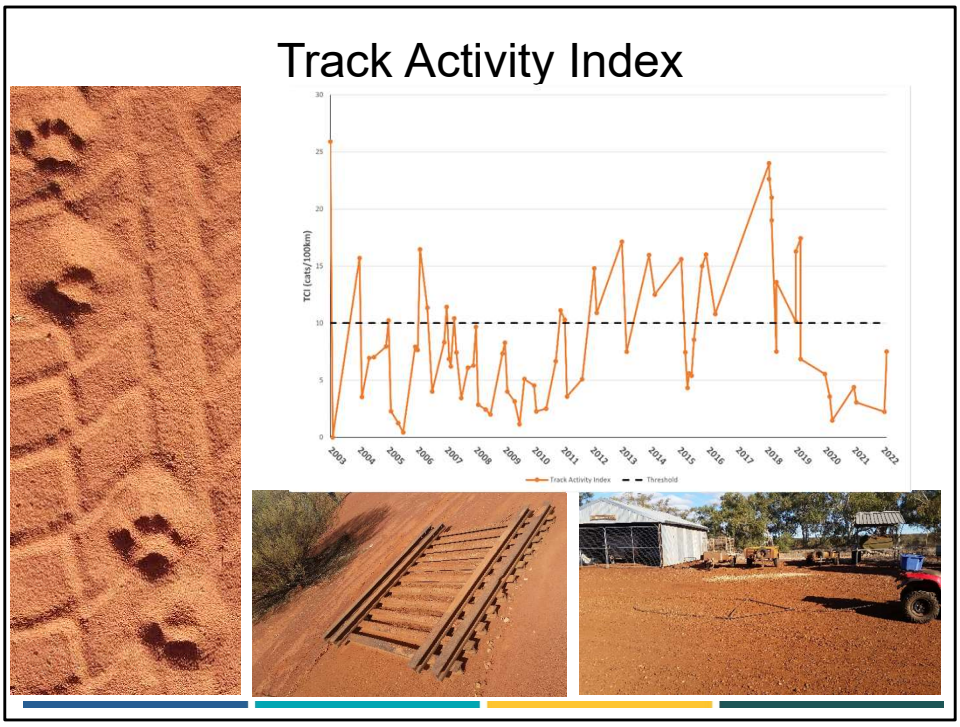


Hi folks. As you may be aware/government has announced the Feral Cat Strategy is going to be released this year. That means that developers will likely be under increased scrutiny and pressure to deal with feral cats on their site. So I thought I would try to catch you up on the several years of research we have done at DBCA to figure out how to measure the abundance or activity of cats in the arid zone, and how best to suppress feral cats.

My colleagues and I have a fairly long history of counting cats in the arid zone. To my knowledge we have the longest continuous dataset on feral cat activity Australia wide. We've used a few different methods to build that dataset over the years.
A large portion of our work has occurred on the Matuwa National Park, in central Western Australia and I would like to acknowledge our collaborators, the traditional owners of the land, the Wiluna Martu People and Tarlka Matuwa Piarku Aboriginal Corporation.

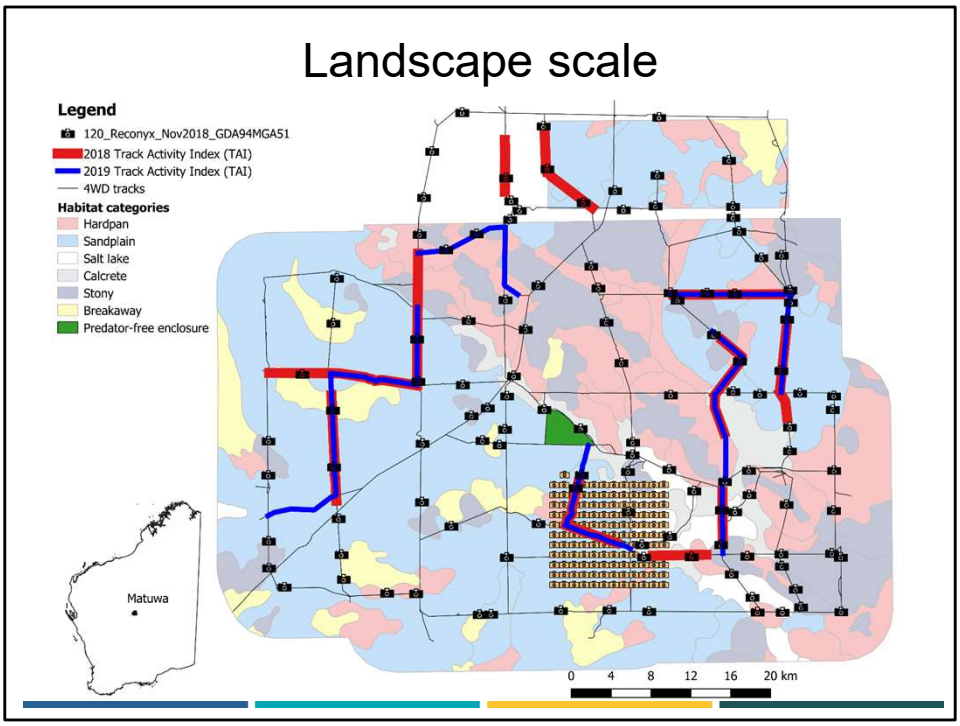


I mentioned we have a very long continuous dataset on feral cat activity in the arid zone – this year it becomes 20 years of data.

The first very important thing I want you to notice is that when we started working on Matuwa, before we started trying to control the feral cat population, we recorded 26 cats/100km of track.
Our aim was to reintroduce native marsupials to the site so we had to get those numbers down to less than 10 cats/100km.
Most years using baseline management techniques we achieve that goal so 10 cats/100km is now our trigger threshold for intensive feral cat control.
And our new goal is 5 cats/100km.

How are we calculating those numbers? Track activity index.
We use the pre-existing vehicle tracks, many of which are sandy and we look for cat tracks.
We clear the tracks every day using heavy metal drag or and light chain drag, which you can see here behind a quad bike, to create a blank canvas. Then someone gets the job of slowly riding a quad bike along the track in the morning looking for cat tracks.
Any cat tracks that occur within 1km of each other we assume are from a single cat meandering around the countryside.
Average the count of cat tracks across at least 4 days, assuming that not every cat will cross

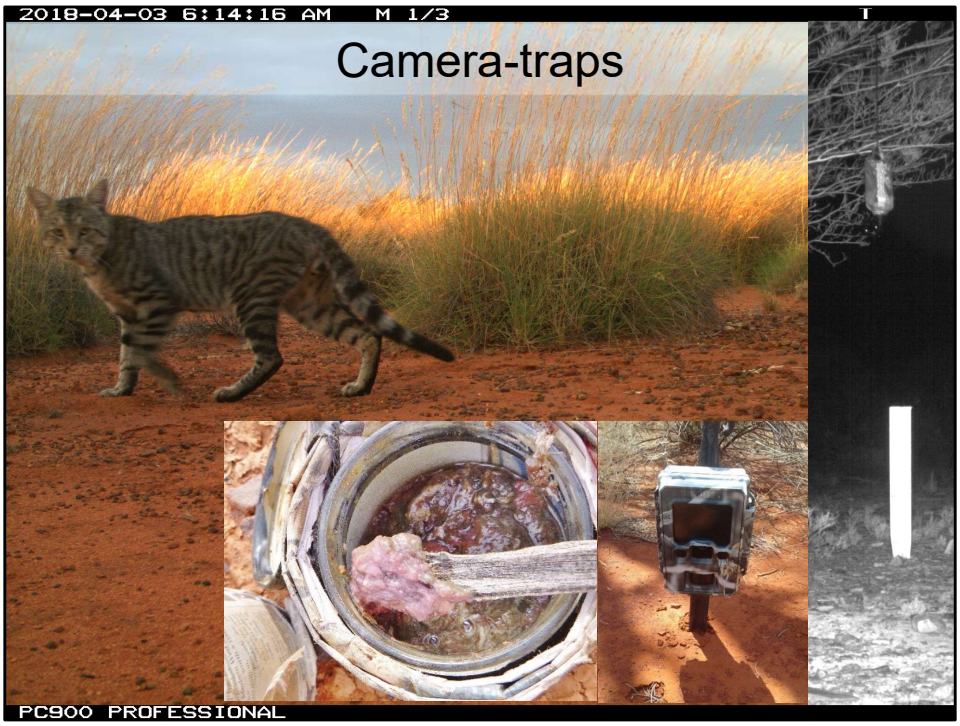
a road every day.



Monitoring 100km of track means we measure feral cat activity on a landscape scale.
Being scientists we have to ask – is staring at the dirt while on a quad bike the best method for counting cats?
We've compared the track activity index, to 2 arrays of 120 camera traps – the other common technique for counting cats.

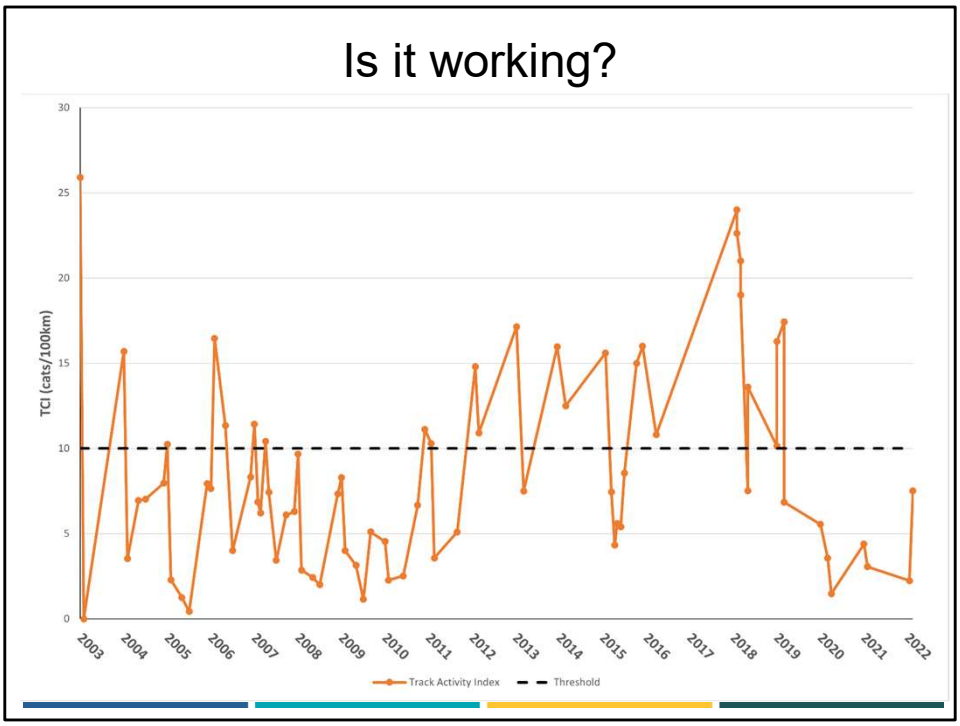
Matuwa is huge, roughly 50km by 50km and roughly 1.5 hours drive from the nearest town of Wiluna. It was a cattle station until 2000. It recently became a National Park under joint management with TMPAC.
The property has 2 IBRA Regions
Predominantly, spinifex sandplain in the SW and mulga woodland in the NE, with some breakaways, salt lakes, and calcrete exposures.
The track activity index is depicted on this map with red and blue lines and camera traps in grid or spread out across the property as marked by the little camera icons.

Using these methods we've been able to answer questions about which habitats feral cats are most likely to be in, which monitoring method is most cost-efficient, and which management techniques are most effective.

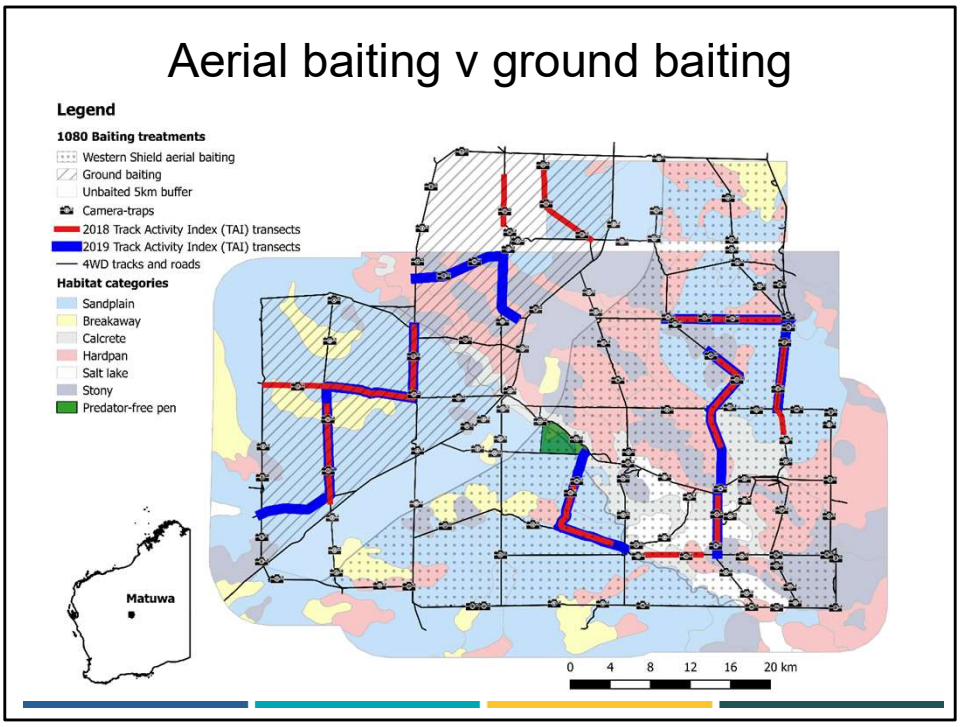


Our camera traps are usually lured and placed at least 30m from a road. We've tested quite a few lures over the years. That sludge in the bottom picture is a commercial lure from Victoria known as Catastrophic.

Our baseline feral cat control technique is delivered by the Western Shield program, whereby we spread sausage baits that contain 1080 over the landscape via aircraft. We drop batches of 50 baits every kilometre from an aircraft.
1080 is an unpleasant toxin, so it is important that we check to see if it is working, if we are achieving our conservation goals by spreading the bait.
It is also important that we test that these baits do not negatively impact our native species – we've recently been able to confirm that the Eradicat bait does not kill golden bandicoots with 38/39 VHF tracked individuals surviving baiting.
We've been using these baits on Matuwa every year since 2003.

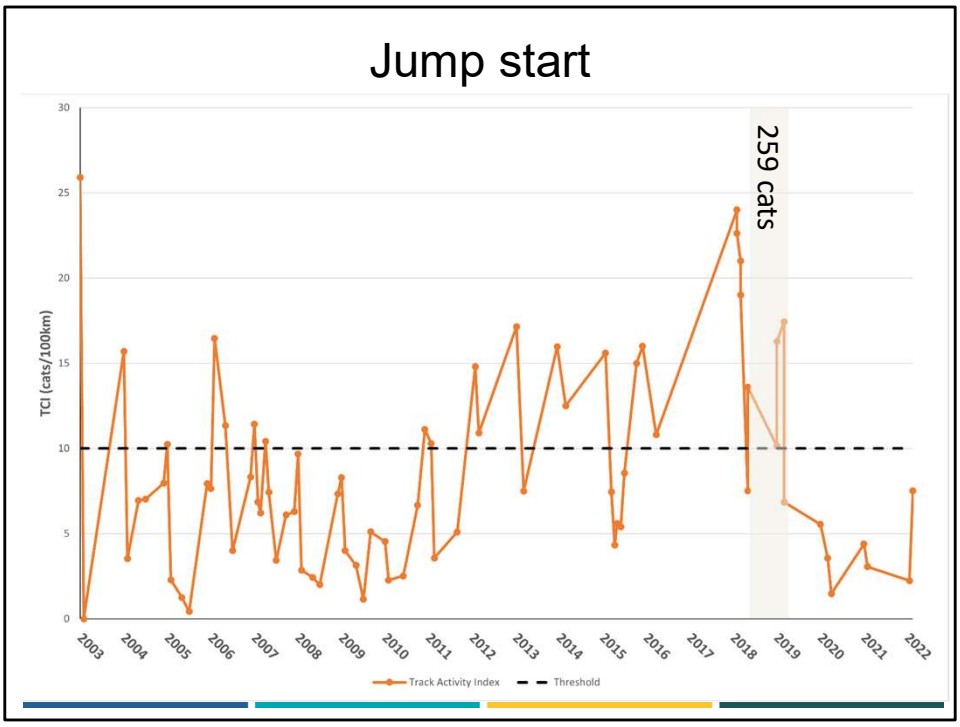


Looking at our TAI data, before management we started with 26 cats/100km.
That declined sharply when we first started using the bait. Then in 2012 cat numbers started to return. That sparked the new round of research testing aerial dispersal and ground-based dispersal of baits and the efficacy of leg-hold traps.

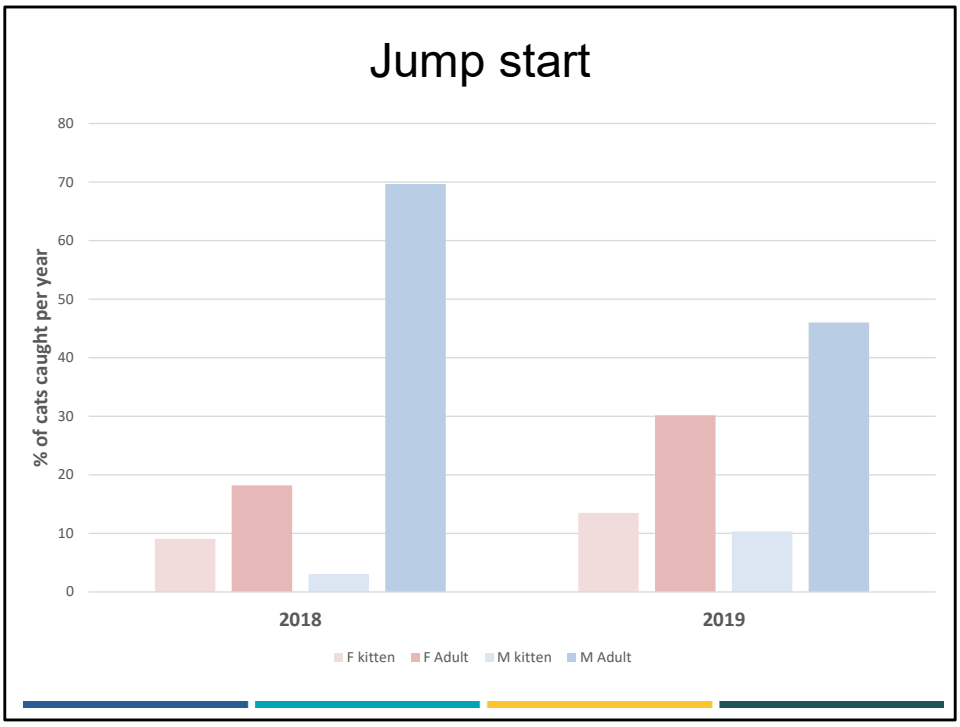


First trial – aerial baiting v ground baiting
I won't go into a lot of detail about each of these studies as it would take too long, but I'm more than happy to chat to folks after the presentations if you want more details.

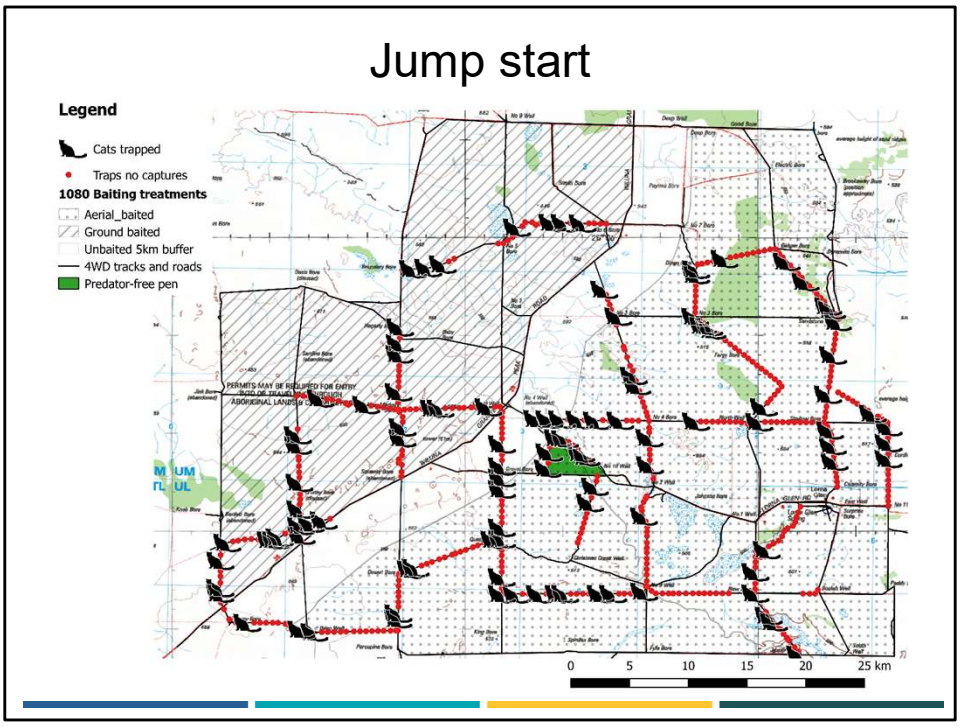
We split Matuwa in half, aerial baited the east, and hand baited tracks in the west. The blank area here is a buffer between our 2 treatments 5km wide and was not baited at all. We found that while it was more expensive, aerial baiting was more effective in terms of the reduction in cat activity with up to 90% reduction in cat activity.
Both baiting applications worked best after leg-hold trapping had occurred.



In fact, a few months of leg-hold trapping, which removed 259 cats from the property, seems to have jump started the system, with cat detection rates dropping well below our threshold in subsequent surveys…
You'll notice here we have had 3 years of successful aerial baiting after a round of trapping.



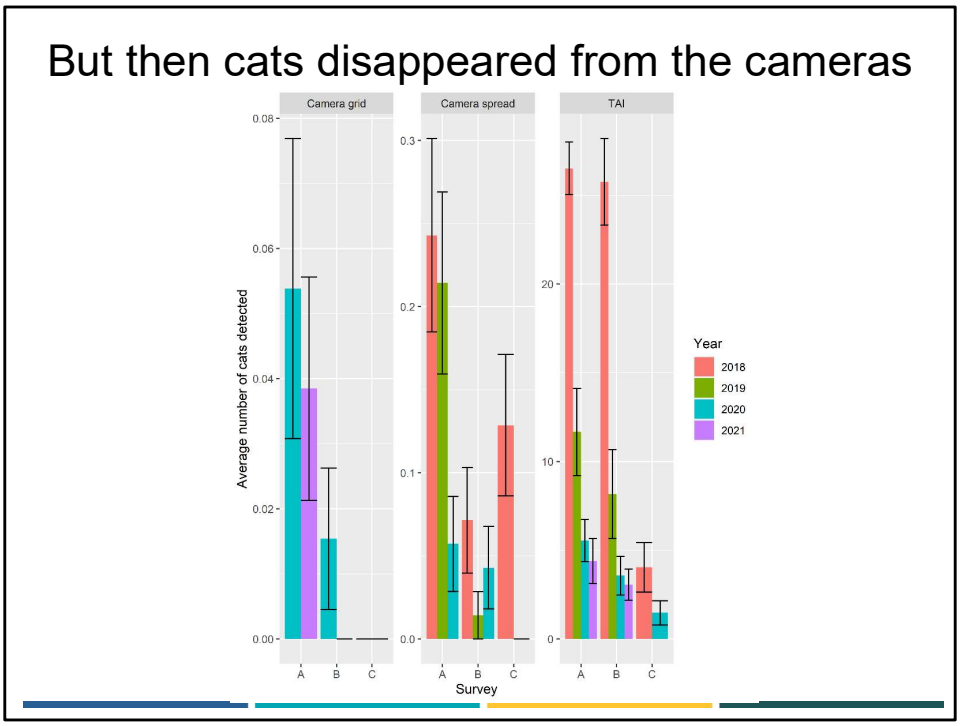
and reduced the % of trapped cats that are adult males.
This is important because there is a difference between young inexperienced animals and older cats in terms of how effective they are as a hunter.
We've also hypothesized that the reason the Eradicat baiting didn't appear to be working was because the cat population was biased towards older, experienced males that have less need, and hence less desire to scavenge. Lactating females, and inexperienced, hunters, however, might scavenge more and hence are more susceptible to the bait.
Remove the experienced males with some trapping and the baiting suddenly appears to be working again.



Our new recommendations for feral cat control in the arid zone are to use aerial baiting annually, and if your cat activity gets above your trigger threshold, which in our case seems to happen once every 10 years, then you need landscape scale leg-hold trapping to reset the system –take the big male cats out, get your baseline control working again.

The Eradicat bait is now a registered control technique for feral cats and can be used across Western Australia.

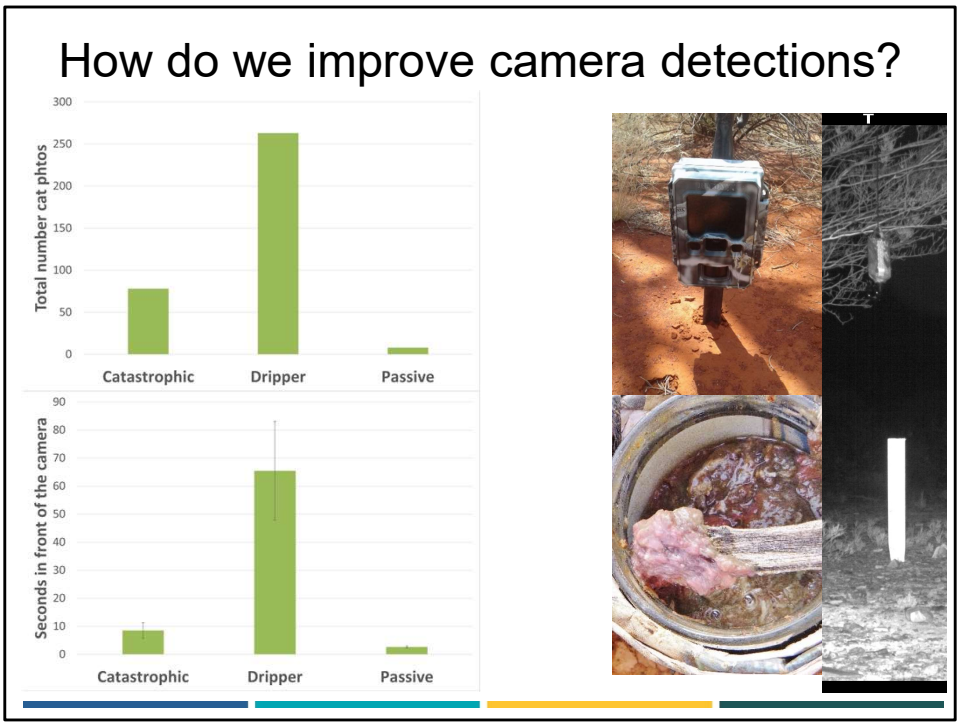
But then cats disappeared from the cameras



Cat control is a long-term management action. So research continues.
The data you have seen so far is an estimate for feral cat activity rather than a true estimate of feral cat abundance.
We were going to try and identify individual cats on the cameras and calculate a real estimate of abundance.
But then cats disappeared from the cameras.
Good thing we were still using the TAI – which confirmed cat activity is low but not gone.

Why did the TAI detect cats when cameras didn't. Continuous survey of 100km of linear track ultimately covers 3 times the land area that 130 cameras can cover, for half the cost.

You can't estimate cat abundance unless you can identify individual cats. You need to know if that was cat A, B , or C for the math to work.



How do we improve camera detections of feral cats.
Folks would tell me to position the cameras so they face the road because cats like to walk along the road – but that increases the risk of autocorrelation between sample sites, and besides we have the TAI for that.
How do we improve camera detections for feral cats in the bush?
Trial different lures.
Between 12th of June and 9th of August 2022 we set 120 pairs of cameras
One camera at every site was lured with Catastrophic – which has been our standard lure in the past. Lovely stuff.
The other camera was either a passive camera with no lure, or we used a liquid lure that slowly dripped from these bags hanging above a stake. From trials here in Perth, it takes about 2 weeks for the drippers to completely empty – though time depends on temperature of the bag.
What did we find?
Passive cameras detected 8 cats total in 2 months!
Catastrophic cameras found 78.
Drippers found 263.
Cats spent less 3 seconds in view of a passive camera, 9 in front of a Catastrophic camera, and 65 seconds at a Dripper.

How do we improve camera detections?

Passive

Dripper

The amount of time spent in front of the camera effects the quality of the photograph and how the cat behaves around the camera.
I couldn't identify the individual in front of the passive camera, but I can get some great information on the coat pattern of the cat in front of the Dripper.

With this new method we got 45 independent cat detections on 120 sites, and 29 confirmed individuals – enough data for occupancy analysis, still not enough for true abundance estimate – but that's the problem with successfully suppressing your feral cat population.

But that's the problem with successfully suppressing your feral cat population.

You get threatened critters appearing on your cameras instead of cats.

Thank you.