

## Trevethan Creek Wildlife Corridor

Tropical Rapid Appraisal Of Riparian Condition (TRARC) Survey Results 2011



*Report prepared by Samantha Hobbs – Project Officer South Cape York Catchments: Survey work conducted by Samantha Hobbs and the Nyungkal Rangers*

A riparian condition assessment was conducted at Trevethan Creek on the 15<sup>th</sup> February 2011 in order to assess the health and prioritise management of the riparian zone. The Survey was conducted before wildlife corridor works such as revegetation, weed removal, cattle fence construction and fire breaks have commenced. The results of this survey will be used to prioritise the above mentioned works and will be compared with surveys conducted along the same Transects one year after the various works have been completed.

Two 100m transects were chosen one being in a fire effected area (T1) point A Lat 15°39'55.8 Long 145°16'45.9 the other being in a non fire effected area (T2) point A Lat15°39'56.0 Long145°16'42.2 The two areas were compared and contrasted, where T2 will serve as a baseline or aim for T1.

The survey was conducted in accordance with the Tropical Rapid Appraisal of Riparian Condition Version 1 (for use in Tropical Savannas River and Riparian Management Technical Guideline Number 7 August 2006 (Dixon, I *etal* 2006).



Photo: T1 from the river edge

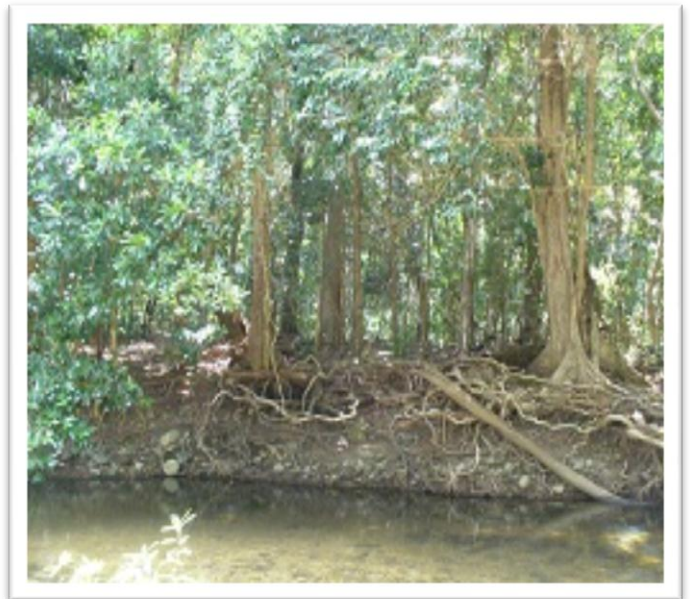


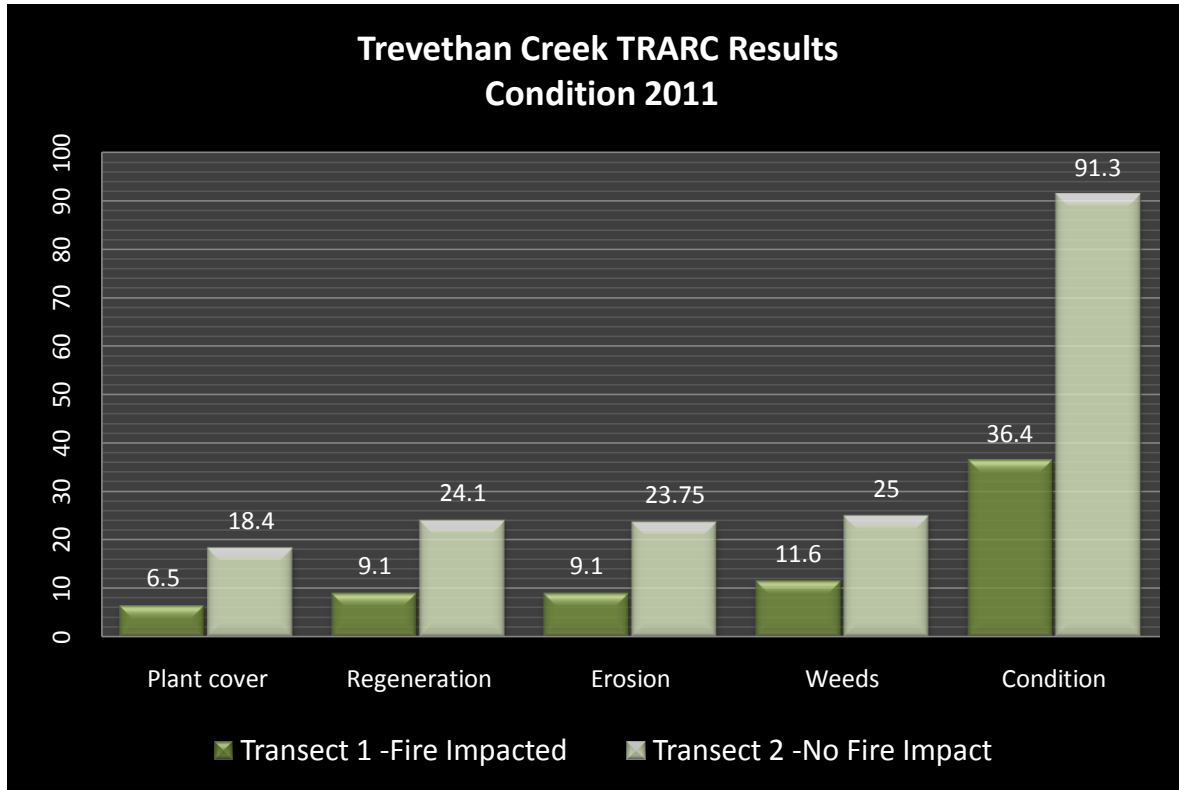
Photo: T2 from the river edge

# Trevethan Creek Wildlife Corridor

Tropical Rapid Appraisal Of Riparian Condition (TRARC) Survey Results 2011



## Results: Condition



**Figure 1:** Shows Results for T1 & T2 Indices leading to the General Condition score

Please Note the entire indices (Plant cover etc) have a maximum score of 25 and General Condition has a maximum score of 100, the higher the score the better the condition.

The ratings for the condition score are as follows: (Dixon, I *etal* 2006).

Score	General Condition Rating
<b>80-100</b>	Excellent or A
<b>65-79</b>	Good or B
<b>50-64</b>	Average or C
<b>0-49</b>	Poor or D

Score	Indices Score Rating
<b>20- 25</b>	Excellent or A
<b>16.25 - 19.75</b>	Good or B
<b>12.25 - 16</b>	Average or C
<b>0 - 12.25</b>	Poor or D

# Trevethan Creek Wildlife Corridor

Tropical Rapid Appraisal Of Riparian Condition (TRARC) Survey Results 2011



Photo: T1 Looking down transect



Photo: T2 looking down transect

## Methods and Discussion:

Transects 1 & 2 are both 100m long and all measurements were taken at three points along the transect. Point A being at ground zero point B being at 50m and point C at 100m. All assessments are visual 10m either side of the points.

### Plant Cover:

The plant cover index measures a number of sub indices including: Canopy cover, of trees and shrubs > 5m tall. Canopy continuity, how much of the whole transect has a continuous canopy with gaps > 5m. Midstory cover % of shrubs and small trees between 1 -5m. Understory cover % of Shrubs Sedges and Herbs < 1.5m. Grass cover, % of grass cover. Organic litter, % of cover of leaves and branches <10cm in 5x5m square. Logs, number of logs and large logs present along the 100m transect's. T1: Received a score of 6.5/25 a rating of poor, compared to T 2: where a score of 18.4/25 or good was received. The score indicates T1 is severely lacking in plant cover that needs to be increased. And in T2 the health of the Riparian area could be suffering slightly from one of the sub indices measured under plant cover.

### Regeneration:

The regeneration index measures a number of sub indices including: Canopy health, of trees > 5m. Large trees, with >30cm trunk. Tree class sizes, native trees > 3m tall have trunks with different trunk thicknesses. Dominant tree regeneration, are there juveniles of the dominant regeneration. Other tree regeneration, how many other species of trees .3 - 3m tall. T1 received a score of 9.1/25 or poor rating T 2 received a score of 24.1 or excellent rating. T1 received a higher score for regeneration than plant cover. The score indicates regeneration of T1 needs to be increased or diversified even though some natural regeneration may be occurring.

# Trevethan Creek Wildlife Corridor

Tropical Rapid Appraisal Of Riparian Condition (TRARC) Survey Results 2011



## Erosion:

The Erosion index measures a number of sub indices including: Exposed soil, how much ground is exposed, exposed tree roots, due to erosion, types of erosion, slumping, gulling and undercutting, how much of the river bank within the transect is eroded. T1 received a score of 9.1/25 or poor compared to T2 with a score of 23.75 or excellent. The score indicates erosion is prominent in T1 and needs to be controlled.

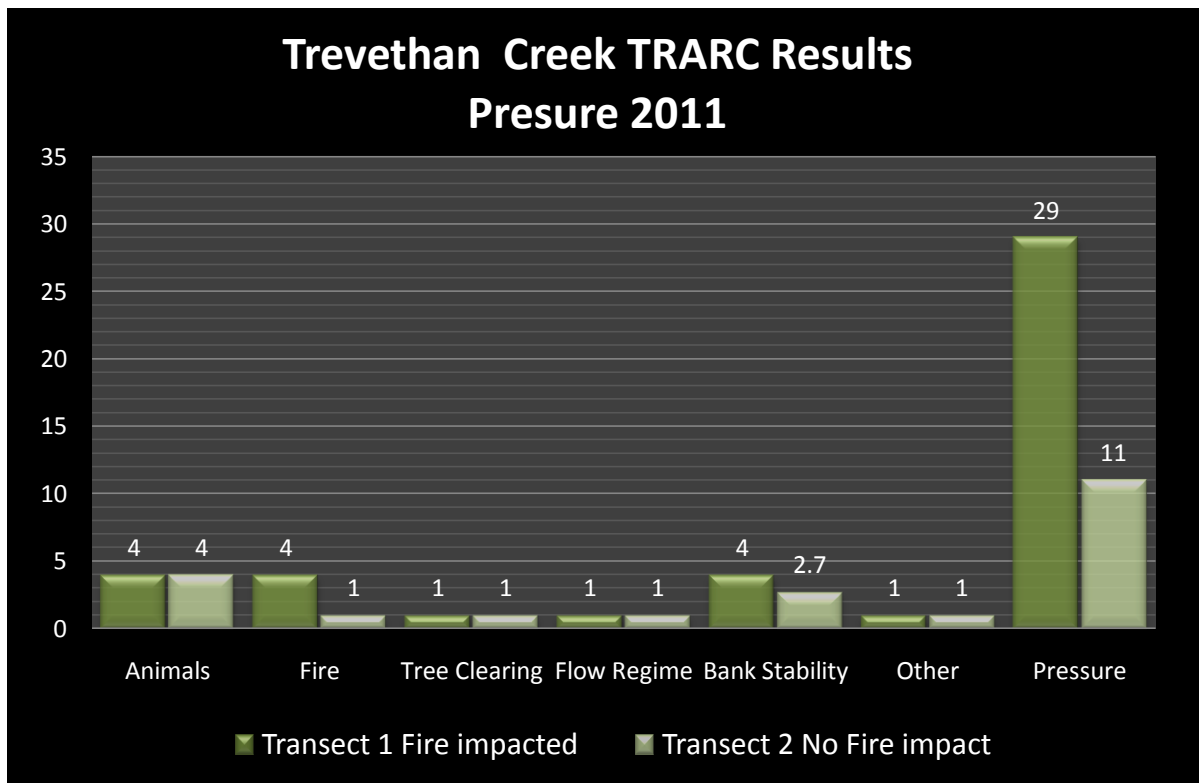
## Weeds:

The Weed index measures a number of sub indices including: Canopy, proportion of canopy plants >5m tall that are weeds, midstory, understory, grass, proportion of weeds in a 5x5m square, weed litter, proportion of litter in a 5x5m square and high impact weeds for the Top End, NT and Burdekin and Weed distribution, across the entire transect. T1 received a score of 11.6/25 or poor compared to T2 with a score of 25. The score indicates the weeds are prominent in T1 and need to be controlled. High impact weeds determined in T1 include *Lantana camara* (lantana) and *Passiflora foetida* (wild Passion fruit) *Hyptis suaveolens* (Hyptis).

## Condition:

All the above mentioned indices combine to reach the riparian condition score. T1 received a score of 36.4/100 or Poor compared to T2 with a score of 93/100 or excellent. The score indicates T1 needs a number of management applications in all areas to become a healthy functioning riparian zone.

## Results: Pressure



**Figure 2:** Shows Results for T1 & T2 Indices leading to the Pressure score

Please Note the entire indices (Animals etc) combine to give a pressure rating where the higher the score equals the higher the pressure on the riparian area.

# Trevethan Creek Wildlife Corridor

Tropical Rapid Appraisal Of Riparian Condition (TRARC) Survey Results 2011



The ratings for pressure are as follows (Dixon, I *etal* 2006).

Score	Pressure Rating
50-100	High
25-49	Moderate
0-24	Low

## Methods and discussion:

### Animals:

The animal index measures a number of sub indices including: Managed (cattle) and unmanaged animals (pigs), the extent of vegetation damage including, ringbarking, grazing, trampling, wallowing, track formation and instream substrate disturbance.

T1 received a score of 4 as did T2, the score indicates that animals are exerting pressure on both riparian areas and need to be excluded.

### Fire:

The fire index measures the time since last the fire impact and the severity of that impact.

T1 received a score of 4 compared to T2 with a score of 1, the score indicates the fire needs to be controlled around T1.

### Tree Clearing:

The tree clearing index measures the buffer width from the water line until a major clearing.

Both T1 and T2 received a score of 1, the score indicates there is no major clearing around the buffer zone of > 25m.

### Flow regime:

The flow regime index measures disturbances to the river flow through Large dams. Both T1 and T2 received a score of T1, the score indicates there are no major dams obstructing the natural flow of the river.

### Bank Stability:

The bank stability score incorporates the erosion score from the condition index and includes instream structures such as bridges, culverts, weirs or small dams. T1 received a score of 4 compared to T2 with a score of 2.7. T1 The score indicates the bank stability needs to be managed in T1 and there may be some areas of unstable banks within T2.

### Other:

The Other score incorporates anything that may not have been covered in the other indices such as sand mining urban development, 4wd track etc. Both T1 and T2 received a score of 1 indicating low pressure from other activities.

## Trevethan Creek Wildlife Corridor

Tropical Rapid Appraisal Of Riparian Condition (TRARC) Survey Results 2011



### **Pressure:**

All the above mentioned indices combine to reach the riparian pressure score. T1 received a score of 29/100 or Moderate pressure compared to T2 with a score of 11/100 or Low pressure. The score indicates T1 needs management from fire and erosion impacts and Both T1 and T2 need management from animal impacts.

### **Conclusion:**

The condition of T1 is rated at poor, primarily due to the contributing factors from large fires impacting on the riparian zone, such as canopy loss, weed invasion and erosion. It has been approximately three years since the last large fire and some natural regeneration is occurring among a limited number of species that are able to penetrate the blady grass (*Imperata cylindrica*). In contrast T2 condition is rated at excellent, primarily due to having no fire impacts. The Pressure of T1 is rated at moderate with fire, feral animals, and bank stability being the main areas of concern. The pressure of T2 is rated at low although the rating for animal impacts is the same as T1. The management of feral animals needs to be addressed in both transects for full riparian function to occur.

SCYC and the Nyungkal Rangers are working on applications to mitigate the problems associated with T1. Works conducted at T1 since the survey include: revegetation of riparian species with approximately 500 trees planted, collection of seeds for future plantings, hand removal of Lantana, and construction of a fire break approximately 100m out from the water's edge. This survey will be conducted again at the same area to determine the impact of the management interventions.

### **References:**

Dixon, I. Douglas, M. Dowe, J. Burrows, D. 2006 *Tropical Rapid Appraisal of Riparian Condition Version 1 (for use in tropical savannas)* River management Technical Guidance No, 7. Land and Water Australia Canberra. GPO Box 2182 Canberra ACT 2601 [www.iwa.gov.au](http://www.iwa.gov.au)