



LAKE  
BAROON  
CATCHMENT  
CARE  
GROUP



# Projects 2011-12

## Upper Lawley Creek Restoration



CARING  
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OUR  
COUNTRY

Project No. 1112-002

# Upper Lawley Creek Restoration

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## PROJECT VERSIONS & APPROVALS

<b>Version</b>	<b>Date</b>	<b>Version/Description</b>	<b>Result</b>
1.0	7/3/2012	Draft Project Proposal	n/a
1.0	15/3/2012	Project presented to LBCCG Committee	Approved (Minutes 52.6.4)
1.0	19/3/2012	Project Proposal forwarded to Seqwater for approval (email)	Approved (B. Heck)

*Cover photo: Small waterfall on upper Lawley Creek.*

## TABLE OF CONTENTS

<i>i.</i>	<b>Executive Summary</b>	<b>4</b>
<b>1.0</b>	<b>Background</b>	<b>5</b>
<b>2.0</b>	<b>Rationale</b>	<b>6</b>
<b>3.0</b>	<b>Location</b>	<b>7</b>
3.1	The Bridge Creek Catchment	7
3.2	Land Use	9
3.3	Geology, Soils & Stability	10
<b>4.0</b>	<b>Water Quality</b>	<b>11</b>
<b>5.0</b>	<b>Purpose &amp; Objectives</b>	<b>12</b>
5.1	Targets	12
5.2	Outcomes	13
<b>6.0</b>	<b>Implementation</b>	<b>15</b>
6.1	Reaches	15
6.2	Project Overview	16
6.3	Fencing	17
6.3.1	Reach 1 (Lawley)	17
6.3.2	Reach 2 (Malter)	17
6.3.3	Reach 4 (Keton)	28
6.4	Weed Management	29
6.5	Revegetation	20
6.6	Community Awareness	20
<b>7.0</b>	<b>Alignment with Lake Baroon Catchment Management Plan (2007)</b>	<b>21</b>
<b>8.0</b>	<b>Budgets</b>	<b>22</b>
<b>9.0</b>	<b>Action Plan</b>	<b>23</b>
<b>10.0</b>	<b>Monitoring and Evaluation</b>	<b>24</b>
<b>11.0</b>	<b>Reporting</b>	<b>24</b>
<b>12.0</b>	<b>Authorisations</b>	<b>25</b>
<b>13.0</b>	<b>References</b>	<b>25</b>

### i. EXECUTIVE SUMMARY

**PROJECT TITLE:** Upper Lawley Creek Restoration

**PROJECT NUMBER:** 1112-002

**DATE:** March 2012

#### **PROJECT SUMMARY:**

The project will control weeds in remnant vegetation and fence and revegetate 270 metres (1 hectare) of Lawley Creek. We will address poor water quality in Lake Baroon (the Sunshine Coast's most important water supply) from grazing, erosion, sedimentation, urban development, habitat fragmentation, biodiversity decline and weed infestation. The project will be implemented over three adjoining properties with area mapped as Essential Habitat for threatened species by DERM (EPBC vulnerable Macadamia ternifolia and Syzygium hodgkinsoniae).

#### **APPLICANT/LANDHOLDER DETAILS**

<b>Names</b>	Ed Lawley	Marek Malter	Irene Keton
<b>Postal Address</b>	63 North Maleny Rd, Maleny, 4552	PO Box 240, Maleny, 4552	68 Palm St, Maleny, 4552
<b>Phone Numbers</b>			
<b>E-mail</b>			

#### **PROJECT / SITE LOCATION**

<b>Property Address</b>	63 North Maleny Rd, Maleny	66 Palm St, Maleny	68 Palm St, Maleny
<b>RP Numbers (Lot)</b>	SP117878 (8 & 21)	RP205196 (20 & 16))	MCH138 (46)
<b>Property Size (ha)</b>	59.71	9.51	21.23
<b>Existing Land-use</b>	Beef grazing	Beef grazing	Residential/beef
<b>Stock Carried</b>		100+	
<b>Sub-Catchment</b>	Bridge Creek	<b>Management Unit</b>	BR3
<b>M.U. Priority (LBCCG IP)</b>	<b>Low</b>	<b>M.U. Priority (Pollution)</b>	<b>High</b>

#### **PROJECT PARTNERS/STAKEHOLDERS & ROLES**

<b>Lake Baroon Catchment Care Group</b>	Project coordination, administration & reporting, monitoring & evaluation
<b>Commonwealth Gov't (Community Action Grants)</b>	Project funding (\$20,000)
<b>Seqwater</b>	Project funding (\$23,466 – Year 1 only)
<b>Barung Landcare</b>	Project funding (\$9,000)
<b>Sunshine Coast Council</b>	Project funding & support (\$2,600 – Year 1 only)
<b>Lawley/Malter/Keton</b>	Landowners, cost-sharing (\$8,525 – Year 1 only)

#### **PROJECT DETAILS**

<b>Project Start Date</b>	December 2011	<b>Project Completion Date</b>	June 2014			
<b>Revegetation</b>	3,200 plants					
<b>Fencing</b>	560 metres					
<b>Weed Management</b>	1 hectare					
<b>Community Events</b>	<b>Field Day</b>	1	<b>Field Walks</b>	2	<b>Volunteer Events</b>	2



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## **1 BACKGROUND**

Lake Baroon Catchment Care Group is an on-ground implementation, not for profit community group focussed on improving water quality in the Lake Baroon catchment. These aims are consistent with Seqwater's objectives of producing cheap, high quality potable water to the Sunshine Coast (and greater South East Queensland) region. Therefore the mutually beneficial partnership between the two organisations has been long-running and highly valuable.

Upper Lawley Creek is a project designed to address multiple environmental issues and hence fits the criteria of Caring for Our Country Community Action Grants program and the cornerstone of funding for the project.

This Project Plan details the objectives, methodology and implementation of the CAG funding and additionally attract further funding from Seqwater and support from Barung Landcare.

Lawley Creek drains approximately 280 hectares of catchment and is bounded by urban Maleny to the south, Bridge Creek Road to the west, North Maleny Road to the east and Rosella Road to the north. The confluence with Bridge Creek occurs just to the east of the bridge on Bridge Creek Road.

The project site is in the headwaters of Lawley Creek therefore the catchment is a mere 35 hectares, although this is misleading as urban Maleny, with its roads and hardened surfaces provide greater run-off than the catchment size suggests.

Lawley Creek – particularly downstream of the project site is one of the more protected and vegetated (although much of this vegetation is degraded by environmental weeds with arguable buffering ability) areas in the Lake Baroon catchment.

The upper areas of Lawley Creek are largely grazed. The project site represents a ‘gap’ in the riparian vegetation between bushland on the outskirts of Maleny and the remnant vegetation and bushland on the lower reaches of Lawley Creek.



*Left: Small, community-based projects have been occurring in upper Lawley Creek for many years.*

## **2 RATIONALE**

An estimated 80% of sediment and 35% of nitrogen in the waterways in South East Queensland come from non-urban diffuse loads. Reduction of these loads clearly represents a major target for action if significant improvements in water quality are to continue to be achieved in South East Queensland.

Modern agricultural activities have been identified as a major source of diffuse pollutants into waterways (Polyakov et al, 2005). Land management practices, such as stocking rates, grazing pressures, land clearing and the application of fertilisers have significant impacts on pasture and land condition. These practices can result in erosion processes, decreased infiltration of soils, and excess nutrient and sediment run-off, all of which impact on local water quality.

Diffuse pollutants are:

- Aggregated within a catchment; but delivered from sources dispersed throughout the catchment;
- Random in nature with weather playing a critical role in the process of pollutant delivery;
- Difficult to monitor on a continuous basis for a reasonable cost (Qureshi and Harrison, 2002).

Despite these barriers, evidence suggests there is an opportunity to reduce the contribution of non-urban diffuse source pollutants to prevent further water quality degradation throughout south east Queensland. Providing incentives for landholders to change management practices is one strategy to improve water quality (3).

Sediment generation identified from private agricultural land is considered to derive from 3 key sources of erosion:

- Hill-slope erosion is the wearing away of soil particles, chiefly by rain and water flows over the land instead of in channels. Although hill-slope erosion may occur on soil surfaces that are covered with vegetation, it is more prevalent on bare soil (SEQHWP, 2007)
- Gully erosion is the removal of soil along drainage lines by surface water run-off. It occurs when run-off concentrates and flows at a velocity sufficient to detach and transport soil particles, eroding channels (a concentrated flow path for water leaving a field or watershed) into a hill-slope (Ziebell and Richards, 1999)
- Stream bank erosion is the detachment of soil particles by concentrated flow paths occurring along stream bank channels. Stream bank erosion is especially prevalent where riparian vegetation is degraded (SEQHWP, 2007)

These three sources of erosion deliver a high level of sediments and nutrients to the waterways of south east Queensland. The velocity and volume of water delivery to major channel erosion sites, poor soil structure and land use disturbances are all causes of channel erosion throughout south east Queensland. The channel origin of the sediment means that attention needs to be directed to stream and gully stability, and the prevention of hill-slope erosion.

A survey examining barriers to the adoption of best land-use management practices by farmers concluded that economic barriers pose the biggest constraint (Slack-Smith, 2005). Investment in south east Queensland catchment management has historically been quite sporadic and not well targeted, especially in rural catchments (Faulkner, 2008). Cost effective investment, targeted at the most important non-urban diffuse pollutant sources throughout south east Queensland, is required to efficiently achieve a large reduction of sediment and nutrient loads with a limited budget (Olley et al., 2006).

(taken from: Department of Environment and Resource Management, *Development of a water quality metric for south east Queensland*, 2010)

### **3. LOCATION**

#### **3.1 THE BRIDGE CREEK CATCHMENT**

The Lake Baroon Catchment Implementation Plan 2007 describes the Bridge Creek sub-catchment is dominated by natural vegetation, though dairying and cattle grazing is a significant land use in several Management Units. The sub-catchment covers an area of 2,134 hectares and has a total significant stream length of 52 km. Approximately 43% of the sub-catchment has vegetation cover although much of this is significantly disturbed and degraded by environmental weeds.



*Figure 1: Bridge Creek has good riparian vegetation and displays excellent bed diversity and bank stability. The creek however is threatened by sediment loads entering the waterway through excessive erosion in the catchment – particularly in the headwaters.*

Bridge Creek has been divided into six management units that reflect property boundaries, physiography, vegetation, land use, point and diffuse source impacts, and administrative convenience.



*Left: Lawley Creek generally has a good coverage of riparian vegetation, however the upper reaches - on the edge of urban Maleny, have unrestricted livestock access.*

## Map S2.2.1 Subcatchments of the Lake Baroon Catchment

### Legend

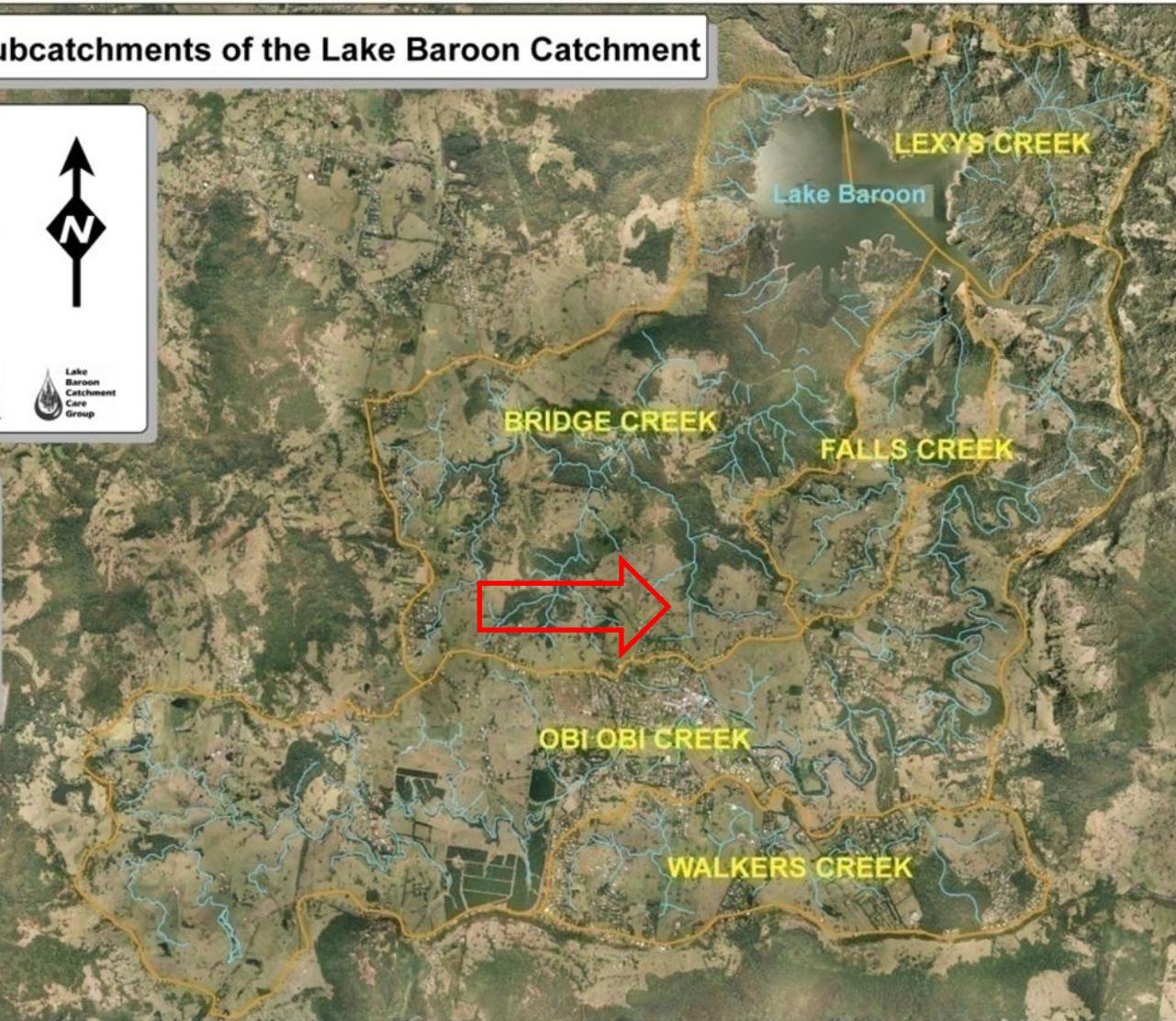
Streams

Catchments

0 1 2 Kilometers

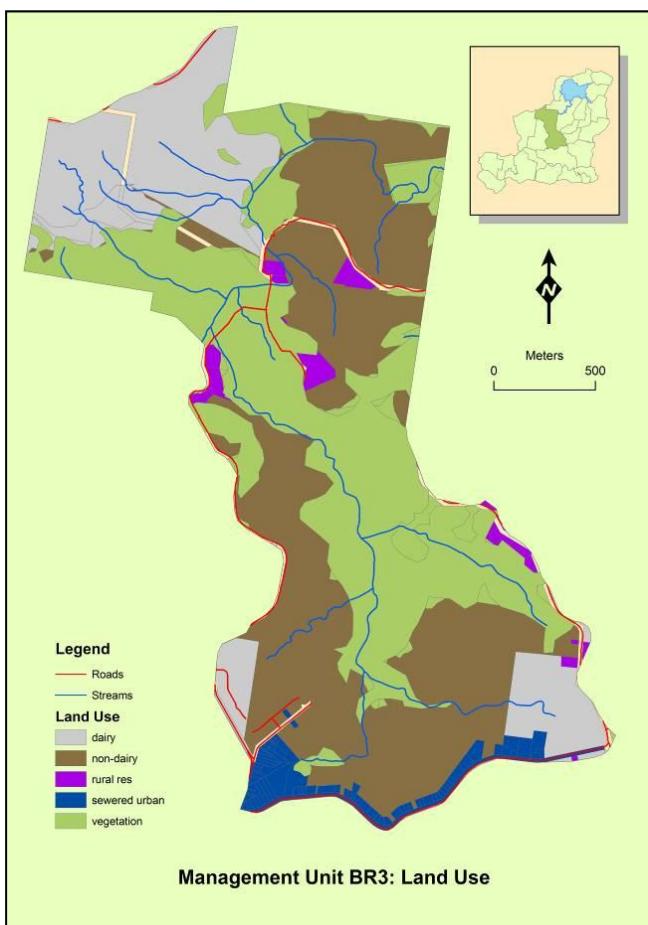


Burnett Mary Regional Group



Above: Lawley Creek is a tributary of the larger Bridge Creek catchment.

### **3.2 LAND USE**



The Lawley property is a commercially viable beef production enterprise running a minimum of 100 head of cattle. The Malter and Keton properties were previously used for dry dairy cow grazing although since the purchase of the Cork property by the Malter company both the Malter and Keton properties are now grazed by Ed Lawley on an agistment arrangement.

Although owned by three different landholders, the project is simplified by the fact that the entire project site is grazed by the one landholder (Ed Lawley).

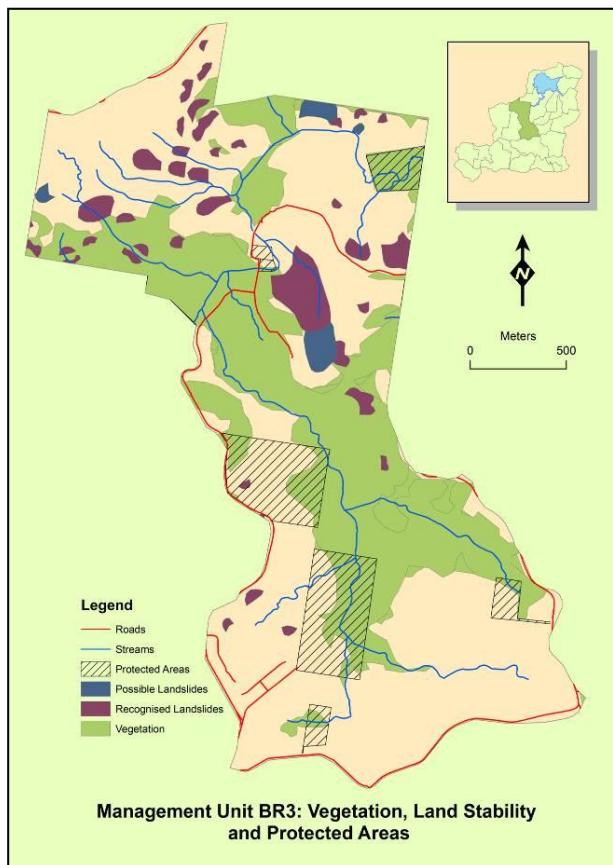
The upper Lawley Creek catchment is bounded by residential (urban Maleny) and rural residential properties.

*Left: Much of the MU is covered by vegetation although much of this is degraded by environmental weeds. The project will protect a 'gap' in riparian vegetation in the upper catchment.*



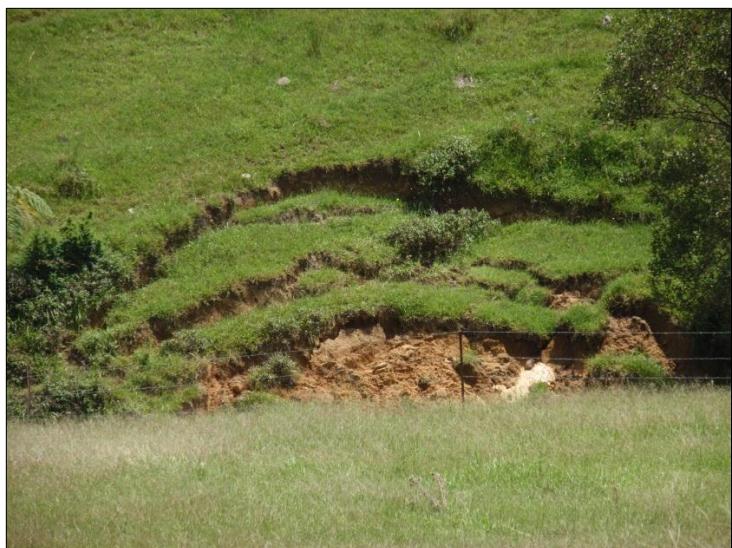
*Left: Waterways provide essential access to water for livestock however unrestricted access is detrimental to water quality.*

### 3.3 GEOLOGY, SOILS & STABILITY



*Above: The upper part of the MU is relatively stable – largely due to the presence of Red Ferrosol soils.*

combination of hill slope (paddock) erosion and gullying. Some sediment is likely having originated from development sites in urban Maleny (historically and currently).



The vegetation on these properties therefore would have originally been consistent with RE 12.8.3 – as evidenced by the existing small remnant on the Malter property and indicated by the riparian vegetation upstream of the project site.

*Left: Despite the project site being relatively stable, there are small areas that are subject to minor land slips.*

## **4 WATER QUALITY**

The proposed project is located within Management Unit BR3. This MU is 518 ha in size and has 14 km of significant waterways. The dominant land use in the MU is beef production. Riparian vegetation is present alongside 40% of the waterway length, a significant proportion of which has been landholder revegetation.

The relatively steep nature of the land, moderate instability (63% of land unstable) and lack of natural cover in some areas of the catchment means that there is high erosion potential, and minimal filtering of run-off, therefore inputs of nutrients are significant (70% of samples exceeding guideline levels).<sup>2</sup>

Pollutants entering Lawley Creek occur from three main sources. Diffuse run-off from traditional grazing practices provides nutrient inputs (animal manure and fertiliser application) and sediments from paddock erosion. Urban run-off with nutrients derived from fertilisers, car washing practices, heavy metals and hydrocarbons from road run-off, litter and organic matter. Also potentially sewer overflows (from the urban sewer system and individual wastewater treatment systems such as septic tanks) with high nitrogen, phosphorus and pathogens.

Water quality monitoring and analysis taken at the Bridge Creek crossing (Wells Road) shows, despite much of the catchment being vegetated, the catchment contributes significant nitrates, ammonia, phosphates, phosphorus and faecal coliforms.

### **Statistical analysis of the raw water quality data recorded from Bridge Creek**

<i>Parameter</i>	<i>pH</i>	<i>Turbidity</i>	<i>NOx (N)</i>	<i>NH3 (N)</i>	<i>PO4 (P)</i>	<i>Total P</i>	<i>Faecal Coliforms</i>
<i>(units)</i>	<i>(pH units)</i>	<i>(NTU)</i>	<i>(mg/L)</i>	<i>(mg/L)</i>	<i>(mg/L)</i>	<i>(mg/L)</i>	<i>(number/100 mL)</i>
<i>Guideline Value</i>	<b>6.5-8.2</b>	<b>&lt;25.0</b>	<b>&lt;0.040</b>	<b>&lt;0.010</b>	<b>&lt;0.030</b>	<b>&lt;0.030</b>	<b>&lt;100</b>
<i>Max</i>	8.2	85.6	0.316	0.166	0.068	0.335	1480
<i>Min</i>	6.7	0.6	0.000	0.000	0.001	0.005	0
<i>Mean</i>	6.9	3.6	0.059	0.026	0.023	0.043	233
<i>Median</i>	6.9	1.4	0.036	0.010	0.013	0.027	60
<i>Std Dev</i>	0.3	16.0	0.214	0.183	0.047	0.068	4627
<i>20<sup>th</sup> Percentile</i>	6.8	1.0	0.003	0.006	0.008	0.020	20
<i>80<sup>th</sup> Percentile</i>	7.0	2.3	0.118	0.040	0.041	0.050	390
<i>Count above GV</i>	0	1	23	24	17	22	20
<i>Count</i>	51	51	50	50	51	50	51
<i>% above GV</i>	0.00	1.96	46.00	48.00	33.33	44.00	39.22

## **5 PURPOSE & OBJECTIVES**

A healthy aquatic ecosystem is one that is stable and sustainable; maintaining its physical complexity, biodiversity and resilience. It has the ability to provide ecosystem services that provide good water quality, wildlife habitat and recreation.

### **5.1 OBJECTIVES & TARGETS**

- Project Objectives:***
- \* community benefit
  - \* environmental benefits
  - \* water quality benefits
  - \* demonstration of best practice
- Re-vegetation Objectives:***
- \* restore tree canopy with moderate diversity through revegetation
  - \* restore 90% canopy within 5 years
  - \* retain grasses between rows and in waterway channel until revegetation establishes
  - \* after 2 years encourage natural regeneration
- Community Awareness:***
- \* raise community awareness of the importance of natural areas and riparian zones and the potential impacts from urban areas
  - \* raise community awareness pesticide, herbicide and chemical impacts
  - \* raise community awareness stormwater impacts
  - \* raise community awareness weed management
- Target Condition:***
- \* stable waterway with erosion reduced to natural levels
  - \* 75% canopy closure (revegetation) in 3 years (90% in 5 years)
  - \* extend vegetation corridor by 620 metres
  - \* exclude livestock from 720 metres waterway
  - \* reduce targeted weed infestation by 90% with ongoing maintenance program
  - \* provide 1.5 hectares of new habitat; improve quality (by 25%) of 2 hectares of existing degraded habitat

## **5.2 OUTCOMES**

Healthy catchments lead to healthy waterways. Through the prioritisation and implementation of riparian protection and rehabilitation throughout rural catchments – particularly headwaters, we can provide multiple beneficial outcomes.

### **1. Reduce nutrient delivery to waterways.**

*Nutrient delivery to waterways is continuous and increases during episodic rain events.*

Vegetative buffers intercept run-off contaminated with excessive nutrients from diffuse rural and urban sources (stormwater).

### **2. Reduce sediment delivery to waterways.**

*Soil from erosion leads to high turbidity and is transported to Baroon Pocket Dam and beyond.*

Vegetative buffers stabilise eroding riparian zones and intercept run-off contaminated by sediments. Our project will re-establish riparian vegetation that will slow flows reducing erosive potential while capturing sediments.

### **3. Improve aquatic habitat.**

*Riparian vegetation plays a critical role in the creation and maintenance of aquatic habitats in freshwater ecosystems.*

Riparian vegetation provides shade, limits nuisance aquatic plant growth, provides vegetative inputs that serve as habitat and food, and provides bank and bed stability.

### **4. Raise community awareness.**

*The majority of land in the Lake Baroon catchment is privately owned and without landholder and community support activities improving catchment health and water quality is impossible.*

The project will demonstrate the importance of excluding livestock from riparian zones and the reestablishment of vegetation to improve water quality – both throughout the catchment and Lake Baroon. On-ground works provide the opportunity for land managers to apply their knowledge and experience at the local level whilst contributing to landscape scale outcomes increasing the skills in the community.

Several community events (Field Day, Field Walks and community tree planting events) will engage and skill the community.

### **5. Improve farm productivity.**

*Watercourses and riparian zones are difficult to manage in the farm management context.*

Excluding livestock from riparian zones and watercourses can improve the health of livestock (providing off stream watering that provides cleaner water and less disease), facilitates easier mustering and reduces the risk of injury through misadventure.

**6. Whole farm approach to property management.**

*Clear property management objectives that take into account environmental considerations lead to efficient and effective projects.*

All the landholders involved have clear Property Management Plans and property objectives to ensure all activities will be implemented in a permanent and cost effective manner.

**7. Reduce impacts of weeds.**

*Weed sources in the upper catchment contribute to the proliferation of weeds through seed and vegetative material.*

The project sits in the headwaters of Lawley Creek and through staged and comprehensive weed management will remove weed sources – particularly WONS lantana, and to a lesser extent local priority Camphor laurel, Privet and Chinese elm.

**8. Restore links between vegetation and create corridors.**

*Riparian zones provide wildlife corridors so that fauna can safely move from one area to another.*

The project will reinstate a link between the remnant vegetation on lower Lawley Creek and vegetation in the headwaters of adjacent to urban Maleny.

**9. Provide terrestrial habitat including ‘Essential Habitat’.**

*Riparian vegetation provides important habitat for the adult stages of aquatic insects and amphibious organisms such as frogs and turtles.*

The project will reinstate riparian and associated vegetation providing, in time, valuable habitat for a variety of native fauna. EPBC listed species will benefit from the enhancement and expansion of native vegetation.

**10. Reduce chemical delivery to waterways.**

*Improved water quality monitoring and analysis by Seqwater has identified pesticide and herbicide contamination in Baroon Pocket Dam.*

The project will reinstate riparian vegetation on 1<sup>st</sup> and 2<sup>nd</sup> Order streams adjacent to agricultural land (and urban Maleny) providing a buffer to pesticides and herbicides.

**11. Establish a healthy, diverse and resilient environment that will address climate change variability.**

*Future climate change impacts may impact on the survival of threatened and vulnerable wildlife, increase the occurrence of significant storm events leading to the degradation and decline in the environment and subsequently catchment water quality.*

The project addresses several of the key threats predicted by climate change. Ultimately the project will increase the resilience of the catchment to the impacts of climate change but importantly if climate change does not occur to the degree expected, the activities remain important to delivering improved water quality to Baroon Pocket Dam.

## **6 IMPLEMENTATION**

### **6.1 REACHES**

The project site has been split into sections (Reaches) that reflect the different management regimes, implementation activities, the values of the site and coincidentally the different ownership. The major activities can therefore be described as:

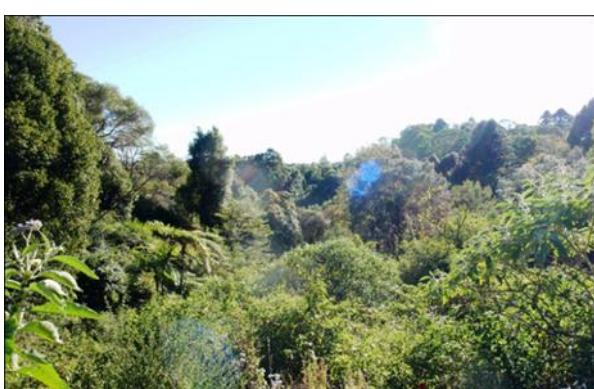
<b><i>Reach</i></b>	<b><i>Landowner</i></b>	<b><i>Major Activities</i></b>
1	Ed Lawley	Riparian fencing
		Revegetation
2	Marek Malter	Riparian fencing
		Weed management
		Revegetation
		Waterway crossing stabilisation
3	Irene Keton (Lawley Creek)	Weed management
		Vegetation/regeneration enhancement
4	Irene Keton (tributary)	Riparian fencing
		Revegetation



*Reach 1: Lawley*



*Reach 2: Malter*



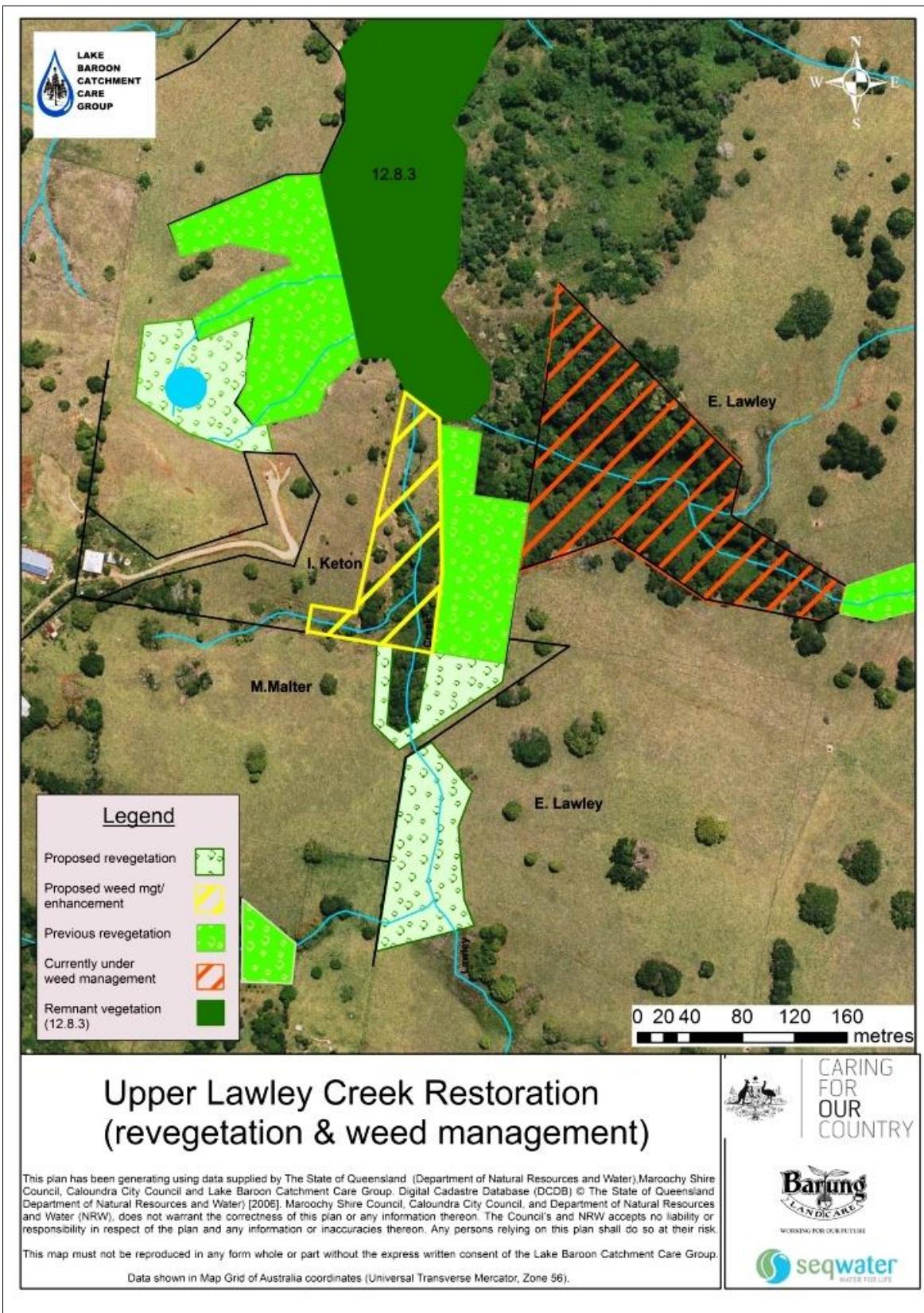
*Reach 3: Keton*



*Reach 4: Keton*

## Upper Lawley Creek Restoration

### **6.2 PROJECT OVERVIEW**



*Above: Project Overview - proposed on-ground works.*

### **6.3 FENCING**

Various fencing types will be used on the project site with the primary aim to exclude livestock from revegetation and riparian zones.

#### **6.3.1 REACH 3 (Lawley)**



The Lawley property extensively uses electric fencing to manage grazing and therefore fencing of Reach 3 will consist of electric.

Approximately 230 metres of fencing will be required.

*Left: Already fenced on one side the Lawley fencing will be completed by the landowner.*

#### **6.3.2 REACH 2 (Malter)**

Ideally fencing on Reach 2 will be semi-permanent electric fencing as eventually it is expected livestock will be permanently excluded from the property. A power source for electric fencing would have to be either a quality solar energiser or tap into the Lawley electric fencing which is currently being used on the property to create grazing cells allowing rotational grazing.

The current livestock waterway crossing will be retained as it is positioned on stable bedrock and will require minimal modifications – other than the installation of double gates on both sides of the waterway to provide an adequate watering point.



*Above: Temporary electric fencing to protect natural regeneration from livestock.*



*Above: Natural crossing to be retained.*

### 6.3.3 REACH 4 (Keton)

Fencing on Reach 4 will include an already fenced spring-fed dam. The dam spillway and watercourse suffers from livestock access resulting in highly turbid and contaminated water leaving the site and entering Lawley Creek (and subsequently Bridge Creek).



*Left: Reach 4 fencing will include a dam – in particularly the dam's spillway.*



*Left: The dam's spillway is degraded by livestock access.*

## **6.4 WEED MANAGEMENT**

Major environmental weeds that pose a serious and immediate threat due to their ability to alter the structure and composition of a plant community over time, or inhibit natural regeneration will be targeted for management. These include, but are not limited to:

<b>Weed Species</b>	<b>Botanical Name</b>	<b>Occurrence/Distribution</b>
Camphor laurel	<i>Cinnamomum camphora</i>	Isolated individual trees throughout Reach 1 and 2. Large established trees throughout adjacent paddocks planned for removal in future.
Lantana	<i>Lantana camara</i>	Minor patches mainly throughout the upstream end of Reach 1.
Small-leaf privet	<i>Ligustrum sinense</i>	Moderate infestations throughout Reach 1 and 2 with a clump of approximately 15 individuals in Reach 3.
Large-leaf privet	<i>Ligustrum lucidum</i>	Isolated individual trees scattered throughout Reach 1 and 2.
Chinese elm	<i>Celtis sinensis</i>	Uncommon – identified as small isolated individuals in Reach 2 – likely to be present in Reach 1. Targeted as a high priority ‘sleeper’ weed in the Lake Baroon catchment.

The key aim of the woody weed management phase is the promotion of natural regeneration.

Woody weed management will be implemented initially over an eighteen month period to ensure a gradual opening of vegetation canopy allowing the gradual replacement of weeds with native vegetation without greatly increasing the maintenance of the site.

Follow up woody weed management (from eighteen to thirty six months) will be regularly performed to ensure weeds do not re-establish or new weeds appear and establish.



*Left: Large leaf privet in Reach 2 is degrading the small patch of remnant vegetation. This privet will be removed gradually to reduce maintenance but still allow both natural regeneration and assist in revegetation establishment.*

## **6.5 REVEGETATION**

Final species selection and numbers will be determined immediately before planting and will be largely influenced by availability of tube-stock.

Species will be consistent with RE 12.8.3, except for the possible use of Water gum (*Waterhousia floribunda*) and several ‘pioneer’ species not strictly appropriate for the site (availability will dictate selection along with frost sensitivity).

<b><i>Reach</i></b>	<b><i>Landowner</i></b>	<b><i>Plant Numbers</i></b>
1	Ed Lawley	1,500
2	Marek Malter	500
3	Irene Keton (Lawley Creek)	0 (may be enhancement planted in future)
4	Irene Keton (tributary)	1,200
<b><i>Total</i></b>		<b><i>3,200</i></b>

## **6.6 COMMUNITY AWARENESS**

The local community will be involved in a series of planned events. Volunteers will be invited to participate in the planting of the site – one event for Conservation Volunteers Australia volunteers and a separate event for local community. This will assist in the building of community capacity and improve the knowledge and skills of the community.

A Field Day will be conducted at the conclusion of the project’s implementation. The Field Day will address water quality decline in the catchment, the degradation of remnant vegetation, weed spread, vegetation fragmentation, urban pollution impacts on waterways, erosion and sedimentation.

Furthermore a minimum of two Field Walks will be conducted for the LBCCG Committee, Seqwater staff and other major stakeholders to view the progress of the project and provide demonstration opportunities – including a planned walk from the project site to the confluence of Lawley Creek with Bridge Creek.

Promotion of the project will be achieved through newsletter articles and a minimum of one Media Release.

## **7 ALIGNMENT WITH LAKE BAROON CATCHMENT IMPLEMENTATION PLAN**

The project's outcomes are consistent with the Lake Baroon Catchment Implementation Plan (2007) which takes into account the Burnett Mary Regional Group Country to Coast: A Healthy Sustainable Future management actions.

<b><i>LBCIP Activity Theme</i></b>		<b><i>Implementation Activity</i></b>	<b><i>BMRG Program</i></b>
On ground	OG1	Develop on ground works for water quality improvement and aquatic biodiversity maintenance & improvement	Water Quality & Equitable Use
			Biodiversity Conservation
Weeds & pest management	WP1	Weeds and Pest Management	Weeds & Pest Management
Stormwater	SW2	Support development of best practice stormwater management within Maleny township	Biodiversity Conservation
Catchment management	CM1	Develop a program where by all landholders involved in on ground activities initiate PMP's as part of application process	Biodiversity Conservation
Catchment management	CM2	Property Management Planning Toolkit	Sustainable Use
Catchment management	CM3	Weeds toolkit	Community Capacity and Partnerships
Catchment management	CM4	Adoption of BMP for point and concentrated diffuse pollution	Community Capacity and Partnerships
Catchment management	CM6	Community involvement	Community Capacity and Partnerships
Catchment management	CM7	Stakeholder Survey	Community Capacity and Partnerships
Catchment management	CM8	Transition in NRM practice	Community Capacity and Partnerships
Catchment management	CM11	Industry involvement in NRM	Community Capacity and Partnerships
Catchment management	CM12	Training and skilling stakeholders in NRM	Community Capacity and Partnerships
Monitoring & research	MR1	Water quality hotspots	Water Quality & Equitable Use
Monitoring & research	MR5	Identification of point and concentrated diffuse pollution	Water Quality & Equitable Use

## 8      BUDGETS

*LBCCG has a policy of keeping Project Budgets confidential as individual project costings vary and can give misleading information.*

*Detailed Budgets can be supplied on request. Please contact the LBCCG Project Manager on (07) 5494 3775 for further information.*

## **9 ACTION PLAN**

	Action	Responsibility	Start Date	Completion Date	Measurable Output
	Community Action Grant application	LBCCG Coordinator	Jul 11	Jul 11	Project grant
	Project Proposal	LBCCG Coordinator	Nov 11	Feb 11	Project Plan
	Project presented to LBCCG Committee for approval (includes Seqwater rep.)	LBCCG Coordinator & Committee	Jan 11	Feb 11	n/a
	Pre-works monitoring (including photo points)	LBCCG Coordinator	Nov 11	Dec 11	Photo & data set
PROJECT IMPLEMENTATION	Temporary electric fencing	Landholder	Sep 11	Dec 11	n/a
	Revegetation Stage 1	Contractor	Dec 11	Dec 11	1,500 plants
	Permanent fencing	Landholder/ Contractor	Jan 12	Jun 12	520 metres
	Off stream watering	Contractor	Jan 12	Jun 12	1 trough
	Weed management	Contractor	Jan 12	Jun 13	1 hectare
	Revegetation Stage 2 (volunteer events)	CVA Community	Mar 12	Apr 12	500 plants
	Revegetation Stage 3	Contractor	Apr 12	Jun 12	1,200 plants
	Field Walks	LBCCG	Apr 12	Jun 13	2 Field Walks
	Field Day	LBCCG	May 13	Jun 13	1 Field Day
	Quarterly progress report.	LBCCG Coordinator	Mar 12	Mar 12	Progress Report
	Post-works monitoring.	LBCCG Coordinator	Jan 12	Dec 14	Photo & data sets
	On maintenance Report (on-ground works completed & inspected for compliance with Plan)	LBCCG Coordinator	Jun 12	Jun 12	On Maintenance Report
	Continuing quarterly progress reports.	LBCCG Coordinator	Jun 12	Sep 14	10 Progress Reports
	Project completed/signed off. Final Report.	LBCCG Coordinator & Committee	Dec 14	Dec 14	Final Report

**Note – the Project Action Plan will be used as the basis for Quarterly Reporting**

## **10 MONITORING & EVALUATION**

Monitoring and evaluation strategies are essential components of any environmental rehabilitation project. Evaluation is the best way to improve our knowledge about what works, what doesn't and how we can best direct our rehabilitation efforts. Monitoring strategies are key components of the overall evaluation process that allows you and others to learn from the project and assess whether rehabilitation aims have been met.

Photo point monitoring will provide valuable evidence of works completion, a record of changes over time, and provide an important assessment tool to evaluate the project.

Furthermore, monitoring results and information will be used to:

1. Raise awareness and encourage further remediation works with priority landholders (primary producers and large landholders in the Lake Baroon catchment).
2. Promote cooperative projects between Lake Baroon Catchment Care Group, Seqwater, and other Natural Resource Management organisations.
3. Critically examine techniques and methods used throughout the project to continually improve the service to landholders conducting on-ground works in the catchment and improve best practice management.
4. Develop cost-effective strategies and techniques to perform on-ground activities.
5. Continue to develop monitoring and evaluation program that meets the requirements of funding bodies, but also provides the relevant information and feedback to the LBCCG and Seqwater to improve project delivery.

Monitoring of rehabilitation activities, particularly the laneway rehabilitation component will be split into periodic and episodic monitoring.

Periodic monitoring is important to measure the effectiveness of the activities over time and will occur on a quarterly basis by LBCCG with assistance from the landholder.

Episodic monitoring will occur following significant storm/rainfall events and will check all project activities - particularly the laneway integrity.

## **11 REPORTING**

Reporting on the progress of the project is an essential component of delivering successful on-ground outcomes. Therefore the following reporting schedule will be implemented to ensure all stakeholders are informed in a comprehensive and timely way.

<b>Report</b>	<b>Recipients of Report</b>	<b>When</b>
Progress Reports (presentation & brief summary).	LBCCG	Monthly
Progress Reports (written report). Based on Project Action Plan (see above)	LBCCG Seqwater Stakeholders	Quarterly
On Maintenance Report	LBCCG Seqwater Stakeholders	On-ground activities completed (excluding maintenance).
Final Report (includes evaluation & further recommendations for project)	LBCCG Seqwater Stakeholders	Completion of project

## **12 AUTHORISATIONS**

<b><i>Role</i></b>	<b><i>Individual</i></b>	<b><i>Organisation</i></b>
<b>Project Sponsor</b>	Tim Odgers	Seqwater
<b>Project Owner</b>	Peter Stevens	LBCCG
<b>Project Committee</b>	<i>TBC</i>	LBCCG
	<i>TBC</i>	LBCCG
	<i>TBC</i>	LBCCG
<b>Project Manager</b>	Mark Amos	LBCCG

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