Sustainable Farms

2025 Achievements & Impact Report

Foreword

Sustainable Farms continues to demonstrate the value of long-term, interdisciplinary research in delivering practical outcomes for agriculture, biodiversity and rural communities. In 2025, our work has expanded in both scale and impact - from national biodiversity monitoring across the Enhancing Remnant Vegetation Pilot, to advancing new approaches in monitoring technologies, cultural burning, and farm dam management.

A defining strength of the program is the integration of rigorous science with on-ground application. Strong partnerships with landholders, Landcare and NRM organisations, ensure that new knowledge informs real-world decision-making, policy development and investment in natural assets, and knowledge is shared through our highly regarded educational resources and capacity-building events.

As investment in biodiversity and natural capital continues to grow, the need for approaches that are credible, scalable and grounded in strong evidence will only increase. Sustainable Farms is well positioned to contribute to this through our ongoing long-term research and knowledge translation. I would like to acknowledge and thank our funding partners, collaborators and landholders whose support makes this work possible.

Professor David Lindenmayer
Director, Sustainable Farms

Australian National University

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Enhancing Remnant Vegetation Pilot monitoring

Project duration: 2023 – 2028
Funding source: Department of Climate Change, Energy, the Environment and Water

Sustainable Farms is contributing to the Australian Government's Enhancing Remnant Vegetation (ERV) Pilot program (formerly part of the Agriculture Biodiversity Stewardship Package). The ERV Pilot program was designed to test how environmental markets can incentivise landholders to implement nature positive land management practices to protect and restore remnant vegetation. The program trials the use of market-based measures as a mechanism for attracting private sector investment in biodiversity improvement on agricultural land across Australia.

Under an agreement with the Department of Climate Change, Energy, the Environment and Water (DCCEEW), Sustainable Farms is undertaking biodiversity monitoring for all ERV Pilot projects in six regions across Australia, in order to assess and track changes in remnant vegetation condition over time, and to provide independent, evidence-based data that will inform the Australian Government's development of effective biodiversity assessment and monitoring under their Nature Repair Market.

In 2025, our team of ecologists finalised the establishment and monitoring of 330 sites over 78 projects across Australia and began the repeat monitoring of sites established in 2023. This ecological monitoring involves the collection of detailed vegetation and bird biodiversity data. The objectives of the monitoring include evaluating the effectiveness of the pilot in improving vegetation condition, determining the biodiversity outcomes resulting from management interventions, and improving the understanding of the level of monitoring required to discern changes in biodiversity resulting from changes in management. This monitoring will continue until at least 2028, with the findings directly informing the assessment methodologies and program design that will underpin the long-term success of the Nature Repair Market.

Innovative Biodiversity Monitoring

Project duration: 2024 – 2027
Funding source: Department of Climate Change, Energy, the Environment and Water

Our Innovative Biodiversity Monitoring project is helping build the scientific foundations needed to support practical and cost-effective approaches for monitoring biodiversity in Australia's emerging Nature Repair Market. The project compares emerging monitoring technologies, including passive acoustic recorders, multi-spectral drone imagery and environmental DNA (eDNA), with conventional ecological survey methods to ensure biodiversity data remain robust and comparable through time.

In 2025, the team delivered a major phase of field data collection and technology deployment. This included completing seasonal bird surveys, deploying 160 passive acoustic recorders across 80 monitoring sites, building in-house drone capability, and undertaking drone surveys and preparation for further eDNA sampling. These datasets will allow rigorous comparisons between monitoring approaches and help determine the most reliable and cost-effective methods for detecting biodiversity change.

The project also produced key research outputs, including the peer-reviewed paper *"A conceptual framework to guide the transition from conventional to modern technologies for biodiversity monitoring"* (Buettel *et al*. 2025), which provides guidance on integrating new monitoring technologies while maintaining the integrity of long-term ecological datasets.

Project findings were presented at the DCCEEW Innovative Biodiversity Monitoring Workshop and Showcase in July 2025, and the monitoring framework was shared at the NRM Regions Conference in September 2025.

The project is delivering important research outputs that help guide how biodiversity monitoring programs can transition to new technologies while maintaining the integrity of long-term ecological datasets. These insights

are contributing to national discussions on monitoring standards and strengthening the evidence base needed to support credible biodiversity markets and environmental investment in Australia.

Installation of an acoustic recording device at Talgarno VIC.

Cultural burning project

Project duration: 2025 – 2028
Funding source: Australian Research Council

This project, led by Dr Elle Bowd from Sustainable Farms, aims to support the re-emergence of cultural burning in Box-Gum Grassy Woodlands across NSW and the ACT, while strengthening partnerships between Aboriginal communities, land managers and researchers. It is a collaboration between Local Aboriginal Land Councils (Bathurst, Wagga Wagga, Brungle/Tumut, Young and Onerwal), Local Land Services (South East, Riverina and Central Tablelands) in NSW, and the Ngunnawal community and ACT Government in the ACT, together with ecology and fire researchers from the Australian National University, CSIRO, and the ACT Environment, Planning and Sustainable Development Directorate.

A key goal of the project is to build community capacity in cultural burning, creating opportunities for two-way training and knowledge sharing between Aboriginal communities, land managers and researchers.

Sites will be monitored before and after cultural burns for plants and soils to better understand ecological outcomes and to provide information that can support future burning practices led by Aboriginal communities.

The Sustainable Farms field team recently assisted with pre-burn vegetation surveys and drone imagery at sites planned for cultural burning by Wiradjuri and Ngunnawal communities across NSW. The burns are scheduled to take place in 2026 and 2027.

The Ripple Effect

Project duration: 2025 – 2028
Funding source: Grower Group Alliance

Sustainable Farms is a delivery partner for The Ripple Effect, a nationwide project that is establishing demonstration sites across Australia to support accelerated adoption of farm dam enhancement practices.

The project is led by the WA-based Grower Group Alliance, with other partner organisations including the University of Western Australia, the University of Adelaide, the University of Southern Queensland, and the Royal Melbourne Institute of Technology (RMIT).

This capacity-building project aims to support action that will deliver on-ground outcomes including improved productivity, increased water security, reduced greenhouse gas emissions, and increased biodiversity.

In 2025, Sustainable Farms supported initial planning meetings with a number of NRM organisations in Victoria and NSW, to establish suitable demonstration sites. We developed biodiversity monitoring protocols for farm dam demonstration sites, and distributed passive acoustic monitoring devices to participating organisations. The team also delivered a train-the-trainer workshop with Melbourne Water, one of the organisations participating in The Ripple Effect project. Further train-the-trainer workshops and field days will be delivered in other states in 2026.

Visiting an enhanced dam in the Yarra Valley VIC during the train-the-trainer workshop.

New Futures for Victorian Landcare

Project duration: 2024 – 2025
Funding source: Landcare Victoria Inc.

Sustainable Farms is a delivery partner for the New Futures for Victorian Landcare (NFVL) project, led by Landcare Victoria. The project brings together local landholders, community groups, and specialist practitioners to develop an investment-ready landscape plan for the region, supporting the Landcare community's participation in emerging investment and environmental markets as an alternative to traditional grant-based funding.

In 2025, Sustainable Farms was involved in the second pilot program for the NFVL project, based in the Kiewa-Wodonga landscape. This was delivered through the Kiewa Catchment Landcare Group and the Wodonga Urban Landcare Network. Throughout the year, Sustainable Farms supported the pilot through in-person meetings and online webinars, providing ecological advice and expertise on landscape interventions, ecological monitoring, and related guidance.

The initial phase of the project is now complete for the Kiewa-Wodonga landscape, with the group preparing to share their ‘Landscape Action and Investment Plan’ to attract funding for the next phase and further

develop their investment opportunities. The Granite to Goulburn group, who we supported last year, have used their Landscape Action and Investment Plan to successfully attract philanthropic funding in their region.

Events & conference presentations

During 2025, the Sustainable Farms team delivered six training workshops for NRM professionals, three farm field days, and delivered presentations at five community events ranging from the Central Tablelands Landcare Muster to 'Science in the Pub'. We also supported program development and grant applications for a number of NRM and Landcare organisations.

We also shared our research at 4 national conferences: the NRM Regions Conference, the Australian Ornithological Conference, the Ecological Society Australia Conference, and the Drought Resilience 2025 Conference (hosted by the Victoria Drought Resilience & Adoption Hub).

Participants at a farm dams train-the-trainer workshop in Sale VIC.

Publications & educational resources

Sustainable Farms research was published in 12 peer-reviewed scientific papers:

Bell, A., Evans, M.J., Lindenmayer, D.B., Scheele, B., Smith, D., and Malerba, M. (2025) Excluding livestock from farm dams enhances native biodiversity. *Agriculture, Ecosystems and Environment* 386, 109623. http://doi.org/10.1016/j.agee.2025.109623.

Bowd, E.J., Cary, G.J., Freeman, D., Bell-Garner, B., and Lindenmayer, D.B. (2025) Plant responses to a re-emergence of cultural burning in long-unburnt, threatened temperate woodlands. *Global Change Biology* 31(6), e70230. https://doi.org/10.1111/gcb.70230.

Buettel, J., Lindenmayer, D.B., Scheele, B., and Evans, M.J. (2025) Maintaining robust terrestrial ecological monitoring amid technological advancements. *Trends in Ecology and Evolution* 40(7), 651-662. https://doi.org/10.1016/j.tree.2025.04.003.

Clayton, H., Hingee, K., Lindenmayer, D.B., Pannell, D., Boult, C., van Dijk, A., and Vardon, M. (2025) Private benefits of natural capital on farms across an endangered ecoregion. *Ecological Economics*, 218, 108116. https://doi.org/10.1016/j.ecolecon.2024.108116.

Hingee, K., Scheele, B., Lindenmayer, D.B., Durant, K., Southwell, A. (2025) Model-based estimates of bird biodiversity benefits from disparate, landscape-scale restoration activities. *Restoration Ecology*, e70271. http://doi.org/10.1111/rec.70271.

Lindenmayer, D.B., Scheele, B., Bowd, E., Lindenmayer, N., and Evans, M.J. (2025) Declining trajectories characterise arboreal marsupial assemblages in eastern Australia. *Biological Conservation* 308, 111264. https://doi.org/10.1016/j.biocon.2025.111264.

Lindenmayer, D.B., Gordon, L., Baker, J., Baker, E., and Evans, M.J. (2025) Investigation of key spatio-temporal trends in research on scattered paddock trees and biodiversity in semi-cleared agricultural landscapes. *Landscape Ecology* 40, 172. https://doi.org/10.1007/s10980-025-02194-x.

Littlefair, M., Scheele, B, Lindenmayer, D.B., and Evans, M.J. (2025) Enhancing farm dams increases tadpole presence. *Ecology and Evolution*, 15(1), e70803. https://doi.org/10.1002/ece3.70803.

Macintosh, A., Evans, M., Butler, D., Larraondo, P., Waschka, M., Eldridge, D., Lindenmayer, D.B., Gibbons, P., and Ansell, D. (2025) Reply to: National-scale datasets underestimate vegetation recovery in Australian human-induced native forest regeneration carbon sequestration projects. *Earth and Environment* 6, 803. https://doi.org/10.1038/s43247-025-02726-y.

Martin, R., and Lindenmayer, D.B. (2025) Regulating Biodiversity Certification and Trading: An Agricultural Perspective. Environmental and Planning Law Journal 41(2), 1-28. https://search.informit.org/doi/10.3316/informit.T20250923000139913933976l3.

Odebiri, O. Scheele, B.C., Lindenmayer, D.B., Smith, D.G., Malerba, M.E. (2025) Fencing the Flux: Seasonal Trends, Environmental Drivers, and Mitigation Opportunities of Methane Emissions from Farm Dams. *Global Change Biology* 31(12), e70637. http://dx.doi.org/10.1111/gcb.70637.

Smith, D., Evans, M.J., Scheele, B.S., Florance, D., Siegrist, A., Lang, E., Crabe, C., Malerba, M., Bell, K., Crane, M., and Lindenmayer, D.B. (2025) Grazing control and revegetation increases bird biodiversity at farm dams. *Biological Conservation* 309, 111310. https://doi.org/10.1016/j.biocon.2025.111310.

In addition, a new educational resource for NRM practitioners was produced, a 30-page booklet titled The Science of Farm Dam Enhancement.

Sustainable Farms acknowledges the Traditional Custodians of the land on which we work.
We pay our respects to their Elders, past and present, and celebrate their ongoing
cultural and spiritual relationship with this land.

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