Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA

Australian Government
Department of Agriculture, Fisheries and Forestry

Future Drought Fund

Southern Rangelands Revitalisation Program

# David & Frances Pollock at Wooleen Station

## Revitalising perennial vegetation and building water points for sustainable grazing

August 2025

## Acknowledgments

This case study was co-prepared by the Department of Primary and Regional Development (DPIRD) and Soils for Life as part of the Southern Rangelands Revitalisation Program (SRRP), jointly funded through the Australian Government's Future Drought Fund and the WA State Government's Climate Resilience Fund.

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: Breakaway country on Wooleen Station
Image supplied by Base Imagery

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 Yamatji Country, Murchison, WA

### Climate
Hot dry summer, mild winter

### Average annual rainfall
246 mm[1]

### Agro-ecological region
Arid[2]

### Property size
134,000 ha

### Elevation
300 m

### Social structure
Family operated pastoral lease

### Enterprise type
Opportunistic cattle trading and ecotourism

### Landscape
Mulga shrublands in the southern rangelands[3]

### Soils
Hardpan wash plains (with stony plains, sandplains, hills and mesas) on granite and gneiss of the Yilgarn Craton with red-brown hardpan shallow loams, red shallow loams, red loamy earths and red sands[3]

### Land systems
Challenge, Yanganoo, Wooleen, Narryer, Kalli and Norie[4]

1 Source: Station records kept since 1904 and **SILO**. Rainfall is highly variable and unpredictable from year to year.
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

- Developing a water strategy to reduce grazing pressure and improve livestock management to build natural capital and drought resilience
- Expanding upon the ecological gains made in other parts of the property, and responsibly using the grazing potential of Wooleen
- Developing a centralised water point to support Wooleen's ecological rest-based rotational grazing approach
- Ensuring that sufficient water can be delivered to wherever it is needed to support the entire herd
- Enhancing the production and spread of key pasture grass species to provide groundcover to reduce and repair erosion, and to increase Wooleen's productive capacity

## Practices implemented

- Building a new hilltop tank and water points along 17 km of pipeline to improve water quality and quantity in both good and poor country, increase options for moving cattle and reduce distance cattle need to walk for grazing and water
- Landscape rehabilitation around discontinued watering points
- Building perennial grass nurseries close to water points to increase the likelihood of establishment
- Strategic placement of nurseries to support downstream and downwind vegetation recruitment

## Initial insights

- Recruitment of formerly rare perennial grass species provides sufficient feed for cattle during dry periods
- Strong water flow rates and pressure in new water infrastructure enables grazing in locations that were not previously viable and more rest in other areas
- Nurseries built through the SRRP show signs of establishment

> The ultimate goal is to turn Wooleen into somewhere where other people can go “Oh, hey, we could do this very differently.” And it’s a better financial, ecological and social model.
>
> **David Pollock**

# Meet David and Frances

David and Frances Pollock have been working for the last 16 years to regenerate the landscape on Wooleen Station, 300 km northeast of Geraldton, WA. Together, they own and operate the station's 134,000 ha as both a cattle enterprise and successful ecotourism business hosting over 1,300 people every winter.

David's parents met at Wooleen Station after spending the majority of their lives in the region. They purchased the property together in 1989, at which point the condition of the landscape was already in severe decline after decades of set stocking. Following the crash in wool prices soon after, David's parents started a tourism enterprise to sustain the business. When David took over the station in 2007, he knew that drastic changes were needed to keep it afloat. He and his brother had already shifted the livestock enterprise from sheep to cattle, but the landscape on Wooleen Station continued to decline.

Wooleen Station sits in the heart of the mulga shrublands of the southern WA rangelands. The soils range between red-brown hardpan shallow loams, red shallow loams, red loamy earths and red sands. In addition to Mulga (*Acacia aneura*), other common species include saltbush (*Atriplex* spp.) and bluebush (*Maireana sedifolia*). With 36 kms of both the Murchison and Roderick rivers running through the property and Wooleen Lake sitting in the centre, Wooleen Station is a biodiversity hotspot for hundreds of birds, mammals and reptiles. Wooleen Station is particularly well-known for the population of

> "I just don't think that good landscape management out here is possible without an incredible amount of infrastructure or dingoes."
>
> **David Pollock**

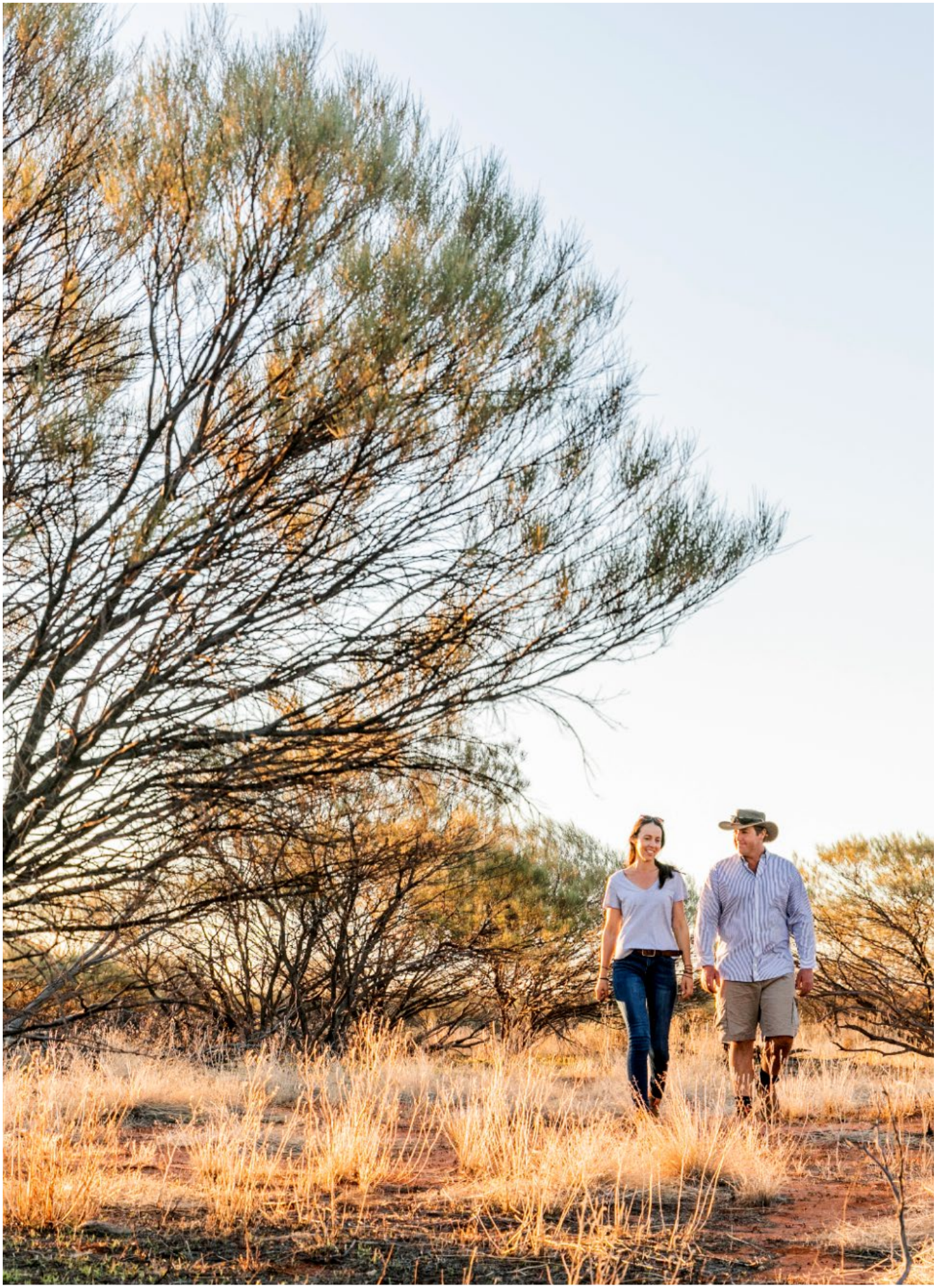


**Image 1** David and Frances on Wooleen Station Source: Nic Duncan Photography

dingoes[5] that live on the property, which David and Frances see as instrumental for managing total grazing pressure on their property and, in turn, for repairing their landscape.

**Transforming the landscape through grazing management**

David decided to start the landscape recovery journey at Wooleen when he visited Woodgreen Station, a sustainable rangelands operation near Alice Springs, in 2004. David realised he 'never really wanted to be a pastoralist until I went to their property and never really wanted to be anything other than a pastoralist since I left.' It was at this moment that he set out to show that 'there's a much better way to do this'.

David and Frances began to carefully reintroduce cattle into their landscape, knowing that good grazing management is key to landscape recovery. The Pollocks employ rotational grazing using strategically placed watering points to manage the total grazing pressure on the native vegetation and ensure that paddocks rest for a year or more (sometimes up to 3 years) before cattle return.

But in landscapes such as these that are abundant in wildlife, paddocks often do not manage to get the amount of rest they require to regenerate. David says that wild animals account for 60% of total grazing pressure, 'in which case, there's no point in managing your stock well, because you're not managing 60% of the mouths'. For this reason, he sees dingoes as a critical component of their landscape management, with dingoes controlling the unmanaged grazing pressure by predating on wild herbivores. David explains that the dingoes mean that the time

5 In WA, dingoes are often referred to as wild dogs, which also include dingo/dog hybrids and feral domesticated dogs.

> "A change to cattle, and incorporating dingoes into my management, [and by that] I mean just not killing them, means that you can reduce your unmanaged grazing to less than 10%. And then it does matter what you do with your cattle."
>
> **David Pollock**

and effort they put in to managing the grazing pressure of their cattle actually has an impact.

David has been able to manage the risk dingoes pose to his livestock. He has yet to find any calf losses or signs of attempted predation, as indicated by missing tails on calves. He attributes this to his grazing management, which means the cows have ready access to water and feed, especially during poor seasons. As a result, cows do not need to leave their young behind in search of more distant feed that the young calves do not

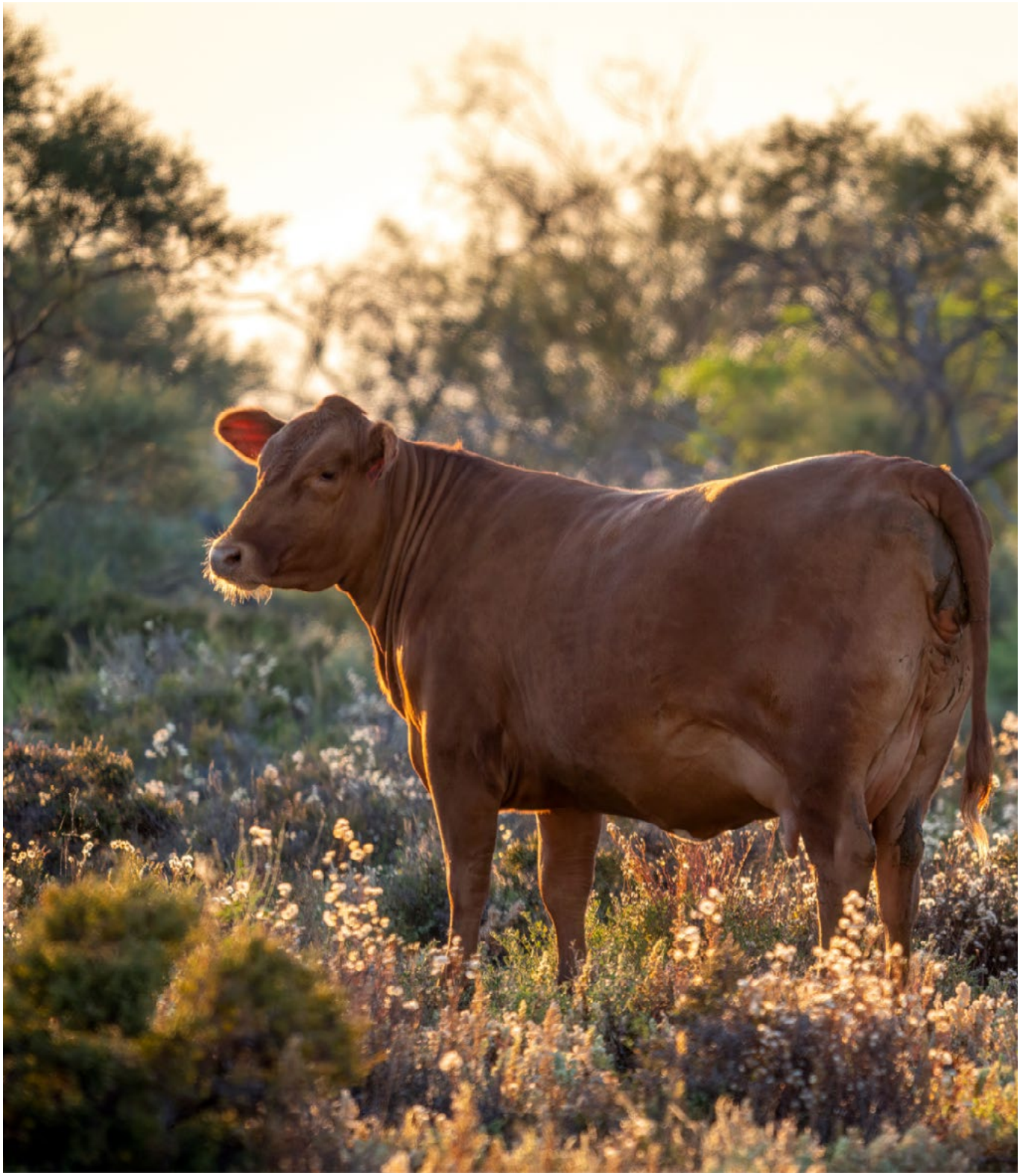


**Image 2** Grazing cow on Wooleen Station Source: Marco Kraus

have the strength or endurance to reach. This means the calves are less vulnerable to dingo predation.

By reducing the time required to manage pest species on Wooleen Station, the dingoes enable the Pollocks to spend more time on proactively improving infrastructure that helps them manage their cattle and rehabilitate their landscape, such as increasing watering points, installing new fencing, building native vegetation nurseries and moving roads and fencing to run along rather than across waterways. The installation of strategically placed fencing and water points, in particular, increases the number of options for moving cattle through the landscape while also protecting natural watercourses from degradation.

**Adapting the herd to landscape conditions**

The recovery of the landscape has now gotten to a point where the Pollocks are able to take advantage of one of its rarer benefits: enough feed to maintain, or even improve, cattle during drought. As part of their landscape rest and recovery strategy, David and Frances opportunistically trade cattle instead of maintaining a permanent herd. They generally purchase anywhere from 400 to 800 head of cattle every couple of years during drought when their condition is poor and the price is low, and then sell them on when their condition has improved and prices have increased. Their main challenge is knowing when to purchase and making sure not to miss good opportunities, but David notes they're never stressed about the availability of feed.

David emphasises, however, that if you're asking how many cattle Wooleen can run, he doesn't have an answer. He adapts the size and movements of his herd to avoid impeding on his vision of what his pasture has the potential to be, with firm belief that almost any amount of continuous grazing will reduce its potential. Good management, he says, is about asking questions like 'how long they're going to be in a particular place in a particular season', rather than maintaining a certain number year after year and then selling when in drought.

David says he answers this question by 'having a look at the scrub and thinking, you know, how much longer do I want [to leave the cattle]?' He only monitors the 'best palatable grass species' in the landscape, such as neverfail (*Eragrostis setifolia*), native millet (*Panicum decompositum*) and cotton panic-grass (*Digitaria brownii*), and when he thinks 'that they're being impacted negatively', such as being overgrazed, 'then I'll move the animals on. But quite often when we buy in a drought, the best species are dormant anyway'. At that point, he says, the cattle will be eating more abundant vegetation, 'but then it becomes pretty important when it does rain that you try and relieve the grazing pressure very quickly because those dormant grasses put all their effort into those new shoots. And if they get grazed at that point, then that can be quite detrimental to them.' Because of this, David aims to move his cattle while it's still dry if he is anticipating a rain event.

> We’ve always got feed.
> If it doesn’t rain,
> that just means we buy cows.
>
> **David Pollock**

# Southern Rangelands Revitalisation Project on Wooleen 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

David and Frances' revitalisation vision is to:

> 'Explore, demonstrate and publicise the journey of renewing the natural capital of a degraded rangeland resource. We use our learnings to advocate for the adoption of sustainable land use strategies and policies from both the pastoral industry and government. We do this to expedite the process of finding viable pathways of ensuring the recovery of a renewable resource for the Australian people to utilise to its fullest capacity.'

The Pollocks wanted to join the SRRP to support the construction of infrastructure that helps bring them one step closer towards achieving their broader vision for transforming their property. New infrastructure is most effective, David says, when it is contextualised within 'the system that surrounds the technology or piece of infrastructure itself'. David and Frances therefore designed their project with a whole-of-system approach, choosing to build a water tank and piping system that extends good quality water to grazing areas with low quality or quantity and to install 6 native vegetation nurseries near the new water points to increase perennial grass establishment. Together, these outcomes will allow the Pollocks to run cattle with minimal impact on long-term land and vegetation revitalisation.

The existing infrastructure on Wooleen Station supports grazing on only 60% of the property, with the other 40% lacking the fencing and water required for David to manage the grazing pressure of his herd. David says that ultimately, they're 'limited in terms of rotational grazing by how much water we have in one place'. The main challenge on Wooleen is the quality and quantity of water, which impacts the locations and numbers of watering points. David says the good country has plenty of water, but it is poor in quality (high salinity), while higher up in the catchment there is great

quality water but in low quantities. The existing water points are located in between these 2 areas, balancing the quality and quantity, but this restricts where he can move his herd, which becomes more of a challenge following the purchase of cattle during drought. The cows tend to be underweight, so David needs better water infrastructure in order to put them onto good country for a month, where they become healthy again before moving out to a mulga paddock.

With approximately 45 windmills scattered across the property, the water infrastructure that is currently operating in the grazing areas was set up for when the station ran sheep. Given the flow rate and capacity, each water point can only support approximately 70 head of cattle. This is insufficient to accommodate the entire mob, which, according to David, is essential for effective grazing management and optimal cattle husbandry. Increasing the number and size of water points with good quality water across the property would give David the ability to be more selective of which areas his cattle graze, decrease overgrazing around water points and reduce the distance that cattle need to walk to find available feed, which in turn reduces their calorie expenditure as well as the amount of time they leave their calves alone, exposed and vulnerable to predation.

When it comes to both grazing and landscape transformation, David says, 'It's all about the perennial vegetation.' While annuals generally come up when it rains, the key to sustainable rangelands grazing is to increase and maintain perennial grasses, which provide the energy to sustain, and even fatten, cattle during dry periods. David manages his grazing specifically to revive perennial grasses, which struggle to establish when there is widespread grazing pressure. Many of the perennial species have returned to Wooleen and now support David's 'drought-stricken cattle' trading strategy, but he notes that in some places, the seeds of the most productive perennial grasses are no longer in the seedbank and must instead be replenished through infrastructure such as vegetation nurseries, which can produce harvestable seed for reseeding the landscape.

## Practices implemented

### Water infrastructure

To install the new water infrastructure, David began by drilling a new 4-inch bore to a depth of 37 m to access good quality ground water. The bore is powered by a 7 kW solar system, which pumps the water 6.5 km uphill in a 75 mm pipe to a 200,000 L tank installed at the top of a catchment. From there, the water flows down an above-ground pipeline dotted with troughs, ending in productive country where the water quality is poor. The troughs are made of loader tyres fitted with switches and taps so that they can be turned on or off and easily drained when not in use.

The project was originally designed to have a 2-point radius of 50 mm polypipe extending 2 km in each direction, for a total of 4 km of piping, but David decided it was more aligned with his grazing management goals to adapt the plan to combine all the piping to connect to one outlet, lengthening its reach. He has co-invested in another 13 km of piping, for a total of 17 km, to get the water all the way to the back of his good country. There are a total of 12 troughs placed along the pipeline every 1.5 km, 6 of which were included as part of the SRRP.

There are a few challenges that David has acknowledged, such as the water warming when it travels above ground and cleaning such large troughs, but he has found ways to

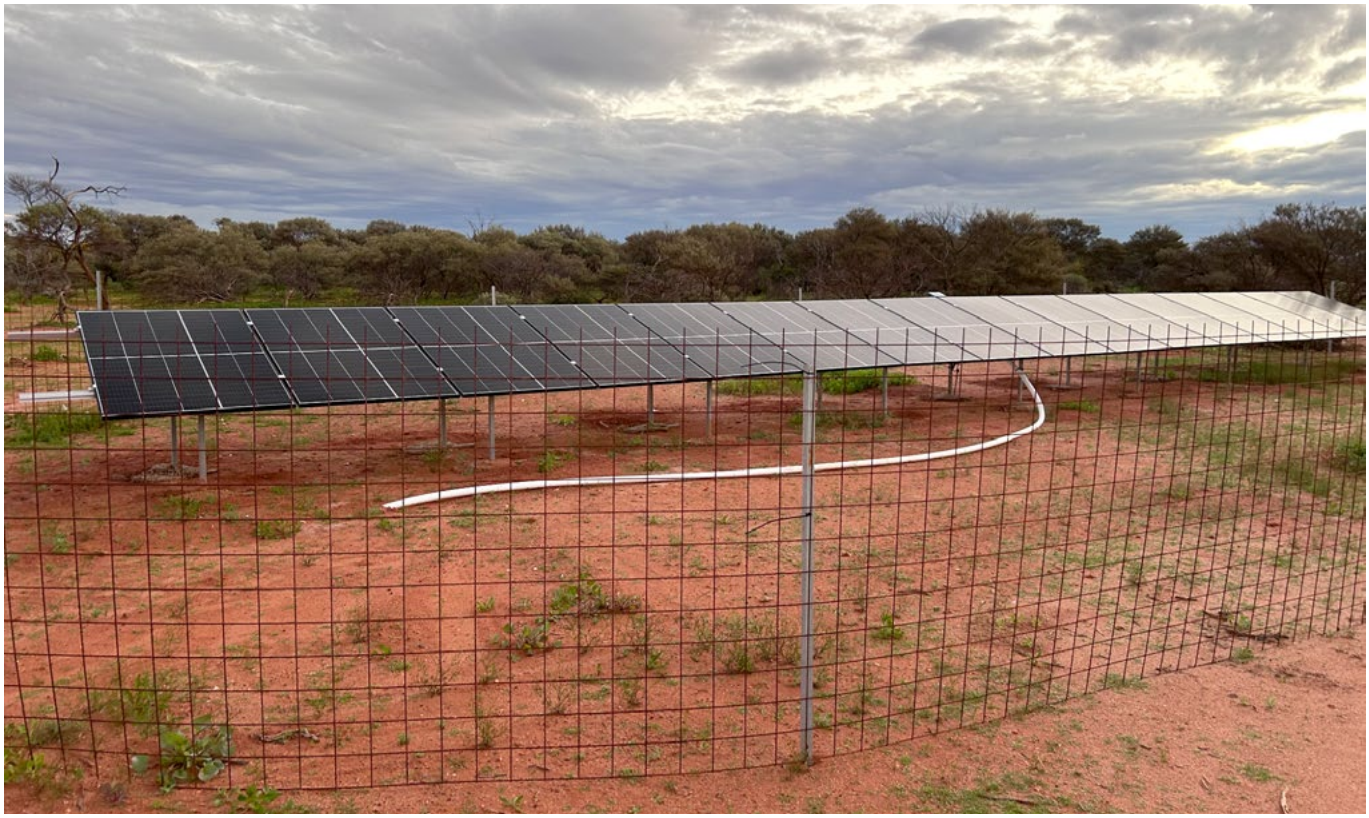


**Image 3** 7 kW solar system to power the new bore, which pumps water 6.5 km up to a 200,000 L holding tank Source: WA DPIRD

**Image 4** The new bore drilled to 37 m that supplies water to the 200,000 L tank at the top of the hill
Source: WA DPIRD

address these problems and generally says the system is working well. He has avoided a large amount of stressful maintenance by running the poly pipe from the tank down to the troughs above ground, where it is much easier to maintain and less likely to perforate from expansion and contraction underground. He said burying the whole pipeline ‘was a challenge I’d already faced and decided just, I wasn’t gonna do it’, however he did bury pipe that crossed roadways, as well as the last 50–100 m of pipe before each trough to help keep the water cool.

**Retiring degraded windmills and increasing opportunities for rotational grazing**

One of the benefits of building new water infrastructure was the option to retire some of the windmills that are now surrounded by overgrazed, degraded landscapes. With new water points located in more productive areas, David has been able to disconnect the windmills, effectively keeping cattle away from these areas so they have time to rest and regenerate. At the same time, the new water points have increased David’s capacity to rotationally graze in areas of Wooleen Station that did not contain the water infrastructure needed to hold cattle.

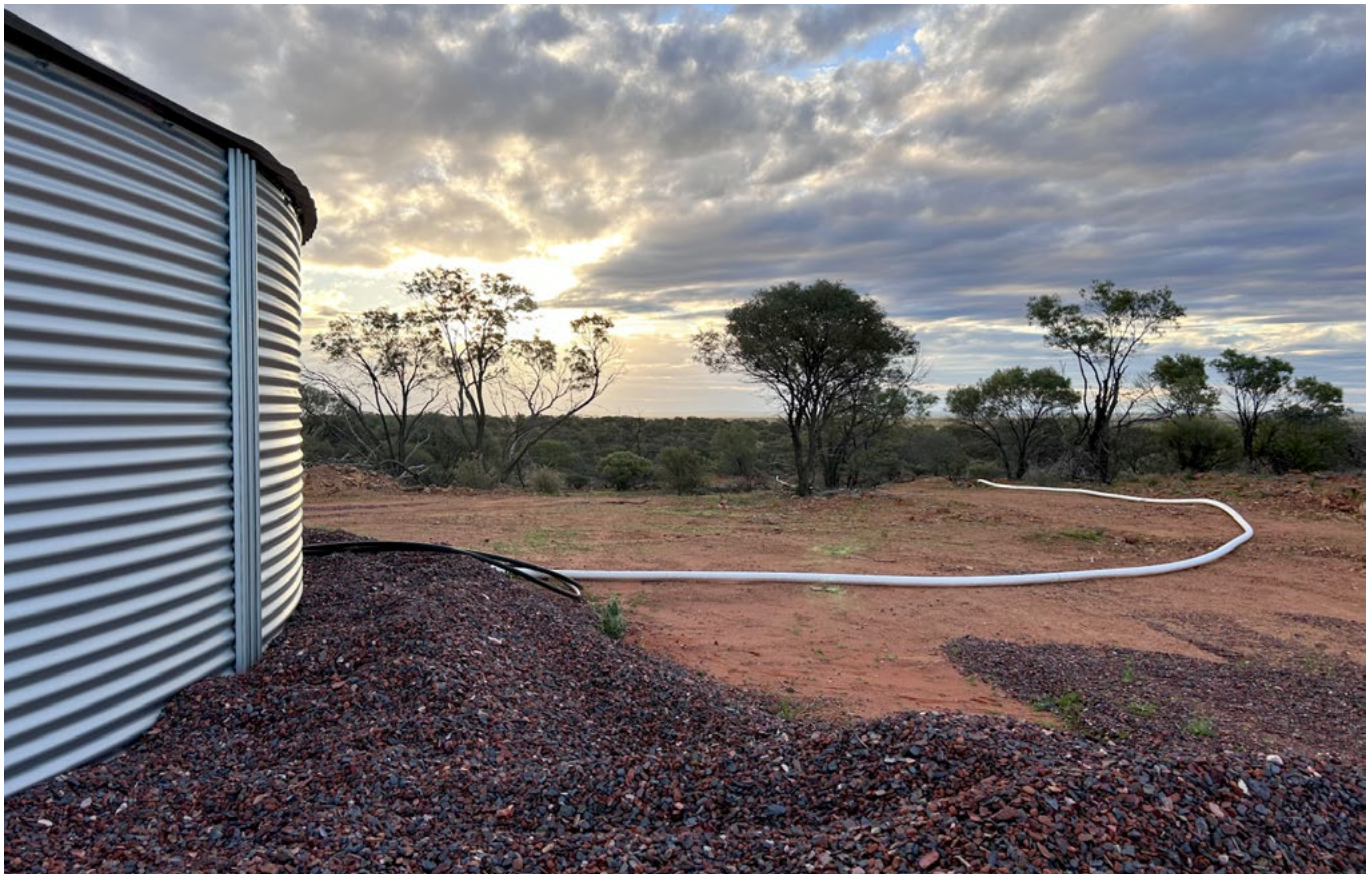


**Image 5** Water stored in a 200,000 L tank at the top of a catchment funnels down 17 km of poly pipe to a series of 12 tyre troughs Source: WA DPIRD

> In terms of just being able to provide water in places where we've not had that enough, you know, that sort of water before, it's been amazing… [we can now] use the good country because there's water there, but we can also rest it, which is a big part of that system, by having water somewhere else.
>
> **David Pollock**

**Perennial grass nurseries**

David and Frances built 6 perennial grass nurseries across 3 catchments on their property, which serve as protected areas from which perennial grass seed can be harvested, but can also flow down the catchments. David's goal with the grass nurseries is to replenish the seed bank on Wooleen and increase the recruitment of native perennial pasture grasses across the landscape for both revitalisation and grazing purposes. The species he is most interested in cultivating include native millet (*P. decompositum*), curly windmill grass (*Enteropogon acicularis*), soft wanderrie grass (*Thyridolepis multiculmis*), cotton panic-grass (*D. brownii*) and creeping wanderrie grass (*Eragrostis lanipes*).

David placed the new grass nurseries in locations that take advantage of the new water infrastructure. Compared to the 4 nurseries already established on Wooleen that are fed from ephemeral pools, the 6 new nurseries are located next to the water troughs that he installed as part of the project, so he can irrigate them using the trough water when the cattle have moved on. The sites are also generally located near the top of the catchment so that seed can naturally wash down the creeks and establish further down the landscape.

The grass nurseries are circular, with a circumference of 60 m (approximately 19 m diameter), and constructed with septic mesh to a height of 1.4 m. David uses a bulldozer to build a 'turkey nest'[6] to help slow the flow of the irrigated water through the nurseries

6 Turkey nests are a type of excavated dam. More information on the construction of turkey nests can be found on WA DPIRD's webpage on **excavated dams**.

and to scratch up the dirt, which he finds generally improves germination success.

The biggest challenge is actually getting the grasses to grow. David knows that in the established nurseries he built, those where he has disturbed the earth have shown increased recruitment compared to those where he hasn't. But he's still learning about the best way to grow the grasses given the different soil types that are in the nurseries or how to water the nurseries. When it comes to selecting the grasses for the nurseries, David wants to recover perennial grasses that he knows used to exist on the landscape before decades of overgrazing, but there are still the questions of which grasses to grow and where to get the seed. For now, he has purchased some seed and also plans to move seed over from existing nurseries. David only knows of one or 2 other people that have built irrigated nurseries, so he feels that he doesn't have many opportunities to consult with others on these challenges.

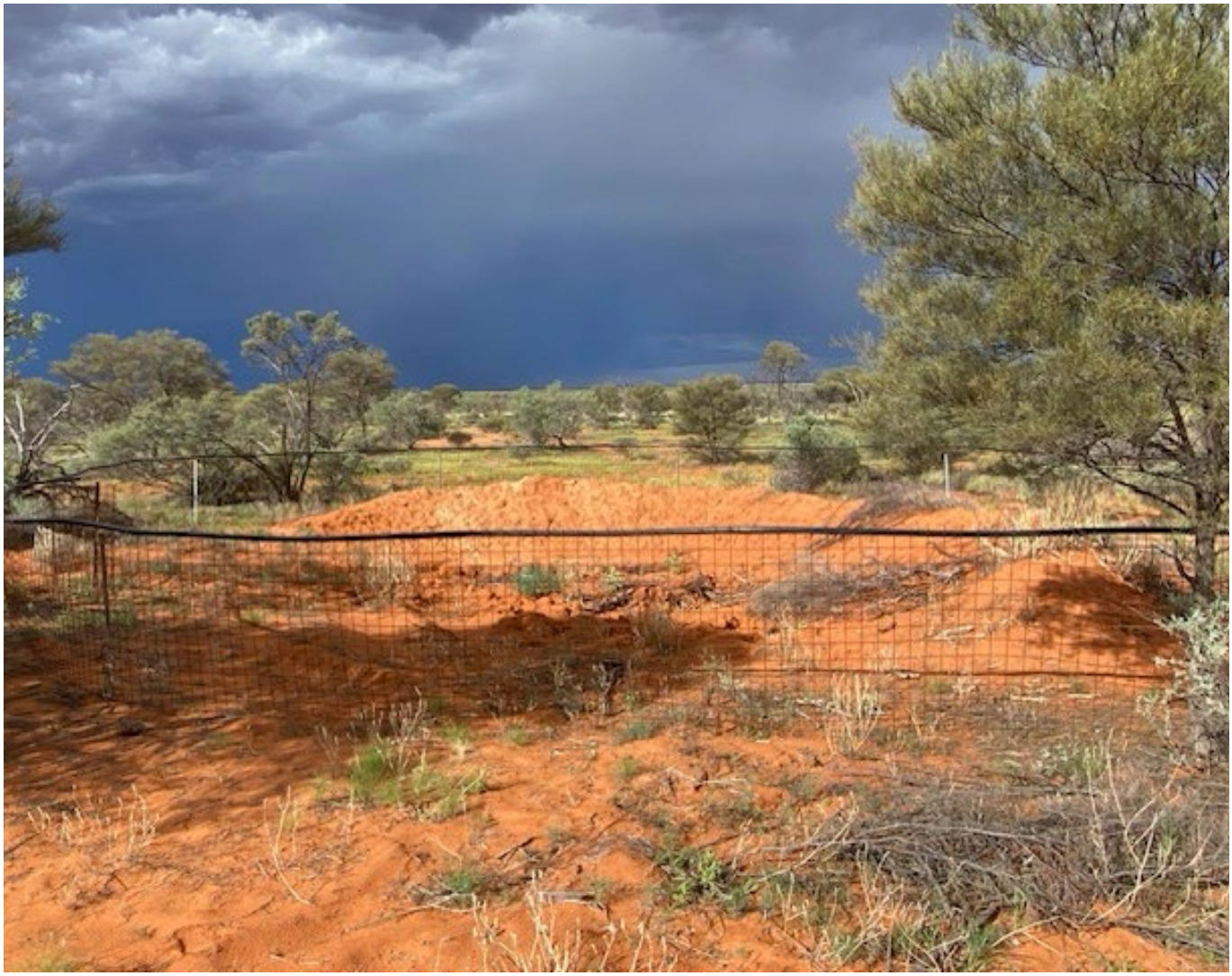


**Image 6** David and Frances constructed 6 perennial grass nurseries near their new water infrastructure using 1.4 m septic mesh measuring approximately 60 m in circumference. They used a bulldozer to build a turkey nest in the middle to slow the flow of water Source: David Pollock.

## Initial insights

The water system and nurseries have only recently been constructed, so it is still too early to see outcomes on the ground. But David and Frances are positive that the 2 practices will contribute to the resilience of their landscape and enterprise by advancing the landscape's potential as a rangeland resource. While they have only recently introduced cattle back into the paddocks with the pipeline and are patiently waiting for the vegetation to establish, they have reflected on their initial insights of the SRRP projects they chose.

### Infrastructure preparedness for sustainable grazing

David and Frances have already seen the value of their new water infrastructure, and it's worked out better than David thought it would in terms of the flow rate, maintaining pressure at the bottom of the pipeline and avoiding problems with airlocks, where water flow is blocked by a large air bubble. They currently only have 150 head of cattle and they have moved them along the pipeline once before moving them to another paddock following rain, but David is looking forward to figuring out how to train the cattle to move to the next trough using either audio cues or incentives.

David and Frances' next step is to install a new pipeline from the tank at the top of the hill to extend in the opposite direction down to the other side of the property. David also wants to leverage the new infrastructure by connecting up to 5 reels of 3 km polypipe on a polypipe dispensing trailer that David can lay and pick up as needed. Eventually, they 'want to park that water all around the property' so they can expand their rotations and graze their herd all together in on group.

Another benefit David is acutely aware of is the amount of time he has now that he doesn't need to maintain all 45 watering points across the station. Instead of spending 3 and a half days every week checking water points and one day fixing any issues, David and Frances only need to maintain one or 2 troughs at a time, cutting the time spent on maintaining water infrastructure down to a half day. They now have much more time available to work on upgrading and building new infrastructure rather than playing catch up and fixing issues hastily when they become an urgent problem.

### Monitoring for signs of new perennial vegetation

The new nurseries have yet to establish, but David knows what to look out for. A good sign will be when grass is appearing in the nursery, and then appearing in the landscape outside of the nursery. The success of the nurseries relies on good grazing management because 'if we just load the pipe line up with a heap of cattle now because we've got a heap more water, we're never gonna grow those grasses outside'.

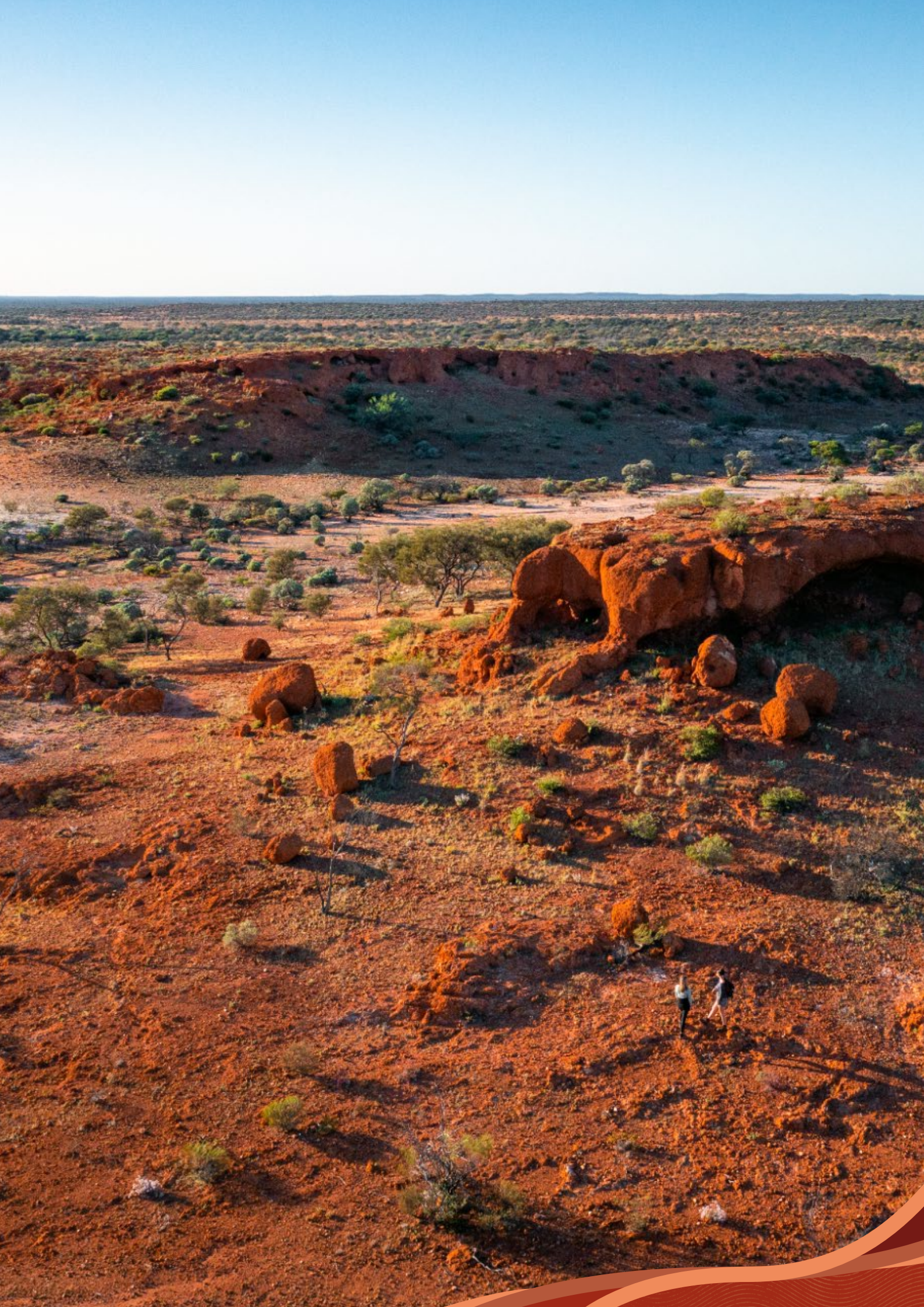
David is very hopeful for the success of these new nurseries because he has already seen results with his existing nurseries that only have ephemeral pools, compared to the continuous water supply available to the new ones. David is always keeping an eye out for new plants popping up in the catchment, which he often notices in his normal day-to-day when he is riding around the bush. In addition, WA DPIRD has conducted baseline monitoring and will be monitoring the sites remotely, with a hope to collect long term data on the impact of the station's projects.

> There's just so much more time and, you know, you can use that time to do things that save you time. I consciously have to bring myself to think about it differently because, like, I go into a job and I was like, oh God, I don't have enough time for this job and, like, wait a second, actually, you do have enough time for this job.
>
> **David Pollock**

# Next steps

David and Frances have a long list of priorities for building resilience back into Wooleen Station, and reintroducing the perennial grass species and managing the cattle better are at the top. Their goal is to constantly refine their management in ways that allow the system to flourish. They are acutely aware that the journey towards revitalising their rangelands system is always going to be a work in progress, and as David says, ‘While it might take a long time, you know, the best time to start things that are gonna take a long time is now.’

**Image 7** Tourists explore Wooleen Station’s rocky outcrops Source: Marco Kraus



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