Cat eradication on Dirk Hartog Island

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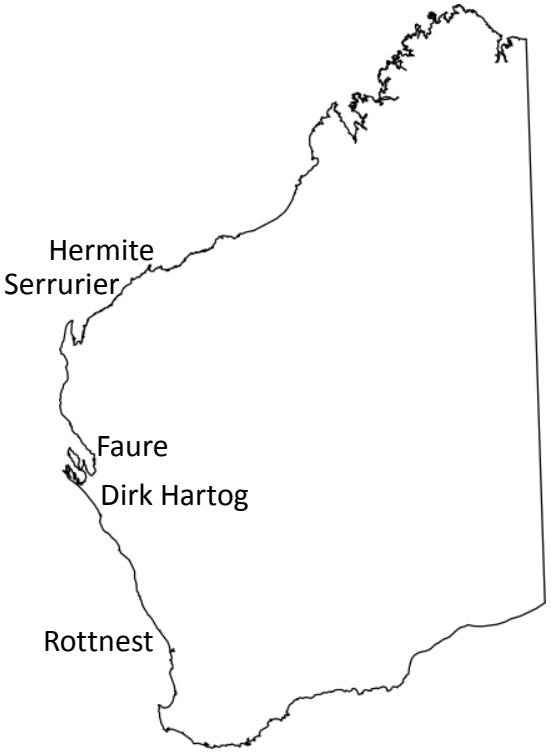
Cat eradication – Western Australian islands

Island	Size (km^2)	Technique
Serrurier	3	Ground baiting
Hermite	14	Aerial baiting & trapping
Faure	58	Aerial & ground baiting
Rottnest	17	Trapping
Christmas	135	Suspension baiting, trapping & urban cat management
Dirk Hartog	620	Aerial baiting & trapping



Department of **Biodiversity, Conservation and Attractions**

GOVERNMENT OF WESTERN AUSTRALIA

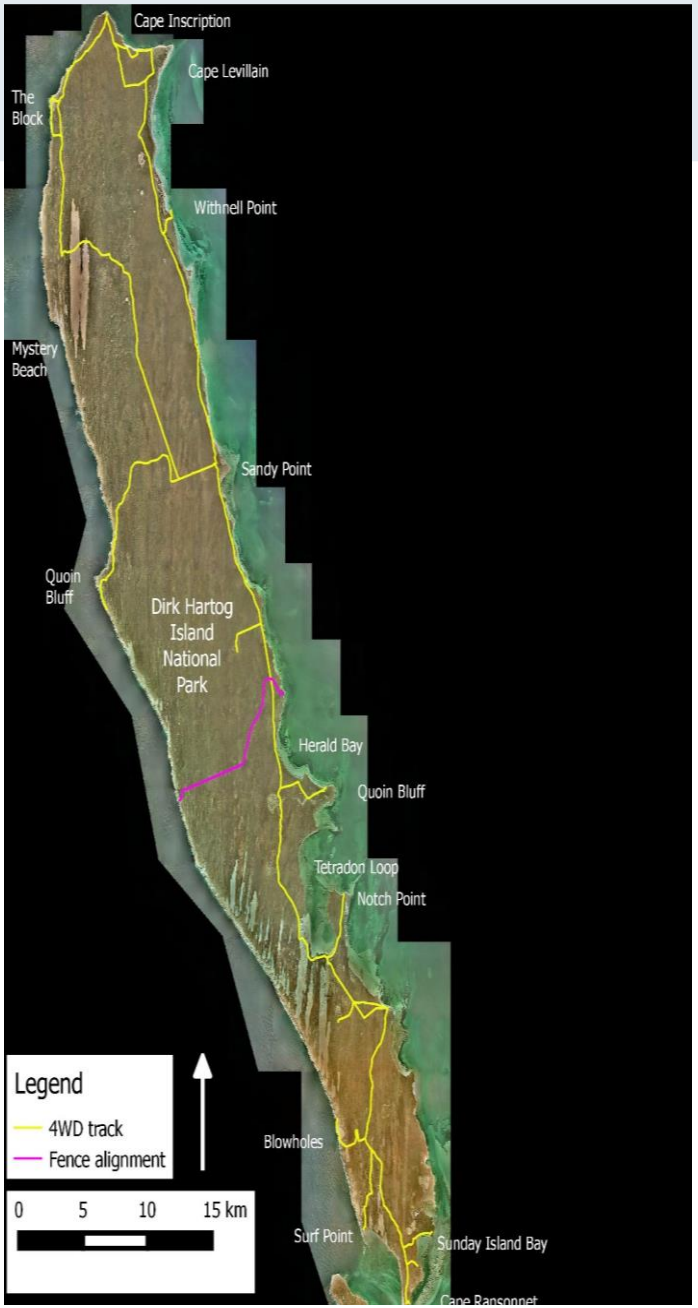
Dirk Hartog Island

DHI, an area of 620 km^2, is the largest island off the WA coast and lies within the Shark Bay World Heritage Area;

The island is approximately 79 km in length and a maximum of 11 km wide;

DHI was declared a National Park in Nov. 2009;

Only permanent inhabitants – former pastoralist family.



- Since the 1860s DHI has been managed as a pastoral lease, grazed by sheep and goats. Recently, tourism has been the main commercial activity;

- Feral cats became established during the late 19th century, and were probably introduced by pastoralists;

- Semi-arid, low-lying sandy island, vegetated with spinifex and low heathland.



- On DHI, 10 of 13 native terrestrial mammal species that previously occurred there are now locally extinct. Predation by cats has been implicated in these extinctions;
- Only three, smaller-sized native mammals still occur on the island. The island also contains several threatened bird species and a threatened reptile species;
- Successful eradication of feral cats is essential if reconstruction of native mammal fauna on the island is to occur.

Eradication stages

1) Planning – pilot study;

2) Implementation – removal techniques and monitoring methods;

3) Verification – detector dogs and independent evaluation;

4) Surveillance.

IF YOU FAIL TO PLAN …….

Planning

Firstly, conducted a pilot study:

1. to assess the efficacy of aerial baiting, the primary removal technique to be used in the eradication campaign. Results demonstrated that aerial baiting would be highly effective on DHI;
2. to collect data on daily cat movement patterns to assess rates of cat detection. Results indicated that placement of monitoring transects at a width of 2.0 km across the island would be sufficient to enable detection of all animals within each survey period;
3. Used cat home range size and degree of overlap to derive best estimate of cat population size pre-removal effort of **439** cats, estimate range of **309 – 503** cats.

Implementation – barrier fence

- The size of Dirk Hartog Island, in particular its length, posed logistical constraints on conducting an eradication campaign across the entire island simultaneously. It was not practical/feasible to monitor cat activity over such a large area therefore, the eradication campaign was conducted in stages;

- An electrified cat barrier fence was constructed east-west across the island (13 km in length), effectively dividing the island into two, allowing a concentration of removal effort in the two discrete sections of the island.

Implementation – removal techniques

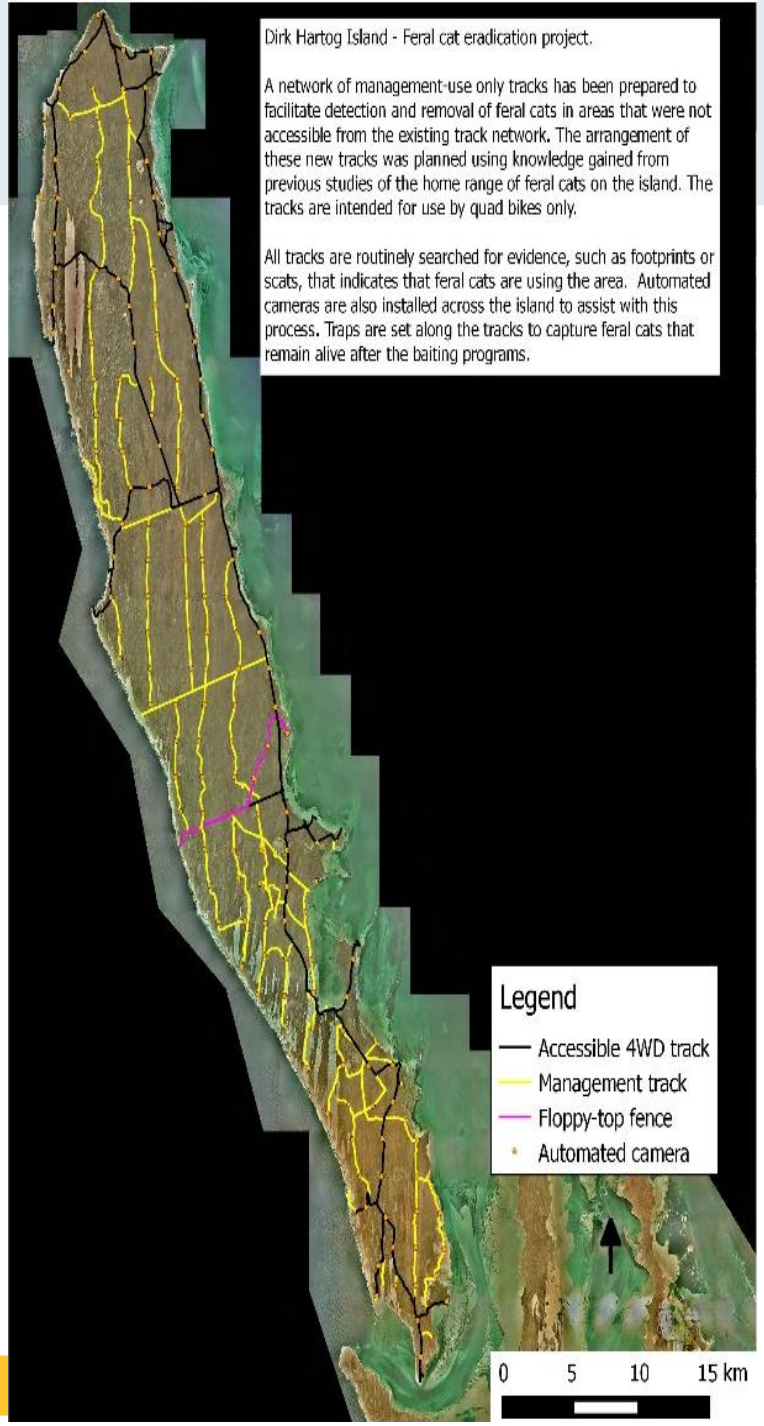
- Aerial baiting was the primary removal technique in the eradication campaign, using the feral cat bait *Eradicat*®;
- 50 baits are released into each 1 km map grid, along flight transects 1 km apart, to achieve an application rate of 50 baits km^{-2}. The ground spread of 50 baits is approximately 200 x 40 m.

Implementation – removal techniques

- Leg-hold trapping was used to remove cats that survive the baiting programs.

Implementation – monitoring

- Installation of a network of monitoring tracks across the island;
- Track network covers a distance of approx. 400 km and is only accessible by ATV;
- Along track network have 103 cameras in the northern zone and 60 cameras located in the south.



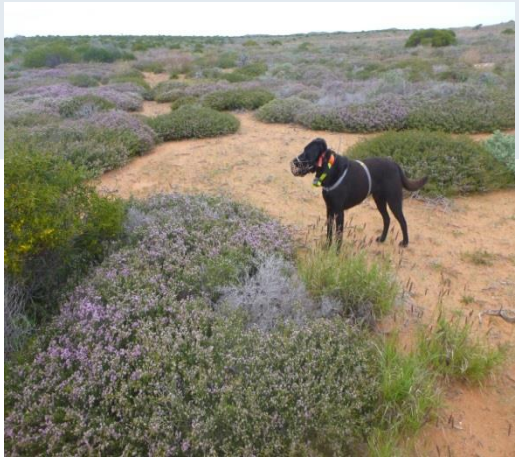
Cat detection

1. Camera trap surveys;

2. Evidence of cat footprint activity along the network of sandy survey tracks;

3. Surveys along all beaches were also routinely undertaken.

These techniques were used to locate areas where removal effort was required and whether additional measures and/or resources were needed.



Verification

1. At the conclusion of removal effort we employed detector dogs and their handlers to independently verify presence/absence of cats.

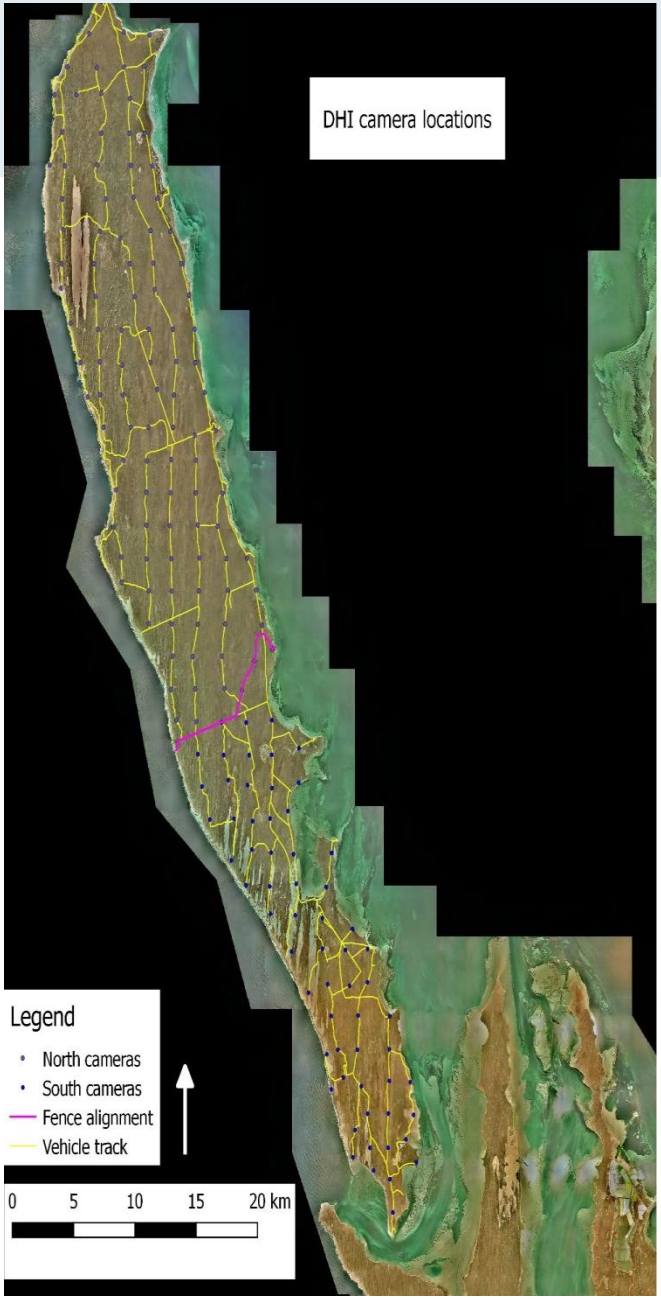
2. We have also contracted Island Conservation to conduct an independent review of the project's progress/success following no cat detections after 12 and then at 24 months.

ISLAND CONSERVATION
Preventing Extinctions

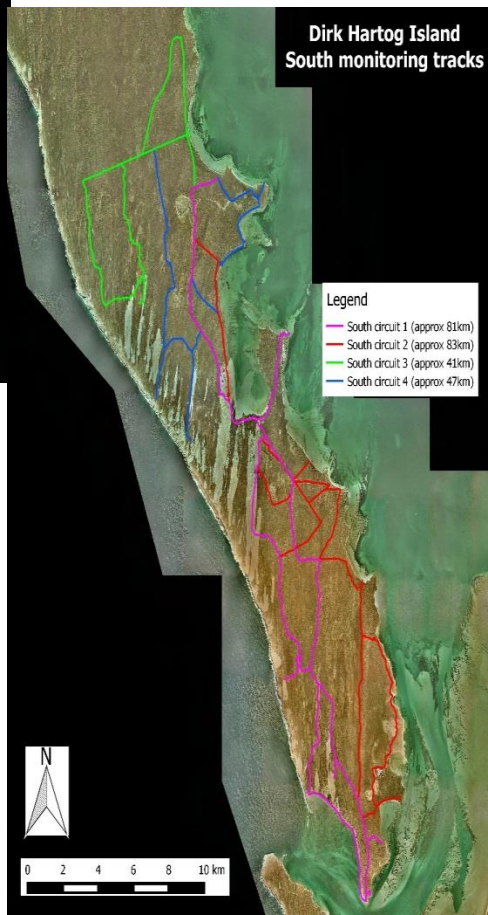
Surveillance

Island-wide surveillance monitoring for cat activity is being conducted on a seasonal basis for a two-year period, as an insurance policy that no cats have been overlooked or reintroduced. Surveillance monitoring employs both:

1) camera trap surveys;
2) intensive cat sign searches along the roads, survey tracks and beaches.



- Sign searches for cat activity are being conducted daily for a 10-day period in each of the northern and southern zones every three months;
- The cat sign searches are being conducted along the pre-existing tracks and the monitoring grid network (385 km in northern zone and 252 km in the south);
- The monitoring is undertaken across the entire zone the same day to avoid any issues associated with cat movement;
- Opportunistic cat sign searches along beaches and other areas of interest (e.g. caves and seabird colonies) are also being conducted.



Project progress to date

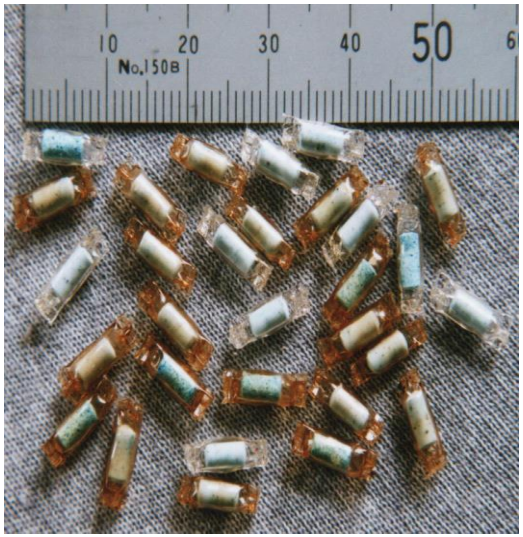
- Eradication campaign commenced in autumn 2014;
- Original population **439** cats (range of **309 – 503**), baiting primary removal effort, trapped population **36** cats that included natal recruitment from survivors (= **90+% baiting efficiency**);
- Last cat trapped **October 2016** in northern zone;
- Deployment of detector dogs in southern zone (2016) and northern zone (2017) indicated **absence of cats**;
- Absence of cats in both southern and northern zones during 2017 seasonal surveillance programs and also summer and autumn surveillance this year**. 38,000+ km** travelled since last cat activity recorded;
- 2018 surveillance program to continue through winter and spring**.** If no further cat activity is recorded, confirmation of eradication success & initiate **reintroduction of native species late spring 2018**.

What's in the pipeline?

- Investigating several attractants that could further improve bait uptake and/or be used as monitoring tools;
- Refinements to baiting strategy to further improve baiting efficacy and cost-efficiency;
- Developing a feral cat bait that minimises the risk to wild dogs;
- Developed elevated platform trap-sets that minimise the risk to ground-dwelling native species.

- Developing a technique ("sentinel cat") that exploits their sexual behaviour. This will provide an additional method of verifying the absence/presence of other cats and potentially a tool to kill male cats;

- Developed a lethal implant, '*Tic-Toc*' containing the toxin 1080. Capsule discharges at @ day 20. This allows release of radio-collared individuals and subsequent guaranteed retrieval and data download.



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