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Future
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Southern Rangelands Revitalisation Program

Ken Darnell & Jo Clews at Melangata Station

Holistic grazing to revitalise the landscape and lift productivity

August 2025

Acknowledgments

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The program started in 2021 and aims to support pastoralists to investigate and implement long-term solutions for on-station improvements in rangeland condition, land productivity and livestock management in WA's southern rangelands.

We acknowledge that the contents of this document do not necessarily reflect the views of contributors.

Cover image: Dorper sheep on Melangata Station
Images supplied by Jo Clews

For further information, visit **dpird.wa.gov.au/southern-rangelands-revitalisation-program**

For more information on Soils for Life email **info@soilsforlife.org.au** or visit **soilsforlife.org.au**

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About the case study series

This case study is part of a series that showcases 7 pastoralists in Western Australia who have participated in the Southern Rangelands Revitalisation Program (SRRP) run through the WA Department of Primary Industries and Regional Development (DPIRD), funded by the Australian Government's Future Drought Fund – Resilient Soils and Landscape program and the WA State Government's Climate Resilience Fund.

The Southern Rangelands Revitalisation Program aims to support pastoralists to investigate and implement long-term solutions for on-station improvements to land condition and livestock profitability in WA's southern rangelands. This program takes a systems approach to rangelands revitalisation involving:

- the regeneration of palatable, productive, perennial vegetation
- landscape function and hydration restoration
- total grazing pressure control
- livestock management.

The program provides support to pastoralists to learn as a community through organised group meetings with like-minded pastoralists, funding to access expertise and training, and grant funding for revitalisation projects.

The 7 pastoralists in the case study series received training and specialist support in the first phase of the program and were then successful in applying for funding for an on-ground revitalisation project.

Soils for Life has prepared each case study in collaboration with DPIRD and the pastoralists. Each pastoralist story provides an insight into their unique rangeland environment and context, challenges and motivations, and ways they are adapting and innovating to build resilience. The case study has a focus on practices implemented through the SRRP, but provides context about each pastoralist's broader management approach.

Station facts

Location
Wajarri Country, Yalgoo Shire, WA

Climate
Hot dry summer, cold winter

Average annual rainfall
258 mm[1]

Agro-ecological region
Arid[2]

Property size
46,000 ha

Elevation
429–481 m

Social structure
Family operated pastoral lease

Enterprise type
Dorper sheep for lambs and tourism

Landscape
Scrub with open woodland or scattered trees in the southern rangelands[3]

Soils
Hardpan wash plains on granitic rocks of the Yilgarn Craton with red loamy earths, red shallow loams (often with hardpans), red deep sands and red shallow sands.[3]

Land systems
Kalli, Norie, Challenge, Tindalarra[4]

1 Sourced from the pastoralists and **SILO**.
2 Agro-ecological region is determined according to **Outback Australia - the rangelands.** Extreme variability of rainfall is a defining feature of southern rangelands and has a significant impact on the challenges and solutions being explored in the SRRP.
3 Sourced from **Natural Resource Information, WA DPIRD**.
4 Land systems of the SRRP project area. Sourced from the Rangelands baseline surveys - Western Australia.

SRRP project highlights

Goals and approaches

- Increasing access to productive land on the station, creating a more even distribution of grazing across the property throughout the year
- Maintaining groundcover, improving grassland productivity and protecting the landscape from degradation through rotational grazing management
- Managing pest species and the areas set aside for rehabilitation and feed in times of drought by increasing fenced grazing areas for sheep
- Rehabilitating degraded areas to improve water retention in the landscape

Practices implemented

- Built fences to keep out dingoes and enable improved grazing management
- Implementing holistic grazing management, allowing adequate rest and recovery between grazings (2–3 months, depending on rainfall)
- Monitoring to assess practice change - installing cameras and Environmental Outcome Verification monitoring sites

Initial insights

- Electric fences are protecting lambs and sheep, keeping out dingoes and preventing kangaroos from damaging fences
- After a recent rain event there are early signs that management changes are working: groundcover is improving, ephemerals are coming up, followed by grasses
- Existing fencing shows improved landscape function, including increased groundcover and grass regrowth after grazing

> It's an interesting little station. It has some areas that are reasonably good for grazing and there are some areas that are just very nice for visual scenery to take visitors to. We are learning that there is every potential that we may in fact be able to make those areas useful and productive as well.
>
> **Jo Clews**

Meet Ken and Jo

Together Ken Darnell and Jo Clews run Melangata station, 200 km east of Geraldton, WA. At 46,000 ha it is the smallest station in the area, surrounded by much larger pastoral leases. Ken and Jo see the potential for reviving sheep production at the station in a way that improves the landscape and lifts its productive capacity. They are taking on the challenge and learning a lot along the way, motivated by their vision to 'renovate, reinvigorate, rehabilitate, regenerate and restore the unique homestead and the landscape to make the landscape productive, sustainable and vibrant'.

Originally from the Margaret River region in south-west WA, Ken and Jo spent time in Geraldton prior to purchasing and taking over the pastoral lease of Melangata Station in 2016, fulfilling their long-held dream of station ownership. After missing out on purchasing Melangata Station in 2011, Ken and Jo tried purchasing a couple of other stations and also missed out on them. Jo reflects on how they had all but given up when Melangata Station came back on the market again and they successfully purchased it in 2016.

Image 1 Ken Darnell and Jo Clews outside the historic homestead on Melangata Station

Source: Rolling Stills Photography

Historically merino sheep for wool had been run on the station with varying degrees of success since 1916. When Ken and Jo took over, they were losing sheep to dingoes,[5] so in 2021 they decided to sell all but 100 head. Finding ways to protect their sheep through improving fencing means they are now back into sheep, currently running 500 dorper ewes on the one third of the property that is fenced.

Ken and Jo have renovated and upgraded facilities at the historic homestead and shearers quarters and established a campground and property tours to offer accommodation as part of a tourism business. The homestead is a unique, historical building designed by Monsignor John Hawes in 1916.

Building healthy soils

Melangata Station consists of a diversity of landforms and soil types. Soils are clay, granite and sands, and the landscape features areas of granite outcrops, sandy flats, and breakaways.[6] Jo became 'obsessed with soils' after completing holistic management training through the first phase of the Southern Rangelands Revitalisation Program, and regularly reads Nicole Masters' book *For the love of soil*.[7] Jo has seen that small changes to their system can bring about promising results.

> "As soon as we introduced some animals into an area that is really hard, put some hay in there, let them trample it and leave dung and urine in it, next time it rains that place absolutely explodes back with life again."
>
> **Jo Clews**

5 In WA, dingoes are often referred to as wild dogs, which also include dingo/dog hybrids and feral domesticated dogs.
6 Breakaways are cliffs caused by erosion.
7 N Masters, *For the love of soil*, Printable Reality, New Zealand, 2019.

Holistic grazing to improve the land

Attending the holistic management course and seeing the potential for managing grazing livestock to improve pastures and land condition is a key motivation behind the practices Ken and Jo use at Melangata Station. Jo calls the sheep ‘our solar powered fertiliser spreaders’ and appreciates how they can be hugely beneficial to the nutrient distribution throughout the landscape, so long as they are managed properly.

Grazing dorper sheep using holistic management grazing principles is a foundation of landscape restoration at Melangata Station. The sheep are moved to a new paddock timed to leave a 30% residual of pasture behind after each graze, then the paddock is rested to recover before being grazed again. Ken and Jo are out checking and shifting their sheep regularly, and observing how improving grazing management through fencing is making an impact on the country and helping the soil and its microbes.

Since arriving at Melangata Station, they have installed 90 km of electric fencing ‘to keep the sheep in the areas we want grazed while keeping the animals we don’t want out of the grazing areas,’ Ken explains.

> “The soils will look after themselves if you look after the animals that are running around on them.”
>
> **Ken Darnell**

Image 2 Dorper sheep on Melangata Station

Rehydrating the landscape

Ken has been inspired to find ways to successfully retain water in the landscape after reading Peter Andrews' book *Back from the brink*.[8] Spending time with landscape ecologist Hugh Pringle through the SRRP also gave them more confidence to continue with what they had been doing. Ken explains how Hugh saved them time and money by encouraging them to scratch up the ground with the bobcat and bulldozer instead of buying seed, and these areas have come to life with vegetation after rain.

Ken began undertaking earthworks 7 years ago, prioritising erosion repairs and installing whoa boys[9] on roads to slow the flow of water in the landscape. He has also been disturbing hard soil mechanically using a stick rake on the bulldozer to encourage natural revegetation. The stick rake leaves grooves in the soil that allow water to infiltrate more readily.

There are signs that the earthworks and grazing management together are working to rehydrate the landscape. Jo observed, 'When we had our last big rain our creek barely flowed, the water was running off slowly and was very clear, which meant we weren't losing any of our soil, which is exactly what we want to achieve.' Seeing the overall improvements in groundcover is also inspiring them to continue to explore what's possible on the station.

8 P Andrews, *Back from the brink: how Australia's landscape can be saved*, ABC Books, Australia, 2006.
9 Whoa boys are dirt banks built at right angles across eroded tracks to divert water off the track without causing erosion and so vehicles can cross over them.

Image 3 Neighbouring station owners and Ken inspecting erosion repairs on a gully at Melangata Station

Southern Rangelands Revitalisation Project on Melangata Station

The Southern Rangelands Revitalisation Program (SRRP) aims to support pastoralists to investigate and implement long-term solutions for on-station improvements to land condition and livestock profitability in WA's southern rangelands.

Motivations and goals

Jo and Ken's revitalisation vision for the station is to: 'Increase our ability to manage the property as a whole by minimising grazing pressure by domesticated livestock and uncontrolled feral pest species throughout areas of the station lease, giving us greater control to move our livestock through the environment and excluding them from areas that are grazed, rehabilitating or being saved for food in times of drought.'

Their project site covers 3,000 ha and has Norie, Challenge, Kalli and Tindalarra land systems that are in fair condition. There has been no domestic livestock grazing in the area for the past 25 to 30 years, although there has been other grazing pressure by kangaroos, feral cows and goats. Ken and Jo wanted to manage the pressure on the landscape and provide more paddocks for the sheep to graze, so as part of the SRRP they have fenced the additional 3,000 ha, creating two new paddocks. Closing the areas off for rest and rehabilitation will help improve the survival rate of newly established and germinated perennial grasses, forbs and shrubs and allow already established ones to recover, and increase retention of palatable dry matter for their livestock in times of drought.

For Ken, the resilience of the landscape is linked to their ability to produce healthy sheep. Ken has observed that areas on the station that have not been grazed by sheep or cattle during the 9 years they have been there are not improving in condition as a result of the destocking. While shrubs recover well when sheep and cattle are removed, grasses remain continually overgrazed by kangaroos in these areas. Reduced livestock numbers are also debilitating to the area economically. Managing the grazing of sheep to cycle nutrients through the landscape and allow rest and recovery of pastures, along with the ability to fence out dingoes and kangaroos, will allow them to increase the landscape's drought resilience and productivity.

Practices implemented

Fencing to manage grazing pressure and protect sheep

Ken was keen to build on the success he has had installing electric wires on the outside of existing 5-line plain wire fences and on recently installed ringlock mesh fences to keep the dingoes and kangaroos out. The electric wires also help to maintain the integrity of the fence by limiting the damage done to fences by kangaroos.

Ken and Jo have now installed 6 km of fencing to create the 2 new paddocks, one of which is a 3,000 ha paddock that is dingo-proof. They decided to construct the fence along the contour of the land to minimise the risk of any future erosion. They also cleared the fenceline with the stick rake on the dozer to ensure minimal disturbance, removing as little vegetation as possible. Most of the vegetation that was removed were the quick growing shrubs, while bowgada (*Acacia ramulosa*) and the older mulgas (*Acacia aneura*) were left in place. The fence complements the Murchison region vermin cell fence,[10] which is intended to prevent migration of pest species into and out of the region; together they enable station-level management of grazing pressure.

Image 4 The new fence that was installed as part of the SRRP project

The new fence is an eight-line Southern wire stock grip mesh fence with star pickets spaced every 10 m to keep the fence robust. Ken has installed a low set solar powered electric wire between 150 mm and 300 mm from the ground, held away from the fence by outriggers with an insulated guide to exclude and redirect animals away from the fence. They have used 1800i energisers with numerous earth stakes installed along the fence into bentonite clay that holds the moisture better and can be watered regularly to make the fence more effective.

In addition to the new fence, Ken installed another 6 km of stock grip wire mesh along an existing fence line to make one of the new paddocks secure. He removed the existing plain wire fence to attach the new mesh to the existing star pickets. This was challenging as the fence traversed rough granite country and Ken installed extra fence ‘skirting wire’ to fill and secure the gaps created on the bottom of the fence due to the uneven terrain.

Ken and Jo are finding the biggest challenge with fencing is the scale of the station; with so much fencing to do, it is a gradual process. This project is helping to keep the fencing progressing and to measure the benefits gained from the improved grazing management.

10 The Murchison region vermin cell fence project encloses 53 pastoral properties in a dingo-proof cell.

Grazing management

With the fence recently installed in October 2024, Ken and Jo will be seeking to understand whether the regrowth level of plants, such as cotton bush (*Ptilotus obovatus*), flannel bush (*Solanum lasiophyllum*) and grasses, could be used as the trigger for the re-introduction of sheep into the rested paddock. The area will be managed following holistic grazing management principles to improve groundcover and pastures. By grazing for short periods of time and allowing pastures regular rest to recover, the intention is to improve drought resilience and create a living feed 'haystack' for future use.

Monitoring progress over time

Ken and Jo have installed three camera monitoring devices along the new fence to inform them about the effectiveness of the fence to redirect animals. They also have a camera monitoring unit installed on a whoa boy to observe water movement in the landscape when it rains. They plan to install another unit to observe what happens when it rains at a site where earthworks and soil disturbance are carried out.

Jo has established seven ecological monitoring sites using the Ecological Outcome Verification technique,[11] and is already noticing some promising changes in the landscape, including improved groundcover. She has positioned the monitoring sites to check what is happening inside and outside the new fence to measure the grazing impact when the sheep are introduced. Jo enjoys seeing the progress they are making through her regular monitoring practice.

11 See **savory.global/eov/**

Image 5 Dorper sheep at Melangata Station

Image 6 Jo Clews monitoring ecological health indicators at Melangata Station

Initial insights

It is early days in the project at Melangata Station, but Jo and Ken are confident that the project will deliver significant benefits. The new fence has only recently been installed, and Jo and Ken expect the benefits will follow once the area has been rested. They have already seen the benefits of the existing electric fences with no dingo predation on their lambs or evidence of dingo attacks on their sheep this year. The existing fences, grazing management and earthworks have allowed new plants to establish and have stabilised the ground, and more of the water that falls on Melangata stays on Melangata.

Ken is continuing to learn and refine his technique, finding that for electric fencing to be effective, it needs high voltage and a distance between energisers of 20–30 km. Ken also emphasises the importance of a good earth stake, and using as many as you can in the dry conditions. In the 6 km of fencing built for the project, Ken used 4 bentonite earth stake kits. Two were placed at the energizer, 3 m apart. The energizer is halfway along the fence and the other earth stakes were placed halfway each way from the energizer. The main fence is also being used as an earth.

The response to the changes in grazing management are expected to align with rainfall events, which are unpredictable in this environment. After a recent rain event they have started to notice the groundcover improving, ephemerals coming up over winter, followed by grasses.

The camera monitoring devices are capturing images that show water movement when it rains to see the positive impact the construction of a whoa boy is having. They are also making it possible to learn more about the presence of dingoes and other wildlife, including hopping mice (*Notomys* spp.) and birds.

Ken and Jo's passion for landscape regeneration continues to be inspired by their observations of changes in the landscape in response to the actions they are taking. Ken and Jo are noticing how long-term, unmanaged destocking is not the answer, and how managing livestock and wildlife to incorporate short-term, managed destocking can help build up vegetation. They are seeing how improving the utilisation of the grasses through grazing stimulates the grasses to regrow, instead of oxidising and becoming dormant as grasses do when left ungrazed. Ken and Jo believe that being prepared to learn to manage the grazing and go out and observe livestock and the landscape is essential.

They are finding the dorper sheep are well-suited to this environment, now that they have a way to keep them safe from dingoes. The dorpers move through the landscape well and graze uniformly, eating a wide diversity of forage rather than only targeting the most palatable plants.

Ken and Jo's journey at Melangata Station began focused on restoring the historic station homestead and has progressed to become much more about improving the land and leaving it in better condition. They believe the activities they have undertaken through the SRRP have accelerated their progress towards achieving their vision of a productive, sustainable and vibrant landscape.

> To maintain country I believe you've actually got to be out there in it, walking and observing the animals you are trying to manage.
>
> **Ken Darnell**

Next steps

Ken and Jo plan to continue learning and improving their grazing management skills, along with repairing degraded areas of the station using earthworks for landscape rehydration. They will fully stock the fenced area of the property with 200 more sheep, then continue rolling out fencing improvements and road and stock water infrastructure over time.

Next Ken and Jo would love to trial electric fence monitoring to avoid having to check electric fences every few days, and to isolate faults more quickly when they occur. They can see how this technology has huge potential to facilitate improved grazing management in the rangelands.

Jo plans to set up more monitoring sites on Melangata station to build up an accurate picture of what is happening in the environment, believing there is ‘no better way to monitor what is going on than to be there on the ground, looking with your own eyes’. These monitoring sites will be complemented by more monitoring cameras, as well as rain gauges at the monitoring sites.

Image 7 Homestead at Melangata Station

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