



Langhorne Creek Wine Region Case Study, August 2022

Kimbolton Wines (and Brad Case Contracting)

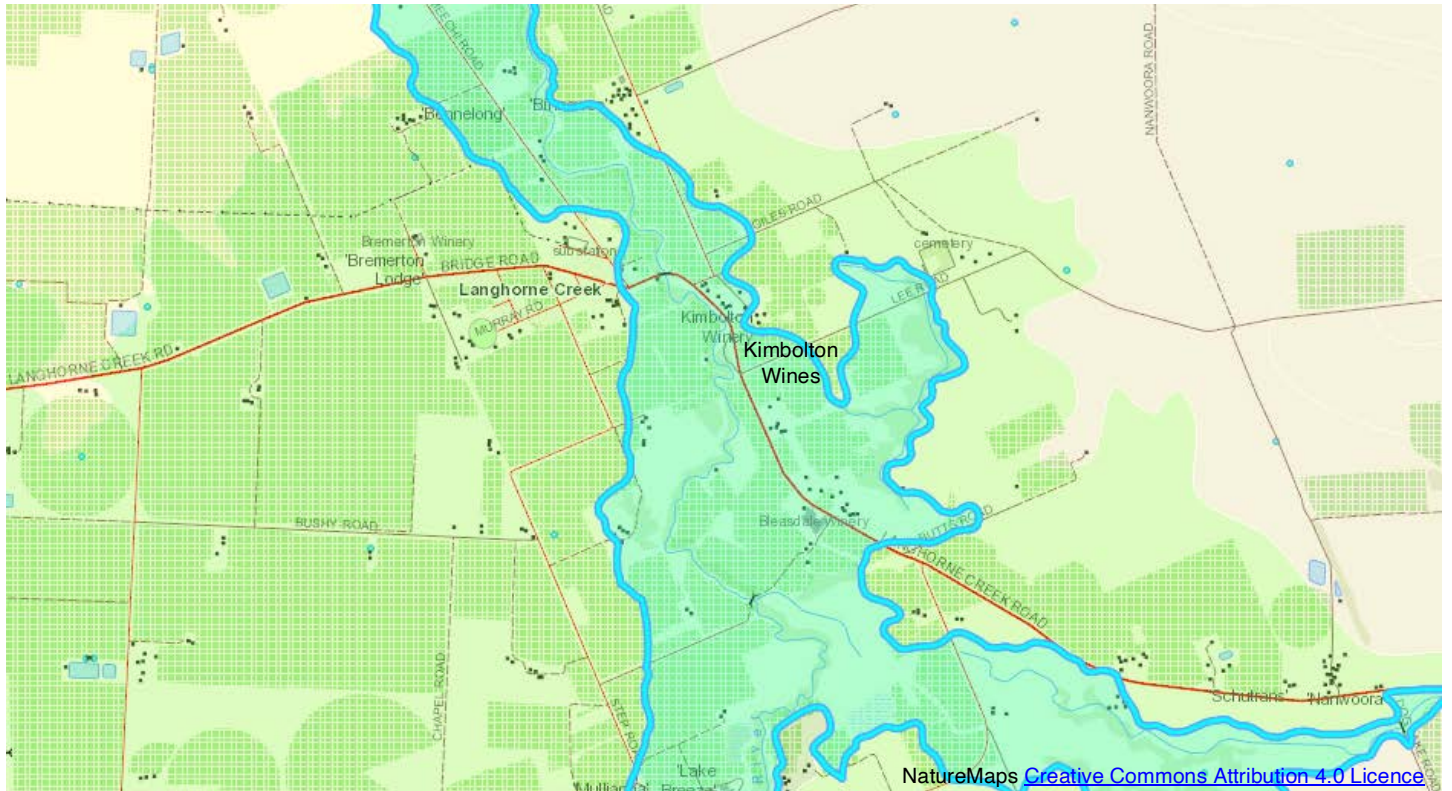
EcoGrowers: Nicole Clark (pictured), Brad Case and Jen Venus

“The EcoVineyards experience has really made us reflect on the impact we have on our environment and how we can really improve the way we manage our overall ecosystem rather than just focusing on the vines. If we incorporate the principle of the EcoVineyards program our quality of fruit and wine experience is improved.”



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Plant community: Red gum, *Eucalyptus camaldulensis* woodland over an open understorey of sedges, rushes, grasses, and herbs (marked in blue) and *Eucalyptus leucoxylon* ssp. *leucoxylon* woodland over a grassy and herbaceous understorey and sparse cover of shrubs adjacent.



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Case study

Progress (June 2019 to August 2021):

The Kimbolton Vineyard EcoVineyards project focused on increasing plant diversity in the existing shelter belts and establishing insectaries close to the vineyard to increase the beneficial insect and insectivorous bird population in and around the vineyard.

Review of existing practices

We also reviewed all aspects of the vineyard practices to improve our footprint on the environment.

- We reviewed our agrochemical usage to reduce the impact of our pest and disease management practices on the beneficial insect population.
- We continue to investigate and implement strategies to improve soil health through organic inputs like kelp and mulch.
- The management of under vine strips and the midrow is now viewed as an important part of our vineyard ecosystems,
- We are trialling native grasses and other nectar producing plants undervine and diversifying the mix of species planted in the midrow to improve soil structure and health and to attract beneficial insects into the vineyard.

Cellar door experience

The cellar door is an integral part of the EcoVineyards project as it gives us a great opportunity to convey to consumers the importance of biodiversity within our vineyards. We have incorporated native vegetation in the landscaping around cellar door to utilise this space as an insectary for the vineyard and to use it as an education tool.

We have linked the entrance to the vineyard through to cellar door and then onto the woodland area with Christmas bush/sweet bursaria, *Bursaria spinosa* at the end of rows and outcrops of native vegetation on the way.

Woodland

The woodland is the major planting in the EcoVineyards project and is a larger area with established trees. The understorey has been planted with 500 shrubs and grasses to create another area for insects, insectivorous birds, and reptile habitat.

It will also provide an opportunity for visitors to cellar door to interact with the nature through wine tastings in the woodland area and a nature play facility for families to enjoy.



Photos: a) Jen Venus in the nursery (Photo: Mary Retallack), b) initial driveway plantings with white guards, c) driveway plantings changed to green coreflute guards, the reeds and correas are doing well in this section d) raptor perch installed to attract predatory birds in the woodland area (Photos: Jen Venus)

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What did you do and when?

Stage 1: observing growth

We initially planted a small (50 plants) trial plot in September 2019 to gauge how different plants would survive in the vineyard environment.

This section was planted under a large gumtree at the entrance to Kimbolton wines. We were able to irrigate this area and it has been interesting to observe how the plants under irrigation survived compared to those that we were not able to be irrigated as regularly.

We also planted *Bursaria spinosa* at the end of the rows in one block in September 2019. None of the plants were guarded when we did the first planting as we wanted to see what might work without guards.

Stage 2: planting tube stock

After observing the initial plantings, we investigated other native veg plantings in the region, prior to purchasing a selection of plants in May - June 2020.

We purchased approximately 260 plants to replant the end of rows where some of the initial plantings had died and we planted around cellar door. We also planted another small area in the driveway with shrubs and reeds (in the flood prone area).

A second block was included in the program, and we planted *Bursaria spinosa* at the end of rows in that section (20 plants in House shiraz).

We spent a considerable amount of time cleaning up the woodland area in preparation for planting in winter 2021. The plants were guarded with white 'milk carton' style guards both at the end of the rows and around the cellar door and the driveway.



Photo above: The initial trial planting under the gum tree – the growth is very good as this area is watered regularly (Photo: Jen Venus)

Photo right: *Bursaria spinosa* planted at the end of rows in Mum's Monte block (Photo: Jen Venus)

What did you do and when (continued)?

Stage 3: planting the woodland area

In June 2021 we planted the main EcoVineyards planting. We did the final clean-up of the woodland area in May and planned out the structure for the long-term development of the woodland area for the benefit of the vineyard and to be a functional space for Cellar Door.

The area already had established trees, so we had to consider plants that would grow in shade with root competition. The plants for this area are all shrubs and grasses that will provide nectar and protection for insects and birds, plus it will provide an interesting and educational space for the cellar door.

In August 2021 450 plants were planted in the woodland area; all of these were protected with green corflute mallee tree guards.

Stage 4: more trials in the midrow and undervine area

This year we started trialling multispecies cover crops in the mid-row to start moving away from traditional triticale and rye corn. Native grass will be planted undervine in a small section of the vineyard this spring to investigate the best way to establish the grasses undervine in our situation.

In winter we are planting more natives at the end of rows in two more blocks. All of the white cardboard guards will be replaced with corflute guards and we are replacing 80 plants that have died in the woodland area. In addition to the replacements another 100 plants will be established to expand the current woodland planting.

A raptor perch supplied by Ocloc is installed near the wooded area. Microbat boxes have been installed near cellar door and in the wooded area. Signs have been added to help educate staff and visitor to the about the importance of biodiversity within our vineyard.





Before: Cleaning out the woodland area ready for planting in August 2021 and the end results, lots of native insectary understorey plants protected from rabbits using coreflute guards in November 2021 (Photos: Jen Venus)



After: The establishment of the native plant insect observation area to assess the habit and success of individual native plants prior to scaling up the plantings on the property established in May 2020 and then in November 2021 (Photos: Jen Venus and Mary Retallack)

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What worked well?

Supplementary irrigation in year 1

The planting around cellar door and the initial trial planting worked very well because we were able to irrigate those two sections easily. The first two years were very hot dry summers, and the sections we couldn't irrigate easily had a high plant loss.

This season the summer was much cooler, we used sprinkler to wet down the area in the woodland section which helped establish the plants better. The green corflute guards are much better than the white cardboard style guards.

What would you do differently/any pitfalls to avoid?

I underestimated the time it would take to plant and guard everything. I think it is easy to get carried away buying and propagating lots of plants without realising the effort required to plant and maintain.

Guards

We initially didn't use guards when we planted in 2019. The plants that were in the trial plot grew well but the plants at the end of the rows were sprayed with herbicide due to a change of operator who normally sprayed the undervine section.

In the second year (2020) we used the white cardboard guards because they were cheaper, easy to assemble and appear more environmentally friendly compared to the corflute guards.

We found the rabbits/hares ate the tops of the guards and the plants inside. They only just lasted a season and then they collapsed with winter rain. They seemed to blow off quite easily and after 6 months in the field they didn't look very good.

Plant performance

Some of the smaller more delicate plants - running postman in particular, did not establish well. There is significant bark litter in some sections, the grasses seem to really struggle with the excessive tree litter. The old man salt bush has been very slow to establish even though it is irrigated.

Record keeping

Trying to name everything and keep track of what is planted where is also very challenging. Not all the plants came with labels hence not everything was labelled when it was planted.



Photo above: Evidence of rabbit damage (Photo: Jen Venus)

Photo right: Nicole Clark checking the progress of *Bursaria spinosa* growth adjacent to strainer posts (Photo: Mary Retallack).

Highlights?

I have enjoyed learning about the native vegetation that is local to the Langhorne Creek region. To date I haven't seen any microbats but have been told by other growers in the region that there are reasonable numbers of them in Langhorne Creek.

Nature links and educational opportunities

The concept of linking vineyards in our region together through native vegetation strips, highways and corridors and providing information boards about the different species is fantastic for our region. I think there are lots of people (viticulturists and tourists) that are like me and would like to know more about our native vegetation, their names and how they interact with the native fauna but don't have time to learn. This is a really great way to introduce people to a few key species as they travel through the district.

Insectivorous birds

We are seeing increased numbers of blue fairy wren's and other small insect feeding birds in and around cellar door due to the increase in grasses and habitat for them to shelter in. Most of the plantings are still very young and I know we will see an increase in insects, bird and hopefully lizards as the stands become established.

What are you more aware of now?

We continue to look for opportunities within in the business to incorporate the EcoVineyards principles as we believe it is improving the vineyard and our overall footprint on the region.

We have a far better understanding of our local native vegetation and what is best suited to our region. We are more aware of ways to monitor and measure our progress and the importance of documenting our success stories.

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Where to from here?

We will continue to expand the plantings of native vegetation in and around the vineyard.

- We will also increase the mix of plant species in the mid-row cover crops and continue to trial and establish undervine swards.
- We are planning on doing a mix of exotic and native species in the mid-row to increase the length of flowering for insects to foraging and to improve the soil structure.

Stage 4 development will include the addition of a nature play area 50 m from the cellar door.

- This area will be utilised for family-friendly experiences which aim to showcase the native surroundings.
- It will also provide an opportunity to educate visitors to the region about the EcoVineyards project, plants, and the benefits of building natural resilience to insect pests in our vineyard.

Are there any knowledge gaps you would like filled?

It is like learning a new language, learning all the species names and where different species might be best suited in our situation has been time consuming.

I think planting native grasses in the mid-row and undervine is still very challenging on large vineyard and in many situations cost prohibitive due to lack of seed and availability of machinery to plant.

I would like more work on a blended approach of more commercially available species (exotic) that could bridge the gap until technology and supply catches up, to enable easier establishment of native veg within the vineyard.



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

Stepping back from our everyday vineyard operations and spending time assessing why and how we do things has been very beneficial for the business.

Continual improvement has always been a pillar of the vineyard operating principles and being able to bring science to the discussion around including more biodiversity within and around the vineyard has been extremely valuable.

“Change for just the sake of change is not always beneficial but change with a purpose with supporting evidence is beneficial to the overall business.”

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

It has made us realise how little we really know about the native vegetation and overall biodiversity within Langhorne Creek. It has put a focus back on making the vineyard part of the environment rather than a monoculture of just vines. The region has a significant ecosystem that is important ecologically and offers an educational story for visitors to the region and as a local we often take it for granted.

Is there anything else you would like to add?

We are only just dipping our toes in the water at this stage. I would like to have more information on ways we could bridge the gap between traditional methods of cereal cover crops and clean under vine strips with a diversity of plants not just natives.

I fully understand why natives have been the focus of the project and they need to be our end goal but often the cost and knowledge gap is a major barrier to adoption



Photos: Nicole Clark (left) checking the growth of native insectary plants and Jen Venus (top) in front of the native plant observation area (Photos: Mary Retallack).

Native plant list:

- *Acacia acinacea*, gold dust wattle
- *Acacia cupularis*, coastal umbrella bush
- *Acacia howittii*, sticky wattle
- *Acacia pycnantha*, golden wattle
- *Acacia rupicola*, rock wattle
- *Allocasuarina verticillata*, drooping sheoak
- *Arthropodium strictum*, common vanilla lily
- *Atriplex semibaccata*, creeping saltbush
- *Austrostipa stipiodes*, coastal spear grass
- *Bursaria spinosa*, Christmas bush or sweet bursaria
- *Callistemon rugulosus*, scarlet bottlebrush
- *Callistemon sieberi*, river bottlebrush
- *Callitris gracilis*, murray cypress pine
- *Chloris truncata*, windmill grass
- *Carpobrotus rossii*, pigface
- *Dianella revoluta*, black-anther flax-lily
- *Dodonaea viscosa*, sticky hop bush
- *Enchylaena tormentosa*, ruby saltbush
- *Goodenia ovata*, hop goodenia
- *Grevillea lavandulacea*, spider flower
- *Hakea vittate*, stripped hakea
- *Hardenbergia violacea*, native lilac
- *Ficinia nodosa*, club rush
- *Kennedia prostrata*, running postman
- *Leptospermum continentale*, prickly tea-tree
- *Leptospermum myrsinoides*, silky tea-tree
- *Microlaena stipoides* var. *stipoides*, weeping grass
- *Muehlenbeckia gunnii*, Macquarie vine
- *Myoporum insulare*, common boobialla
- *Pomaderris paniculosa*, scurfy pomaderris
- *Pultenaea daphnoides*, large-leaf bush-pea
- *Rhagodia parabolica*, fragrant saltbush
- *Rytidosperma* ssp., wallaby grasses
- *Themeda triandra*, kangaroo grass
- *Xanthorrhoea semiplana* ssp. *sempiplan*a, yacca



Expenses (cash and in-kind)

Grower: Kimbolton Vineyard		Region: Langhorne Creek			
Date	Activity	Number of plants	Grant cash expenses	Additional cash co-contribution	In-kind time captured
06/09/2019	Trees for Life - Xmas Bush @ \$2.50 each	25	\$ 62.50		
06/09/2019	Trees for Life - Yacca @ \$2.50 each	5	\$ 12.50		
08/04/2020	Brenton Tucker - Native Plants		\$ 320		
21/04/2020	State Flora - Tube stock		\$ 80		
09/05/2020	Provence Nursery	50	\$ 190		
30/05/2020	Kersbrook Nursery		\$ 352		
25/06/2021	Brenton Tucker - Native Plants (trees @ \$7 each)	116	\$ 812		
15/06/2021	Dept Environment and Water - tube stock	250	\$ 1,000		
15/06/2021	Dept Environment and Water - tree guards		\$ 512		
24/06/2021	Dept Environment and Water - tube stock	105	\$ 395		
24/06/2021	Dept Environment and Water - Plants	9	\$ 106		
24/06/2021	Dept Environment and Water - tree guards		\$ 123		
24/06/2021	Bush Tucker (4 kg)		\$ 35		
18/06/2022	Cooper Geue			\$ 1,367	
30/06/2020	Time to purchase plants, plant, and guard				20 hrs
30/06/2021	Time to purchase plants, planting, guarding, and watering				70 hrs
30/06/2022	Time to purchase plants, plant, and guard				70 hrs
30/06/2022	Trees for life plants			\$ 380	
TOTAL		560	\$ 4,000	\$ 1,747	160 hrs

Thank you to our project partners!



This project is supported by the Hills and Fleurieu 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.

The Ngarrindjeri people are the traditional custodians of the Langhorne Creek region and have an ongoing connection to the land.

Disclaimer

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For more info about the National EcoVineyards Program see www.ecovineyards.com.au

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