



Riverland Wine Region

Case Study, August 2021

Starrs Reach Vineyard, New Residence, Riverland, SA

Flood runner creek restoration and native cover crop undervine in the vineyard

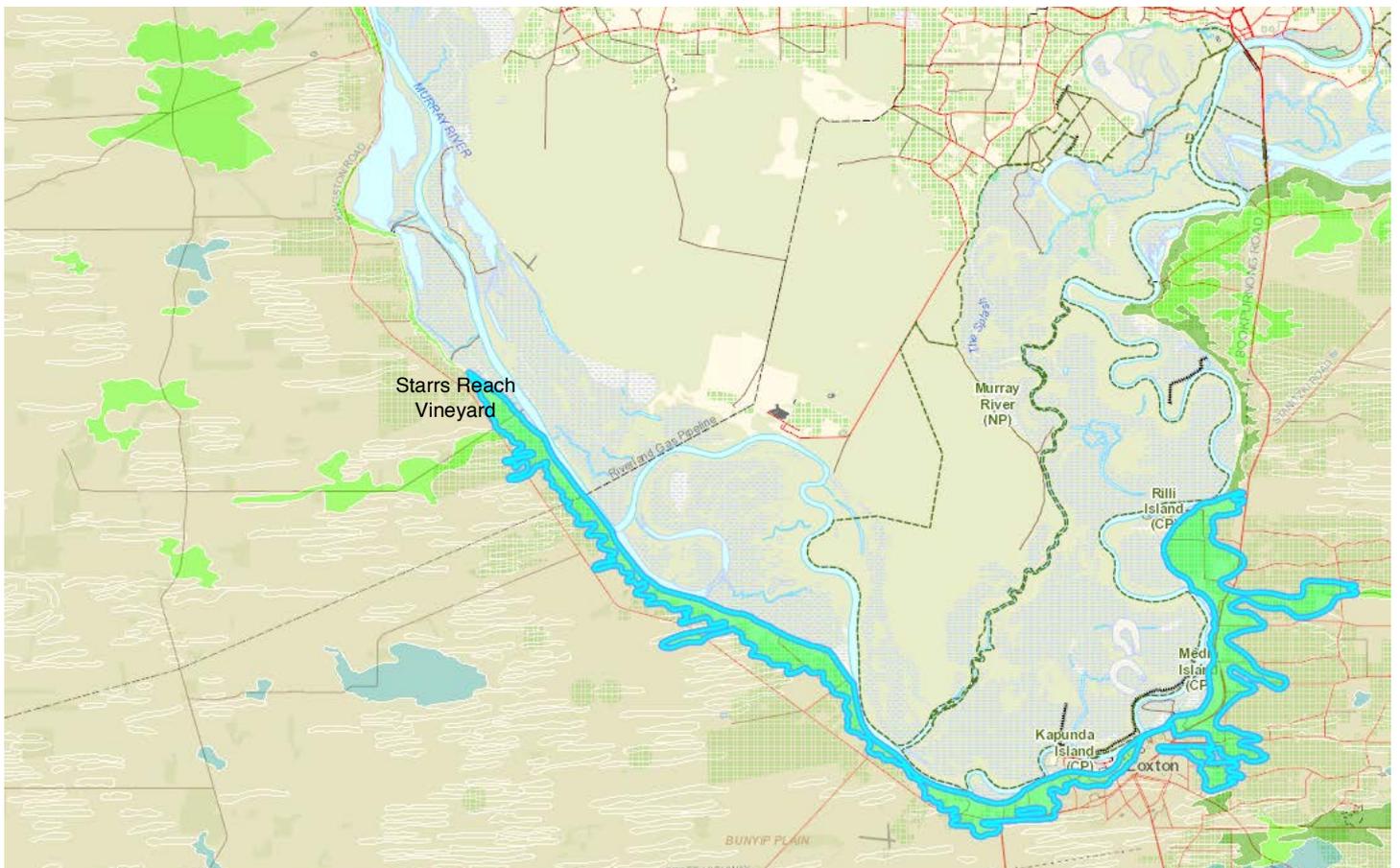
EcoGrower: Sheridan Alm

"At a time when wine growers are increasingly focussed on a changing climate and their bottom line, it makes sense to harness and optimise that natural processes and assets we already have in our vineyards."

Riverland Wine Region



Plant community (marked in blue): Sugarwood, *Myoporum platycarpum* low woodland over an open shrub understorey



Case study

What worked well?

Planting with a water jet or water borer which is normally used to plant vines. It is difficult to dig a clean hole in sandy loam and the water provides the first month of moisture with no rush to install irrigation. Using the EKO™ jute weed mats also provided breathing space in terms of weed control and retaining soil moisture.

What has been the most valuable aspect of the program?

Getting back to nature, taking the time to think about how our existing biodiversity can be enhanced even in a broad acre scale vineyard.

What are you more aware of now?

We have learned that establishing the native plants takes very little water and we have a better understanding of plant communities around our vineyard and how they indicate soil type. Native ground cover species may appear to die off in autumn but with spring rainfall will re-shoot and germinate from the existing seed bank.

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

Definitely but there is still so much to learn, nature is awesome!



Progress (June 2019 to 2021):

This project gives us an opportunity to improve biodiversity in the vineyard, observe the presence of beneficial insects and their potential in an integrated pest and disease program. By using the native vegetation and insect populations endemic to our region we hope to work towards a 'whole of vineyard' approach and complement traditional vineyard management rather than seeing the environment as a separate and stand-alone aspect of the land we manage.

The bottom line is that by building natural resilience should improve profitability over time. We all know about environmental stewardship, adapting to a changing climate and long-term sustainability. These benefits are obvious however the real driver for change will be meeting yield and quality objectives achieving cost of production savings and market incentives for producing sustainable products.

Projects like EcoVineyards help break a big issue into a smaller more achievable aims and may ultimately dispel some of the myths around being 'green' eating into profit.

Any highlights/insights that you would like to share

Myoporum parvifolium, creeping boobialla and *Enchyleana tomentosa*, ruby saltbush were standouts under vine. I am hopeful that that *Myoporum* will stand up to some level of tractor traffic in the mid row being hardier and more robust looking that the *Enchyleana* time will tell. The insect populations of predatory spiders and bugs found in *Maireana brevifolia*, short leaved blue bush was also a standout.

Where to from here (future plans)?

In the short term a further 800 plants will finalise this project and on the longer term, direct seeding larger areas around the vineyard, restoring flows in flood runner creek, native grasses in mid rows and providing habitat for predatory birds are planned. We also have approximately 300 plants propagated in collaboration with the Loxton High School Agriculture classes. Involving the students in our project has been mutually beneficial and teachers plan to include in their lesson planning annually.

Are there any knowledge gaps you would like filled?

Can the use of native groundcover plants under vine help with the emerging problem of salinisation in drip irrigated vineyards?

Can the same assist with reducing microclimate in varieties that are sensitive to sun burn?

Photo above: Sheridan Alm and Jeremy Nelson (from Murraylands and Riverland Landscape Board) installing an Ocloc photo-point (Photo: Mary Retallack).

Photo left: A selection of native saltbush species endemic to the site (Photo: Mary Retallack).



Before: 22 October 2019 (Photo: Mary Retallack)



After: 1 May 2021 (Photo: Mary Retallack)

This project is supported by the Department of Agriculture, Water and the Environment through funding from Australian Government's National Landcare Program



Wine Grape Council
South Australia





Enchyleana tomentosa, ruby saltbush growing in the undervine area (Photo: Mary Retallack)



Myoporum parvifolium, creeping boobialla 'fine leaf form' growing in the undervine area (Photo: Mary Retallack)



Myoporum parvifolium, creeping boobialla 'purple leaf form' growing along the banks of the creek (Photo: Mary Retallack)



Insights

- Pitfalls to avoid**
- Better weed control, pin weed mats down on each corner, rabbits + ducks flip them over and kill groundcover plant.
 - Early season weed control is time better spent than late season weed control.
 - Plant in winter versus planting in spring. This made a difference with plants being better established for late summer heat and when we were too busy with harvest to keep a good eye on soil moisture.



Native plant list:

- *Acacia rigens*, needle wattle
- *Acacia spinescens*, spiky wattle
- *Acacia victoriae*, elegant wattle
- *Alyogyne* spp., native hibiscus
- *Atriplex nummularia*, old man saltbush
- *Atriplex semibaccata*, creeping saltbush
- *Atriplex versicaria*, bladder saltbush
- *Bursaria spinosa*, Christmas bush
- *Callitris gracilis*, southern cypress pine
- *Calytrix tetragona*, common fringe myrtle
- *Carpobrotus glaucescens*, pig face or ice plant
- *Carpobrotus rossii*, pig face
- *Chenopodium nitriaceum*, nitre goosefoot
- *Einadia nutans*, climbing saltbush
- *Dodonaea viscosa*, sticky hop bush
- *Enchylaena tomentosa*, ruby saltbush
- *Eremophila maculata*, red spotted emu bush
- *Eucalyptus cameldulensis*, river red gum
- *Goodenia varia*, sticky goodenia
- *Grevillea pinaster*, red prostrate grevillea
- *Kunzea pomifera*, muntries
- *Leptospermum continentale*, prickly tea-tree
- *Lomandra effusa*, scented mat rush
- *Lomandra longifolia*, basket grass
- *Maireana brevifolia*, short leaved blue bush
- *Melaleuca lanceolata*, black paperbark
- *Melaleuca uncinatum*, broom bush
- *Myoporum parvifolium*, creeping boobialla
- *Myoporum platycarpum*, false sandalwood
- *Pittosporum angustifolium*, native apricot
- *Rhagodia spinescens*, spiny saltbush
- *Rhagodia parabolica*, fragrant saltbush
- *Senna artemisioides*, silver cassia

Photo above: A selection of native saltbush species endemic to the site (Photo: Mary Retallack).

Photos left: Native insectary plantings in front of the vineyard, in the undervine area and Jeremy Nelson from the Murraylands and Riverland Landscape Board and Sheridan Alm from Starrs Reach Vineyard (Photo: Mary Retallack).

Expenses (cash and in-kind)

Date	Activity	Materials (inc. in kind time)	Source	Cost	In kind value	Complete
May 2020	Ordered tube stock	178 tube stocks	Goolwa to Wellington LAP	\$ 335		May 2020
	Ordered tube stock	223 tube stocks	Gawler NRM Centre	\$ 266		May 2020
	Planned Loxton High School (LHS) excursion for cuttings	2 hrs plant ID and planning with Ag Teacher @ \$50/hr	LHS		\$ 100	NO - COVID
	Plan Design	Jeremy Nelson	NRM			May 2020
June 2020	Weedicide Plots 3, 4 + 5 (knockdown) and outer fringers of 1 + 2	3 hrs @ \$100/hr	In Kind		\$ 300	June 2020
	Removed noxious and woody weeds	4 hrs @ \$100/hr	In Kind		\$ 400	June 2020
	Removed rubbish and debris	2 hrs @ \$100/hr	In Kind		\$ 200	June 2020
Aug 2020	Weedicide Plots 3 + 4 (knockdown)	3 hrs @ \$100/hr	In Kind		\$ 300	Aug 2020
	Weedicide Plot 5 (pre-emergent)	1 hr @ \$100/hr	In Kind		\$ 100	Aug 2020
Sep 2020	Ordered Weed Mats	EKO Jute Squares - 4 x 100 bundles	Arboregreen Landscape Products	\$ 294		Sep 2020
	Ordered Tree Guards + Stakes	200 x 450mm Corflute Mallee Guards + Hardwood Stakes	Arboregreen Landscape Products	\$ 290		Sep 2020
Oct 2020	Planted tube stock in Plots 2, 4 and 5 (water drill)	8 hrs @ \$100/hr	In Kind		\$ 800	Oct 2020
	Installed Weed Mats (pin down with soft wire)	2 hrs @ \$50/hr	In Kind		\$ 100	Oct 2020
	Installed Tree Guards in Plots 2 and 4	2 hrs @ \$50/hr	In Kind		\$ 100	Oct 2020
	Ordered tube stock 2021 plantings	437 tube stock plants ordered	Kersbrook Landcare Nursery	\$ 921		Oct 2020
Nov 2020	Monitor pest plant and animal incursions	0.5 hrs @ \$50/hr	In Kind		\$ 25	Nov 2020
	Installed irrigation in Plots 2 and 4	Dripper Tube, fittings (\$150) + install 4 hrs @ \$50/hr	In Kind		\$ 350	Nov 2020
	Spot Spray Weeds (knockdown + knapsack) Plots 2, 4 and 5	4 hrs @ \$50/hr	In Kind		\$ 200	Nov 2020
Dec 2020	Monitor pest plant and animal incursions	0.5 hrs @ \$50/hr	In Kind		\$ 25	Dec 2020
Jan 2020	Hand Hoe Weeds undervine Plot 5	6 hrs @ \$50/hr	In Kind		\$ 300	Jan 2021
April 2020	Removed woody weeds + checked irrigation system	8 hrs @ \$50/hr	In Kind		\$ 400	April 2021
	Identify species that have grown well or not grown well	1 hr @ \$50/hr	In Kind		\$ 25	April 2021
	Ordered tube stock 2021 plantings	359 tube stocks	Riverland Native Plants	\$ 1,425		April 2021
	Information session with LHS Ag students	LHS Agriculture student excursion	In Kind			April 2021
	Take cuttings for propagation (groundcover and understory plants)	LHS Agriculture student excursion	In Kind			April 2021
	EcoVineyards Field Day - Riverland	3 hrs @ \$50/hr	In Kind		\$ 150	April 2021
May 2020	Weedicide Plots 3, 4 + 5 (knockdown) and outer fringes of 1 + 2	4 hrs @ \$100/hr	In Kind		\$ 400	May 2021
	Remove noxious and woody weeds	3.5 hours @ \$50/hr	In Kind		\$ 175	May 2021
	Remove rubbish and debris	4 hrs @ \$50/hr	In Kind		\$ 200	May 2021
	Order Tree Guards + Droppers	100 x Mallee Mesh Sapling Guards	Arboregreen Landscape Products	\$ 192		June 2021
	Order Weed Mats	EKO Jute Squares - 6 x 100 bundles	Arboregreen Landscape Products	\$ 277	\$ 17	June 2021
	Order Tree Guards + Stakes	400 x 450mm Corflute Mallee Guards + Hardwood Stakes	Arboregreen Landscape Products		\$ 580	June 2021
July 2020	Plant tube stock in Plots 1, 2, 3, 4 and 5 (water drill)	10 hours @ \$50/hr	In Kind		\$ 500	July 2021
	Install Weed Mats (pin down with soft wire)	4 hours @ \$50/hr	In Kind		\$ 200	July 2021
	Install Tree Guards in Plots 1, 2 and 4	4 hours @ \$50/hr	In Kind		\$ 200	July 2021
	Install Irrigation on Plots 1 and 3	Dripper tube + fittings (\$75) plus 4 hours @ \$50/hr	In Kind		\$ 275	July 2021
				\$ 4,000	\$ 6,422	

1,197 tube stock

\$ 4,000 \$ 6,422

Thank you to our project partners!



This project is supported by the Murraylands and Riverland Landscape Board's Grassroots Grants Program 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.

Meru country, where the Eriwarung, Moorundi, Barmerara, Maru and Narwij jerook groups all lived is known as the Riverland.

Disclaimer

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