

Country for Rock Wallabies

Black-flanked rock-wallabies (BFRW) were once common across much of central and Western Australia, until changing fire regimes, the introduction of feral cats and foxes coupled with changing land use (among other threats) resulted in population fragmentation and crashes.

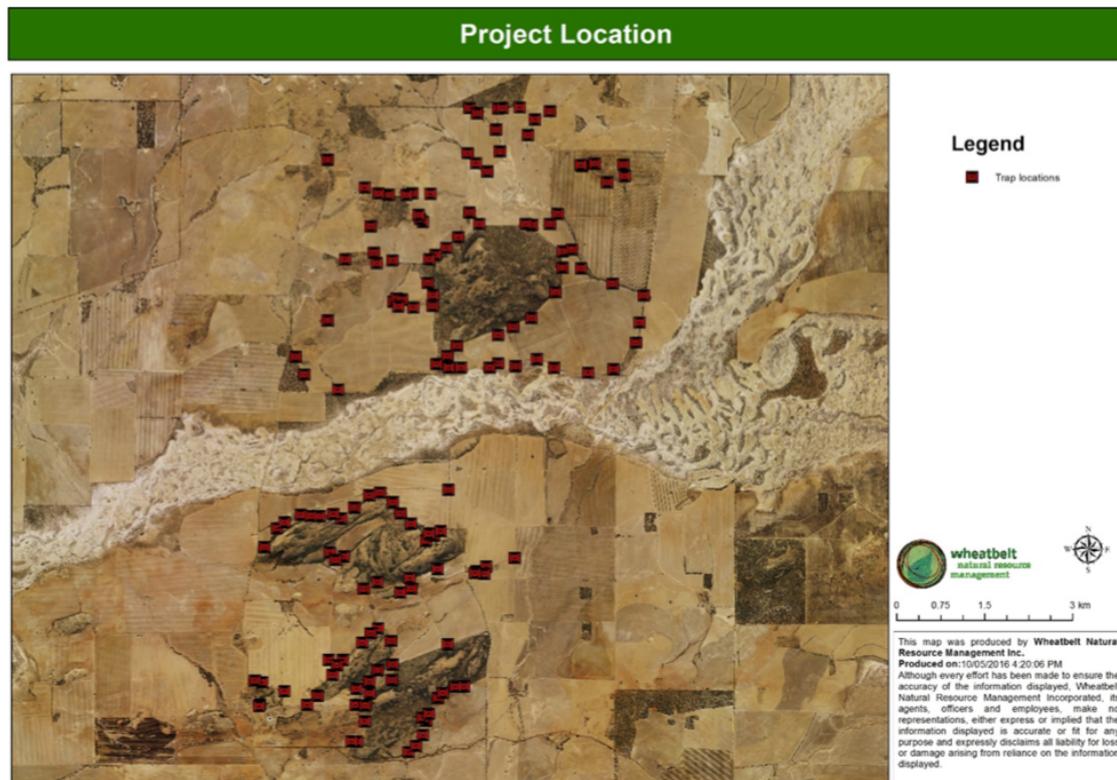
There are 4 subspecies/races of Black-flanked rock-wallabies in Australia, three of which are listed as Vulnerable under the EPBC act. The subspecies found in the Wheatbelt (*Petrogale lateralis lateralis*) is the only one listed as Endangered at both a state and national level. According to the approved Conservation Advice, the Endangered status is due to:

- the very low population size (less than 2,500 mature individuals)
- highly restricted area of occupancy (less than 500km²), which is continuing to decline
- severely fragmented distribution (20 subpopulations of between 3 and 250 mature individuals)

There are 6 subpopulations on the granite outcrops south of Kellerberrin, with population estimates between 3 and 148 individuals (according to the Conservation Advice). The Wheatbelt in general is a significantly modified landscape, with high numbers of feral cats and foxes. The rock-wallabies also face sizeable expanses of farm land between their subpopulations.

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In 2013 Wheatbelt NRM received a \$355,000 grant from State NRM to undertake fox, cat and rabbit, control on the private property directly surrounding the granite outcrops the Wheatbelt Black-flanked rock-wallabies call home. In 2016, community group Country for Rock-wallabies was formed. The group were successful in applying for 2 further grants of \$55,000 and \$35,000 through the State NRM Community Action Grants.



The story so far: May 2015 – June 2016

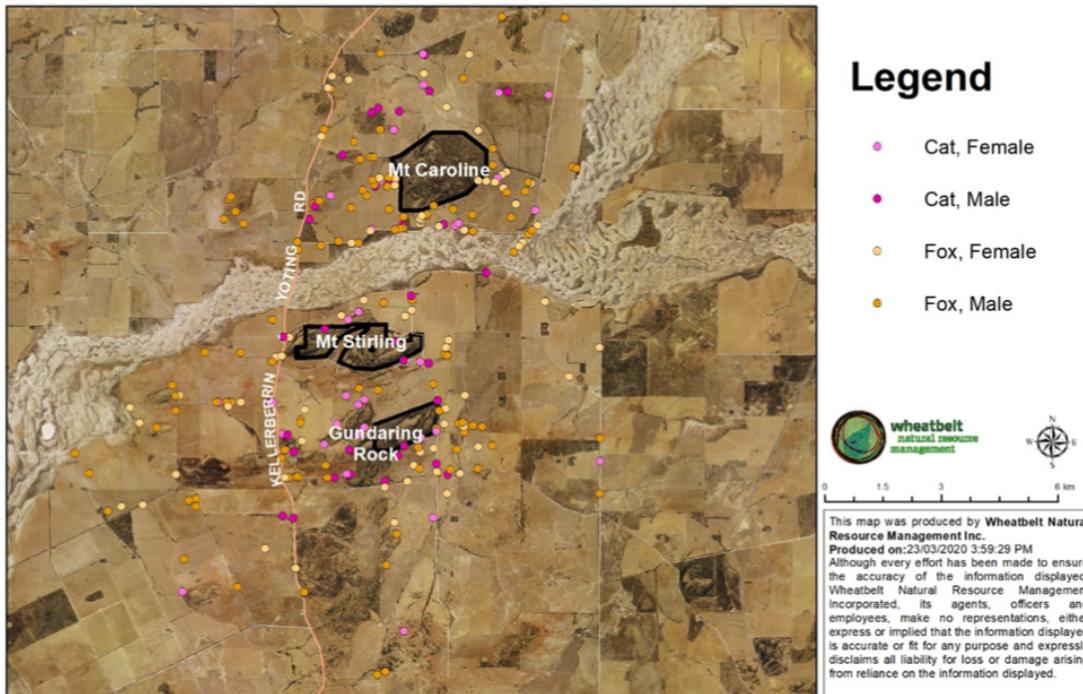
Wheatbelt NRM designed a project to help mitigate the threats posed by vertebrate pests, and the rabbit populations that support them, on the BFRWs of the central wheatbelt. With an absence of data to understand the impact vertebrate pests were having nor knowing which incursion pathways they were using, a peripheral defence regime using cage traps was put in place. Wheatbelt NRM employed contractors, WA Feral Animal Management, to undertake intensive, prescribed feral animal control techniques on the private property surrounding Mount Caroline, Twin Hills, Mount Stirling, Gundaring Rock and Sales Rock BFRW subpopulations.

This involved:

- an average of 66 hours effort per week over 60 weeks
- 156 cage traps across 8 runs rotationally set and monitored
- each run set for 4 nights every 2-3 weeks
- over 230 nights of spotlight shooting
- adaptive management of on ground activities
- monitoring the Twin Hills and Sales Rock population with remote sensing cameras (all private property)

In this first effort to address vertebrate pests within the project area 106 feral cats and 209 foxes were removed with carcasses shared with university researchers. Importantly with sustained effort the numbers of feral cats and foxes removed progressively declined in response to this treatment.

Locations of Foxes and cats removed, by species and sex, May 2015 - June 2016



July 2017 – December 2018

Wheatbelt NRM supported Country for Rock Wallabies to build on the success of previous work in the central wheatbelt. With a reduction in available resourcing a stripped down version of the previous methodology was developed in an attempt to maintain gains made through previous work. While a reduction in resourcing is less than ideal, being in a position to make some informed decisions based on the results of previous efforts was helpful. Again a contract was developed for WA Feral Animal Management to undertake prescribed feral animal control techniques on private property surrounding Mount Caroline, Twin Hills, Mount Stirling, Gundaring Rock and Sales Rock BFRW subpopulations. This involved:

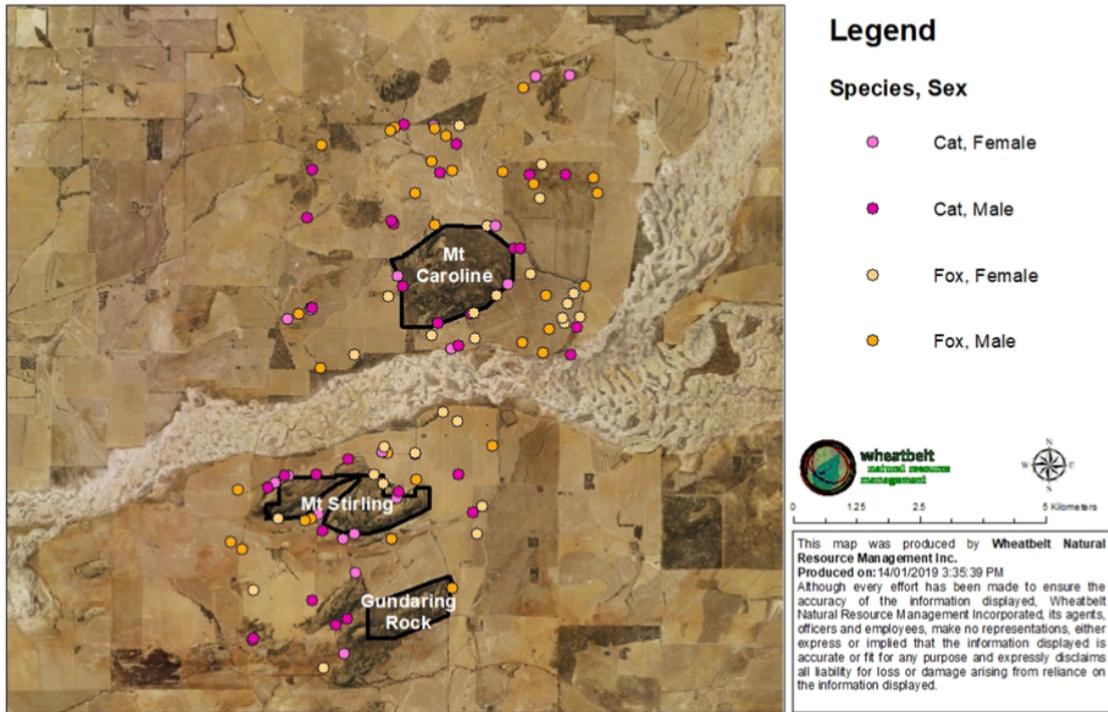
- an average of 8 hours a week (or 35 hours a month) over 78 weeks
- 156 cage traps across 8 runs rotationally set and monitored
- each run set for 3 nights every 4-5 months
- over 60 nights of spotlight shooting
- monitoring the Twin Hills, Sales Rock and small outcrop to the north east of Mount Caroline with remote sensing cameras (all private property)

In this second effort to address vertebrate pests within the project area 79 feral cats and 60 foxes were removed.

Attempting to secure the same target area with reduced resourcing meant that the operators spent less time out there onsite understanding the movement patterns of the feral cats and foxes. Spending less time out there meant less comparisons could be drawn with the first effort given the now 35 hours a month versus 264 from before.



Locations of foxes and cats removed, by species and sex, July 2017 - December 2018



September 2019 – February 2020

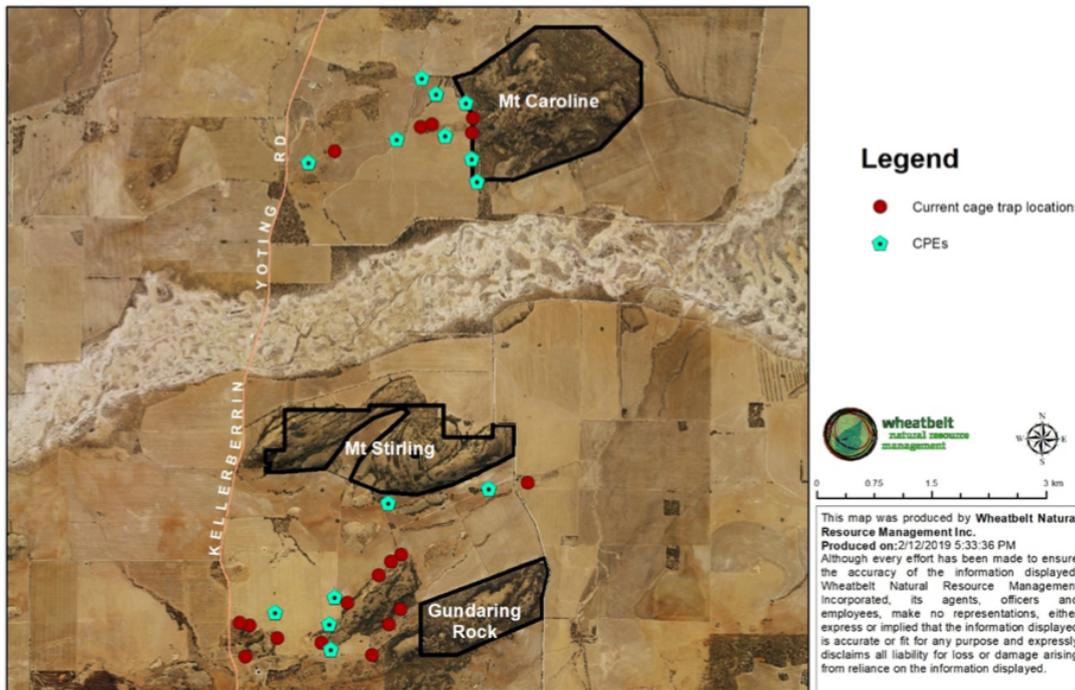
The most recent project effort required further contraction in target area in an attempt to be able to measure impact and still deliver a meaningful outcome for the BFRW. WA Feral Animal Management had performed so well during previous efforts so they were the obvious choice of operator. The target area contraction resulted in a heavier focus around Sales Rock with some high performing trap units kept on for maintenance (see map). This involved:

- an average of 8 hours a week (or 35 hours a month) over 30 weeks
- 20 cage traps across 2 runs set and monitored every trap night – including a minimum of 2 mobile traps
- monitoring of Sales Rock BFRW with live-streaming camera
- deployment of 12 Canid Pest Ejectors
- In this third effort to address vertebrate pests within the project area 7 feral cats and 9 foxes were removed.

While a reduction in resourcing is less than ideal, being in a position to make some informed decisions based on the results of previous efforts was helpful. Trap audits of the previous project efforts were used to identify likely incursion pathways for feral cats and foxes as well as identifying performing trap locations. Again with reduced time on ground it is challenging to adaptively manage project effort. This third effort, while still measurable, suffered from low numbers due to both trap time and an unforeseen community Red Card activity on site which negatively impacted the final trap run.



Cage trap and CPE locations for 2019 - 2020



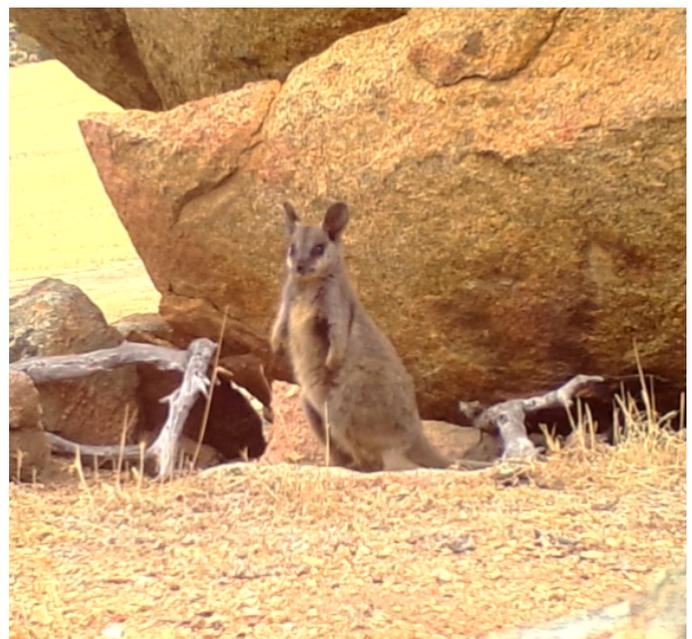
Lessons Learnt

When compared to having regular visits to the project site by one or more operators, having a single contractor visiting the site intermittently, significantly reduces the onground impact of feral control activities.

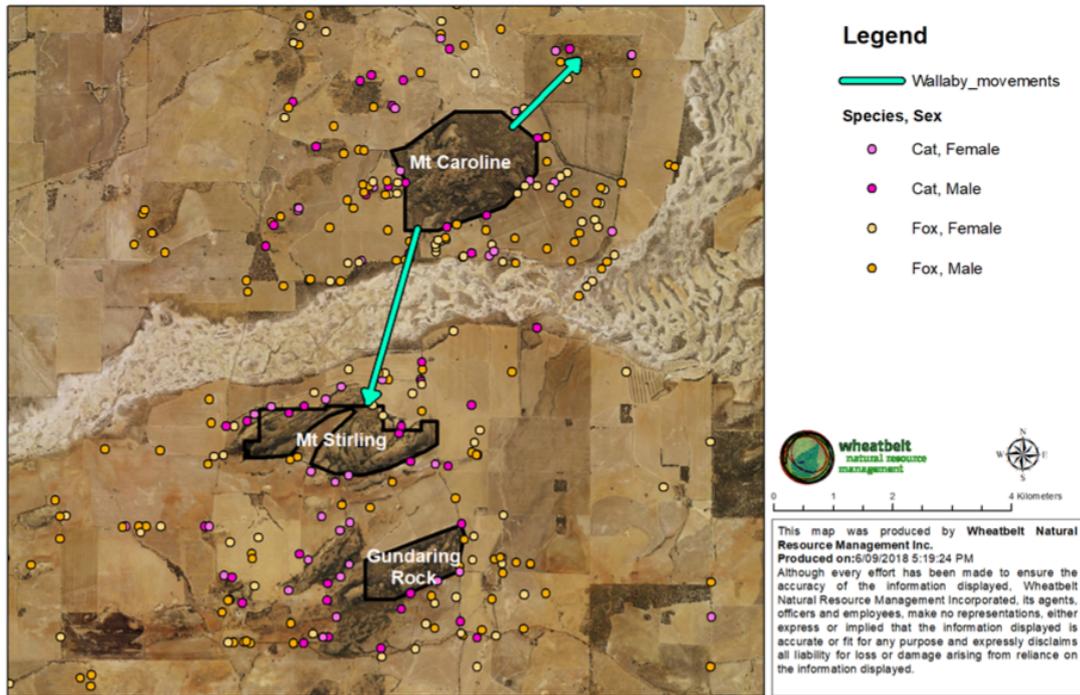
Adaptive management became more and more challenging as the project progressed, most noticeably in the final project period, due to reduced onground presence and contraction of target area. The longer time between site visits significantly impacted on the operator's ability to understand and respond to the pest activity onground.

Matching available resourcing to sustained effort is the key learning. A contraction in the area of operations, consistent with resourcing, to evidence and maintain gains was challenging. There is not a linear relationship between resourcing and operator days onground due to economies of scale. With our operator travelling out to the site for trap runs, ad hoc short one night stints were cost prohibitive. The approach may be improved through using a local operator—however extensive canvassing of appropriate skillsets thought WA resulted in no nearby suitable contractors. During 2015-16 the project enjoyed higher levels of resourcing which has allowed for a greater degree of adaptive management of effort in direct response to how treatments were performing thereby increasing gains.

The first effort, May 2015 – June 2016, generated enough data to demonstrate a clear measurable success that enabled us to adaptively manage, to some degree, the out years of this project. However beyond this project the lessons learnt here have been used to improve threat mitigation work for a number of threatened species throughout the south west.



Wallaby movements in 2018 overlaid foxes and cats removed, 2015-2018



Outcomes

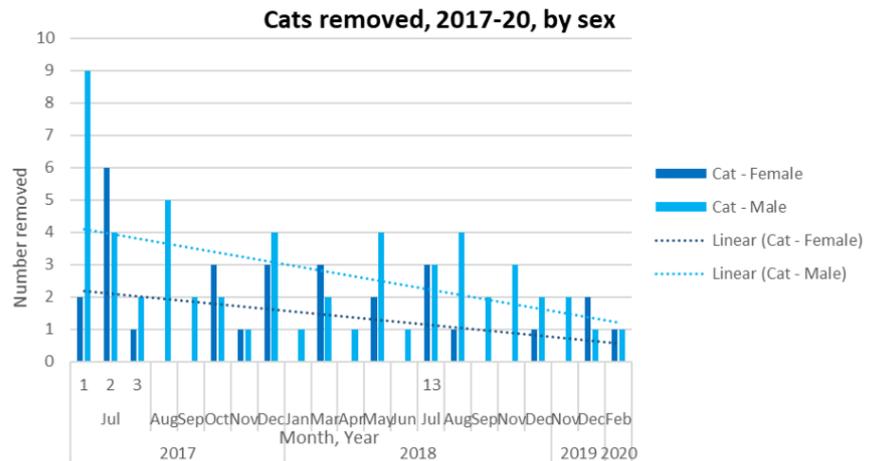
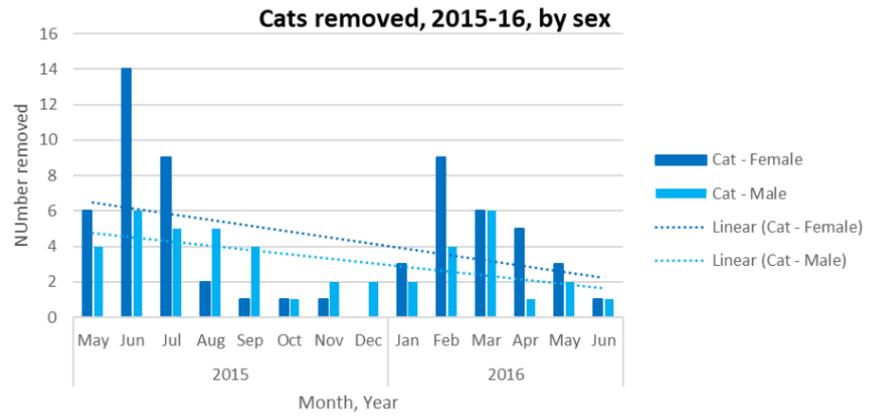
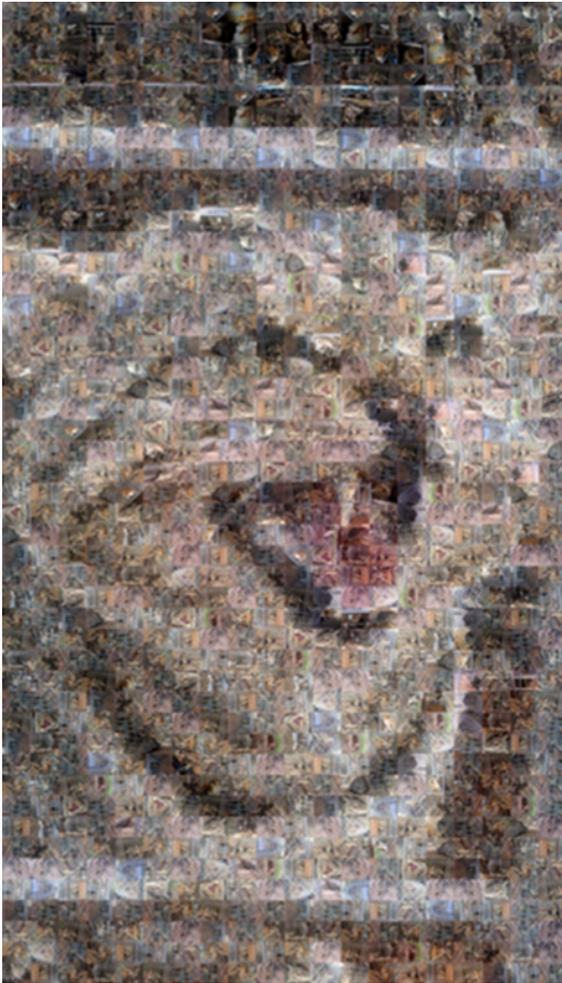
The most significant outcome of this project's (collectively) activity is the movement of BFRW between sub-populations. Although this is something that would have once occurred regularly in the Wheatbelt (prior to clearing and the introduction of pest animals), this is the first time it has been evidenced in the altered, threatening process laden, landscape.

In 2014 the DBCA population surveys caught no Black-flanked rock-wallabies on Mt Stirling and they were comfortable there were none on Stirling at this point. Since this time it has become clear that individuals have moved on to Mt Stirling from neighbouring populations. One of the 9 individuals caught on Mt Stirling in 2018 had previously been trapped on Mt Caroline - about 1.5km to the north.

To reach Mt Stirling this individual had crossed both farm land and the expansive salt flats of the Salt River, which extends between the two rocky outcrops. The Salt River is often considered an incursion pathway for both cats and foxes, making the movement even more impressive.

Despite initial lack of confidence from some quarters the success this project has enjoyed serves to demonstrate proof of concept regarding community driven threat mitigation work for threatened species. There are many land managers throughout the south west who genuinely believe that managing vertebrate pests on their property for conservation outcomes is futile. We have used both the learnings and success of this project to inform the development of many others and to upskill community in how they can participate in effective threat mitigation on their own properties throughout the south west. It is a particularly useful learning for community averse to the use of 1080 - as no toxin was deployed in this project until the final effort demonstrating gains, albeit high in labour, can be made through direct action only.

The potential to create a connected population of BFRW within the Wheatbelt that allows for movement of individuals and genetic exchange between subpopulations is the greatest hope that we have for creating a genetically strong, viable and healthy population.



Of particular note

Researchers from Murdoch University found the remains of a Black-flanked rock-wallaby in the stomach of one of the feral cats euthanased at the project site in 2016. Due to the small size of the rock-wallaby populations the chances of catching a cat close to the time it has eaten a wallaby and prior to it's remains being completely digested/expelled makes this finding particularly significant and highlights the threat cats pose to this species.

During the 2015-2016 female cats made up almost 58% of cats removed, compared with only 35% of cats removed between 2017-2020. This is possibly due to the higher mobility and greater home ranges of male cats when compared to female cats, suggesting that males may be quicker to move in to newly created cat-free zones.

What's next?

The *Country for Rock Wallabies* group has purchased 3 remote sensor cameras to help monitor areas and build awareness of the threats they face. These will better equip them to both monitor the presence of and then target pest animals in specific locations. Furthermore they will help monitor the rock-wallaby populations themselves to ensure continued engagement within the group (they can see why they are doing the work). Finally the data collected through these will assist with future funding applications for further support.

Additionally, post Covid-19 restrictions, we begin discussions with SSAAWA around changing their area of operations with a view to moving into the locations that the contactor has been working – to maintain at least a little pressure on the vertebrate pests in and around these subpopulations of BFRW.