



CASE STUDY

REVEGETATING A CREEK LINE AND HYDROSEEDING NATIVE INSECTARY GROUND COVERS IN THE UNDER-VINE AREA AT HOWARD VINEYARD, ADELAIDE HILLS, SA

By Nathan Foreman, Howard Vineyard; Janet Klein and Dr Mary Retallack, Retallack Viticulture Pty Ltd



BOOSTING BIODIVERSITY IN AND AROUND THE VINEYARD

Background

The property is located at 53 Bald Hills Road Nairne consists of a total of approximately 33 hectares with 14.8 hectares planted to Sauvignon Blanc, Shiraz, Cabernet Franc and Cabernet Sauvignon. Vineyard was planted in 1999.

"As a wine business with strong sustainability values, the EcoVineyards experience has resulted in a more holistic understanding of the beautiful land we are fortunate to be custodians of and allowed us to explore practices to enhance biodiversity both in and surrounding the vineyard."

Nathan Foreman, Viticulturist, Howard Vineyard

Project description

We aimed to increase the biodiversity of the riparian zone along the upper order creek which runs adjacent to Bald Hills Road on the Howard property. The work done over a 3 year period in collaboration with Hills Biodiversity, is visible to the significant amount of traffic along the road and to Howard's cellar door visitors.

We also aimed to under-vine hydroseed a mix of low growing, native grasses to suppress mid- to late-season thistles and other weeds, whilst maintaining a permanent, self-sustaining under-vine crop eliminating the need for herbicide or cultivation and enhancing biodiversity within the vineyard.



Figure 1: EcoGrower Nathan Foreman, 2023 [Photo: Mary Retallack].

What did you do and when?

- **Winter 2024:** In collaboration with Hills Biodiversity, an additional 700 native trees and shrubs were planted in our existing biodiversity revegetation area.
- **Autumn 2024:** Under-vine hydroseeding trial. A selection of native grasses and forbs spread along a 100 m of an outside row in Block 4. Different species of natives planted within their own panel to assess the success and suitability of each for upscaling in Autumn 2025.



Figure 2: Three year old native plants planted along the riparian zone [Photo: Nathan Foreman].

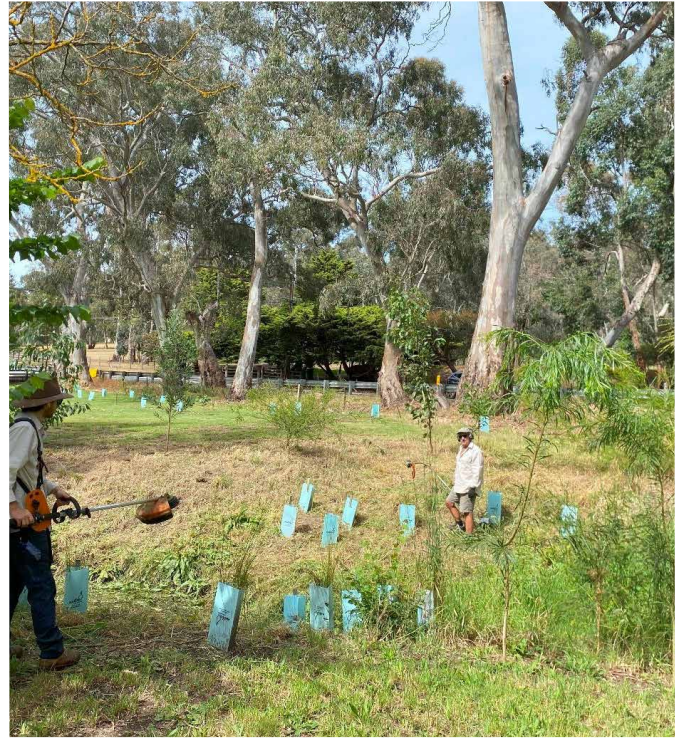


Figure 3: Weed management in the revegetation area [Photo: Nathan Foreman].



Figure 4: Revegetation in collaboration with Hills Biodiversity along the riparian zone of an upper order creek to Mt Barker Springs [Photo: Mary Retallack].



Figure 5: Hydroseeding trial with various native ground cover species (one species per panel) in autumn 2024 [Photo. Mary Retallack].



Figure 6: Hydroseeding trial with various native ground cover species (one species per panel) in autumn 2024 [Photo. Mary Retallack].



Figure 7: LCS Environmental hydroseeding equipment demonstration, autumn 2024 [Photo. Janet Klein].



Figure 8: Native flax growing through the weedy species in the undervine area in spring 2024 [Photo. Mary Retallack].

What did you do and when?

- **Spring/Summer 24/25:** Extensive under-vine weed control using a combination of herbicide and cultivation to prepare site for hydroseeding post-harvest 2025.
- **Autumn 2025:** Based on the results of the 100 m trial, in collaboration with LCS Environmental and PGG Wrightson Turf, we hydroseeded a selection of suitable natives (*Chloris truncata*, windmill grass; *Atriplex semibaccata*, creeping saltbush; *Microleana stipoides*, weeping grass; *Rytidosperma* sp., wallaby grasses; *Vittadinia* sp., New Holland daisy) across the entire hectare block using in row equipment.



Figure 9: Hydroseeding trial with various native species in autumn 2025 [Photo. Nathan Foreman].



Figure 10: Native grass seed being sprayed on the undervine zone in autumn 2025 [Photo. Nathan Foreman].



Figure 11: LCS Environmental hydroseeding equipment in autumn 2025 [Photo. Nathan Foreman].



Figure 12: Native grass seed being sprayed on to the undervine zone in autumn 2025 [Photo. Nathan Foreman].

If you changed your project, what was the reason for the change?

The initial plan was to complete the commercial scale hydroseeding project in 2024. However, the wet growing season of 2023/24 made it difficult to control undervine growth leading to insufficient weed control prior to Autumn/Winter 2024. In addition, because of lack of available equipment, the decision was made to delay the project until Autumn 2025 to ensure the best chance for success with hydroseeding.

What worked well?

The small Bowie 300 Hydromulcher unit was the ideal size to fit between the vine rows and fits neatly on a standard grape bin trailer.

Any pitfalls to avoid?

We would incorporate thorough ground preparation given our insight in to needing to start weed control as early as possible for maximum germination and success.

The idea of fabricating a boom to fit on the back of the hydromulcher unit would enable two rows to be done in one pass and make the process quicker and more efficient or use the hydroviner which has been tailor made for use in vineyards.

It would be ideal to more frequently water newly planted native seedlings especially during an incredibly dry season as our losses were high last season.

Highlights

Based on the results of the under-vine hydroseeding trial, the native grasses performed well. Specifically, wallaby grass survived strongly despite pressure from uncontrolled, established weeds. Some early success with New Holland daisy and native flax was also noted.



Figure 13: Vortec Global's hydroviner in action in the Howard Vineyard [Photo: Janet Klein].

What are you more aware of now?

I am more aware of what weed species are established in the vineyard and more aware of how a functional undervine ground cover can contribute to vineyard soil health and biodiversity.

We will continue to plant more native seedlings and increase biodiversity across the property. Pending success of the hydroseeding project over the next couple of years, it would be great to expand that throughout other areas of the vineyard also.

Are there any outstanding knowledge gaps you would like filled?

Not having any previous experience direct seeding with natives, the biggest question is how long will the natives take to establish in our context (knowing it is season dependent) and how well will they cope with pressure from other under-vine weeds during establishment.

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

Gaining insight and a better understanding of what species of weeds are already established in the vineyard and how they can be managed more effectively without the use of herbicides.

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

My level of knowledge and understanding of the property as a whole has increased significantly since becoming an EcoGrower.

For example, beyond the vines, what types of birds, bats, insects, plants etc inhabit the property and how they can positively impact the vineyard.



Figure 14: Participants at the EcoVineyards hydroseeding and ground covers demonstration in 2024 [Photo: Janet Klein].



Figure 15: Insectary plants in establishment [Photo. Nathan Foreman].



Figure 16: *Melaleuca decussata*, honey myrtle in flower [Photo. Nathan Foreman].



Figure 17: Eucalyptus in establishment [Photo. Nathan Foreman].



Figure 18: Insectary plants in establishment [Photo. Nathan Foreman].

Plant list

Planted around the dam			
#	Scientific name	common name	
1	<i>Acacia melanoxylon</i>	blackwood	>3000 seedlings over 3 years / 700 in 2024
2	<i>Acacia paradoxa</i>	kangaroo thorn	
3	<i>Acacia provincialis</i>	swamp wattle	
4	<i>Acacia pycnantha</i>	golden wattle	
5	<i>Callistemon sieberi</i>	bottlebrush	
6	<i>Dianella revoluta</i>	blueberry lily	
7	<i>Ficinia nodosa</i>	knobby club rush	
8	<i>Gahnia sieberiana</i>	saw-sedge	
9	<i>Hakea rugosa</i>	hakea	
10	<i>Juncus pallidus</i>	pale rush	
11	<i>Melaleuca decussata</i>	honey myrtle	
12	<i>Themeda (sp)</i>	kangaroo grass	
13	<i>Wahlenbergia stricta</i>	Australian bluebell	
14	<i>Atriplex semibaccata</i>	creeping saltbush	5.5 linear km / 1.2 ha
15	<i>Chloris truncata</i>	windmill grass	
16	<i>Microleana stipoides</i>	weeping grass	
17	<i>Rytidosperma geniculatum</i>	kneed wallaby grass	
18	<i>Vittadinia nodosa</i>	New Holland daisy	
Total			3,700

The visual record of our revegetation program in collaboration with Hills Biodiversity and now supported by our under-vine EcoVineyard project, clearly shows the exciting and valuable impact the addition of native species has across our property.



Expenses

Date	Item	Number of plants	EcoVineyards costs (ex GST)	Co-contribution (landholder contribution)	In-kind (time)
2024-2025	Undervine weed control Area C				20 hrs
3/10/2023	Compost application 20m ³ Area C			\$750	2 hrs
10/8/2024	Mulch application Biodiversity area E			\$314	2 hrs
2023-2025	Manual weed control Area E				100 hrs
30/04/2025	Hydroseeding natives undervine Area C		\$4,171	\$-	
30/04/2025	Hydroseeding native seed supply (15kg)			\$2,475	25 hrs
	EcoGrower contribution			\$3,000	
	Total	3,700	\$4,171	\$6,539	149 hours



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ACKNOWLEDGEMENT OF COUNTRY

EcoVineyards proudly acknowledges the Aboriginal and Torres Strait Islander Peoples, and their ongoing cultural and spiritual connection to this ancient land on which we work and live.

As the Traditional Custodians of this land, we recognise their wealth of ecological knowledge and the importance of caring for Country.

We pay our respects to elders past and present and extend this respect to all Aboriginal and Torres Strait Islander Peoples.



