Australian National University

SUSTAINABLE FARMS

SUSTAINABLE FARMS

Annual Report 2024

Sustainable Farms acknowledges the Traditional Owners of the lands on which we work and recognise their enduring connection to Country.
We pay our respects to their Elders past and present.

Sustainable Farms
Fenner School of Environment and Society
Building 141, Linnaeus Way
The Australian National University
Acton ACT 2601

+61 2 6125 4669
sustainablefarms@anu.edu.au

Contact: Michelle Young – Project Director, Sustainable Farms
Date: July 2025

Table of Contents

Overview of 2024

As we reflect on the achievements of Sustainable Farms in 2024, it was another year of both scientific advancement and strategic collaboration in the stewardship of Australia's natural assets. Through our unique blend of long-term ecological research, community partnerships and contributions to government policy development, Sustainable Farms continues to empower landholders, shape national conservation efforts, and strengthen the evidence base for natural asset management. Major shifts for Sustainable Farms in 2024 were scaling up to work on nation-wide initiatives and engaging with regional partners in to develop and support innovative approaches to landscape planning.

During 2024, our ecological research was primarily focussed on shaping foundational aspects of the Australian Government's Nature Repair Market, this included:

- Advice on building robust and credible monitoring frameworks, for the Nature Repair Market in the reports *Assessment and Monitoring of Nature Repair Projects: Design Considerations* and *Assessment and Monitoring of Nature Repair Projects: Box Gum Grassy Woodland Case Study* (p. 12)
- The establishment of a national-scale ecological monitoring program for the Australian Government's Enhancing Remnant Vegetation Pilot (p. 12)
- Supporting the Australian Government with new research that will deliver innovative solutions for lower-cost biodiversity monitoring (p. 14)

An exciting initiative for Sustainable Farms in 2024, was our participation in the roll-out of the 'New Futures for Victorian Landcare' program. This initiative involves the landcare-led development of investment-ready Landscape Action Plans, designed to attract investment into landscape restoration. Sustainable Farms was a partner in the development of the Landscape Action Plan with the Granite to Goulburn Network in the Goulburn Broken catchment. (p. 7)

Other partnerships have seen the development of new initiatives focussed on the Box-Gum Grassy Woodlands:

- To improve the visibility of the woodlands we have created a website to showcase the values of the Box-Gum Grassy Woodlands. Developed with the support of WWF-Australia, this platform aims to inspire investment, awareness, and action to protect one of Australia's most threatened ecosystems. (p. 9)

- Development of a certification and credit scheme to recognise sustainable management of Box-Gum Grassy Woodlands. The ANU College of Law, Governance and Policy are working with Regen Farmers Mutual with funding from the Land Restoration Fund. The scheme aims to recognise woodland protection and restoration at a farm-level to provide landholders with tangible recognition they can market or sell to supply chains, financial institutions, and consumers seeking verified sustainability credentials. (p.12)

A major milestone for 2024 was the culmination of our economics research program. Findings from the economics research have demonstrated how natural capital investments – such as shelterbelts and enhanced farm dams – can provide tangible financial returns to landholders. However, farmers' decisions to invest will depend on the timing of benefits and the costs associated with conservation activities, which will vary depending on land values, enterprise types, and scale.

These findings suggest that public subsidies will achieve the greatest gains if they are targeted according to these factors. Insights from this research are already informing our extension activities and national policy discussions. (p. 16)

Throughout 2024, Sustainable Farms continued to engage directly with landholders to share research insights and promote practices that support both agricultural productivity and ecological resilience. Our team partnered with over 30 organisations and delivered 27 community education events. We also distribution of approximately 2,600 printed educational resources during the year. These initiatives help to foster ecological literacy and ensure that landholders are empowered to make informed management decisions based on scientific evidence. (p. 6, 11)

As we look ahead to 2025 and beyond, we do so with deep gratitude for the many partners, landholders, and stakeholders who have contributed to our shared vision. Together, we are building more sustainable and resilient landscapes and rural communities.

Michelle Young, Project Director

Prof. David Lindenmayer, Lead Scientist

Progress towards our Strategic Goals

OUR VISION

Healthy farmers, healthy farms, healthy profits

OUR MISSION

To support the improvement of natural asset management on farms in the temperate woodlands, to enhance biodiversity, increase farm profitability and improve farmer wellbeing.

GOAL 1: Biodiversity on farms is appropriately conserved and biodiversity outcomes are improving

Farmers have an important role to play in biodiversity conservation, especially across the sheep-wheat belt of south-eastern Australia. In this region, Box-Gum Grassy Woodland once dominated the landscape but now less than 10% remains and it is listed as a critically endangered ecological community under the *Environment Protection and Biodiversity Conservation Act* 1999. Over three-quarters the remaining remnants of Box-Gum Grassy Woodland occurs on privately owned land.

Our long-term ecological research is continuing to provide a scientific basis for the improved management of natural assets on farms, particularly in temperate woodland ecosystems. A key aim of Sustainable Farms is to empower landholders to be able to make informed land management decisions, by sharing the learnings from our research with farming communities and enhancing their ecological literacy. Our research is providing natural resource management (NRM) practitioners with the confidence that their programs and activities are guided by the best evidence available.

Landholder education activities

During 2024, we delivered a diverse program of educational outreach events for farmers and other rural landholders. The Sustainable Farms team participated in the delivery of 27 community education events across NSW and Victoria in collaboration with regional stakeholders.

Events included farm field days, agricultural expo stalls (Tallangatta and Kergunyah VIC), and biodiversity walk and talk events on woodland birds (Chiltern VIC) and Greater Gliders (Batlow NSW).

These community events saw a combined reach of 353 people. This number reflects fewer webinars and a decrease in the number of events delivered in NSW, as funding for community engagement activities primarily focused on Victoria.

Farm field day at Merrijig VIC

Collaborative projects and capacity-building with NRM stakeholders

Partnerships with regional NRM organisations throughout NSW and Victoria continue to be essential in extending our reach. We worked with over 30 different organisations in 2024 including Landcare, regional NRM bodies, government and green finance initiatives.

New Futures for Victorian Landcare project

Sustainable Farms is the Science Partner for the New Futures for Victorian Landcare Project (NFVL), led by Landcare Victoria (funded by the Ian Potter Foundation and the Natural Resources Conservation Trust). Other project partners are Regen Farmers Mutual and the Conservation Finance Lab. The NFVL project aims to address the need for new funding solutions, capacity building processes and story-telling mechanisms within Landcare. The Sustainable Farms Project Director is an active member of the NFVL management committee, which facilitates and supports the delivery of the project. In 2024, following a competitive tender process two Landcare-led 'pilot landscapes' were selected for Round 1 of the NFVL project:

- Granite to Goulburn Network – Longwood Plains Conservation Management Network, Strathbogie Ranges Conservation Management Network, Hughes Creek Catchment Collaborative and Euroa Arboretum Inc.
- Windharp Horizons – Buloke and Northern Grampians Landcare Network

Each pilot involves sharing knowledge and running a 'landscape planning process' with 10 landholders in each landscape.

During 2024 we worked closely with the Granite to Goulburn Network, supporting the project through participating in the co-design planning process, equipping the working group with ecological

knowledge, participating in both field trips and planning workshops, and contributing to the development of the group's Landscape Action Plan.

In 2024 Sustainable Farms also initiated a social science component for the NFVL project. This research explores the factors that have contributed or been obstacles to the success of these landscape plans and their implementation. As part of this research, interviews were conducted with willing participants from both the Granite to Goulburn and Windharp Horizons pilot projects.

Both the social science research and two new pilot projects will be completed in late 2025.

New collaborations

A number of new project collaborations have been developed during the year, which will commence in 2025.

Sustainable Farms is partnering with Goulburn Broken Catchment Management Authority (GBCMA) on a farm dam project as part of their Climate-Smart Agriculture Program, funded through the Australian Government. The project will examine water temperature, through the use of temperature loggers to map the temperature profiles of farm dams through time and climatic variation and the impact of shade cast by surrounding woody vegetation. Sustainable Farms will contribute to development of the study design, data analysis and publication of results in a scientific journal. GBCMA will be responsible for the data collection and on-ground support. This research will contribute to the growing body of research on farm dams and support farmers to make more informed decisions about the management of their dams for ecological and agricultural benefits.

We have also established a partnership with WWF-Australia to promote the conservation value of the critically endangered Box Gum Grassy Woodlands. The key investment for this partnership from WWF-Australia in 2024 was the development of a new website (see 'HIGHLIGHT: Woodlands website' on next page). In 2025 we will leverage this digital platform to raise awareness of the ecological and agricultural importance of these endangered ecosystems, drawing both on Sustainable Farms' long-term research and engagement in woodland landscapes, and the work being undertaken by other universities and key agencies including regional NRM organisations, private land conservation trusts and other non-government organisations (Birdlife Australia, Mulloon Institute and others).

Several other collaborative grant applications were also developed and submitted in partnership with State-level and regional organisations (see **Goal 4, Additional fundraising activities** section for further details).

Conference and forum presentations

In 2024, we extended the reach of our research through the delivery of presentations at five national and state conferences and regional forums:

- ABARES Outlook Conference, Canberra ACT
- Mallee to the Mountains forum, Albury NSW
- Sustainable Farms Research Results forum, Wagga Wagga NSW
- Private Landholders Conservation Conference, Sydney
- NSW Tree Conference, Bathurst NSW

HIGHLIGHT: Woodlands website

A new website dedicated to showcasing the critically endangered Box-Gum Grassy Woodlands has been developed with support from WWF-Australia. The website aims to celebrate and support this vitally important ecosystem that was once widespread across the sheep-wheat belt of south-eastern Australia.

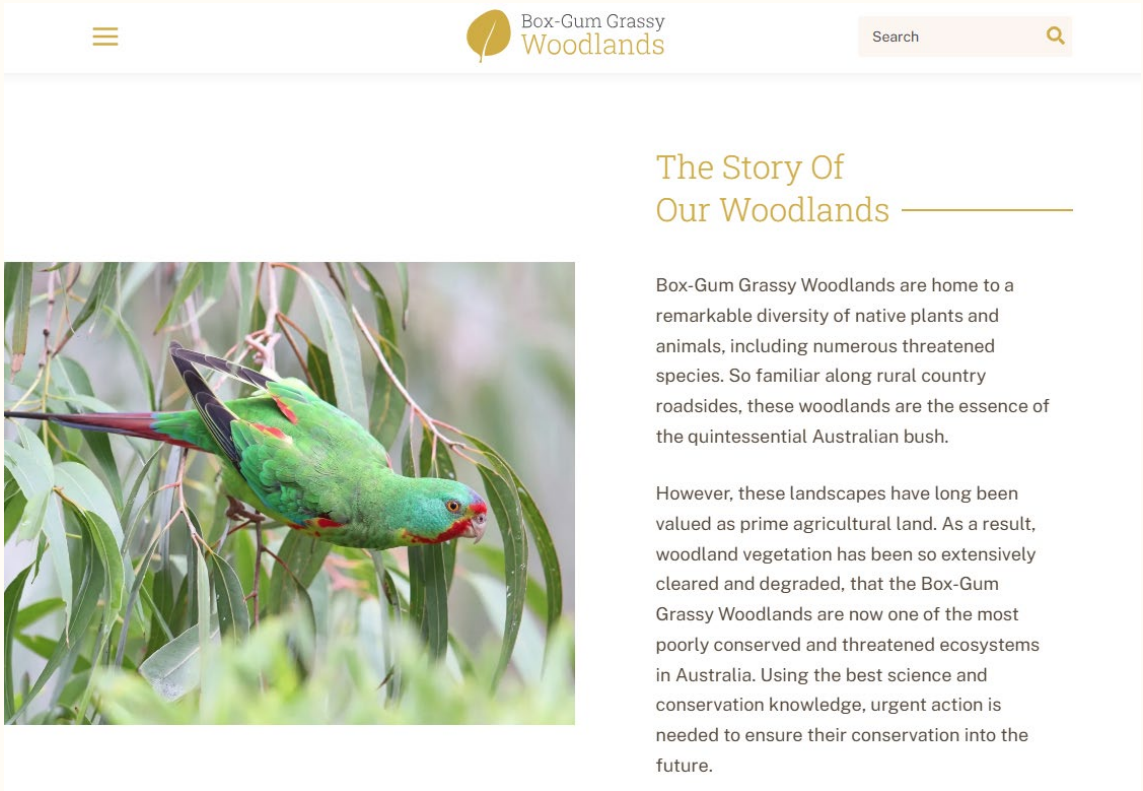
Box-Gum Grassy Woodlands are one of Australia's most important ecosystems for their rich biodiversity and cultural heritage. However, these landscapes have long been valued as prime agricultural land and less than five percent of the original woodland now remains. The decline of woodland habitat has led to the subsequent loss of woodland wildlife, with more than 50 threatened species associated with the Box-Gum Grassy Woodlands.

Significant investment and urgent action are needed to ensure the conservation Box Gum Grassy Woodlands and the wildlife they support, into the future. With most remnant woodland found on private land, landholders need to play an active role in their protection and recovery.

The new website is a resource for the latest news, research and conservation work happening in the woodlands. It features stories, information about protection and restoration, opportunities to get involved and invest, and ways to connect with the people and organisations making a difference.

The website aims to raise the profile of the Box-Gum Grassy Woodland as a national conservation priority. It offers a place where policymakers, investors and the wider public can learn about the significance of the woodlands and opportunities to invest in their long-term conservation.

Visit the website: www.woodlands.org.au



Train-the-trainer workshops

The Sustainable Farms train-the-trainer workshops aim to accelerate the reach of our research and engagement, by upskilling our partners to share our research and deliver extension programs for their local landholders. The train-the-trainer modules, have been developed to deliver the findings from our interdisciplinary research studies. They are an opportunity for NRM and Landcare professionals to develop their skills in educating and supporting their local farming communities to build natural capital and restore biodiversity on farms, while supporting sustainable agricultural production.

The training modules take an in-depth dive into our research findings and subsequent recommended management activities. Two modules are available (i) Enhancing farm dams, and (ii) Managing woodland vegetation on farms. For both of these modules we have also produced a Best Practice Guide that provides a comprehensive overview and bibliography of all the Sustainable Farms research for each module. This guide is designed to ensure that those attending the project have access to all the relevant research on the topic.

A train-the-trainer workshop on the topic of enhancing farms dams was run in Bingara NSW in February, attended by 19 NRM and Landcare practitioners from across the region, with very positive feedback received.

During the year, workshop content was reviewed and updated to incorporate new research findings.

Train-the-trainer workshop at Bingara NSW

Educational resources and communications

In 2024 Sustainable Farms produced a significant new educational resource, a new Woodlands website (www.woodlands.org.au) showcasing the values and conservation initiatives associated with the critically endangered Box Gum Grassy Woodlands (see boxed text on previous page).

To promote the new website, the theme of the Sustainable Farms 2025 Calendar was the Box-Gum Grassy Woodlands, highlighting the values, research and conservation work associated with the woodlands.

We continue to experience increasing demand for our educational resources in 2024, with distribution of approximately 2,600 printed resources, more than double the number for 2023, and a further 4,177 resources downloaded via our website. This demand for our resources validates the value of our science content and management insights to landholders and other stakeholders.

We also continue to share opportunities, research and resources through a range of communication channels, to maximise our reach. We posted regular social media content that saw modest increases in followers; 4% for Facebook and 2% for Instagram. Traffic to the Sustainable Farms website remains steady at around 25,000 visitors/year.

Additionally, 66 radio and TV stories were broadcast with Sustainable Farms staff discussing our research.

GOAL 2: Drive policy change and investment in natural asset management on farms based on scientific evidence of public and private benefits

Sustainable Farms' work on shaping policies to develop new ways of financing major environmental restoration programs, has been a stand out achievement in the second half of the year.

Nature Repair Market

In early 2024, Sustainable Farms delivered a two-part report, *Assessment and Monitoring of Nature Repair Projects: Design Considerations* and *Assessment and Monitoring of Nature Repair Projects: Box Gum Grassy Woodland Case Study,* to the Department of Climate Change, Energy, Environment and Water (DCCEEW) to support the development of the Nature Repair Market.

Part A of the report provided advice on the design of a national biodiversity assessment and monitoring framework. Part B provided a case study which described how the proposed framework could be applied in practice for the restoration and management of remnant vegetation in the Box-Gum Grassy Woodlands.

The framework developed in Part A emphasises high-integrity biodiversity outcomes and proposes a three-tiered monitoring approach: basic project-level compliance monitoring, condition-based monitoring for individual sites, and an independent, expert-led scheme-level program. We recommended that scheme-level monitoring be central to the NRM's credibility, to give buyers and investors' confidence that projects are delivering genuine biodiversity improvements. Scheme-level monitoring involves independent, scientifically robust evaluation across a representative sample of projects, using controls and rigorous methods to assess whether biodiversity outcomes are being achieved at scale.

While these scheme-level recommendations were not adopted in the current market design, the report documents important issues around transparency, integrity, and the role of science in biodiversity markets. Sustainable Farms continues to advocate for the need for scheme level monitoring to provide a cost effective, approach to ensuring the integrity of the Nature Repair Market.

Enhancing Remnant Vegetation Pilot monitoring

Vegetation monitoring for the Australian Government's Enhancing Remnant Vegetation Pilot program (formerly part of the Agriculture Biodiversity Stewardship Package) was a pivotal project for Sustainable Farms in 2024. The Pilot program is designed to test how environmental markets can reward landholders for improving biodiversity, with the overall aim of increasing private sector investment in improving Australia's biodiversity on private agricultural land.

The Enhancing Remnant Vegetation Pilot, along with the Carbon + Biodiversity Pilot, represent one of the Australian Government's largest investments in nature, worth $66.1 million. Key elements of the Pilot program were developed by the ANU College of Law, Governance and Policy under the leadership of Professor Andrew Macintosh. This work done has been important for informing the development of the first 'method' adopted under the *Nature Repair Act* 2023, the 'Replanting native forest and woodland ecosystems method'.

Pilot projects are scheduled to run until 2030. The goal of the Pilots is to understand environmental outcomes, in order to adapt the methods. In 2024 Sustainable Farms developed an agreement with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to utilise historic vegetation data (with surveys spanning 15 -20 years) from our long-term monitoring in the woodlands

to inform the Pilot programs. These historic data sets will be used to answer questions about ecosystem response times to assist DCCEEW in the design of future conservation programs.

As part of this project, opportunities to use long-term data sets to contribute to the development of Government's Ecological Knowledge System, a platform that underpins the integrity of the Nature Repair Market, will be explored. The tiered approach recommended as part of expert-led scheme level monitoring described in the *Assessment and Monitoring of Nature Repair Projects* reports was also introduced.

Undertaking monitoring for the Enhancing Remnant Vegetation Pilot program in Western Australia.

GOAL 3: Expand our knowledge of how to undertake effective restoration in agricultural landscapes to support biodiversity, productivity and climate adaptation.

Ecological research

Enhancing Remnant Vegetation Pilot monitoring

In 2024, a significant undertaking for the Sustainable Farms initiative was the implementation of ecological monitoring for the Australian Government's national Enhancing Remnant Vegetation Pilot program (formerly part of the Agriculture Biodiversity Stewardship Package). Sustainable Farms is responsible for all ecological monitoring, evaluation, and reporting on projects registered under both national pilot programs across New South Wales, Victoria, Queensland, Tasmania, South Australia, and Western Australia. The team collaborated with landholders and the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to establish sites and conduct baseline monitoring for birds and vegetation across these six states. During the year, this involved visiting 79 Enhancing Remnant Vegetation Pilot projects across six NRM catchments in NSW, Victoria, QLD, SA, WA and Tasmania. Study sites, including control sites, were established and baseline data collected for birds and vegetation.

From a monitoring perspective, it is a huge undertaking to assess projects at a national scale with a small monitoring team in a tight seasonal survey window, but this is a necessary step in the piloting phase to ensure uniformity and robustness of monitoring activities.

Innovative Biodiversity Monitoring (IBM)

In 2024 the Australian Government, allocated $8 million to support the development of methods for cost-effective biodiversity monitoring. Sustainable Farms received $1.3 million for a project that would evaluate how innovative technologies – including passive acoustic recorders, drones and environmental DNA (eDNA) – could reduce costs and improving data quality compared to the traditional on-ground methods that have been historically used for monitoring vegetation, birds and frogs.

New technologies have the potential to offer many benefits. Passive acoustic recorders can be deployed for continuous, large-scale, automated data collection ('set and forget') and can capture nocturnal and cryptic animal sounds. Multi-spectral drone imagery allows collection of rapid, large-scale, high-resolution data on vegetation condition, including difficult to reach areas. Environmental DNA (eDNA) can be used to detect the presence of aquatic macroinvertebrates through DNA fragments in water samples without time-consuming manual identification.

In the project's initial year, the Sustainable Farms team developed and refined the overall study design, established preliminary monitoring sites, deployed initial tests of the new monitoring equipment and explored methods to analyse data.

Acoustic monitoring devices (160 devices) have been deployed across four long-term study areas in NSW and Victoria (80 sites). Seasonal in-person bird surveys are currently being undertaken in order to compare traditional bird monitoring surveys to data collected using the automated recording devices. Later in 2025, acoustic monitoring devices and eDNA sampling will be used to survey farm dams for amphibians, with results to be compared against traditional in-person monitoring surveys. An in-field trial has been undertaken to collect drone imagery in Tasmania, from which we are exploring methods for monitoring and analysing vegetation change over time. Discussion is currently underway to determine areas of potential collaboration with other IBM grant recipients.

The team's progress and methodology were presented to the Australian Land Conservation Alliance, sharing early insights and generating interest among conservation practitioners in adopting innovative technologies. Additionally, a conceptual paper outlining the potential of these innovative monitoring techniques was accepted for publication in *Trends in Ecology and Evolution*.

Moving forward, this research aims to:

1. Identify scalable, ecologically-robust and cost-effective monitoring methods to support a Nature Repair Market
2. Demonstrate how new monitoring tools can work alongside traditional surveys to provide a fuller picture of biodiversity
3. Calibrate new data sets with previously gathered monitoring data, to ensure consistency and maintain data continuity
4. Assess the cost-effectiveness of new monitoring tools

The insights gained from this project are expected to significantly enhance biodiversity monitoring frameworks, providing more comprehensive data at a reduced cost, and supporting evidence-based environmental management decisions across Australia's agricultural landscapes.

AudioMoth acoustic recording devices

Farm Dams

In early 2024, Sustainable Farms assisted researchers at the RMIT Centre for Nature Positive Solutions with the deployment of their latest 'Pondi' sensors at 20 Sustainable Farms long-term monitoring sites. The sensors were deployed for a period of one month, collecting real time data on greenhouse gas emissions from farm dams.

This new dataset builds on the data previously collected at Sustainable Farms sites, which demonstrated a median 56% reduction in methane emissions at enhanced farm dams, based on a single survey effort. The new research results are currently being written up as part of a larger study involving 120 dams and more than 10,000 daily observations across Australia.

At the same time that Pondi sensors were deployed, eDNA samples were collected and passive audio recorders were deployed as part of the Innovative Biodiversity Monitoring project (see previous section). This will help form the baseline for future monitoring at farm dams.

Economics research

Over the past several years, Sustainable Farms invested in a program of economics research to better understand the economic benefits of natural capital on farms and the factors influencing landholder decision-making. With the conclusion of this phase of work in 2024, we reflect on the significant contribution this research has made to our understanding of the economic case for natural asset management in farming systems.

The program demonstrated that investments in natural capital—such as shelterbelts, woodland retention and dam enhancement—can offer tangible private benefits to landholders, in addition to their public environmental value. Earlier work, undertaken in partnership with ABARES, found that biodiversity and native vegetation is associated with increased property values under certain conditions. These insights inform broader discussions on how to align conservation policy with landholder incentives.

In 2024, two further projects completed the economics research stream. The first used the ADOPT (Adoption and Diffusion Outcome Prediction Tool) framework to understand what motivates farmer adoption of natural capital practices. This work showed that adoption is highly context-dependent. Strong environmental values and the ability to see multiple, stacked benefits play a critical role in uptake. It reinforced the importance of trusted relationships and tailored extension support in overcoming common barriers.

The second project modelled how windbreaks influence dam evaporation and water persistence, offering new evidence on the role of natural capital in managing risk on a farm. Results show that dam windbreaks can meaningfully extend the time before destocking decisions are required, providing landholders with greater flexibility and reducing the economic impacts of dry periods. These findings are now being incorporated into our extension and training work.

Economics is a core part of Sustainable Farms' interdisciplinary approach, working alongside ecology, policy, and social science to build a fuller picture of natural asset management. This is evident in our contribution to the design of the Nature Repair Market, where economic insights were combined with ecological monitoring and governance expertise to help inform how biodiversity outcomes are assessed, valued and verified.

While our formal economics program has now concluded, its insights continue to inform Sustainable Farms' research and engagement work—shaping how we communicate with landholders, support practice change, and advocate for policy and investment that reflects both public and private benefits.

Publications

Results from our research were published in nine peer-reviewed academic journal articles (**Appendix 1**).

HIGHLIGHT: Windbreaks, water persistence and the economics of destocking

Access to reliable water is essential for livestock production, particularly during dry periods when decisions around destocking can carry significant financial consequences. New modelling by Sustainable Farms explored how increased water persistence in farm dams – such as that resulting from windbreaks – could delay the need to destock, reducing economic risk for farmers.

Based on a typical merino farm in NSW, and using a combination of dam water balance modelling and economic threshold analysis, the study estimates how changes in water availability influence the timing of destocking decisions under varying rainfall scenarios. Early results suggest that even modest improvements in dam water persistence can provide meaningful benefits—giving landholders more time to respond to dry conditions, avoid forced sales, and retain core breeding stock.

The modelling builds on earlier research demonstrating the biodiversity and productivity benefits of farm dam enhancement. It contributes to a fuller picture of how natural asset management supports more resilient, productive and adaptable farming systems. The research is not yet published, but it is already informing Sustainable Farms' thinking in the design of future projects and funding proposals.

As climate variability increases, tools that help quantify the value of nature-based solutions will be critical in supporting farmers to manage risk, make informed decisions, and invest in their land with confidence.

Farm dam with windbreak at Merrijig VIC

GOAL 4: The strategic objectives of the Sustainable Farms initiative are supported by effective management and investment

Sustainable Farms has worked across a range of projects in 2024 ensuring that all these projects were executed effectively and in the required timeframes. This included the successful completion of the major grant to Australian Government to provide advice on methods for monitoring projects under the Nature Repair Market. We finished site establishment and completed vegetation and bird baseline surveys for Pilot Agricultural Stewardship sites. We did face major challenges recruiting additional staff for the later project, due to stringent recruitment processes at the ANU related to the Universities financial position. However, despite the events unfolding at the ANU we were successful in recruiting a very high-quality staff to the team.

New project revenue

Sustainable Farms was very active in fundraising during 2024, particularly in relation to Australian Government grant opportunities. The project secured an additional $1,743,961.09 for new work.

Australian Government funding

- **Natural Heritage Trust – Climate-Smart Agriculture program (Department of Climate Change, Energy, Environment and Water)**

  Sustainable Farms are a delivery partner for The Ripple Effect project, a nation-wide, grower-led collaboration to increase biodiversity and reduce emissions via the demonstration and accelerated adoption of best-practice farm water management, strengthening farm water security, productivity and sustainability. The Grower Group Alliance leads the project consortium, which includes five universities. The project will run from 2024-2028 and engage with NRM and Landcare groups to drive the adoption of innovations in water security and quality, biodiversity and emissions reduction to protect natural resources, drive productivity and profitability, which will create enduring national impact.

  Sustainable Farms will develop protocols for monitoring biodiversity at farm dam demonstration sites, as well as data analysis, and also deliver train-the-trainer workshops for NRM practitioners each state.

- **National Biodiversity Market Scheme CInnovative Biodiversity Monitoring Grant (Department of Climate Change, Energy, Environment and Water)**

  This project will explore how technologies such as passive acoustic recorders, drones and environmental DNA (eDNA) can complement traditional biodiversity monitoring methods (see p. 14). The research aims to identify scalable, cost-effective, and ecologically robust monitoring approaches to support initiatives like the Nature Repair Market. Data collection commences in 2025.

Non-government and philanthropic funding

Non-government and philanthropic organisations made a significant contribution to the security and longevity of the Sustainable Farms initiative in 2024. This support has been critical to maintaining our long-term ecological monitoring during periods of reduced government funding, and has also enabled us to invest in science communication, outreach, and capacity building.

In 2024, new funding from the Maple Brown Family Foundation has supported the establishment of a dedicated knowledge broker position, enhancing our ability to connect research with practice and policy, and strengthening engagement across the farming and natural resource management sectors.

Other grant applications

A number of collaborative grant applications were also developed and submitted to the Australian Government.

Early in the year Sustainable Farms developed two proposals for the Climate-Smart Agriculture Program:

- *Capacity Building Grants* – Sustainable Farms submitted an application for a train-the-trainer program focused on natural asset resilience. The program was designed to build the capacity of NRM practitioners and Landcare networks to deliver science-based extension on natural capital management.

- *Partnerships and Innovation Grants* – Sustainable Farms joined a consortium led by Regen Farmers Mutual to submit a proposal to establish an open-source, scalable model for generating and selling biodiversity credits. The project aimed to create credits linked to native animals, birds, farm dams and landscape rehydration, underpinned by robust scientific methods, Indigenous knowledge and farmer co-design. It proposed tools like the Totem Tool and BirdCast to support monitoring, and planned to operationalise the Australian Farm Biodiversity Certification Standard.

In late 2024 Sustainable Farms developed and submitted two major proposals to the Future Drought Fund:

- Resilient Landscapes Program – In collaboration with the Southern NSW Drought Resilience Adoption and Innovation Hub and other regional partners, Sustainable Farms developed *major project proposal* to demonstrate ***landscape-scale approaches*** that build drought and climate resilience by improving natural capital and ecosystem services on farms. The project would have delivered targeted scenario planning, identified critical thresholds in landscape management, and communicated practical outcomes to farmers through demonstration sites, field days, and case studies
- Long-term Trials Program – In collaboration with RMIT and the University of Southern Queensland and landholders, this application was designed to rigorously investigate farming practices that enhance drought resilience and water security. The project proposed the establishment of long-term trials to evaluate innovative approaches to managing water persistence on farms, supporting farmers to adapt effectively to increasing climate variability.

Although several weeks were devoted to preparing these applications with partners, unfortunately we were unsuccessful in each case. The Australian Government does not provide feedback on the applications but in reviewing other projects funded, we observe that there is a real challenge to obtain funding for projects that have the level of complexity that in the scientific enquiry or have the types of extensive partnerships that we work with.

The ideas developed and partnerships formed through the process of planning these applications continue to inform our thinking and aspirations for future work.

Project team

2024 saw the Sustainable Farms team grow, with the recruitment of five new team members: Dr Jessie Beuttel, Post Doctoral Research Fellow, leading the Innovative Biodiversity Methods project, James Wong, in the role of Knowledge Broker, and three new Biodiversity Field Officers, Laura Day,

Nathan Gregory and Erin Liddell (**Appendix 2**). While Training & Engagement Officer Tamara Harris left the team in February.

In February the full Sustainable Farms team came together in Canberra to participate in a 3-day strategic and operational planning meeting. There was very limited time in the work program for professional development for our field ecology team in 2024, but plans were made for training in 2025 in the use of drone surveys and protocols as part of the Innovative Biodiversity Monitoring project.

In the second half of 2024, the Project Director completed the Women's Environmental Leadership Australia, National Leadership Program.

Evaluating the Impact of Sustainable Farms (2018–2023)

In 2023, Sustainable Farms underwent an independent evaluation to assess progress and outcomes across its first five years. Conducted by First Person Consulting, the evaluation examined the program's effectiveness against three strategic goals: farmer extension and outreach, partnerships with the NRM sector, and the delivery of multi-disciplinary research. The evaluation combined survey data, extensive stakeholder interviews, and analysis of project activities to present a comprehensive picture of the program's achievements.

The evaluation highlighted the exceptional breadth and depth of Sustainable Farms' research outputs. Between 2018 and 2023, the program delivered approximately 20 research projects spanning ecology, economics, social sciences, and farmer wellbeing. These projects produced over 60 journal articles, seven books, and a suite of 42 educational resources, significantly exceeding original targets. Stakeholders consistently reported that this research was not only scientifically robust but also directly relevant and applicable to landholders and regional organisations—setting Sustainable Farms apart as a uniquely practical research initiative.

Interviews with partners and stakeholders emphasised Sustainable Farms' distinctive value to the NRM sector. The evaluation found that the program was highly respected as a trusted source of credible and applicable knowledge, crucial in bridging the gap between academic research and on-ground implementation. Partnerships formed through the program (involving more than 100 NRM and Landcare organisations) were particularly valued for their collaborative and supportive approach. Partners reported improved internal capacity and credited Sustainable Farms' research and extension with enhancing the quality and effectiveness of their regional programs.

Perhaps most importantly, the evaluation provided clear evidence of Sustainable Farms' influence on practice change at the farm level. Field day surveys revealed that more than 70% of attendees subsequently implemented or planned to implement practices discussed at Sustainable Farms events, significantly higher than the broader regional trend. Follow-up interviews indicated that these changes often extended beyond individual properties, with participants frequently becoming informal advocates, spreading knowledge within their farming communities. This ripple effect amplified the impact of the program's extension activities well beyond immediate participants.

Overall, the evaluation affirmed Sustainable Farms' position as a leading example of how integrated, multi-disciplinary research can directly support farming communities, enhance regional capacity, and encourage practice changes that contribute to both agricultural productivity and ecological resilience. The lessons and achievements documented through this evaluation provide a solid foundation as Sustainable Farms continues to develop innovative approaches to supporting profitable, resilient farming systems across the region.

HIGHLIGHT: How field days inspire local change

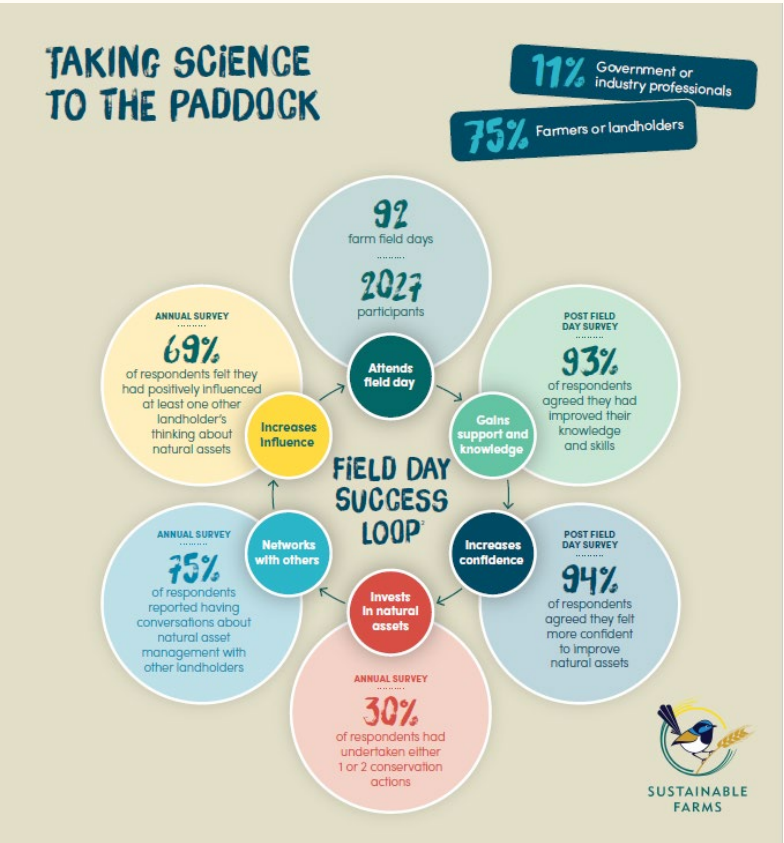
One of the most impressive findings of the independent evaluation of Sustainable Farms was how effectively our field days support on-ground practice change and knowledge sharing – not just among individual participants, but also across entire farming communities.

Survey results after attending Sustainable Farms events showed that 75% of participants had subsequently shared what they'd learnt about natural asset management with other farmers. Nearly half of these participants reported influencing at least one other farmer to adopt improved practices. Some landholders even took the next step to become active local champions themselves, hosting field days on their own properties, speaking at community meetings, or advocating within local Landcare networks.

This community-driven dynamic is significant because it illustrates how Sustainable Farms' extension activities achieve more than just one-off knowledge transfer. By fostering trusted relationships, supporting farmer-to-farmer interactions, and providing credible, evidence-based information, the program builds lasting momentum for practice change.

Landholders repeatedly noted that the strong, science-backed advice provided by Sustainable Farms gave them the confidence needed to engage actively with their peers and communities.

These findings demonstrate the critical role that engaged and motivated landholders can play as local catalysts for change, multiplying the impact of Sustainable Farms' work well beyond initial events and direct interactions. This community-led spread of ideas and practices is a vital ingredient in achieving landscape-scale improvements in farm sustainability, biodiversity outcomes, and rural resilience.



Financial report

Table 1: Sources of Income

Income source	2017 - 2018	2019	2020	2021	2022	2023	2024	TOTAL to end of 2024
ANU Central	$100,000.00	$50,000.00	$50,000.00				$200,000.00	$400,000.00
ANU College of Science	$100,000.00			$50,000.00	$50,000.00		$50,000.00	$250,000.00
ANU Fenner School of Environment & Society		$50,000.00	$50,000.00					$100,000.00
Department of Agriculture & Water Resources		$1,796,969.69	$1,796,969.70	$1,796,969.70				$5,390,909.09
Department of Climate Change, Energy, Environment & Water							$2,852,544.73	$2,852,544.73
Riverina Local Land Services		$55,000.00				$45,173.00	$8,400.00	$108,573.00
Murray Local Land Services		$13,500.00	$1,500.00			$3,000.00		$18,000.00
Central Tablelands Local Land Services	$27,000.00	$1,500.00						$28,500.00
Ian Potter Foundation	$520,000.00	$500,000.00	$500,000.00	$500,000.00	$400,000.00			$2,420,000.00
John and Elizabeth Baker						$25,000.00		$25,000.00
Landcare Victoria						$84,545,45		$84,545,45
Landcare Australia Ltd						$27,272.73		$27,272.73

Maple brown Foundation							$50,000.00	$50,000.00
Meat and Livestock Australia	$102,130.04	$125,986.86	$96,719.30	$20,925.17				$345,761.37
George Alexander Foundation				$505,000.00				$505,000.00
William Buckland Foundation		$126,840.00	$128,737.00	$133,549.00	$122,670.90	$155,000	$161,000.00	$827,796.90
Vincent Fairfax Family Foundation	$300,000.00							$300,000.00
Ross Trust				$100,000.00		$100,000		$200,000.00
Wheen Bee Foundation		$12,000.00	$9,000.00					$21,000.00
Kering SA		$56,460.72	$62,859.20					$119,319.92
The Trustee for The A & E Finkel Foundation Trust					$10,000.00			$10,000.00
Private donors	$260,001.70	$43,857.00	$62,540.00	$62,725.20	$7,321.62	$85,000.00	$400,000.00	$921,445.52
Australian Museum Eureka Prize					$10,000.00			$10,000.00
WWF Australia							$37,860.00	$37,860.00
Other survey services				$2,370.45	$1,564.50	$3,571.74		$7,506.69
Sales (printed resources & workshops)						$29,794.52	$3,609.45	$33,403.97
Interest earned	$3,577.81	$1,597.85	-$6,081.70	$1,315.44	$0.00	$13,608.07	$991.12	$15,008.59
TOTAL INCOME	**$1,412,709.55**	**$2,833,712.12**	**$2,752,243.50**	**$3,172,854.96**	**$601,557.02**	**$571,965.51**	**$3,764,405.30**	**$15,109,447.96**

Table 2: Operating result

	2017 – 2018	2019	2020	2021	2022	2023	2024	TOTAL
Total Income	$1,412,709.55	$2,833,712.12	$2,752,243.50	$3,172,854.96	$601,557.02	$571,965.51	$3,764,405.30	$15,109,447.96
Total Expenditure	$1,043,872.16	$1,622,641.81	$1,934,531.00	$2,094,729.46	$2,106,366.08	$1,414,376.37	$2,444,369.98	$12,660,886.86
Operating Result	**$368,837.39**	**$1,579,907.70**	**$2,397,620.20**	**$3,475,745.70**	**$1,970,936.64**	**$1,128,525.78**	**$2,448,561.10**	**$1,719,576.64**

Appendix 1: Academic publications

Bowd, E. and Lindenmayer, D., 2024. Indirect and direct drivers of floristic condition in a threatened temperate woodland. *Science of The Total Environment*, *948*, p.174786.

Buettel, J. C., Lindenmayer, D. B., Scheele, B. C., & Evans, M. J. (in press). Maintaining robust terrestrial ecological monitoring amid technological advancements. *Trends in Ecology & Evolution*.

Clayton, H., Hingee, K.L., Chancellor, W., Lindenmayer, D., van Dijk, A., Vardon, M. and Boult, C., 2024. Private benefits of natural capital on farms across an endangered ecoregion. *Ecological Economics*, *218*, p.108116.

Evans, M.J., Beggs, R., Scheele, B.C., Crane, C., Lang, E., Siegrist, A., Florance, D., Smith, D., Malerba, M.E. and Lindenmayer, D.B., 2024. Farm dam enhancement significantly improves water quality. Agriculture, *Ecosystems & Environment, 373*, p.109134.

Lindenmayer, D., Scheele, B.C., Bowd, E. and Evans, M.J., 2024. Multiple Long-Term, Landscape-Scale Data Sets Reveal Intraspecific Spatial Variation in Temporal Trends for Bird Species. *Ecology Letters*, *27*(12), p.e14531.

Lindenmayer, D., Smith, D., Florance, D., Crane, C., Lang, E., Siegrist, A., Young, M., and Scheele, B.C., 2024. Lessons from reforestation of agricultural landscapes in South-Eastern Australia, in Reid, N., and Smith R., (eds) *Managing biodiversity in agricultural landscapes: Conservation, restoration and rewilding* (Vol. 149). Burleigh Dodds Science Publishing.

Littlefair, M., Scheele, B.C., Westgate, M. and Lindenmayer, D., 2024. The ecological and biodiversity conservation values of farm dams: A systematic review. *Plos one*, *19(5)*, p.e0303504.

Littlefair, M., Scheele, B.C., Siegrist, A., Smith, D., Lindenmayer, D. and Evans, M.J., 2024. Management to enhance farm dam condition improves outcomes for amphibians. *Agriculture, Ecosystems & Environment*, *374*, p.109156.

O'Sullivan, J.L., Michael, D.R., Foster, C.N., Florance, D. and Lindenmayer, D.B., 2024. Management of bushrocks in agricultural landscapes for reptile conservation. *Australian Zoologist, 43(4)*, pp.615-623.

Smith, D.G., Evans, M.J., Scheele, B.C., Crane, M. and Lindenmayer, D.B., 2024. Co-location of multiple natural assets on farms increases bird species richness and breeding activity. *Agriculture, Ecosystems & Environment*, *359*, p.108765.

Appendix 2: Project team