

Economic Case Study: CAM “Property B”

“Property B” is a 63,617 hectare rural property located within the Tambo South Collaborative Area Management cluster. The property contains approximately 100 kilometres of high integrity exclusion fence as part of the cluster. Situated within a historically significant sheep and wool producing area, the property has struggled to maintain sheep operation due to an increasing presence of wild dogs in the region.

Key Indicators:

Lambing ↑ by 79.4%
Predation ↓ by 78.6%

Cluster Background:

- The Tambo South CAM cluster encompasses 15 grazing enterprises across 225,573 hectares, utilising 347 kilometres of high integrity exclusion fencing. The cost of the cluster fence was approximately \$2,520,000 including materials and construction costs, of which, \$725,000 was subsidised through the Department of Natural Resources “Collaborative Area Management Phase One” project.
- The cluster fence has been fully completed since October 2015.
- Wild dogs have caused significant impacts to the profitability and productivity of the Tambo South cluster through predation, reduced lambing, live weight gain and wool yield.

Historical Performance:

Although once considered one of the strongest sheep and wool producing areas in Australia, sheep populations within the property significantly declined after 2008, in favour of cattle. Wild dogs have been present throughout the region since 2000, however the rapid increase in densities following 2011 accelerated the shift to cattle, with sheep populations declining by 45.72% between 2011 and 2014. Comparatively, cattle populations increased by 92.5% during 2009 and 2013. Prior to the cluster fence construction, sheep declined to only 33% of total livestock. Figure 1 below demonstrates the relative change in production types over time, but also shows the very early stages of an upward movement post the fence's completion.

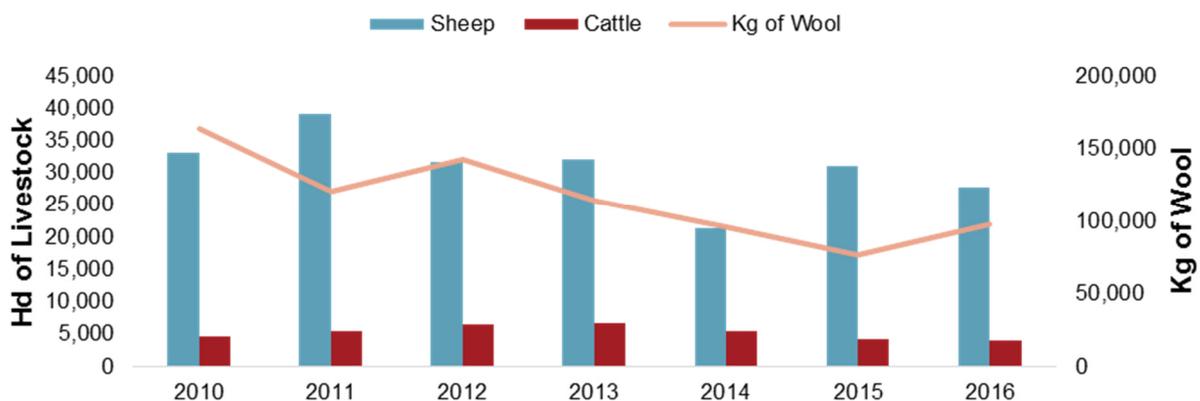


Figure 1: Change in Livestock Production 2010-2016

Consistent with the declining sheep populations, wool production reduced significantly when compared to historical performance, as evident in Figure 1 above. In 2012, the property produced 142,467 kilograms of wool, expensing \$277,114 in shearing and crutching costs. Comparatively, in 2015, the property produced 76,047 kilograms of wool, with a shearing and crutching cost of \$150,883 – a 45.6% reduction in labour used.

Historically, "Property B" lambing rates have remained consistently strong (subject to average rainfall) at approximately 75%. However, as demonstrated in Figure 2, in 2013 lambing marking reduced to 55.5% and further declined to 34% in 2014 as a result of heavy predation and stress by wild dogs. Based on 2014 sheep populations, the reduction in lambing rates resulted in an income loss of \$477,158 (at an average of \$100 per head), or \$190,863 in gross profit (based on a margin of \$40 per head).

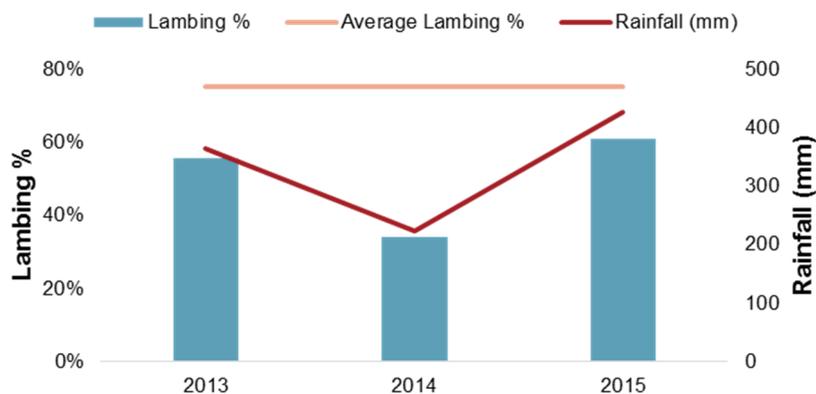


Figure 2: Change in Lambing 2013-2016 Compared to Long-term Average

Given the rapid increase in wild dog activity throughout the region since 2011, sheep losses on "Property B" increased from an average of 5% to 24% in 2014. As clearly demonstrated in Figure 3 below, the property experienced its highest number of sheep losses in 2013, with 7,599 sheep predated at an estimated value of \$759,900.

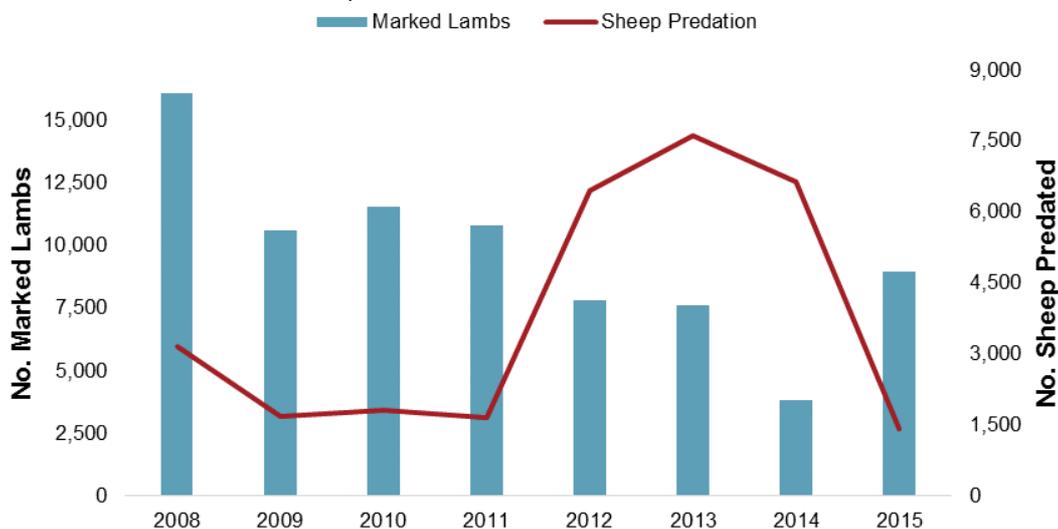


Figure 3: Decline in Marked Lambs Compared to Increases in Predation

The significant decline in lambing rates and increase in predation is estimated to have reduced production income by approximately 35.4%; resulting in significant pressure to serviceability of debt and ongoing business viability.

Changes Since Cluster Fencing:

Following the completion of the cluster fence in late 2015, the aggregation has witnessed significant productivity change. Although it is acknowledged that wild dogs are still present within the cluster area, implementation of the fence has resulted in a significant decline in predation and an increase to lamb marking. It is expected that as pests continue to be removed from the cluster area, impacts will further reduce, increasing productivity and profitability.

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Economic Case Study Continued...

During 2015, lamb marking has sharply increased by 79.4% from the previous year, to 61%. Whilst rainfall has also increased during this period, it is noted that lambing performance has previously remained strong in periods of reduced rainfall when wild dogs did not dominate the area as heavily.

Predation continues to occur due to the ongoing requirement to remove internal pests; however, 2015 predation data sheep losses have reduced by 78.6% since 2014. The reduction in predation ensures the business of approximately \$520,900 in livestock income, and an additional \$33,859 in shearing and crutching expenditure.

Because of a revived ability to stock sheep, cattle populations declined by 27.7% and sheep populations increased by 30.2% during the 2014 to 2016 period. Additionally, wool production increased by 21,893 kilograms (28.8%), resulting in an increase to regional benefit, through shearing and crutching labour, by \$30,492.

Long Term Potential:

Based on the property's long term carrying capacity of 68,000 Dry Sheep Equivalents (DSE), the property possesses significant opportunity to increase livestock production and profitability. Based on the already evident production benefits of Collaborative Area Management, it is expected that the property has strong potential to return to full carrying capacity.

Under a scenario of operating the property with 100% sheep at carrying capacity, sheep populations are expected to increase by 40,341 DSE from current numbers. Through an increase in labour demand associated with sheep and wool production, it is estimated that labour expense will increase by \$341,611 annually as a result of the employment of 5.05 full time workers, as demonstrated in Figure 4 below. It is expected the increased employment would facilitate an additional 5.7 families being located within the region. Total additional regional benefit is estimated to be \$658,530 (after a 1.5 times multiplier), as demonstrated in Figure 5 on the following page.

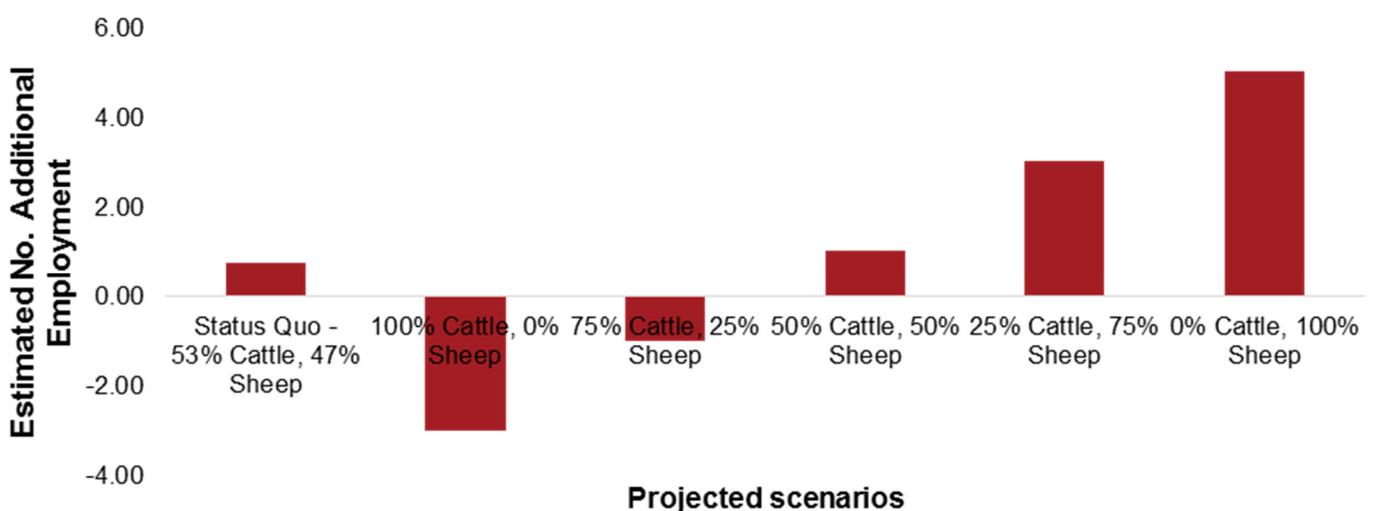


Figure 4: Estimated Additional Employment Across Multiple Scenarios of Livestock Composition after Implementation of the Cluster Fence.

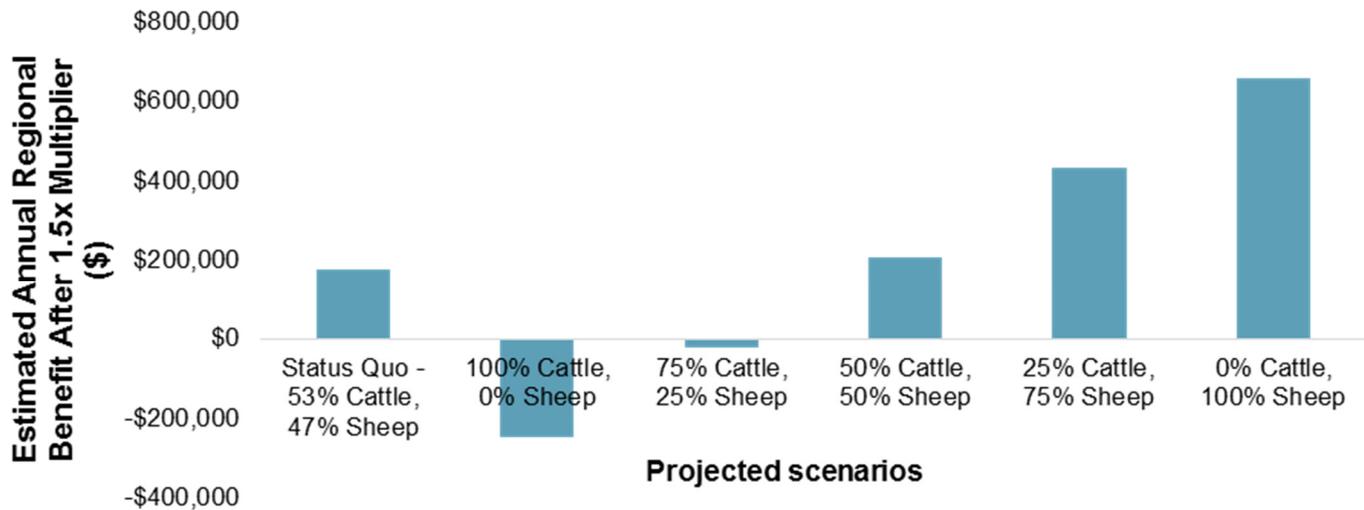


Figure 5: Estimated Annual Regional Benefit Across Multiple Scenarios of Livestock Composition after Implementation of the Cluster Fence.

Using an assumed gross margin of \$40 per DSE, the increased livestock production is forecasted to produce an additional \$1,613,640 per year. Based on the property's financial investment in the cluster's construction of \$569,841, it is expected that following a return to carrying capacity and average seasonal conditions, the initial investment cost would be paid back within 0.35 years. Completing a high integrity exclusion fence privately is estimated to have cost 134.5% more, increasing private pay back periods to 0.83 years.

Conversely, in the event the cluster project was not implemented and the property was forced to implement a 100% cattle production scenario, it is expected that labour expense would decrease by \$129,826 resulting in the loss of 2.98 full time workers and 3.37 families from the region. Under this scenario, it is expected that total regional benefit would be reduced by \$248,077 annually.

Without implementation of the cluster fence, it is estimated that sheep populations would reduce to 12% of carrying capacity within 5 years, based on 2014 predation rates.

Want to learn more about CAM?

→ Visit <http://www.southwestnrm.org.au/clusterfencing>, or get in touch with our CAM Project Manager, Jon Grant:

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