SoilsforLife

The Winter-Irvings at Coolwoola Plains

A holistic approach to regeneration on the floodplains

Part of a wider research project investigating the benefits of regenerative agriculture.

May 2024

Acknowledgements

This case study explores the holistic benefits of a regenerative approach to farming. It is one of six case studies prepared as part of a wider research project investigating the benefits of regenerative agriculture.

Soils for Life's contribution to the project is the development of case studies, which provide insights drawn from a diverse mix of Australian farmers.

Soils for Life gratefully acknowledges the generous contributions of the Winter-Irving family.

About Soils for Life

Soils for Life is an independent, non-profit organisation that works across Australia to support Australian farmers in regenerating soil and landscapes, to build natural and social capital, and transform food and fibre systems.

Front image: The Winter-Irvings.
Image source: Courtesy of James and Donna Winter-Irving.

For further information
info@soilsforlife.org.au
www.soilsforlife.org.au

Published by Soils for Life
Canberra, ACT, May 2024

Contents

About the Case Study Series

This case study series explores the holistic benefits of a regenerative approach to farming. This case study is one of six that are part of a wider research project investigating the benefits of regenerative agriculture.

It is important to ensure that farmers' perspectives are heard, valued and used to inform research findings and outputs. And so, these case studies have been developed by interviewing each farmer to understand their perspectives, their context and their approaches to new practices. This was done in order to understand their views on the benefits of a regenerative approach to farming.

These case study farmers were selected following an expression-of-interest process calling for farmers who self-identify as 'regenerative.' The project did not include any new on-ground testing or analysis of existing monitoring data by Soils for Life.

Farm **Facts**

Location
Taungurung Country |Nagambie, Victoria

Climate
Warm and temperate

Average Annual Rainfall
541 mm (recent, 1993-2022)

Agro-ecological Region
Temperate cool-season wet

Property Size
Home (18 ha); Main (620 ha)

Elevation
134 m

Social Structure
Family owned and operated

Enterprises
Mixed enterprise with lamb, mutton, beef and wool

Landscape
The Winter-Irving's home farm is on the fertile floodplain of the Goulburn River and Lake Nagambie. Their main farm is approximately 12 kms to the east and features open plains and creek lines, including Burnt Creek. Vegetation includes cool and warm season native and introduced grasses with scattered mature (remnant) and regenerating eucalypts (*Eucalyptus spp.*), including river red gum and grey box.

Soils
Texture-contrast, sodic soils (Sodosols) and other weakly-developed soils (Arenosols, Rudosols or Tenosols). Possible minor occurrences of texture-contrast, non-sodic soils (Chromosols), and cracking clays (Vertosols).[1,2]

[1] The Australian Soil Classification (Isbell and NCST, 2021).
[2] Soil Health Knowledgebase, Victoria (https://soilhealth.ccmaknowledgebase.vic.gov.au).

The **Highlights**

Practices and Strategies

- A methodical approach to practice change: educating, upskilling, planning, practicing and observing
- Applies lessons from Holistic Management, Low-stress Stock Handling and Natural Sequence Farming training
- Ceased cropping, and introduced cattle into enterprise mix
- Altered livestock management, including rotational grazing
- Contributed to a five-year grazing demonstration site
- Put in a chain of ponds and leaky weirs
- Negotiating with local Water Catchment Authority on restoration activities beyond farm boundaries
- Creation of a shared Holistic Context, Company Vision Statement and Manifesto
- Succession planning to ensure their children benefit from farming in the future

Observed benefits[3]

- Increased grass and diversity of grass and plant species
- Significant reduction of bare ground
- More active soil with increased microbiology
- Improved water quality
- Increased carbon levels in the soil
- A more resilient landscape
- Increased knowledge, confidence and capacity in facing extreme weather
- Increased family cohesion
- Lifelong friendships and a community of like-minded people
- Less stress and a calmer work environment with more 'free' time

Monitoring progress

- Ecological Outcome Verification (EOV) seal through Land to Market for monitoring ecological and soil health
- Extensive soil testing (chemistry, Haney and plant tissue testing)
- Monitoring animal health with an online grazing management tool.

[3] These benefits are based on farmers' observations, except where noted otherwise. No additional testing or analysis has been undertaken for this case study.

Landscape and **Soils**

Coolwoola Plains encompasses two properties in the Goulburn Broken Region of Central Victoria. The home farm is on the banks of Nagambie Lake, on a floodplain of the middle reaches of the Goulburn River. The main property lies approximately 12 kms east of the town of Nagambie and 50 kms south of Shepparton.

The introduction of irrigation, including the construction of the Goulburn Weir which formed Nagambie Lake, allowed agriculture in the region to further develop and diversify to include dairying and broad scale cropping. Such progress was not without issues, contributing to an increase in irrigated and dryland salinity and soil erosion.

The diversity of soil types that occur in the Goulburn Broken Region reflect the different materials from which the soils originally formed, and varying degrees of weathering as a result of a range of climatic influences.

According to existing mapping, texture-contrast soils that are high in sodium (Sodosols) are widespread. Other sandy soils showing minimal soil development (Arenosols, Rudosols, or Tenosols) are typical of the creek lines and alluvial floodplain environments. There are minor occurrences of other soils, including grey cracking clays (Vertosols).

Image 1. James Winter-Irving monitoring the grass recovery at one of the grazing demonstration sites at Coolwoola Plains. Source: The Winter-Irvings.

Meet the **Winter-Irvings**

James Winter-Irving's family managed Coolwoola Plains as part of a larger family farm up until 2020. After forty years, farm succession was finalised at the end of 2020, and a new partnership between James and Donna and their four children saw the family begin to make significant changes on the farm. Their approach has been to continually learn and upskill, and then experiment, adapt and try new things to enhance both productivity and farm health at Coolwoola Plains.

The Winter-Irvings credit Holistic Management training for helping to shape their understanding of their context and for the guiding principles that they now use in their decision making. They implemented holistic planned grazing in 2016 after participating in a Holistic Management course, and more recently decided to eliminate synthetic fertilisers and chemicals from their system; a decision that has also led them to give up cropping and embrace greater plant diversity, including embracing weeds as indicators of soil health and as repair plants; and 'Mining minerals and nutrients for the benefit of both soil and animals.'

James and Donna have four adult sons, Mitch, Hamish, Kyle and Zac. The family succession process opened up new opportunities for their sons to establish farming enterprises as a second income stream to supplement their off-farm careers, and their two youngest boys, Kyle and Zac both have small individual cattle enterprises, separate to their parents. James and Donna want to give their sons an opportunity to experience working on the land so that they can decide 'if they want to be stewards and farmers for the future.'

Image 2. James patting 27 year-old Kyle's cattle on Coolwoola Plains. Source: The Winter-Irvings.

Practices and **Strategies**

Applying holistic thinking: cows, cropping and chemicals

After their children grew up and family succession was finalised, James and Donna felt freer to pursue a regenerative approach. And so in 2016 James and Donna began learning and applying all they could. Their most significant learning experience was with Brian Wehlburg and the Holistic Management training, followed by a Low-stress Stock Handling course.

The Holistic Management training prompted James and Donna to 'start questioning every practice'. After this point they made three significant management decisions: They introduced cattle into the enterprise mix, accompanied by the introduction of holistic planned grazing for all their livestock. These decisions then led them to eliminate cropping, and to the 'big, heavy, prickly conversation' about giving up synthetic fertilisers and chemicals, which they did over a two-year period.

After their training they also hired a consultant to write a landscape function report, which helped them confidently implement the new practices. They also joined a Holistic Management support group that came out of the training course, which lasted for four years, meeting every eight weeks. James and Donna credit this group for providing ongoing support, encouragement and accountability on their journey.

Regular planning with ongoing observation

James and Donna believe that an important part of innovating and adopting new practices begins outside the paddock with learning and planning. They are 'always educating and upskilling in regenerative land practices' and have participated in several courses in addition to the Holistic Management course, including Low-stress Stock Handling and Natural Sequence Farming. They attained the Ecological Outcomes Verification (EVO) seal through Land to Market and are enrolled in Maia Grazing. Donna's insights from permaculture courses also support them to see the bigger picture in how they plan and operate.

> 'You have to get the information, then adapt it to your situation and just keep observing because what you saw yesterday may not be the same next week.'
> **Donna Winter-Irving**

The couple spend a lot of time planning and doing 'book work.' James believes that 'getting the planning right, getting the grazing time perfect - that's going to be profitable - better product, better profit, and that means a lot of observation.' They feel that

planning 'is what a lot of farmers miss.' James and Donna continue to put time aside every week to discuss plans, always questioning how to apply what they have learnt.

Local programs that support landscape health

James and Donna have hosted several onsite field days on their property and have contributed to a five-year grazing demonstration site with Goulburn Broken Catchment Management. They have also engaged a Natural Sequence Farming consultant to develop a three-staged whole farm plan to rehydrate the floodplain by slowing the flow of water across the landscape, and repairing and revegetating the creek. They have completed two stages by installing three km of contour channels and leaky weirs across seven paddocks, and fenced off and revegetated the creek on their property.

They are also negotiating with the Water Catchment Authority to collaborate beyond the boundaries of their farm in order to implement restorative large-scale works on nearby waterways. This will require changes in local regulations, which currently prohibit catchment-scale works, and so they are building relationships with the authorities to enable more ambitious change.

Image 3. Adding more life through revegetating new contour channels in the landscape on Coolwoola Plains. Source: The Winter-Irvings.

A holistic approach to monitoring

The Winter-Irvings put an 'ecological lens over everything now.' They have done two rounds of significant monitoring through the Ecological Outcome Verification process with Land to Market to measure regenerative outcomes, and they are about to start their third round.

> 'You're not being compared to other farms. It's about focusing on your own farm and how it's trending. It's not a comparison with neighbours or other farmers … it's just looking at whether your land is trending forward.'
> **James Winter-Irving**

During a five-year grazing trial, they undertook an extensive soil monitoring process comparing 90-day and 180-day recovery periods in their paddocks. Donna describes the process as 'quite complex', involving regular photography and the development of written reports. Through the process, Donna came to see standard agricultural soil analysis, which focuses on soil chemistry, as covering 'only about 3% of what's really going on - it's the microbiology that is important.' They have gone on to conduct Haney laboratory tests, which indicate the size and functionality of the soil microbial community, and plant tissue tests to better understand their soils and landscape in a holistic way.

The Winter-Irvings began their holistic management with a grazing plan on a sheet of paper and more recently transitioned to using the online grazing management tool, Maia Grazing. This has been useful for monitoring grass recovery times and paddock productivity, and tracking the benefits of their management. They were encouraged by their sons to utilise the tool, an example of how the family are collaborating.

Managing challenges and risks

The financial risk involved in farming is something Donna and James think about often. They are conscious of the risks and seek to mitigate them, while continuing to generate off-farm income in order to buffer costs. The Winter-Irvings seek out expert advice to help them better understand changes in the market and ways they can capitalise on their efforts. The couple have had a business coach for many years who has helped them with their financial accountability and planning. The company vision statement they developed with their coach has assisted them in how they monitor progress in alignment with their values and to frame what they do as making business sense. Donna summarises their company vision, 'We live consciously and simply with a holistic vision for regenerating the planet and people.'

Observed **Benefits**[4]

Soils and landscapes

Reduction of bare ground to support healthier soils

The Winter-Irvings have observed multiple benefits to the landscape since they began integrating regenerative practices. One of their first observed benefits came out of a clear objective to 'just grow more grass and have green cover.' To their 'delight' James and Donna received EOV (Ecological Outcome Verification) status from the Savory Institute in June 2023, which globally verifies the land is trending positively, with marked improvements to the health of their farm ecosystems. Of particular interest has been the significant decline in bare soil due to the increased amount of grass cover and decomposing litter and animal dung, which are critical to building healthy soil.

With the 'massive reduction in the percentage of bare ground,' James and Donna now have more diverse grass species and an extended growing season, with better mineral cycling and water infiltration across the farm. Basic soil testing on the property has been undertaken over the last four years on the demonstration sites, with random samples taken to the standard depth of 100 mm. These have produced results indicating:

- Total/organic carbon levels are incrementally increasing and are considered above average for their soil type ranging from 3.2 – 4.02;
- pH levels have risen by 0.4 – 0.6;
- Low calcium levels are slowly improving.

Applying the Holistic Management Framework Testing Questions Matrix has given James and Donna the confidence to make management decisions that focus on long term, holistic solutions to correct low calcium. Two years ago the Winter-Irvings introduced their animals to Pat Colby's Stock Licks, which have six essential minerals including calcium. Donna describes how, 'Our "four legged biodigesters" distribute these minerals across the paddocks via their dung and urine whilst gaining the added benefit of boosting their own health first.' Haney Testing[5] the couple conducted in 2023 indicates that the microbial respiration[6] on their property is 300% higher than the average and the soil health score is almost 200% higher than the average.[7]

---

[4] This section presents the benefits of practice change from the farmers' perspective. It is based on the farmers' observations, and in some instances their own interpretation of data and test results. The project did not include any new on-ground testing or analysis of the farmers' data by Soils for Life.

[5] A suite of tests to indicate the size and functionality of the soil microbial community, including soil respiration, Water Extractable Organic Carbon (WEOC) as an energy source, and Water Extractable Organic Nitrogen (WEON) as a nutrition source.

[6] The amount of microbial activity measured in the soil is closely related to soil fertility and is proportional to the microbial biomass and available substrate. Microbial respiration is determined by the CO_2 burst measured over a 24-hour period. In most cases, the higher the number, the more fertile the soil.

[7] Please refer to this EAL example of a Haney Soil Analysis Report for guidelines and ranges.

Increasing plant diversity and integrating weeds into the system

As plant diversity has increased across the farm, James and Donna have begun approaching weeds very differently. They now see that weeds can have a role in the larger ecosystem, and have observed benefits from their management changes following the elimination of the use of chemicals. For example, over the past two years they have reduced Paterson's Curse (*Echium plantagineum*) in several paddocks by grazing the weed just before it flowers. After two seasons, Paterson's Curse is 'no longer a significant weed' and has been succeeded by other plants.

Drought and flood resilience

When a recent flood came through the property in mid 2022, James and Donna observed that water moved through the landscape differently, did less damage and soaked into the soil more fully. The farm felt 'a little bit different' to their past experiences, which they have put down to the farming system being more resilient.

James and Donna both feel they have 'the tools' to make good decisions when challenges arise and are more prepared for whatever may come. They credit this to their decision making capabilities fostered through all the education they have undertaken. They anticipate drought in the near future and are confident they will 'know when to act' in terms of de-stocking so they can get through without feeding livestock. They will consider selling livestock 'to lighten the numbers while we're going through a drought.' James and Donna have a strategy in place as part of their planning and 'wouldn't have a problem making that decision.'

Farmer and Farm

Clarity and confidence through a shared vision

James and Donna operate as a partnership. Having a set of underlying principles helps them to stay on track and share the challenge of decision making together. Donna believes that because many people don't have this level of mutual support 'they can flounder.' The Holistic Management training was essential in building confidence and clarity in their decision making, which they believe has benefitted them significantly.

The Holistic Management training also influenced them to write up their 'holistic context', which Donna describes as a 'north star for life' that helps with all of their decision making. They regularly check whether the decisions they need to make are aligned with their vision and will ask, 'Is this heading us towards the goals we're after or not?' The holistic context they drew up is backed up by 'a manifesto' and a company vision statement. The Winter-Irving's aims are expressed clearly in their manifesto.

‘We are aligned and connected, curious and organised. We have vision and intention. We add life, not kill it. We plan, observe, monitor and replan. We adopt and adapt. We communicate, we do our finances, we’re relaxed and we love the land.’

James and Donna Winter-Irving

Positive family dynamics

The set of principles and decision-making framework that the Winter-Irvings use also helps them in how they communicate with their sons about farming. The couple are both clear they want to avoid giving direct advice to their children and instead choose to model behaviours and practices at Coolwoola Plains in a subtle and respectful way.

Donna feels the best approach is to share what they are doing ‘gently’ so that their children ‘understand the morals and the values and just gently let them get curious’ without directing them or pushing too hard. They feel this is important in working through the inevitable differences of opinion that arise. For example, one of their sons who is agisting cattle on another property is forced, through circumstance, to set stock. He is beginning to ask James and Donna questions about how and when to rotate animals and other considerations relating to holistic planned grazing.

A healthy work-life balance

James and Donna have a shared desire to live a ‘balanced life’ and to minimise stress in their lives. One of the personal benefits they have observed from changing their livestock management and integrating planned grazing and Low-stress Stock Handling has been a ‘calmness across the farm.' The couple both enjoy going to work as ‘it’s calm and we don’t come home stressed’ and they take pride in their approach to farming.

‘We wake up excited about going to work and feel much gratitude that our office - the farm - nourishes our lives. Striving to regenerate our planet gives us purpose.’

Donna Winter-Irving

The relationship they have to the farm and their general approach to work means that they support each other in not working when the conditions are right. They increasingly do ‘half-days’ on the farm and spend more of their time off the farm on learning, thinking and planning ahead.

Lifelong friendships and a sense of community

James and Donna have established 'lifetime friendships' with other regenerative farmers and farming communities through farmer-to-farmer learning and the different training they have done across Australia. The couple have found 'the regen community is generous and authentic' and they have been introduced to 'like-minded, curious people willing to openly share their knowledge and experience,' which they consider to be an important social benefit.

The couple continued to participate in many other learning opportunities and have made many friends, noting the generosity of the regenerative agriculture community. Adopting a regenerative approach to farming has allowed James and Donna to extend their shared long-term interest in ecological health. Donna has professional experience teaching permaculture design and the couple live in an off-grid house made with sustainable materials, and changing to regenerative modes of farming has been a satisfying step forward.

Image 4. James Winter-Irving enjoying moving 900 pregnant ewes using Low-stress Stock Handling techniques at Coolwoola Plains. Source: James and Donna Winter-Irving.

Looking to the **Future**

Overall, James and Donna feel confident that they are 'building a really resilient landscape' and are positive about the future. They see their work as integral to building soil and landscape health and believe there will be ongoing benefits from the many things they have done at Coolwoola Plains. Further changes they would like to make if they can generate funding include: fencing off all dams to create wetlands, planting more shade and shelter, and installing a reticulated water system. They are currently looking into virtual fencing to support holistic grazing. James notes, 'Instead of putting up temporary electric fences on some of your bigger paddocks you can use this new GPS system.'

James and Donna are committed to helping restore the health of the local creek that runs through their property, which is 1.3 kms long, applying what they learnt about Natural Sequence Farming. James describes the area as being quite eroded, and says their larger aim is to slow the flow of water across the landscape and rehydrate the flood plains, which the creek on their property runs through.

'We hope to reinstall the chain of ponds incorporating leaky weirs and some structures made from natural materials. One particular structure will be right up to the top of the bank. About 150 metres below that, there are smaller structures, so we'll end up with a chain of ponds right down the whole creek.'

James Winter-Irving

Heavy flooding has been a serious problem in recent years and even minor flooding has been destructive because of the 'rush' of water that moves across the surface of the landscape. They hope their current activities will mitigate future impacts, 'and to spread that water out over what was originally the floodplain.' The additional goal is to distribute fertility out across the property by building contours that then connect up with dams, creating bigger wetlands for more diversity and birdlife.

James and Donna both hope that over time the benefits they perceive from regenerative practices will become more widely shared and recognised. They would like to see changes in the market that reflect the full value of investing in restoring landscape and soil health and that the positive trends they have observed in the landscape manifest in market value for their products. Currently, the Winter-Irvings don't believe there is enough acknowledgement in the wider community for the additional effort required to farm regeneratively, and that for many farmers 'your product is not valued and the health of humans is not being valued.' In the 'long term'

James and Donna hope that societal attitudes will shift and this ‘transposes to the marketplace.' They would particularly like to see the introduction of a certification system for regeneratively farmed goods.

References

Department of Natural Resources and Environment (DNRE) (2000). *Land Systems of* Victoria (Version 2, 3rd Ed.) Technical Report No. 56, Centre for Land Protection Research, Victoria.

Isbell, R.F. and the National Committee on Soil and Terrain (NCST) (2021). *The Australian Soil Classification* (3rd Ed). CSIRO Publishing, Melbourne.

Soil Health Knowledgebase, Victoria, https://soilhealth.ccmaknowledgebase.vic.gov.au

Victoria Resources Online (VRO) (accessed 24 January, 2024). Land Systems of Victoria Availability of Maps. https://vro.agriculture.vic.gov.au/dpi/vro/vrosite.nsf/pages/landform_land_systems_vic_rowan/