

Case study: Beef cattle

Managing frontage country and wetlands

David and Dianne Hood have been managing the Kirkton property in the Burdekin catchment since 2004 to improve beef production and enhance local wetlands. The property was in poor condition when purchased, partly due to drought, with degraded pastures dominated by weeds. They have been investing in new infrastructure to better manage the herd, allowing wet season spelling and weed control. This has led to improved land condition and better management of frontage country, with benefits to adjoining wetlands.

A vision for sustainable, profitable production

When the Kirkton property was purchased in mid-2004, the Hood family could see its potential despite the drought conditions, run down pastures, weeds and lack of infrastructure. They knew that good pasture management was the key to achieving their goal of a productive, sustainable grazing enterprise with minimal impact on frontage country and adjoining wetlands.

The limited fencing restricted opportunities for wet season spelling, pasture improvement and controlled burns for weed control. So they set about planning for new infrastructure by:

- reviewing existing paddocks and infrastructure
- prioritising areas for investment
- seeking advice and funding assistance.

About the property

- Managers David and Dianne Hood
- Kirkton property at Ravenswood, east of Charters Towers
- 40,000ha
- Breeding and turning-off weaners
- Fronts the Burdekin and Kirk Rivers, Barrabas, Elphinstone and Pandanus Creeks and other small creeks and wetlands
- Aim to improve pastures, production and wetland health through strategic fencing, wet season spelling and weed control.

The environment

With frontage to the Burdekin and Kirk Rivers and many other wetlands and creeks traversing the property, Kirkton possesses good water supplies and productive frontage country (the area extending from the river to the extent of the floodplain). However, these rivers and wetlands also provide management challenges:

- regular flooding
- introducing weeds from upstream
- mustering stock in creeks and rivers
- property boundary issues
- preferential grazing of frontage country leading to overgrazing
- access constraints during the wet season.

These rivers and wetlands, and the associated frontage country, require special management to sustain both the production and environmental values. Their proximity also highlights the importance of maintaining good land condition throughout the property to minimise sediment run-off into downstream rivers and wetlands.

'The frontage country along the Burdekin and Kirk Rivers is our best country,' said David Hood.



David Hood, Manager of Kirkton. Photo: DAFF

The management approach

Kirkton runs around 3300 breeders, with weaner steers transferred to a property in Central Queensland for fattening. The goal is to increase the number of male weaners transferred per year.

When the property was purchased in 2004, the pastures were in poor condition and were not providing enough nutrition to achieve the desired turnoff rates. The Hood family believed that to improve production they needed to better manage their pastures and the key to that was through good herd management.

They started spelling pastures where possible, but the level of fencing limited regular spelling. The lack of infrastructure also meant that frontage country could not be managed separately and this constrained its production potential and posed a risk of erosion and sediment run-off into the adjoining rivers and wetlands.

Advice was sought from grazing extension officers from the Department of Agriculture, Fisheries and Forestry (DAFF) and through their involvement with the local Dalrymple Landcare Committee they planned and implemented management changes.

Since 2005, a range of new management practices have been put in place to improve pastures, productivity and environmental management, as outlined in Table 1.

Pasture monitoring sites have also been set up with assistance from the Queensland Government and the Dalrymple Landcare Committee and regular monitoring has helped inform management decisions such as stocking rate, wet season spelling and controlled burns.

Table 1. The effect of a range of management practices implemented at Kirkton.

Management change	Results
<ul style="list-style-type: none"> Installed fencing to divide paddocks Pastures receive wet season spell at least every three years Improved water storage and distribution of watering points Established 1200 ha of improved pastures Controlled burns undertaken Pasture monitoring program implemented Environmentally sensitive areas fenced and managed 	<ul style="list-style-type: none"> Increased ability to manage stock and grazing distribution and evenness Increased pasture cover Good pasture response to rainfall More productive improved pastures Increase in native species, such as bluegrass and black spear grass Ability to accumulate fire fuel load for controlled burns providing more effective weed control Better protection of environmental values



Fences are integral to managing grazing at Kirkton. Photo: QDAFF

Fencing frontage country

The Kirk River runs through the property for around 25 kilometres before joining the Burdekin River. Twenty kilometres of this is fenced with laneways for mustering and is managed with wet season spelling. The junction of the Kirk and Burdekin Rivers was originally one large paddock and has been fenced to create three paddocks along the Burdekin. This was undertaken to allow each paddock to be wet season spelled in a three-year rotation. At around 2500 hectares, these paddocks were still too large to enable annual spelling, as placing all the stock into another part of the property places significant pressure on the other pastures, particularly in dry years.

The frontage country along the Kirk and Burdekin Rivers is valued for its productivity. The Hoods consider that subdividing each paddock is necessary to provide more control over the stock to maintain and enhance the production value of this country.

In 2010, one of the frontage paddocks was divided to create a new 570 hectare paddock along One Mile Creek to allow for:

- annual wet season spelling
- controlled burns for weed control (i.e. bellyache bush and rubbervine)
- better management of ground cover
- erosion prevention adjacent to the creek.

The new One Mile Creek paddock will be spelled each wet season after the first rains for at least six weeks and the full wet season when possible.

Creating this new paddock involved installing:

- over four kilometres of fence
- one tank, pump and two troughs for off-stream watering.

The project cost totaled \$24,000 for materials, labour and machinery. Almost half of this cost was offset by a grant.

What does this mean for the bottom line?

An assessment was undertaken of the economic costs and benefits of subdividing one of the Burdekin River frontage paddocks to create the new One Mile Creek paddock. A summary of the costs and benefits analysed and the assumptions is provided in Table 2.

An annual cost for the fencing and off-stream watering system was calculated by depreciating the initial capital outlay over the expected life of the asset.

The fencing will enable annual wet season spelling of the One Mile Creek paddock and an ability to accumulate fuel for a fire to control weeds. This is expected to improve pastures and lead to an increase in the long-term carrying capacity for the paddock. The pasture improvement is likely to take years to become evident and will depend on climatic conditions, impact of other grazers (i.e. wallabies) and weeds.

Supplements are a major cost to the business. In drought years, these can amount to over \$40 a head. The frontage country can be managed and utilised as a dry season or drought refuge which could reduce supplementation by at least \$5 a head.

The assessment shows that the cost of the fencing and off-stream watering is offset by the increased carrying capacity and cost savings, with a predicted net gain of \$2,735 per year.

The broader environmental and community benefits of preventing loss of topsoil, protecting wetland habitats and improving water quality, although not included in the analysis due to a lack of quantitative economic information, would add significantly to the overall benefit of the works.

The economic assessment is a partial profit budget and does not include a cash flow analysis. Therefore interest on capital outlay was not included.

Table 2. Economic costs and benefits of subdividing the frontage paddock.

Item	Details and assumptions	Annual cost (losses)	Annual benefit (gains)
Costs			
Fencing off new 570ha frontage paddock	Over 4km of barbed wire fencing, 500 metal posts, labour and machinery. Capital outlay (after funding received) \$7416. 20-year expected life to calculate annual depreciation.	\$820 (maintenance + annual depreciation)	
Install off-stream watering	Two water troughs, tank, pump, 400m pipe, labour. Capital outlay (after funding received) \$7290. 25 year expected life on trough and tank, 10-year on pump to calculate annual depreciation.	\$595 (maintenance + annual depreciation)	
Benefits			
Better pastures	Increased carrying capacity from 6ha/AE (11 months/yr grazing) to 4.8ha/AE (nine months/yr grazing) in new frontage paddock = two more heads @ \$650/head.		\$1579
Easier mustering	Save one hour of helicopter time per year @ \$420.		\$420
Save on drought feed/supplements	Use frontage paddock as dry season reserve and save \$5/head on dry season lick.		\$1500
Save on weed control	Grazing exclusion to allow for controlled burn every five years, save on herbicide and two people two weeks labour spraying bellyache and rubbervine.		\$652
TOTAL		\$1415	\$4151
Net position			\$2735
Increase in net profit over the initial capital outlay			16.08 %

What does this mean for the environment?

Managing frontage country as a separate and unique land type not only has production benefits and cost savings, but reduces impacts on local and downstream rivers and wetlands.

Fencing and managing frontage country with conservative stocking, wet season spelling and active weed control can have the following benefits to wetlands:

- maintain good ground cover (i.e. 60 per cent at the end of the dry season) minimising the risk of erosion and the loss of sediment
- more control over stock access to sensitive areas such as riparian areas or gullies meaning these areas can be actively managed to prevent erosion
- restrict stock access to wetlands when there is increased risk of degradation, e.g. isolated water holes are important refuges for wildlife but cattle urine and faeces can degrade water quality
- spell wetlands to allow plants to seed and wildlife to breed
- enhance opportunities for weed control, such as reducing stocking to enable controlled burns.



The ephemeral Barrabas Creek. Photo: QDAFF

Management challenges

Management of rivers and wetlands can be challenging where they form the boundary between properties. Downstream of the new One Mile Creek paddock, the 14 kilometre frontage to the Burdekin River is fenced along the high bank so that Kirkton cattle cannot access the Burdekin River. However, a lack of fencing along other parts of the river results in other cattle accessing the Burdekin River frontage on Kirkton. This uncontrolled grazing by other stock means that the riparian area cannot be managed as intended and this can result in overgrazing and weed problems.

This highlights the fact that management actions need an integrated approach and coordination between landholders and stakeholders. Incentives, such as funding, have an important role in supporting landowners to install infrastructure that will have broader benefits for wetlands.

Where to from here?

David and Dianne Hood aim to continue to subdivide paddocks to enable more control over grazing, annual wet season spelling and controlled burns in the frontage country to further improve production and manage environmental risks.

'Invest time and money in the best country first, as that has the greatest potential for improved pastures and returns,' David Hood said.

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For more information on managing frontage country in the Burdekin catchment, visit NQ Dry Tropics at: www.nqdrytropics.com.au

For more information, visit *WetlandInfo* at: www.wetlandinfo.ehp.qld.gov.au

The Queensland Wetlands Program supports projects and activities that result in long-term benefits to the sustainable management, wise use and protection of wetlands in Queensland. The tools developed by the Program help wetlands landholders, managers and decision makers in government and industry. The Queensland Wetlands Program is currently funded by the Queensland Government.

Contact wetlands@ehp.qld.gov.au

or visit www.wetlandinfo.ehp.qld.gov.au

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