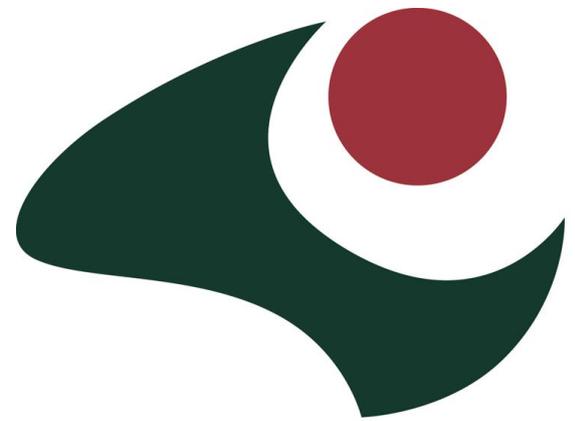


BESTPRAC

Case study series - No. 8



CONTROL STRATEGY GETS THE GOAT

BACKGROUND:

There's no such thing as a free lunch when it comes to feral goats. While the sale of feral goats can provide some additional income to producers, they are estimated to eat roughly the same amount of vegetation as sheep, and their hidden cost should not be underestimated.

Dave Setchell from Mallee Eco Services coordinates a collaborative feral goat and rabbit control project involving 13 pastoral producers and five conservation reserves, covering an area of 20,000km² in upper south east South Australia.

The project kicked off in February 2011 and in its first year 21,115 goats were removed from the project area, with a further 81,225 removed as a result of producer driven activities.

Dave says in 2010 and 2011 much of South Australia experienced its first good rains in a decade. While good for producers and livestock, the rains also benefited invasive species including feral goats and rabbits. Following years of below average rainfall and extensive bushfires, native vegetation was starting to regenerate on a scale that hadn't been seen in decades. Conservation reserve managers, keen to protect the vegetation, were facing a serious challenge from unmanaged grazing by introduced herbivores, with feral goats posing the biggest threat.



Dave Setchell, Project Coordinator (left) and local producer, James Robertson of Chowilla (right)

“Research suggests that while feral goats tend to prefer native trees and shrubs, they are adaptable and will eat grasses, herbs and forbs when available. As they can reach vegetation twice as high as sheep, they can cause more damage to established vegetation,” Dave said.

“Because feral goats roam over large areas, the managers of the reserves realised that effective control of the feral goat population would require

a wider landscape approach and the support of neighbouring pastoral producers. So, the managers of the reserves, through the Department of Environment, Water and Natural Resources (DEWNR) South Australian Murray Darling Basin (SAMDB) Region applied for funding under the 2010/11 State Natural Resource Management (NRM) Program.

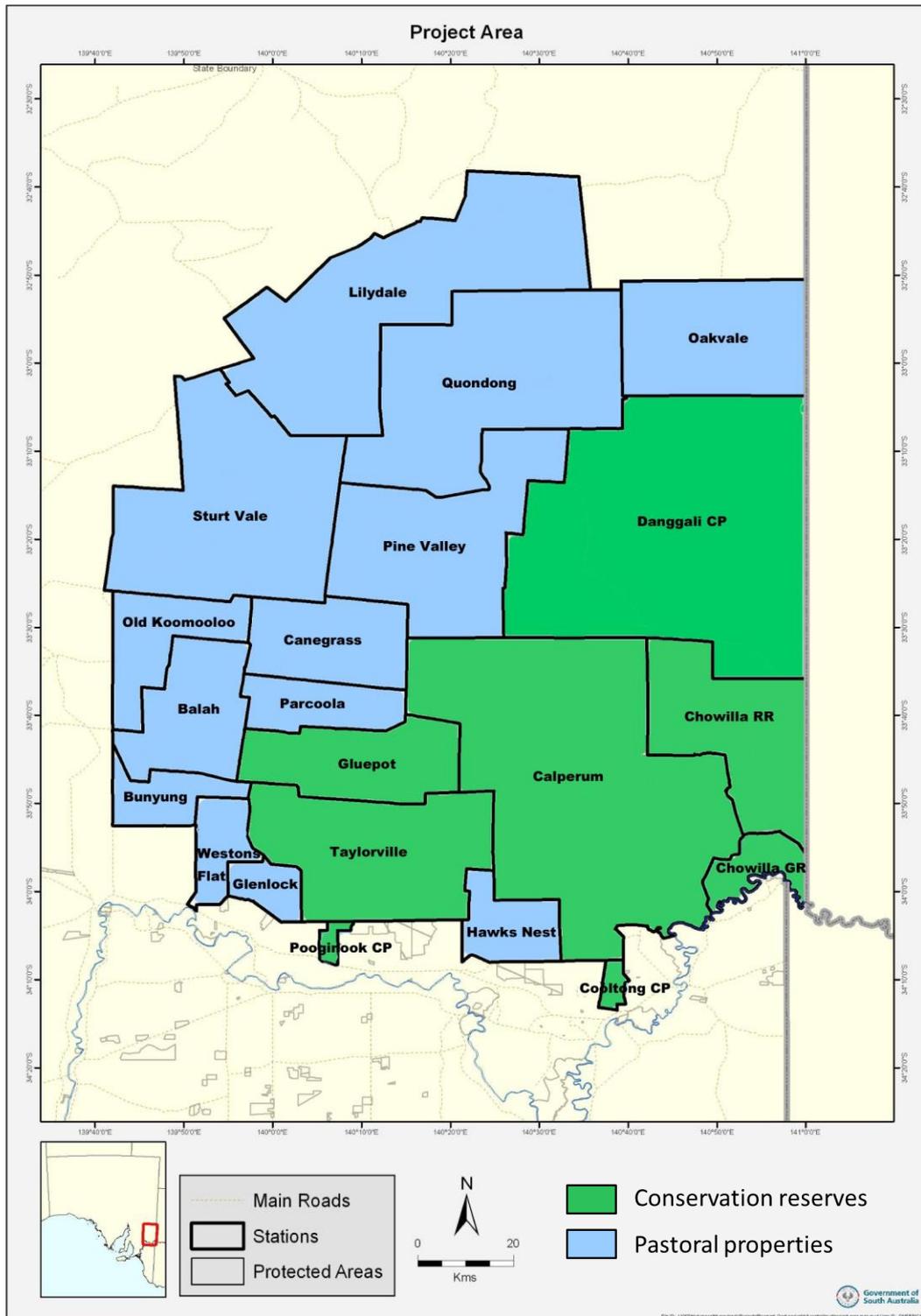


Figure 1: Map of project area

Funding of \$300,000 was secured to undertake a coordinated and accelerated control program. By looking at the feral goat population and its movements over the whole project area as well as access to water points, Dave and the project steering committee were able to develop a strategic control plan. Over 18 months, the project has made a sizeable dent in the feral goat population and established a solid base for long term control measures for the future.

STEP 1: INFORMATION GATHERING

Dave says the first step was getting a handle on the feral goat population. Knowing the population densities on different properties, where the ‘hot spots’ were and how widely they were roaming was critical to informing decision making about the placement and timing of control methods.

Information about feral goats has been recorded as a by-product of the annual aerial South Australian Kangaroo Surveys since 1978. More detailed surveys, using 7km transects, were undertaken in winter 2012. These showed the project area had some of the highest feral goat densities in South Australia at 4.91 ± 0.72 goats/km². The highest densities were on the pastoral properties; approximately five times that of the conservation reserves.

STEP 2: WORKING WITH LANDHOLDERS

Dave says that as the project was initiated by the conservation reserves, the challenge was establishing common ground, given the different land uses and wide range of views about feral goats.

“While differing land uses may seem like a fair challenge, fundamentally the issue is about protecting vegetation. For the reserves it is protecting native vegetation regrowth and on pastoral properties the focus is maximising feed availability for livestock. So, we found there was more common ground than either the producers or reserve managers initially realised,” he said.

“At the outset of the project we met with all the landholders individually to understand how they manage feral goats. We found there were a range of views about feral goats and control – from those who wanted them eradicated because they compete with livestock for feed and water to those who saw them as a supplementary income source.”



A steering committee was formed in April 2011, comprising of a wide range of landholders and stakeholder representatives. The role of the committee has been to provide input into the landscape scale control program, and oversee its implementation.

“Regular contact with all the landholders has been important for sharing information. For those less involved, we provide updates on project activities and keep track of their control efforts, which helps to inform decision making. Others are more involved through coordinated control activities or utilising funding assistance from the program.”

STEP 3: DEVELOPING A WHOLE OF LANDSCAPE PLAN

The aim of the program is to reduce feral goat numbers in the project area to protect the recovery occurring in the native vegetation and build resilience in the system. This in turn enhances productivity on pastoral properties and benefits native species on the conservation reserves.

From the outset of the program, the steering committee agreed that no single activity was going to address the problem. Given that feral goats can have a range that spans several properties, it was also agreed that a coordinated, whole of landscape plan for control activities would be needed.

A plan was developed based on information provided by the landholders and land managers, and data from the annual aerial surveys. The plan supports and builds on existing control activities, and also includes new initiatives on the reserves. All activities have been looked at strategically in terms of what makes sense on a property and multi-property level.



STEP 4: CONTROL ACTIVITIES AND RESULTS

Control measures have included a combination of dam rationalisations to deny feral goats access to artificial water, putting in infrastructure to muster and trap, plus ground and aerial shooting.

Dam rationalisations

Many conservation reserves were previously pastoral leases and retained the artificial watering points so critical to rangelands livestock production. On the reserves these watering points were supporting higher grazing pressure from feral goats, compromising the native vegetation.

Therefore, one of the main activities has been decommissioning the dams by blocking the intake and diverting the drains, filling them in, or constructing trap yards around the bigger ones.

The status of dams across the reserves was assessed and priority dams identified. Priority dams are those that hold water for extended periods. These were fenced off and spear traps left open – initially to train the feral goats to go through them, and then to trap them.

To date, there have been 18 strategic dam closures on the conservation reserves.

Trap yards

Eight dams on three stations (Pine Valley, Sturt Vale and Oakvale Stations) were prioritised based on known feral goat hotspots and the proximity to reserves. Trap yards were built around these dams. Calperum Reserve is one of the largest properties in the project area and the program funded materials to build portable yards for mustering on the property.

Two sets of portable yards and matching spear traps were also purchased and are being used on pastoral properties and the reserves, along with the portable trap yards available from the SAMDB NRM Board.



So far, there have been 18 strategic dam trap yards built on the conservation reserves and 24 strategic dam trap yards built on the pastoral properties.

Fencing

The project also provided materials for electrifying the new western boundary fence of Gluepot Reserve, which was identified as a feral goat hotspot during initial aerial surveys. Electrifying the fence complements the existing electric fence on Gluepot's northern boundary.



Mustering and trapping

From the start of the project through to mid-2012 it is estimated that 102,000 feral goats were removed from the project area using mustering and trapping alone. This includes 4,599 feral goats removed from the conservation reserves.

The majority of this work was undertaken by producers on their properties, and material supplied by the project utilised to assist mustering and trapping.



Ground shooting

Ground and aerial shooting can be effective in targeting feral goats that are missed during trapping and mustering.

A total of 4,882 feral goats were ground shot over 16 months to mid-2012. The majority of these (3,480) were shot at Danggali over six months from December 2011.

Aerial shooting

Two aerial shoots were undertaken on the conservation reserves as part of the project, and a total of 1,959 feral goats were shot. The primary aim of the aerial shooting was to determine the efficiency and cost effectiveness of this control method in mallee vegetation.

The first shoot had limited success, with 239 goats shot over 13 hours. This was due to a number of factors, primarily wet conditions; wide distribution of the feral goats, which were in small mobs; large number of young feral goats; and the logistical issues of conducting a shoot in a new location.

The second shoot was much more successful. 1,720 feral goats were shot over 21 hours. Local knowledge was used to help target specific problem areas, and the conditions were much more suitable.

Overall results

An uncontrolled population of feral goats can increase by up to 75 per cent a year. While 102,000 goats were removed from the project area in the first 18 months of the program, the population density is estimated to have nearly doubled between the winter 2011 and 2012 surveys – from 2.19 to 4.09 goats per km². In 2012, there was an estimated 124,901 ± 21,790 goats in the project area.

“This shows just how quickly a feral goat population can increase if the conditions are favourable. With no control measures in place it’s estimated that this increase would have been significantly higher,” Dave said.

It takes a number of years to build up a control program, which can then be driven by the landholders once the formal project concludes. These results are very encouraging, particularly given how many feral goats have been removed by control measures undertaken by producers.

“Building on these activities and using monitoring data to inform decision making about collaborative efforts are important next steps for the program,” said Dave.

STEP 5: MONITORING

Dave says monitoring enables the project team to assess whether control measures have been effective. It also provides new information for making more informed management decisions.

“Essentially we monitor two things – feral goat numbers and densities, and the impact of feral goats on native vegetation. This is done through the aerial surveys, anecdotal information from

landholders and land managers, monitoring 39 vegetation impact assessment sites, as well as data from tracking collars on 10 feral goats," he said.

These tracking collars have revealed the range of individual feral goats in the project area to be anywhere from 28km² to 865km².

THE FUTURE:

In January 2012 the DEWNR applied for funding under the Federal Government's Biodiversity Fund to continue the program. The application was successful and funding has been secured to the end of June 2014. This may be extended further.

Complementary programs have also been funded in the Burra and Olary Ranges. These will be coordinated by the DEWNR Northern and Yorke Region.



KEY SUCCESS FACTORS:

Dave identifies the following factors as being critical to the success of the project, which can be adapted as needed and applied by pastoral producers anywhere in the country to address problems with invasive animals:

1. **Initial review** to gain an understanding of the distribution and density of the feral goat population across the project area, as well as where the 'hot spots' are.

2. **Ownership** of the project has to sit solidly with the landholders. This isn't something that can or should be driven by government departments or the project coordinator. In this case, the landholders comprise of pastoralists, managers of the reserves and other stakeholders, all of which are represented on the project steering committee. Decision making and collaborative efforts are determined and implemented by the committee. Advice and establishment resources are provided by the project coordinator.
3. **Whole of landscape view** of the problem and control measures. Feral goats and other invasive species can roam over large areas, so to be effective, control measures need to be informed by a bigger picture view of the problem. Initially this starts with single property activity within the bigger strategic plan for control, this then moves to more collaborative, cross-property efforts.
4. **Multiple control methods** – no single control measure is going to be effective. A combination of reducing or removing access to artificial water points, fences, mustering, trapping, aerial and ground shooting is required.
5. **Monitoring** enables you to measure the effectiveness of control efforts and informs decision making going forward.

“Sometimes it's a struggle to justify spending money on pest animals, especially when their impact is difficult to measure. Collaborative efforts are not only more effective, but also allow the cost to be shared, providing much better bang for buck,” said Dave.

MEASURING THE IMPACT OF FERAL GOATS

When rainfall is lower and there is less vegetation around, their impact can be seen more easily. However, when conditions are good it can be more difficult to assess and it's under these conditions that population numbers can rapidly rise.

What's most difficult is working out which animals are eating what plant species; and determining the impact feral goats have on a property, specifically in relation to carrying capacity and competition with livestock for feed and water.

Feral goats eat around the same amount as sheep, and it's estimated that around half of what they consume is plant material that would be eaten by sheep. Having 10,000 feral goats on a property is estimated to have roughly the same impact on feed availability as 5,000 sheep, plus the damage to native vegetation.

Work is currently underway to quantify the impacts of feral goats at different densities.

HOW TO GET INVOLVED

For more information or to get involved, please contact Dave Setchell:

Mobile: 0428 873 090

Email: dhsetchell@gmail.com

RESOURCES:

Project Report: Riverland Biosphere feral goat and rabbit control program 2010/11 and 2011/12 – Summary report to landholders (October 2012)

Fact Sheet: The feral goat *Capra hircus*

Department of Sustainability, Environment, Water, Population and Communities, Australian Government (2011)

www.environment.gov.au/biodiversity/invasive/publications/pubs/feral-goat.pdf

Research report: Managing Vertebrate Pests: Feral Goats

Parkes, J., Henzell, R. and Pickles, G. (1996) Bureau of Rural Sciences, Australian Government Publishing Service, Canberra

www.feral.org.au/wp-content/uploads/2010/03/13214_goatguide.doc

