

Sustainable management on North Queensland Basalt

The Weir family are aiming for business sustainability by balancing people, pastures and profit.



'Amelia Downs' is located near Charters Towers, North Queensland. The property is owned by John and Prue Weir and is currently managed by their daughter Jane (pictured). The management philosophy at 'Amelia Downs' is to maximise natural resources while maintaining business costs at the lowest optimal level.

The Weir family focus on their grazing management as their foundation to running a viable business. Forage budgeting, rotational grazing, and KLR trading principles are the key tools used to run the most profitable business possible at 'Amelia Downs.'

The Weir family have been applying innovative management strategies since purchasing the property over fifteen years ago. After leasing 'Amelia Downs' to an external party for six years in 2006 the family have returned to the property, ready for the next era of opportunities.



Case Study Snapshot



Location: Charters Towers, 140km West of Townsville, North Queensland.

Property size: 21,000 hectares

Currently runs: 4000 LSU

Average annual rainfall: 600mm

Enterprises: Beef cattle trading and agistment

'Amelia Downs' is a North Queensland cattle station where grazing management underpins business profitability.

Achievements:

- ✓ Increased carrying capacity
- ✓ Business with low cost of production
- ✓ Healthy ecosystem with improved pasture quality and groundcover
- ✓ Flexible business model

Drivers of success:

- ✓ Ongoing education
- ✓ Business and financial literacy
- ✓ Diligent feed budgeting and monitoring
- ✓ Rotational grazing

Ideas for future innovations:

- ✓ Alliance between agriculture and conservation groups
- ✓ Electronic fencing
- ✓ Easy access to ongoing education and personal development

What makes this business sustainable?

In this operation there is a significant focus on managing business and environmental goals simultaneously. Jane states "balancing people, pastures and profit is our key to sustainability."

What makes this business sustainable?

- ✓ Low cost of production
- ✓ Ecosystem health is high
- ✓ Pasture quality and quantity is optimal for the land type
- ✓ Business model is adaptable
- ✓ Goal setting with diligent monitoring keeps the people and business moving forward

"Balancing people, pastures and profit is our key to sustainability."

There are three fundamental tools underpinning the management strategies at 'Amelia Downs.' These include rotational grazing management, regular feed budgeting and monitoring, and KLR trading principles.

The livestock at 'Amelia Downs' consists of trading and agistment enterprises. The trading enterprise involves regularly buying underpriced and selling overpriced cattle. They also manage agistment cattle to maintain consistent cashflow in the business. Gross margin analysis states these are the most profitable enterprises for this business.



The Weirs purchase all dry (non lactating) cattle where possible. This allows for ease of management and is most strategic for the nature of the land type. Basalt country is usually highly protein deficient during the dry season, so molasses supplementation is usually required to run breeding cattle on 'Amelia Downs.' Running dry cattle is a method of minimising these expenses in the business.

Brahman x Angus bulls are purchased to join with the cows in the trading enterprise. The Brangus breed is selected for marketability and fertility. The family purchase empty (non-pregnant) cows and join them with these bulls to increase the cow value when they are sold as Pregnancy Tested In Calf (PTIC). Cows that are PTIC to a Brangus bull have greater marketability in comparison to cows with high Brahman content progeny.

Currently, half of the property is under rotational grazing management which is where the Weirs run their cattle trading enterprise. The remaining half of the property is managed under continuous grazing with wet season spelling as this is most suitable for the agistment cattle that are run on this area of the property.

On average the property runs 4000 LSU (Large Stock Units) however this is a function of the rainfall received. When the property was initially purchased it was capable of running 2,300 LSU. By 2006 the Weir

family completed significant water and fencing development in order to implement time controlled grazing. This development increased their sustainable carrying capacity to 7000 LSU at times.

From 2006 and 2011 the Weirs leased 'Amelia Downs' to an external party which gave them the opportunity to pursue other ventures. The property went from time controlled and rotational grazing back to set stocking grazing for this period. The family have been back at 'Amelia Downs' for three years and are in the process of re-introducing a rotational grazing system. The system is less intensive in comparison to the time controlled grazing system in 2006, and has been adjusted to suit current resource and labour availability on the property.

Approximately one third of the property is watered from the Basalt River and W Creek which has been riparian fenced to avoid degradation. The remaining two thirds of the property are under a reticulated water system from numerous bores powered by solar pumps. The majority of this system is medicated with a Nutridose water medicator, which the Weirs are finding the water medication system to be a cost-effective method of delivering supplements to livestock.

The pasture on the property is a combination of native grass species; predominantly a variety of Blue-grasses, Black Spear grass, Kangaroo grass and Indian couch. There are also small amounts of Seca stylo, seasonal native legumes and annual grasses throughout the property. Over the last fifteen years the Weirs have noticed the following improvements in their ecosystem:

- ✓ Increase in carrying capacity
- ✓ Greater plant and animal biodiversity
- ✓ Increase in groundcover
- ✓ Better response to rainfall
- ✓ Increase in health and resilience of soil and pasture

“The business motto in these challenging times is ‘running skinny.’”

These observations show the Weirs that they are running an ecologically sustainable system despite the challenges of North Queensland basalt land type. This land type is known for producing very high quality feed in the wet season followed but rapid protein decline during the dry season, causing a variation in animal production. Trading and agistment enterprises allow the Weir family to effectively manage their livestock in a flexible manner, to maintain ground cover, pasture bulk and improve overall ecosystem health and resilience.

While the business is ecologically sustainable, Jane states that the business profitability is marginal at best due to current market conditions. Their business strategy is 'running skinny,' which means operating at the lowest possible cost of production without cutting necessary expenses or 'starving a profit into the business.' This low cost of production allows the business to be more resilient to changing external factors such as price received and market availability.

The Weir family also have a contract labour enterprise to complement the business. This allows 'Amelia Downs' to run with one full time staff member plus the assistance of a part-time backpacker and enables family members to increase cash flow through contract work outside the business. The family further stabilise their business by taking advantage of opportunities outside of agriculture, such as purchasing a motel in Katherine, Northern Territory. All of these strategies provide an economic buffer against the current challenges of northern beef production.

“It is important to be able to separate your land business from your cattle business.”

To run a sustainable business, the Weirs feel it is an important concept to separate the land business to their cattle business. Jane states “To be sustainable you need to determine if your land and cattle businesses are performing at their best. You need to know if running your own cattle provides you with the best return on your land. It could turn out to be a more profitable decision to agist other peoples cattle on your land, lease out your land or agisting your own cattle elsewhere.” Business sustainability is about knowing

the facts and figures behind this and being certain you have the correct enterprise options for your business.

In every business, the underpinning factor is people. At ‘Amelia Downs’ there is a focus on ensuring the people in the business are achieving goals and have opportunities to learn. They want everyone at ‘Amelia Downs’ to feel passionate about their work in the business and industry.

Overall, the biggest achievement in the business so far is seeing a degree of resilience to the changing seasonal and market conditions. The Weirs believe this is largely due to the way they manage their grass. The ecosystem improvements accomplished at ‘Amelia Downs’ are exciting, and the family are looking forward to what lies ahead.



Managing pastures is the key to business resilience

Motivations for change

When the Weirs began managing 'Amelia Downs' the land showed typical symptoms of continuous grazing management with minimal water infrastructure. Although the property was not significantly overgrazed the Weir's felt they could improve the grazing management further, as they observed overgrazing within close proximity of watering points and unutilised feed three kilometres away from water sources. There was also evidence of patch grazing and the land around the Basalt River and W Creek was heavily utilised.

"We knew sustainable management was the only way forward."

John and Prue saw the land in 'less than optimal' ecological condition, which is what motivated them to make changes. The driving force to create a rewarding and fulfilling business came when they learnt that applying regenerative grazing management practices would simultaneously improve their business bottom line. Jane states that her family could see the link between having quality grass and running a profitable business. "We knew sustainable management was the only way forward" she explains.

When the family purchased 'Amelia Downs' they were energetic and excited about the potential to develop water and fences. The family's first step towards sustainable management was receiving holistic management education when John and Prue completed RCS GrazingforProfit School in 1999. The couple then completed ExecutiveLink from 2001 to 2003. This ongoing education gave the family knowledge and support to make significant changes in their business. It provided them with an effective level of business and financial literacy, giving them strategic control over the direction of their operation. Jane also observed that having mentors and a support network gave her parents the courage to adopt innovative management practices.



The business gained momentum when they began developing land with water and wire as this enabled them to utilise more country and run larger numbers of cattle. By applying time controlled and rotational grazing techniques they were able to see significant improvements in ecosystem health and carrying capacity concurrently.

Over the years the family have not been without their share of obstacles. Like other

graziers, the Weirs have experienced the challenge of balancing profitability and sustainability in current market conditions. Jane states “The biggest light bulb moment for the family was when we comprehended what density and rest can do for the pastures, soil and production in North Queensland.” With profitability and ecosystem sustainability of equal importance to the Weir family, applying strategic grazing management seemed the best way to achieve a profitable and sustainable business.

The Weirs have been able to overcome challenges in their business by using knowledge from mentors and peers. Embracing change and variability is an important trait in the current industry situation. Jane states that “Change can be painful, but sometimes it is less painful than staying where you are.”

A real success point was when they could see they doubled their sustainable carrying capacity at 'Amelia Downs.' Achieving a low cost of production simultaneously was exciting because they knew these were key steps towards creating a resilient business. Jane states “It was rewarding when we started the time controlled grazing. We were taking cattle out of a paddock knowing we could put them back in again, because there so much grass remaining. This really helped in improving and maintaining groundcover year round.” These observations show the family their management practices are having a positive effect on the reef. They have observed water off 'Amelia Downs' is running clear through the boundary, as seen in the picture below.

“The biggest light bulb moment was when we comprehended what density and rest could do for North Queensland production.”



Any water that runs off 'Amelia Downs' is clear – a sign of good grazing management

Measured success at 'Amelia Downs'

The two fundamental principles with grazing management at 'Amelia Downs' is matching stocking rate to carrying capacity and giving plants adequate rest. Given that pasture is the underpinning factor in a grazing business, the Weirs believe it is critically important to measure changes in the ecosystem and have diligently completed pasture budgeting and Grazing Charts every month as decision making tools. Jane also uses fixed point photo monitoring and the Stocktake App to build on this knowledge which helps build accurate records that can be reviewed in the future. Jane states that "Feed budgeting is our most important

"Feed budgeting is our most important management tool."

management tool. The importance in feed budgeting however lies in ongoing monitoring, and knowing when to make adjustments on your estimates."

This grass budget underpins goals set for production and profitability for the year. Jane states the goal setting process is as follows: "Every season starts with a grass budget. It is the

biggest influencer in stocking numbers and plans for the year. Simply – no grass, no cattle, no cashflow. We also use past results to make this as accurate as possible. This allows us to confidently set up parameters for how many LSU's we can conservatively run in a year. We then work through a cashflow based on these expectations. This creates a framework for making decisions around agistment and trading. The grass and cashflow budget are monitored consistently throughout the year to make sure we are heading in the direction we choose." The Weirs use this process to keep the business on track and challenge themselves to think of new goals.

Prior to the Weirs management there were only twelve water points on 'Amelia Downs'. The family have added an additional sixteen water points which is what enabled them to double their carrying capacity at times. This water development has also had a significant role in easing grazing pressure surrounding natural water sources as well as reducing overgrazing and erosion. They have had contributions from Three Rivers Landcare for riparian fencing and additional water points which was beneficial.

The data in Figure 1 shows improvements that have occurred under the Weirs management at 'Amelia Downs'. Since early 2000 groundcover has been well maintained, despite the high variability in pasture growth on the basalt land type. The increase in the lowest 10th percentile line shows that the areas with the lowest groundcover (D condition areas) are becoming more like those with the highest groundcover (A condition areas).

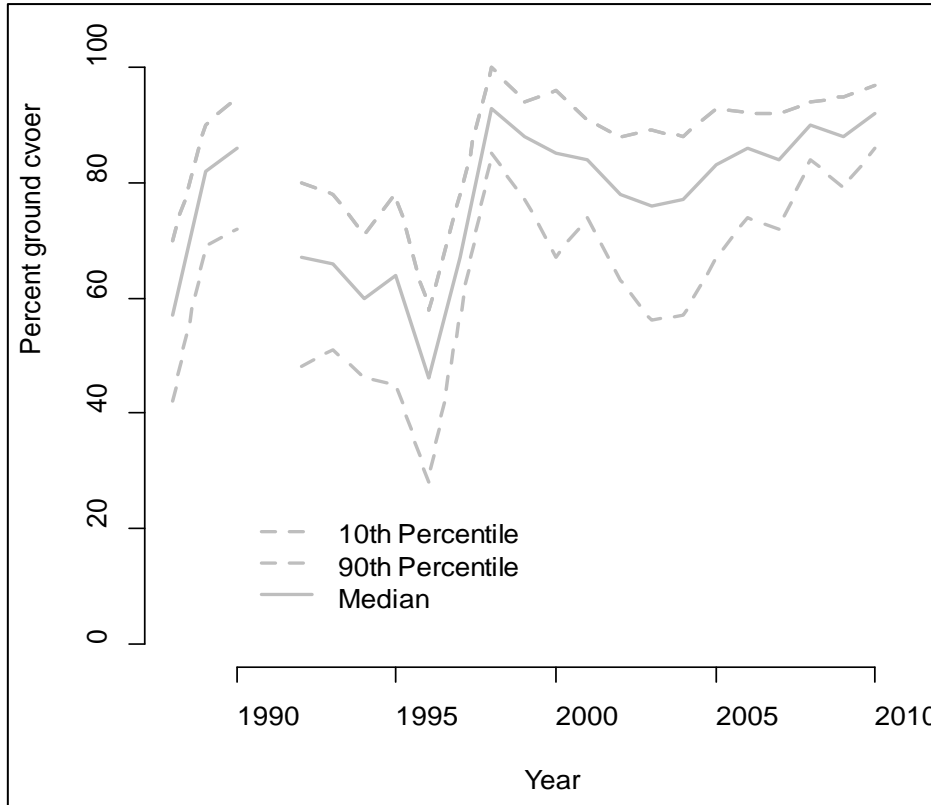


Figure 1 Groundcover trends at 'Amelia Downs.'

Figure 2 also supports the increase in groundcover highlighted in Figure 1. This data has been recorded by staff in the Department of Agriculture, Fisheries and Forestry (DAFF) as a part of the Q-Graze Project.

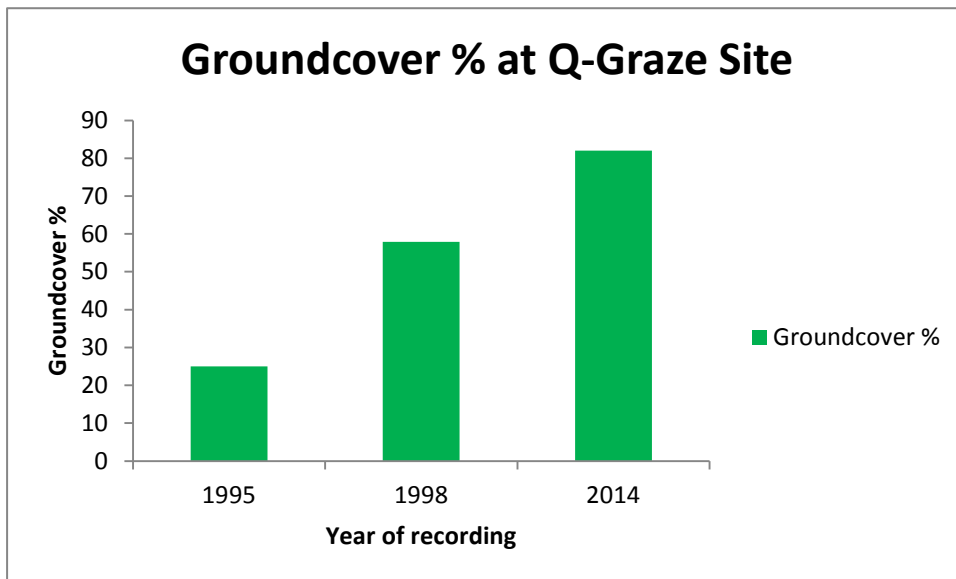


Figure 2 Groundcover at DAFF QGraze Site on 'Amelia Downs'



Figure 3 highlights the increase in carrying capacity over a seven year period, after the introduction of time controlled grazing, emphasising what is possible with strategic grazing management and property development. In 2004 'Amelia Downs' was sustainably running over 7000 LSU's.

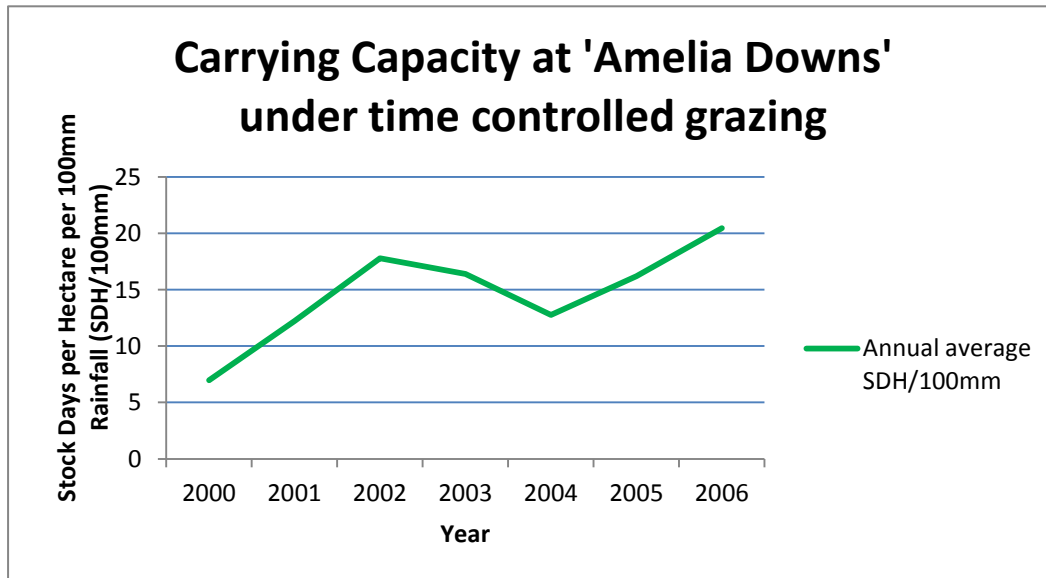


Figure 3 Increasing Stock Days per Hectare/100mm rainfall under time controlled grazing

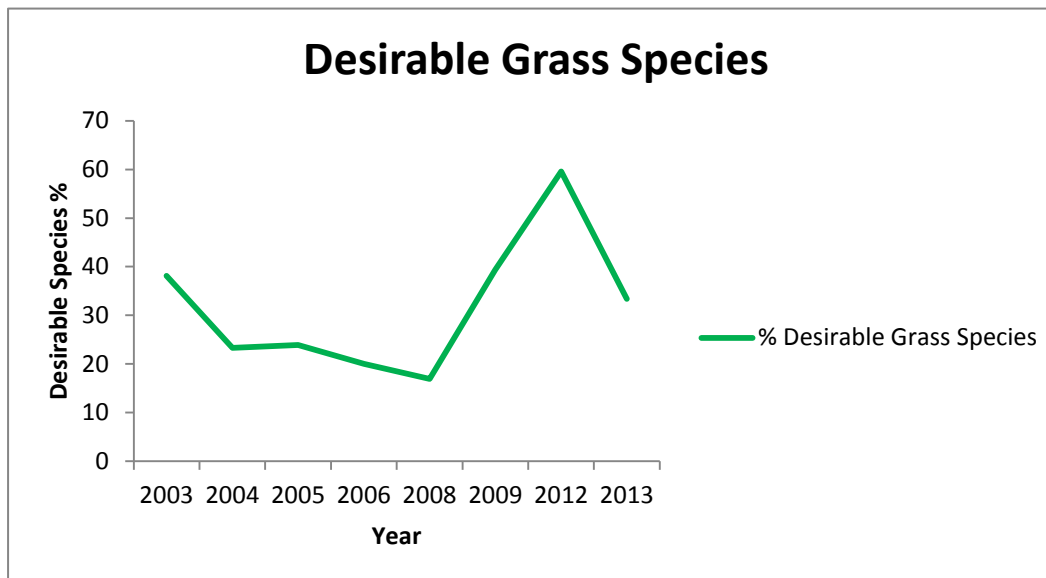
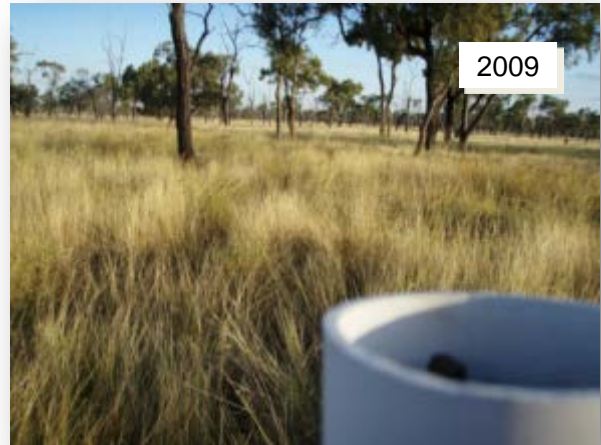


Figure 4 Change in desirable grass species over time at 'K Road' monitoring site



The photo series above is from 'K Road' monitoring site, which is the same site as Figure 4. This information shows that despite highly variable seasonal conditions it is still possible to consistently improve groundcover. Grazing paddocks strategically to encourage desirable species is what allows this to occur.

The increase in desirable grass species show the ecosystem is becoming more productive and resilient, as demonstrated in Figures 1 and 2. The data demonstrates the link between increasing ecosystem health and overall business profitability, which has been accomplished by managing stocking rate to carrying capacity and providing plants with rest. Developing the property with sufficient water to create a uniform grazing pressure has substantially improved groundcover, ensuring runoff into the Great Barrier Reef is significantly reduced on 'Amelia Downs'.

Innovations

Under the Weirs management there has been numerous innovations introduced at 'Amelia Downs.' Jane states "We have tried a lot of different things and have found it empowering." The biggest innovation for the area was time controlled and rotational grazing.

Other innovations include:

- ✓ Water medication
- ✓ Electric fencing
- ✓ Low stress stockhandling
- ✓ Brangus bulls
- ✓ Split enterprises (trading and agistment)
- ✓ Off farm investments
- ✓ Business outside of agriculture

Jane has suggested the following tools and technologies to assist graziers in achieving sustainable management:

- ✓ Electronic or GPS fencing. The ability to contain cattle to smaller areas without the cost of fencing infrastructure would be very efficient in converting the property back to time controlled grazing. It could also help other graziers' lower costs with implementing riparian fencing.
- ✓ Real-time ground cover mapping access to further monitor grazing patterns and grass usage.
- ✓ Increase in overseas refrigeration. That way Australia could still provide countries with beef that has been humanely produced and slaughtered as per Australian standards. This would minimise welfare impacts of live export but still create overseas markets.
- ✓ Faster genetic research and adoption of the homozygous poll genes to avoid dehorning.
- ✓ Co-ownership arrangements for large items of plant and machinery. This will allow graziers to have access to machinery that can be used for sustainable development but will require less capital to purchase. This could also encourage graziers to collaborate and share ideas.

In general, Jane also believes easy and affordable access to education, knowledge and personal development would help create broader minds for the industry. This will encourage the next generation of graziers to have a thorough understanding of innovation and sustainability. Rather than providing financial support to graziers the Weirs feel that subsidies would be better directed toward education in grazing and business management. Jane states "Financial assistance is not the best way to prevent or manage drought – knowledge is. We need to be honest about the industry we choose to be in, and realistic about the profit margins in our businesses. As an industry, we need to be open to change. When things aren't working in our business we try reflecting on why it's not working, and determine how we can change it. This has all come from education."

Looking ahead...

Jane believes the most exciting thing in the future at 'Amelia Downs' is the opportunity to renew the business and states "In a perfect world we would re-implement time controlled grazing again. In the short term, labour is a limiting factor but this is where we hope to move towards in the future."

"Financial assistance is not the best way to prevent or manage drought – knowledge is."

Future goals at 'Amelia Downs' are predominantly to increase the carrying capacity while maintain high quality pastures, good groundcover and consistent cashflow. Jane aims to increase the carrying capacity of the property from 12 SDH/100mm rainfall up to 16 SDH/100mm rainfall. To achieve this it would take careful pasture budgeting and management as well as a commitment of time, labour and resources. By increasing the sustainable carrying capacity they would also see an increase in the kilograms of beef produced per hectare at 'Amelia Downs' which will in turn boost profitability. Jane believes to achieve these goals it would involve "fully utilising the basics – in particular, Grazing Charts."

For the industry to be sustainable, Jane believes a united farmers group should represent agriculture, as she has noticed a current overrepresentation of agricultural groups, but no united lobby group with the political direction required to create a unified sustainable direction. The Weirs see the potential for farmers and conservation organisations to be working together. They've said "This would create better results than working in separate directions. We have formed a natural enemy where it should be a natural alliance – because we all want the same result."

Overall, the process of change is slow, but the Weirs feel the industry is moving in the direction of long term sustainability. They believe natural economics will play the biggest role in creating sustainable agriculture in Australia, as those who are not sustainable will not be able to afford to do business in agriculture. Jane says "If graziers do the right thing by their land, they are fulfilling their responsibilities to the wider ecosystem." The careful balance of people, pastures and profit are of equal importance to the Weir family, which is what provides their business with long term sustainability and resilience.