

## Adelaide Hills Wine Region Case Study, November 2021

### Ngeringa, Mt Barker Summit, SA

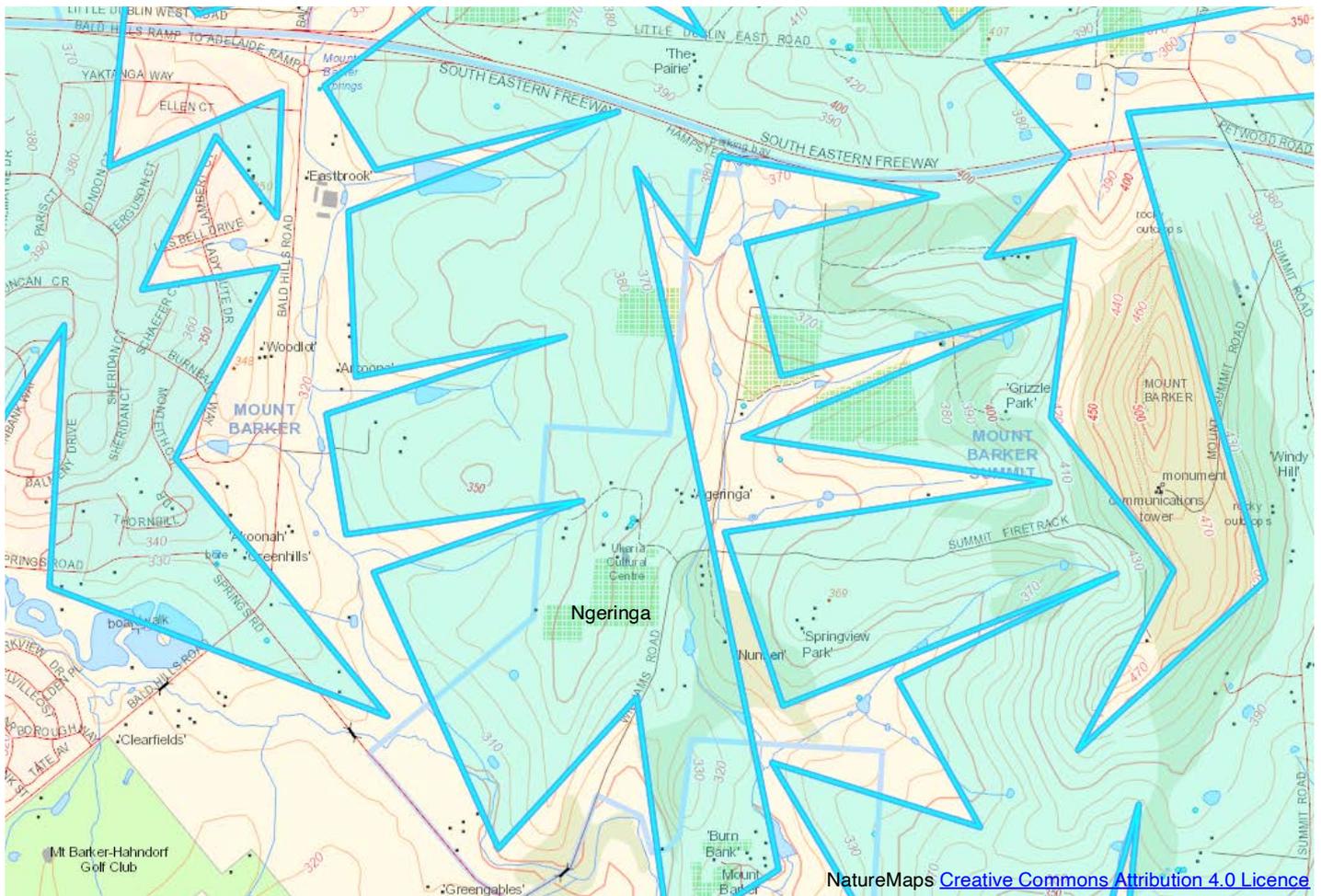
**EcoGrowers:** Janet and Erinn Klein

“EcoVineyards offered us the impetus to establish native grass insectary within our vineyard and to challenge our understanding of the possibility of doing so organically. The success of the EcoVineyards project will significantly change our mid-row, undervine and pasture management and will contribute to the wider use of native grasses as insectary in Australian vineyards.”



#### Adelaide Hills Wine Region

**Plant community (marked in blue):** SA blue gum, *Eucalyptus leucoxylon* ssp. *leucoxylon* woodland



NatureMaps [Creative Commons Attribution 4.0 Licence](https://creativecommons.org/licenses/by/4.0/)



## Case study

### What worked well?

- All aspects of preparation were easily implemented. Expertise and advice from Seeding Natives Incorporated added enormous value to final successful outcome.
- Wallaby grass germination was consistently medium to high across all plots and was exceptionally strong in lower half of vineyard and as a wallaby grass + biochar treatment.
- Grass/forbs mix notably showed medium to low take with forbs being notably sparse.
- The addition of biochar enhanced germination for both species' mixes.

### Pitfalls to avoid

Existing midrow vineyard sward (rye grass and clover) and weeds (predominantly cape weed, and wire weed) have influenced the native species germination and potentially will affect their long-term survival. Spending more time on soil preparation and seed-bank removal mechanically and chemically would reduce this pressure.

Germination of forbs was notably low, with minimal visible in each plot regardless of treatment.

Researching the suitability of forbs to the Mount Barker Summit environment and understanding their sensitivities to our soil type, seeding time, rainfall etc. would be valuable.



### Progress (June 2019 to 2021):

#### What were you hoping to achieve and why?

Native grasses and forbs were trialled without the use of conventional herbicides in a certified organic/biodynamic vineyard, to provide beneficial insectaria within the vineyard and to improve the biodiversity of a vineyard-monoculture.

#### What did you do and when?

40 trial midrow plots of 30 metre lengths (divided by 15 metre control plots to minimise erosion during establishment) were created using a Celli rotary hoe on 1 April 2020.

Each plot was recultivated 3 weeks later having allowed regrowth of midrow sward/weeds to reach 10 cm. A certified organic herbicide 'BioWeed' was then applied at 2 leaf stage following sward regrowth. This process was completed twice prior to a final cultivation occurring immediately prior seeding on 26 August 2020.

4 treatments of 2 grass and grass/forb species mixes were sown by Seeding Natives Incorporated with or without wetted biochar (sourced from Maccy Biochar) across 40 trial midrow plots of 30 metre lengths in the Ngeringa Summit Vineyard in Spring 2020.

- Wallaby grass multi-species mix
- Wallaby grass + forbs multi-species mix

All plots were assessed by eye on 23/9/21 and rated high (70%), medium (50%) or low (< 40%) germination.

We also planted Christmas bush/sweet bursaria, *Bursaria spinosa* at the end of strainer posts, as well as 1,350 mid-storey seedlings as a part of a long-term regeneration program.

#### What were the highlights?

Ngeringa also conducts regular bird surveys to monitor the impact of our property wide revegetation program. We also have conducted microbat surveys which report various species of microbat present in areas around the vineyard.

#### What are you more aware of now?

We have shown we have the conditions and method to establish wallaby grasses and select forbs as a viable midrow species mix under organic vineyard management, with low-moderate soil preparation.

The need for site preparation is clear for enhanced outcome, but with moderate preparation over a limited time period, commendable germination rates were still achieved.

**Photo above:** prickly tea-tree, *Leptospermum continentale* planted adjacent to strainer posts (Photo: Mary Retallack).

**Photo left:** Janet highlighting the seed head of tall spear grass, *Austrostipa nodosa* (Photo: Mary Retallack).



**Before:** 9 July 2020, native grasses and forbs planted in lengths of 30 metre panels with 15 metre buffers in-between to avoid erosion risk (Photo: Mary Retallack)



**After:** 26 October 2021, note the cape weed in the foreground of the unseeded buffer zone and then the transition to native grasses and forbs (Photo: Mary Retallack)



3 February 2020, wire weed was present in February after planting in year 1 but as the grasses grew, they outcompeted the wireweed (Photo: Mary Retallack)



Janet using the vacuum sampler to assess arthropod activity (Photo: Mary Retallack).

See the 'An introduction to native insectary plants' for a list of the types of predatory arthropods typically found in association with wallaby grasses <https://www.wgcsa.com.au/uploads/1/1/5/5/115509859/ecovineyardsintroductiontonativeinsectaryplants.pdf>



## Insights

### Where to from here?

We plan to extend the area of native grass/forbs throughout the vineyard over coming years and adopt native grasses within our permanent vineyard sward.

We also intend to continue to introduce native grass/forbs into our paddocks (trialled in 2020) and to continue to encourage the regeneration of naturally occurring grasses (primarily spear grass, *Austrostipa* spp., kangaroo grass, *Themeda* spp. and wallaby grass, *Rytidosperma* spp.).

### Are there any outstanding knowledge gaps you would like filled?

I would like to understand the nutritional benefits of native grasses compared to paddock and interrow grasses for stock (i.e., benefits to grazing in general)

### What has been the most valuable aspect of the program for you personally?

Gaining hands-on experience with native grass seeding and germination and gaining insight into the feasibility of native grass establishment within an organic farming system.

### Has your level of knowledge increased significantly since you became an EcoGrower?

Most certainly! Knowledge of the limitations of native grass supply, their physical characteristics requiring specialised tooling for application and their robustness to compete against vineyard weeds and cover crop was gained.



Photos above: Janet installing a photo point and the seed head of a wallaby grass (Photo: Mary Retallack).

Photo right: EcoVineyards workshop at Ngeringa (Photo: Mary Retallack).

### Native plant list:

- *Austrostipa nodosa*, tall spear grass
- *Arthropodium strictum*, chocolate lily
- *Bursaria spinosa*, Christmas Bush or sweet Bursaria
- *Bothriochloa macra*, red grass
- *Calocephalus citreus*, lemon beauty heads
- *Chloris truncata*, windmill grass
- *Convolvulus angustissimus*, Australian bindweed
- *Chrysocephalum apiculatum*, common everlasting
- *Dichanthium sericeum*, silky blue grass
- *Digitaria brownii*, cotton panic grass
- *Leptospermum continentale*, prickly tea-tree
- *Microlaena stipoides*, weeping grass
- *Rytidosperma caespitosa*, common wallaby grass
- *Rytidosperma geniculatum*, kneed wallaby grass
- *Rytidosperma racemosum*, wallaby grass
- *Rytidosperma setaceum*, small-flowered wallaby grass
- *Themeda triandra*, kangaroo grass
- *Vittadinia blackii*, New Holland daisy
- *Vittadinia cuneata*, fuzzweed
- *Vittadinia gracilis*, woolly New Holland daisy

### Is there anything else you would like to add?

The EcoVineyards program is an innovative program which will bring genuine change towards greater sustainable winegrowing practices, allowing the unique circumstances and interests of each landholder to shape the outcome of their project.

This is of significant benefit to sustainable winegrowing and to the adoption of regenerative agriculture at large.

Congratulations Mary and WGCSA!



## Expenses (cash and in-kind)

Name: Janet and Erinn Klein, Ngeringa		Region: Adelaide Hills			
Date	Activity	Number of plants	Grant cash expenses	Additional cash co-contribution	In-kind time captured
01/05/20	Trial planning and layout				4 hrs
08/08/20	Cultivate trial plots x 3				5 hrs
01/09/20	Seeding Natives Incorporated - direct seeding, truck, tractor and seeder, logistics (4 kg native grass mix, 6 Kg diverse mix for trial, biochar for trial approx. 500 kg, 8 kg native grass mix for extra paddock). Grasses \$102/kg	18 kg	\$ 3,330	\$ 815	6 hrs
01/04/21	Monitoring x 2				2 hrs
30/06/21	Paddock tree guards and assembly - Arborgreen Landscape Supplies		\$ 670		4 hrs
18/07/21	800 mixed native lower and mid-storey seedlings planted as part of long-term revegetation program (since 2007) - 40 volunteers x 2 hrs = 80 hours	800			80 hrs
16/08/21	50 <i>Leptospermum continentale</i> planted in the headland of Summit and Rufus vineyards with Montessori school group 20 children x 2 hours = 40 hours	50			40 hrs
21/08/21	500 mixed native lower and mid-storey seedlings planted 4 people x 6 hours = 24 hours	500			24 hrs
23/10/21	Hand weeding Pentameris grass and South African orchid from Bush Care paddock, 8 hours				8 hrs
28/10/21	Brush cutting of Bush Care paddock, 12 hours				12 hrs
		<b>1,350</b>	<b>\$ 4,000</b>	<b>\$ 815</b>	<b>184 hrs</b>

Thank you to our project partners!



This project is supported by the Hills and Fleurieu Landscape Board and is funded by the landscape levy.

### Acknowledgement of country

The EcoVineyards project acknowledges Aboriginal people as the First Peoples and Nations of the lands and waters we live and work upon and we pay our respects to their Elders past, present and emerging. We acknowledge and respect the deep spiritual connection and the relationship that Aboriginal and Torres Strait Islander people have to Country.

The Peramangk and Kurna people are the traditional custodians of the Adelaide Hills region and have an ongoing connection to the land.

### Disclaimer

The information contained in this case study is provided for informational purposes only. The Wine Grape Council of South Australia (WGCSA) and Retallack Viticulture Pty Ltd give no representations or warranties in relation to the content of this case study including without limitation that it is without error, or is appropriate for any particular purpose. No person should act in reliance on the content of this case study without first obtaining specific, independent professional advice having regard to their particular site(s). WGCSA and Retallack Viticulture Pty Ltd accept no liability for any direct or indirect loss or damage of any nature suffered or incurred in reliance on the content of this case study.

For more info about the EcoVineyards project see <https://www.wgcsa.com.au/ecovineyards.html>

This case study was collated by Dr Mary Retallack, Retallack Viticulture Pty Ltd

© Retallack Viticulture Pty Ltd (just checking with Bianca)