# Dudley Peninsula Feral Cat Eradication Operations Plan: Summary

## November 2021–mid 2025


LANDSCAPE SOUTH AUSTRALIA KANGAROO ISLAND

## SCOPE

This document serves as a summary of the Kangaroo Island Landscape Board (KILB) operational plan currently in use for the eradication of feral cats from the Dudley Peninsula, Kangaroo Island (KI). It aims to inform all stakeholders and interested parties about the rationale, methods and proposed timeline for completion of the program, up to mid-2025. At present, funding has only been secured until mid-2023, however other funding options are actively being sought.

The feral cat eradication program extends across the Dudley Peninsula, Kangaroo Island, and west to the cat barrier fence on the isthmus, south of Pelican Lagoon. This Operations Plan outlines planned works for 2021-2025 and will be updated when new information or additional funding streams become available. This plan is prescriptive where possible, whilst leaving room for adaptive modifications as the project continues and new information becomes available, in particular the testing of new technologies.

## BACKGROUND

Kangaroo Island (KI) is one of five priority Australian islands supported by the Australian government to undertake eradication of feral cats. This program aligns with the *Australian Government Threatened Species Strategy 2021-2031; The National Threat Abatement Plan for Predation by Feral Cats (2015); Australia's Biodiversity Conservation Strategy 2010-2030; the Australian Pest Animal Strategy 2017-2027*. It also supports the objectives of the *Kangaroo Island Landscape Plan 2021-2026*.

The KILB feral cat eradication program aims to provide a safe haven for the endangered KI dunnart, and other threatened species listed under the *Environment Protection and Biodiversity Conservation Act 1999*, including the southern brown bandicoot and KI echidna, by eradicating feral cats from the Dudley Peninsula by 30 June 2025. It will also benefit KI sheep farmers and the broader community because feral cats are the definitive host of toxoplasmosis and sarcosporidiosis, two diseases that have significant health and economic impacts for livestock production and human health.

The Dudley Peninsula on the eastern end of Kangaroo Island covers a 384 $km^2$ area comprising a mix of conservation parks, woodlands, coastal and agricultural land. The peninsula represents approximately 8% of the total area of KI which is 4,400 $km^2$. The peninsula has recently been separated from the remainder of the island by a semi-porous cat barrier fence built across a narrow isthmus to limit reinvasions from the west. Trials are proposed to investigate options to detect and stop feral cats from reinvading via two road gaps which are necessary for highway traffic egress.

The eradication program began in 2020 as a "rolling front", starting at the eastern end (Cape Willoughby) of the peninsula and slowly moving westward as areas are deemed clear of cats, to eventually meet the barrier fence.

Feral cats are currently being removed using a range of methods;

- Trapping
- Felixer® grooming traps
- Baiting
- Targeted shooting using thermal scopes

Surveys for feral cats behind the front will be conducted using a number of methods;

- The use of detector dogs
- Camera traps, including 4G connected units connected to AI image recognition software
- Citizen science reports through the feral cat scan app

## LANDHOLDER ENGAGEMENT

There is broad acceptance and enthusiasm for the program and its ultimate goal of feral cat eradication, as evidenced by 97% approval for access to land during the first year of the eradication. During 2021 and the eradication rollout we will continue to engage with the community and stakeholders through the following platforms:

- Direct contact and liaison with landholders
- Farm meetings
- Regular email updates
- Newsletter (Nine Lives)
- Website updates
- Updates on the Feral Free Kangaroo Island Facebook page
- Regional and state-wide print and broadcast media articles and updates.

## BRIEF METHODOLOGY

There are many techniques and approaches that have been used to eradicate feral cats from other islands, however the basic process remains the same. Broadly, there are two key stages;

1) Knockdown. Use one broadscale and highly effective technique (typically baiting or introducing a disease) to bring the population down rapidly (ideally by 80-90%).
2) Mop up. Follow up with other, more targeted techniques to cull any remaining animals.

However, this technique has been modified across the Dudley Peninsula for a number of reasons;

1) There is currently no highly effective, broadscale knockdown technique that can be used for feral cats on Kangaroo Island (with the exception of the southern third of the peninsula, see Curiosity cat baiting below).
2) The size of the peninsula prohibits this type of broadscale approach because by the time the mop up operations sweep across the island (it can take many person hours to find and cull the last few cats in any particular area) the remaining cats will have bred up again, possibly to pre-knockdown levels.

The technique for the Dudley Peninsula therefore involves a rolling front of control methods to “push” the eradication line across from east to west (see Figures 1 and 2), followed continuously by intensive survey and mop up methods.

*Figure 1. Map of Dudley Peninsula showing barrier fence (pink line; indicative only) and starting place for the rolling eradication front, at the very eastern edge. Stylised scenario; yellow dots: control methods (various techniques) in farmland, pink dots: control methods in woodland, blue dots: intensive camera monitoring array to detect any remaining cats or those that have invaded through the line.*

## TIMING AND RESOURCES REQUIRED

On-ground eradication began in 2020 with completion currently anticipated by mid-2025. This extended timeframe allows provision for continual monitoring and survey for any final remaining feral cats, to provide proof of freedom. The proposed timing for delivery of all major works is outlined in Table 1. The resources required vary substantially from the initial operations plan, due mainly to advances in technology such as 4G connected cameras and AI-based image recognition.

## MILESTONES

As the rolling eradication front continues to move westward across the Dudley Peninsula, a number of milestones will track our progress during 2021 and beyond. These milestones will help us to monitor and evaluate our work as we proceed and include themes such as:

- feral cat abundance on the Dudley Peninsula,
- KI echidna abundance levels on the Dudley Peninsula,
- numbers of adult and juvenile Hooded Plovers on the Dudley Peninsula and
- the level of support we retain from the local community members for the feral cat eradication program.

Table 1. Key tasks to be completed to continue for the duration of the eradication program. Green shading indicates when these tasks will be performed. Note: not all activities below are fully funded as of Nov 2021.

| | Summer | Winter | Notes |
|---|---|---|---|
| 4G camera array | | | deployment, maintenance, analysis of feral cat detections |
| Targeted southern brown bandicoot and echidna monitoring | | | the 4G connected camera network provides constant monitoring of species across the peninsula, however a targeted array will be deployed in woodland each winter to measure the response of key threatened species following feral cat eradication |
| Continuation of rolling front (various methods) | | | trapping to progress the eradication front westward towards the barrier fence and stop feral cats reinvading |
| Monitoring and mop up behind rolling eradication front | | | the 4G camera array and a further array of non 4G connected cameras are used to make sure there are no cats remaining to the east |
| Curiosity® baiting in woodland | | | only baiting in winter to avoid goannas |
| Community and stakeholder engagement | | | ongoing engagement through various platforms |
| Fundraising and administration | | | |

## ERADICATION ROLL OUT

The initial stages of the eradication program commenced on the eastern side of the peninsula at Cape Willoughby and Cape St Albans, with a control front now covering 65% of the peninsula (Figure 2).

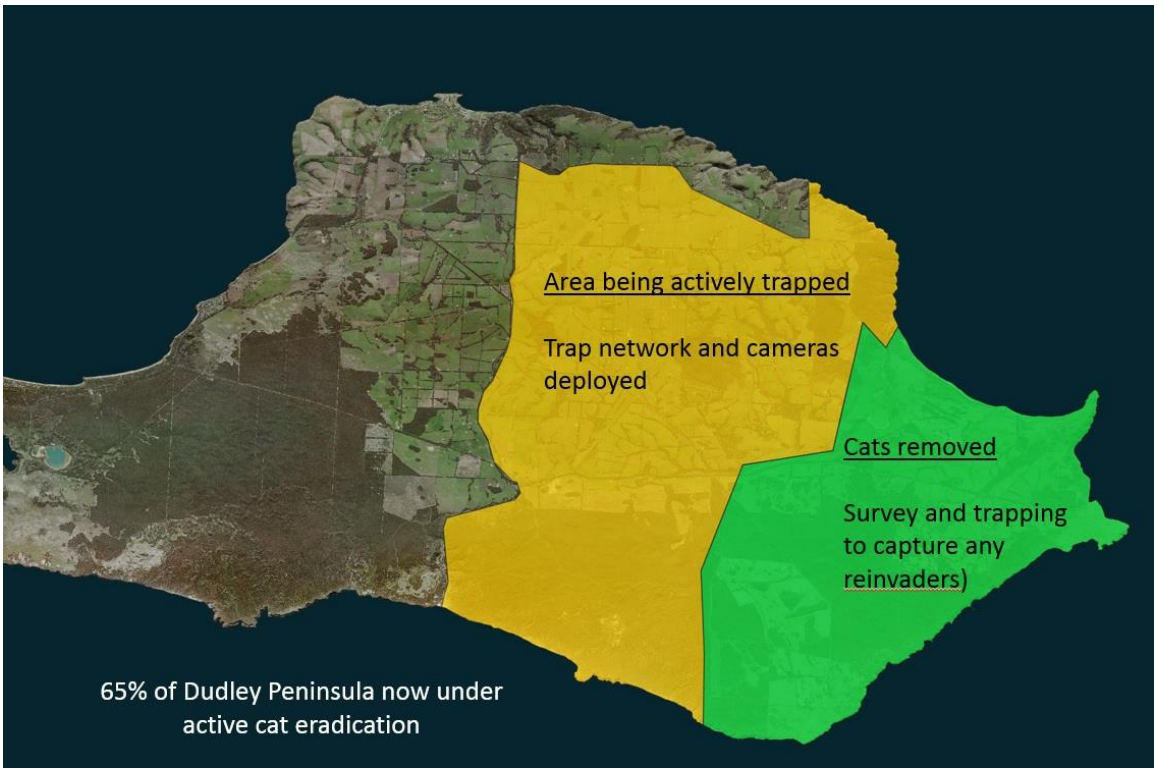


*Figure 2. Map showing the current area covered by the feral cat eradication program as at November 2021.*

## FERAL CAT AND THREATENED SPECIES MONITORING NETWORK

An array of ~200 stand-alone camera traps is currently placed throughout (and behind) the area being eradicated, however the project is moving towards a more advanced array of 4G connected cameras. This state of the art technology sends images via the 4G phone network to online artificial intelligence based image recognition software which can filter out unwanted images and identify feral cats (or other species, Figure 3) in real time. To date funding for 90 of these cameras has been secured however a further 110 cameras are required to facilitate simultaneous coverage of the entire Dudley Peninsula (Figure 4).


*Figure 3. Examples of key threatened species on KI that the eVorta AI interface can identify at present. Top; two echidna, middle; southern brown bandicoot, bottom; bush-stone curlew.*

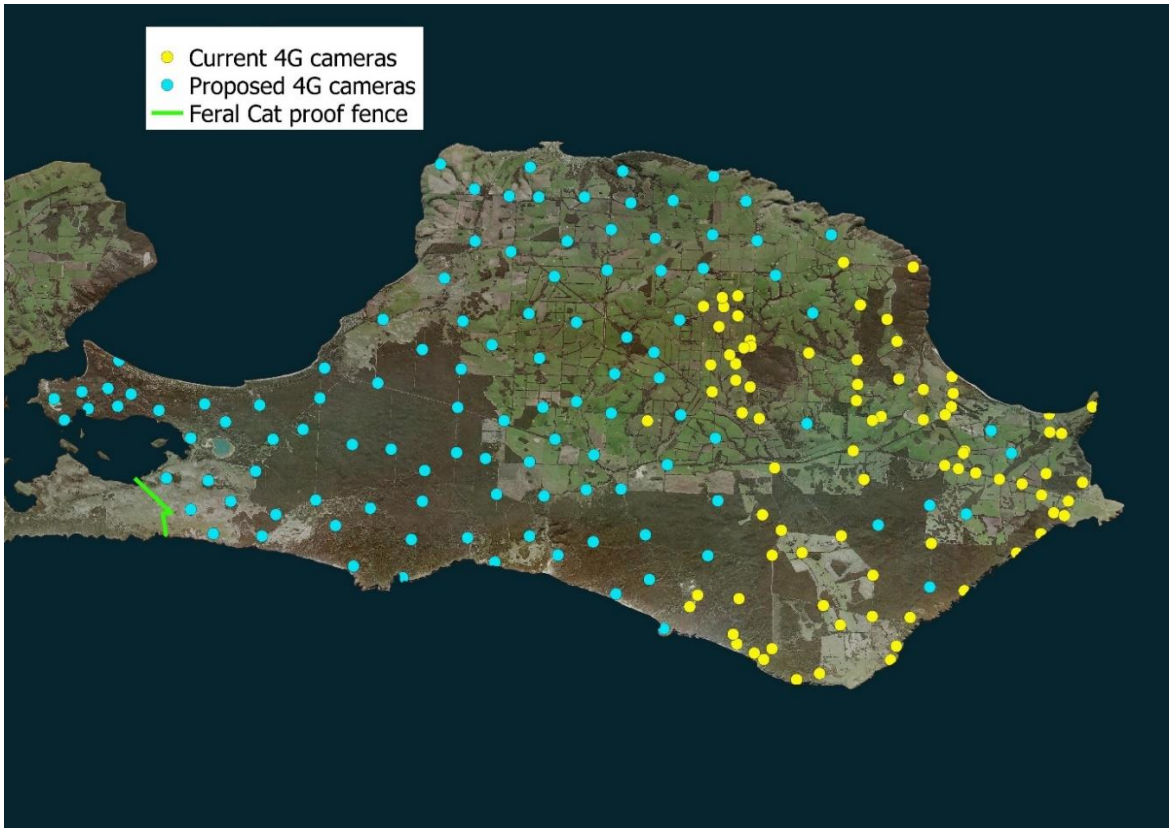


*Figure 4. Map showing current distribution of 4G cameras (yellow) and proposed placement of additional cameras (light blue). This camera placement will provide real time simultaneous coverage of the entire Dudley Peninsula.*

## DETECTOR DOGS

The use of detector dogs could provide a valuable and integral part of the eradication program. Historically there has been a community detector dog program whereby an experienced trainer was contracted to teach dedicated members of the community how to train their dogs for detection work. However, due to multiple delays caused by COVID-19, the program has not run to completion. There are however, a few Kangaroo Island residents who have dogs that have been, or are being, trained to detect cats. Using these dog/trainer pairs or others in the future will still be considered wherever possible, potentially for detecting any remaining cats behind the eradication front.

## FELIXER GROOMING TRAPS

Felixer™ grooming traps are approved for use under a research permit and can only be deployed where members of the public cannot access them, i.e. private landholdings. Felixers can be a very effective control tool if placed and setup correctly, facing a likely egress point for feral cats with appropriate structures (typically vegetation) to funnel cats in front of the unit. Felixers are currently used as part of the rolling eradication front across private land, where landholder approval has been granted. Maintenance of Felixers requires constant vigilance as they are still under development and their reliability has proven to be less than optimal. As with the use of Curiosity® baits, landholders on adjacent land must be notified and signage posted at all access points to the property where the units are deployed.

## FERAL CAT BAITING

Curiosity® feral cat baits are a meat based attractant that encapsulate the toxin PAPP within a polymer capsule designed to reduce the risk of poisoning to native animals, while still being ingested by feral cats. A 50% reduction in feral cats was recorded following a baiting trial in 2020 across 20 $km^2$ of woodland. Two winter bait runs across a further 120 $km^2$ of woodland were conducted in 2021. These 2021 trials were spaced a month apart, because monitoring after the 2020 trial had detected previously unknown cats entering the area after the initial baiting. Baiting will only ever be conducted in winter to avoid Heath goannas (*Varanus rosenbergi*) ingesting any baits, as they are underground at this time.

## CAT BARRIER FENCE

A barrier fence has been erected on the western end of the peninsula (Figures 5 and 6). The southern end of the fence terminates at a cliff while the northern end terminates beyond the low tide mark in Pelican Lagoon. The fence incorporates a number of self-closing gates and two permanent gaps for vehicle egress, one 40m wide and the other 6m wide.

To assess how many cats breach these gaps, cameras have been placed at each side of the road and are checked regularly. A number of deterrent/control techniques based on advanced surveillance techniques and automated trap designs will be trialled in 2022.

## LANDHOLDER/ STAKEHOLDER/ PARTNER COMMUNICATIONS

Table 3 outlines the external communications required for each control method to be deployed to eradicate feral cats across different land tenures. A GIS layer has been developed, which is constantly updated, containing details regarding tenure, contact details and willingness for each control method to be used for each land parcel on the Dudley.

All notifications and permits are organised well in advance of starting any control efforts. In some cases specific times for notification/ application are regulated in which case the relevant documents are referred to in the table.

## FUNDRAISING

As above, the eradication program is not funded in its entirety. A number of initiatives have been developed to raise the profile of the program and the plight of native species/ the sheep industry (facebook page, promotional video, community 4G camera sponsorship initiative) and a long term partnership with Nature Foundation has resulted in a feral cat eradication fund through which donations can be accepted. In addition grants and other funding opportunities are sought and capitalised on wherever possible.

*Figure 5. Alignment of the cat barrier fence across the isthmus connecting Dudley Peninsula to the western section of the island. To the south the fence terminates on a cliff and to the north the fence will run into Pelican Lagoon beyond the low tide mark. Two gaps in the fence are denoted by yellow circles.*

*Figure 6. View of the cat barrier fence looking north towards Pelican Lagoon.*

Table 3. External communications required for each control measure to be deployed to eradicate feral cats. All notifications and permits to be organised well in advance of operations starting. In some cases specific times for notification/application are regulated in which case the relevant documents are referred to in the table.

| Task | Private landholder notifications/ requests for access | Signage | Parks liaison | Council liaison | Licenses/ Permits/ Approvals |
|---|---|---|---|---|---|
| **Curiosity® baiting** | Yes, refer to Directions for Use (SA) | Yes, refer to Directions for Use (SA) | Yes, refer to Directions for Use (SA) | Yes, refer to Directions for Use (SA) | Yes, refer to Directions for Use (SA) |
| **Trapping** | Yes, prior to beginning any works and at periods specified by landholder | No, except as a precautionary measure in some circumstances using foothold traps | Yes, if working on Parks estate and at periods specified by Parks delegate | Yes, if working on Council land and at periods specified by Council delegate | Yes |
| **Felixer use and deployment** | Yes, prior to beginning any works and for periods agreed upon with landholder | Yes, at all possible entry points and at Grooming trap as per directions | N/A | N/A | Yes |
| **Shooting (daytime)** | Yes, prior to beginning any works and at periods specified by landholder | No | Yes, if working on Parks estate and at periods specified by Parks delegate | Yes, if working on Council land and at periods specified by Council delegate | Yes |
| **Shooting (night time)** | Yes, prior to beginning any works and at periods specified by landholder | No | Yes, if working on Parks estate and at periods specified by Parks delegate | Yes, if working on Council land and at periods specified by Council delegate | Yes |
| **Camera trap deployment** | Yes, prior to beginning any works and at periods specified by landholder | No | Yes, if working on Parks estate and at periods specified by Parks delegate | Yes, if working on Council land and at periods specified by Council delegate | Yes |
| **Camera trap retrieval** | Yes, prior to beginning any works and at periods specified by landholder | No | Possibly organised during camera deployment negotiations | Yes, if working on Council land and at periods specified by Council delegate | Yes |

## ANIMAL WELFARE, PERMITS AND APPROVALS

Although the feral cat eradication program, by definition, involves the culling of animals, there are many considered and humane techniques that can be employed to achieve this. Likewise, monitoring feral cats can also be done with the welfare of each individual cat in mind. Feral cat eradication works across the Dudley Peninsula will always be conducted in accordance with the highest animal welfare standards. To this end, all methods currently being adopted have been approved by relevant regulatory agencies and all staff are familiar with the ethical use of these techniques. All notifications and permits will be organised well in advance of starting any control works. In some cases specific times for notification/application are regulated.

Many landholders have indicated they are willing to be actively engaged in the program. To this end KILB have implemented a feral cat cage trap loan program where community members can borrow cage traps to control feral cats on their properties. This assistance will be particularly helpful once the eradication front arrives at these properties. For all landholders, including those supportive of the project but not willing or able to participate, a permission form is provided which allows them to outline which control methods they are happy for staff to use on their land.

Feral cats need to be destroyed humanely. The most humane method is using a firearm to discharge a single shot to the head whilst the animal is still in the cage. All landholders are advised of this best practice approach to euthanasia at the time they borrow a cage trap and are required to sign a form indicating they are aware of this.

All control measures will be carried out under and according to:

- Requirements under the *Animal Welfare Act 1985*
- Requirements under the *Animal Welfare Regulations 2012*
- Animal Ethics permit 49/2021KI
- Permit to undertake Scientific Research E26901-10
- SA Health Research, Instruction, Training or Analysis Permit 85205 (Felixer 1080 Cartridges)
- SA Health Licence 86248 to possess Regulation 25 poisons under the Controlled Substances Act 1984
- APVMA Permit 80926 to allow research use and supply of an unregistered AGVET chemical product (Felixer cartridges)
- Felixer User Manual MK3.1_E
- Curiosity® APVMA product label
- Curiosity® Directions for Use (SA)
- JSA Trapping and euthanising feral cats
- Kangaroo Island Landscape Board Ground Shooting Operations Plan 2021-2022
- Pestsmart SOP CAT001: Ground shooting of feral cats
- Pestsmart SOP CAT002: Trapping of feral cats using cage traps
- Pestsmart SOP CAT003: Trapping of feral cats using padded-jaw traps