

Trees For Cane Farms 2004—2008



Improving Native Vegetation on Sugar Cane Farms

Clarence
Richmond
Tweed



Trees for Cane Farms

Introduction

The coastal floodplain is a highly cleared area of high intensity agricultural production, and the remaining native vegetation is very fragmented.

Remnant vegetation on much of the coastal floodplain is in danger of decline from weed invasion and aging. The chances of natural regeneration occurring are very limited. There is an urgent need to conserve remaining freehold vegetation, revegetate priority areas and link remnants. Seed resources and habitat values need to be conserved and re-established.

The success of this project is largely due to the partnerships established between Clarence Landcare Inc., Clarence Cane Growers Association, individual cane farmers in the Clarence, Richmond and Tweed, Northern Rivers Catchment Management Authority (CMA), Clarence Floodplain and Estuary Partnership members and Tweed Shire Council.

The project started in the Clarence catchment in early 2004 with funding support from the Australian Government Envirofund. The first 2200 trees were planted on sugar cane farms in March 2004 at Woodford Island and Palmers Island. Another two Lower Clarence cane growers planted 1500 trees in 2005.

Following on from the Envirofund projects, Clarence Landcare was

successful in obtaining a grant from the Northern Rivers CMA to continue working with the cane industry.

Expressions of Interest were sought from eligible landowners, and site assessments were then conducted to discuss funding opportunities, project planning and coordination of the on-ground work.

The project's aim was to increase and conserve biodiversity on the coastal floodplain. Some of the best opportunities for improvement to biodiversity and habitat values are located on private properties, mainly cane farms and grazing land. During 2004 – 2006, under Stage 1,

vegetation and riparian zones, linking on-farm remnants with plantings and improvements to riparian and wetland management.

The Trees for Cane Farms project assists cane growers to identify effective and practical ways to manage and enhance biodiversity, whilst maintaining farm productivity. The project involves landowner participation in establishing and maintaining trees and managing native vegetation. Growers enter into a cooperative approach to biodiversity yet remain individually focused on their property management and production goals.

Between 2004 and 2008 the Trees for Cane Farms project has established 22,000 local native plants across 24 hectares of the Clarence, Richmond and Tweed Floodplains on 20 cane farms.

10,000 local native trees were planted and maintained across ten hectares on Clarence cane farms. A further 5000 plants were in the ground by autumn 2007, as part of Stage 2 in the Clarence.

Stage 3 commenced in September 2006 and expanded the successful Clarence project onto Richmond[®] and Tweed cane farms. The project expanded to include assistance for managing existing native vegetation, riparian zones and wetlands as well as planting trees.

Positive actions included weed control to fence off native

As more landowners become involved, there are increasing opportunities to create wildlife corridors between farms and link native vegetation remnants.

Landcare Community Support Officer and Trees For Cane Farms Project Manager—Julie Mousley

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Northern Rivers Catchment
Management Authority
supported by the
Clarence Richmond and Tweed
Cane Growers Associations and
individual growers and managed by
Clarence Landcare Inc.



New South Wales Cane Growers and Landcare have been in partnership for some years in the Trees for Cane Farms project, now an important part of the landscape on cane farms.

Along with the industry's water quality initiatives and Best Farming Code of Practice developed by the Sugar Industry in recent years, cane farmers have seen our association with Landcare and the establishment of Trees on Cane Farms as a good balance between the commercial growing of sugar cane and the enhancement of biodiversity on their farms.

Landcare has the expertise and advice on the selection of native trees for planting on farms. Cane growers now see the partnership with Landcare as an important part of cane growing within the NSW Sugar Industry.

Vince Castle, President of the NSW Cane Growers Association

Project locations and landowners



Map source: Sinclair Knight Merz

Tweed/Murwillumbah

A Durrington — Murwillumbah
D Bartlett/Zashvin — Murwillumbah

Richmond

R O'Connor — East Coraki

Clarence

A & V Munro — Woodford Dale
A & H McFarlane — Woodford Leigh
R Johnson — Woodford Leigh
P & M Rose — Palmers Channel
D Small — Palmers Channel
L & D Hughes — Brushgrove
W Ensbey — Brushgrove
R & H Roper — South Arm
B & V George — Maclean
M Austen — Lawrence
B & B Cooper — Harwood
N Anderson — Harwood
J Young — Harwood
K Ryan — Harwood
R Ryan — Harwood
D & H Reid — Goodwood Island
T & D Strange — Chatsworth Island



Clarence Cane Growers



Trees for Cane Farms

Biodiversity

A & V Munro—Roberts Creek, Woodford Dale



2004—the first Clarence planting on Robert's Creek, Woodford Island.

This two hectare riparian planting included Forest Red Gum, Red Cedar, Swamp Oak, Foambark, Brown Kurrajong, Creek Tea Tree, *Babingtonia* sp., Swamp Turpentine, Brushbox, Red Ash, Lilly Pilly, Cudgerie, Tuckeroo, Whalebone, Guioa and other local species. *Lomandra longifolia* were planted with the trees to provide a basis for ground-cover, shade out weeds and improve frost tolerance while the trees were establishing.

Why plant local native trees?

There is an urgent need to plant local species. 79% of coastal floodplain vegetation in the Clarence has been cleared and only 2% is reserved. Much of the remaining vegetation is aging, and seed sources for renewal of floodplain vegetation are declining. The main opportunity to establish biodiversity plantings on the floodplain are on private lands where cane growers and graziers are willing to plant local species.



“ In 2004 we had a very dry winter and heavy frost just after planting. Since then, we've had good rainfall and the trees are booming. ”
Alan Munro

2008—Four years later this Woodford Dale site is well established. Trees are producing vital seeds for the future and providing food sources and habitat, along with shade for the creek and fish habitat.

Each landowner is responsible for preparing the site prior to planting and then maintaining the site after the planting is established.





Clarence cane growers at a Trees for Cane Farms field day held in March 2005.

P & M Rose's Reedy Creek and wetland planting included species more tolerant of soils that can remain wet for prolonged periods of time. Species included Swamp Mahogany, Prickly Paperbark, Broad-leaved Paperbark, Brown Kurrajong, Forest Red Gum, *Acacia sp*, Tuckeroo, Coast Banksia, Red Ash, Sandpaper Fig, White Bottlebrush and other local species.

Why did you get involved?

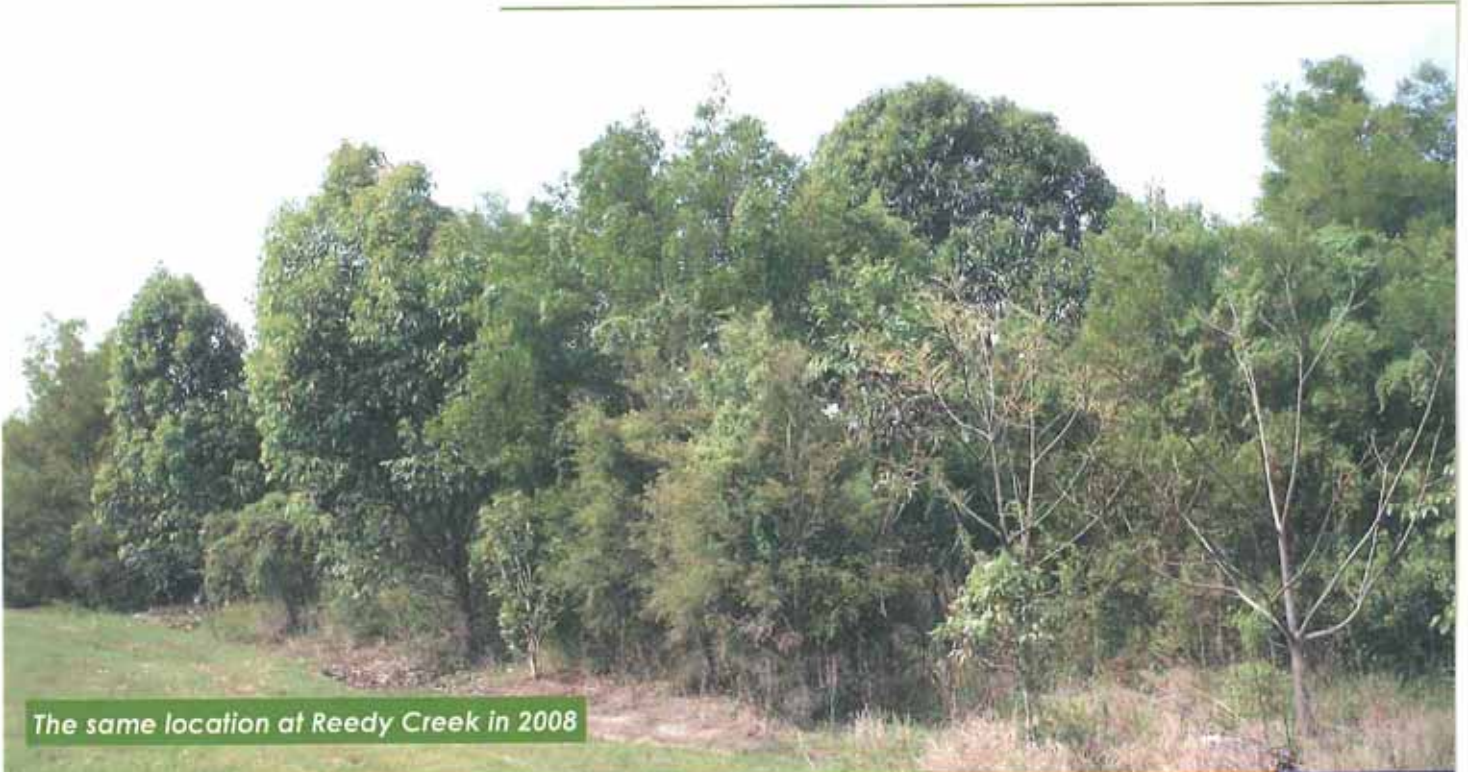
“ I just realised that my unproductive riparian land would be much better put to use for the environment. ”

Peter Rose



Reedy Creek project site in February 2005—one year after planting.

Tree guards are used to help visually locate the plants when carrying out maintenance such as slashing or spraying and to deter hares from chewing the small trees.



The same location at Reedy Creek in 2008

Implementing the project

- Expressions of interest sought.
- Site Assessments — meet the farmers.
- Plan the work (assess each site, planting design, species selection, timing, coordination of project needs).
- Autumn — landowners prepare planting sites.
- Planting contractors arrive to plant sites. (plantings monitored by project coordinator and ongoing support is provided regarding tree care and establishment).
- Landowners maintain planting areas and water trees as necessary.

All plants used in the project were contract grown by local nurseries to tubestock stage.

Seed was sourced from within the range of nearest proximity to the planting sites in each locality and floodplain region.

The plantings were mixed forest species, selected on the basis of known occurrences in remnant or reserved vegetation and ecological representation from different forest formations and succession stages. Soil type (eg acid sulfate soils and highly saline soils) also influenced species selection. Different planting designs were used for each situation to accommodate harvesting, maintenance of crops and biodiversity.



Planting method used for larger sites with level paddocks.

An integral part of the project included weed control in remnant vegetation on riparian zones, revegetation to link remnants or increase their area, stock exclusion fencing and off-stream watering for livestock.

All sites were assessed to determine the best methods for site preparation and for selection of species to be planted. Consideration of soil type, proximity to cropping and harvesting, drainage, water requirements and how much time the landowner could afford were an essential component of the planting design for each project site.

“The Trees for Cane Farms project is a perfect case of what can happen when industry and Landcare get together with a relatively small amount of public funds.

Julie, our enthusiastic local extension officer, has helped over 20 willing cane growers return unproductive farmland into vital habitat and future seed source. Now other growers are looking at the opportunities on their land. ”

Nigel Blake — NRCMA



Planting contractors at Natalie Anderson's Nahro Creek riparian zone site— preparation involved use of herbicide to control grasses and light cultivation to assist planting.

Managing native vegetation and riparian zones

“ The cows aren’t getting bogged in the creek. Water birds are able to nest without being disturbed. Trees on the creek are regenerating. It’s just changed everything about this part of the property for the better, and I’m so glad we had the opportunity to be able to do this. ”

Roslyn Ryan —
Harwood



Ryan's Nahro Creek freshwater wetland and creek area at Harwood — fencing for stock exclusion zone and a creek crossing. Planting at this site is linked to Anderson's Nahro Creek project site.

Project aims

- To support growers and the NSW Sugar Industry to improve and maintain native vegetation and riparian zones through access to funding opportunities and technical support.
- To increase landholder awareness and implementation of sustainable management of riparian zones and native vegetation.

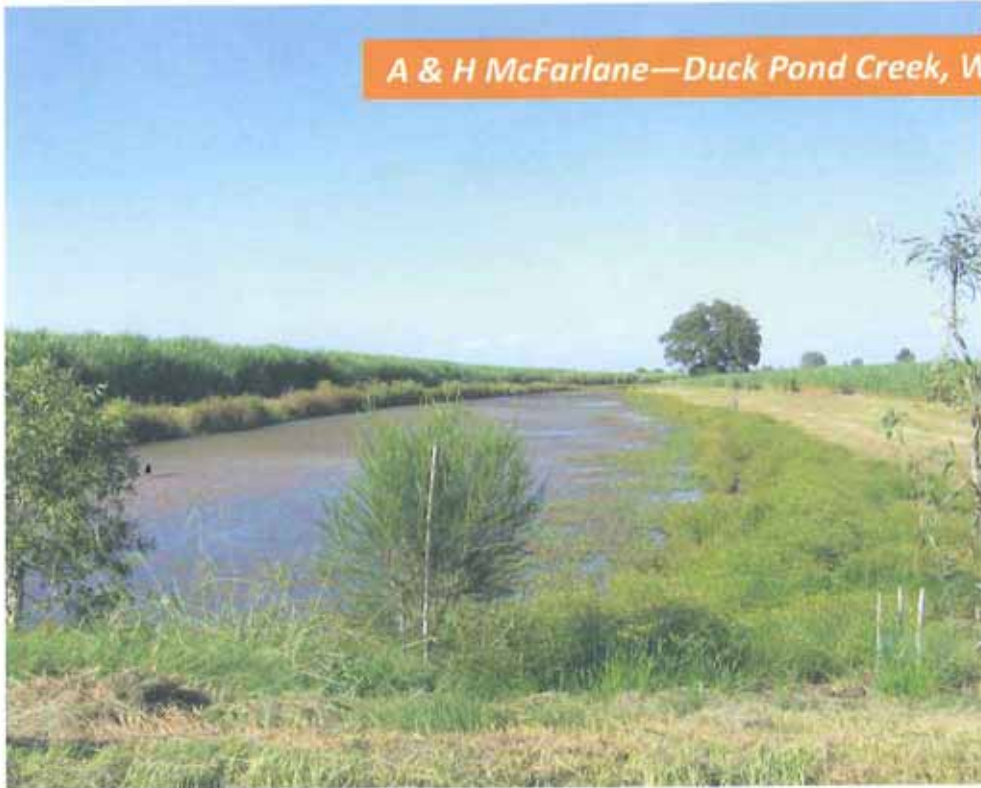
Actions

- Linking remnant vegetation with planting.
- Stock exclusion fencing and off-stream watering points.
- Protection or enhancement of remnant vegetation.
- Access to funding opportunities to implement on-ground work.



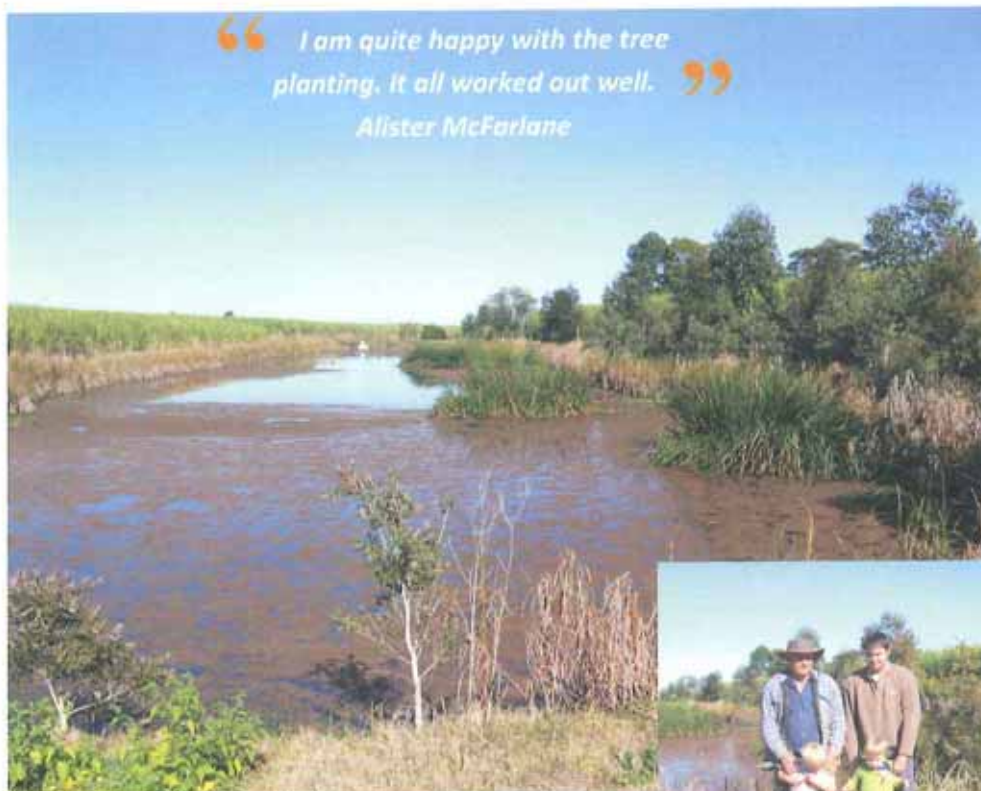
Managing native vegetation and riparian zones

A & H McFarlane—Duck Pond Creek, Woodford Leigh



Above: A & H McFarlane's Duck Pond Creek project site in 2004 prepared before planting on right hand side.

Below: McFarlane's in 2007—trees established on right.



“ I am quite happy with the tree planting. It all worked out well. ”
Alister McFarlane

Right: Alister McFarlane, son John and grandchildren



Most of the opportunities for tree planting sites on cane farms are along farm watercourses or on unproductive land although this does not limit the project to those locations.



Establishing appropriate vegetation along farm drainage channels, creeks, wetlands and dams can improve habitat conditions for aquatic life.



Clarence



L & D Hughes—Roberts Creek

L & D Hughes Roberts Creek (left). One of the planting sites on their cane and grazing property near Brushgrove, planted in 2007. Both sides of the creek were planted with mixed forest species (trees, shrubs and *Lomandra*). Solar powered fencing was used to exclude stock from the riparian zone and control stock access to grazing areas.



Julie Mousley and Lewis Hughes



Off-stream water for stock



Landcare Farming Forum field day March 2006—Lewis and Del Hughes are keen to show Forum delegates how well their trees are growing.

T & D Strange—Chatsworth Island project site

A large remnant of Coastal Floodplain Forest plant community was enhanced with planting around the edges at eight locations, to close gaps and link the remnant. Knowledge of existing high soil salinity and potential acid sulfate soils influenced the site preparation and selection of species here. Trees included Prickly Paperbark, Swamp Turpentine, Forest Red Gum, Swamp Mahogany and Swamp Oak.

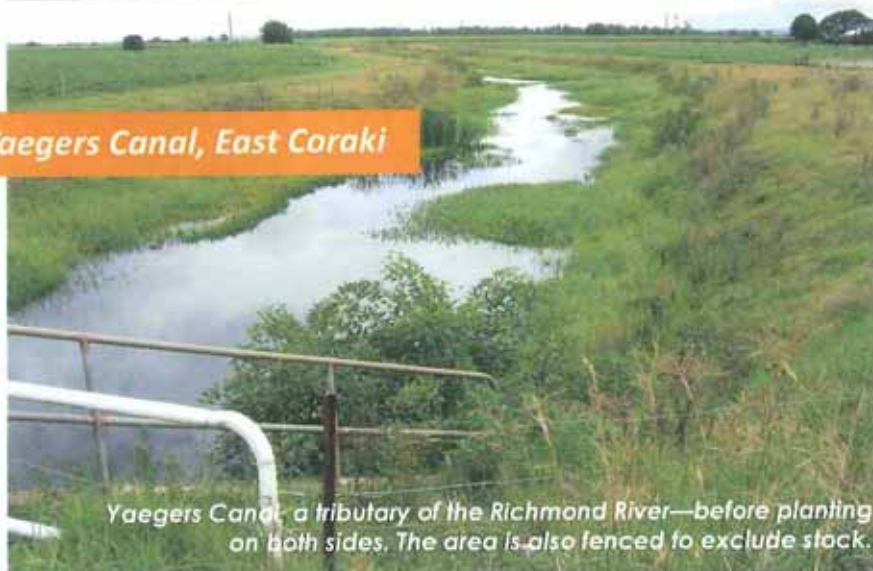


Richmond



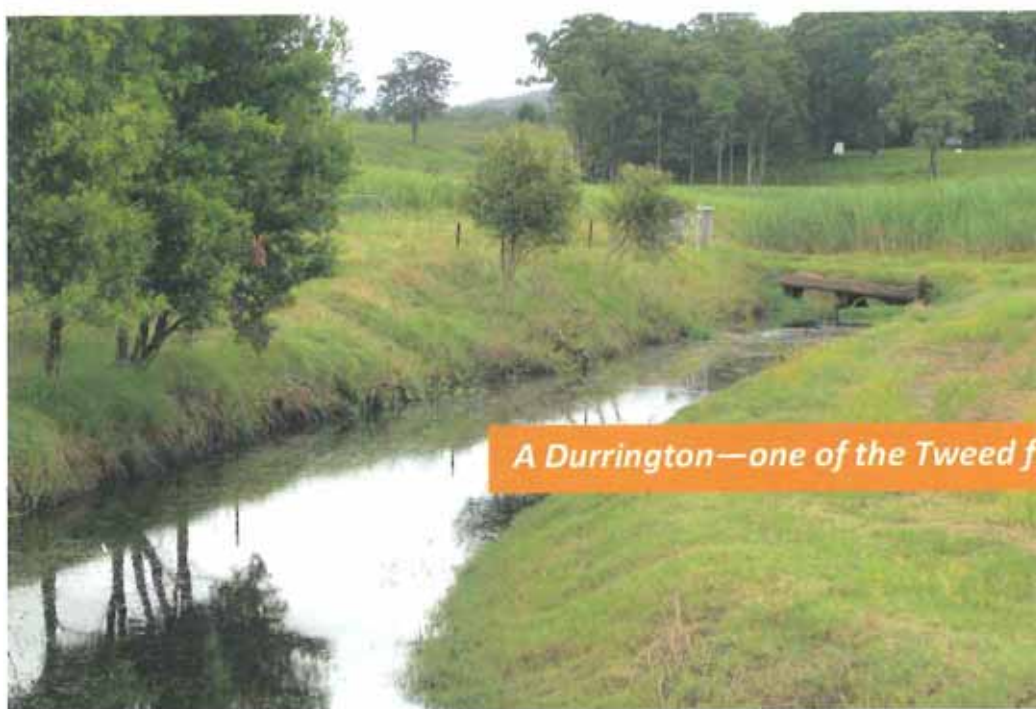
Robert O'Connor's son, Rory, helping out on planting day

R O'Connor—Yaegers Canal, East Coraki



Yaegers Canal, a tributary of the Richmond River—before planting on both sides. The area is also fenced to exclude stock.

The majority of creeks and drainage channels on the Clarence, Richmond and Tweed floodplains have flood mitigation structures in place. Plantings are designed in cooperation with the floodplain services division responsible for each catchment.



A Durrington—one of the Tweed floodplain cane farm sites

Tweed



Crinum pedunculatum



Lomandra longifolia — The mat root system of *Lomandra* sp. is a natural bank stabilizer and helps control soil erosion.

Planting along a tributary of Condong Creek and farm drainage channels will shade the waterway, increase fish habitat and improve bank stability. *Lomandra* sp. and *Crinum pedunculatum* are planted on the edge with a selection of locally occurring trees including Red Bottlebrush, Guioa, Native Elm, Lilly Pilly and others. Durrington's project site and one other riparian planting on the

Rouse River at Murwillumbah have been supported in partnership with Tweed Shire Council's Floodplain Services and Tweed Landcare Inc.

During 2008 a further six sites will be planted in the Tweed — 2 km of drain bank with *Lomandra*, trees and groundcovers under an Envirofund grant and 1.5 km of *Lomandra* and groundcover at three sites with NRCMA funds.



Plant species list—a guide to selection

The following list represents some of the species identified for the Clarence catchment floodplain that were able to be grown specifically for the project and contribute significantly to improving biodiversity on the floodplain. Other species can be included, depending on the availability of seed resources. Species selection for each site was determined by assessing the many factors that influence tree growth and the purpose of the planting: suitability of

height and width for location, soil type, specific uses such as for erosion control, managing salinity, shading of water courses, proximity to crops and riparian zones, harvesting and maintenance of crops, availability of water and landowners' ability to maintain the sites. Species selection for the Richmond and Tweed floodplains was similar to the Clarence — locally occurring floodplain species and seed resources were used.

Clarence Floodplain Plant Species Guide

Botanical Name

Common Name

TREES

<i>Allocasuarina cunninghamiana</i>	River Oak
<i>Allocasuarina littoralis</i>	Black She-Oak
<i>Acacia aulacocarpa</i>	Ironbark Wattle
<i>Acacia melanoxylon</i>	Blackwood
<i>Acmena smithii</i>	Lilly Pilly
<i>Alphitonia excelsa</i>	Red Ash
<i>Alectryon tomentosus</i>	Hairy Alectryon
<i>Angophora subvelutina</i>	Broad-leaved Apple
<i>Araucaria cunninghamii</i>	Hoop Pine
<i>Aphananthe philippinensis</i>	Rough Leaved Elm
<i>Banksia integrifolia</i>	Coast Banksia
<i>Bridelia exaltata</i>	Brush Ironbark
<i>Backhousia sciadophora</i>	Shatterwood
<i>Castanospermum australe</i>	Black Bean
<i>Casuarina glauca</i>	Swamp Oak
<i>Dysoxylum muelleri</i>	Red Bean
<i>Endiandra sieberi</i>	Hard Corkwood
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Cupaniopsis parvifolia</i>	Small-leaved Tuckeroo
<i>Commersonia bartramia</i>	Brown Kurrajong
<i>Callistemon salignus</i>	White Bottlebrush
<i>Cryptocarya glaucescens</i>	Jackwood
<i>Duboisia myoporoides</i>	Duboisia
<i>Elaeocarpus obovatus</i>	Hard Quandong
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Elaeocarpus grandis</i>	Blue Quandong
<i>Eucalyptus microcorys</i>	Tallowwood
<i>E. robusta</i>	Swamp Mahogany
<i>E. tereticornis</i>	Forest Red Gum
<i>E. intermedia</i>	Pink Bloodwood
<i>E. grandis</i>	Flooded Gum
<i>E. siderophloia</i>	Northern Grey Iron Bark
<i>Ficus coronata</i>	Sandpaper Fig
<i>Ficus virens</i>	White Fig
<i>Ficus macrophylla</i>	Moreton Bay Fig
<i>Ficus superba</i>	Deciduous Fig (+/-)
<i>Ficus obliqua</i>	Small-leaved Fig
<i>Ficus rubiginosa</i>	Rusty Fig
<i>Flindersia australis</i>	Australian Teak
<i>Flindersia schottiana</i>	Cudgerie
<i>Flindersia bennettiana</i>	Bennett's Ash
<i>Guioa semiglauca</i>	Guioa
<i>Grevillea robusta</i>	Silky Oak
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Hibiscus tiliaceas</i>	Cottonwood Hibiscus
<i>Hymenosporum flavum</i>	Native Frangipani
<i>Jagera pseudorhus</i>	Foambark
<i>Lophostemon suaveolens</i>	Swamp Turpentine
<i>Lophostemon confertus</i>	Brush Box
<i>Persoonia stradbrokeiensis</i>	Geebung
<i>Melaleuca styphelioides</i>	Prickly Paperbark



Guioa—seed



Red Cedar—seeds



Brown Kurrajong



Brush Ironbark



Turpentine



Cheese Tree



Tallowwood

Botanical Name

Common Name

TREES

<i>M. quinqueriviera</i>	Broad-leaved Paperbark
<i>M. linariifolia</i>	Snow in Summer
<i>Mallotus philippensis</i>	Red Kamala
<i>Notelaea longifolia</i>	Mock Olive
<i>Rapanea variabilis</i>	Variable Muttonwood
<i>Rhodamnia rubescens</i>	Scrub Turpentine
<i>Streblus brunonianus</i>	Whalebone Tree
<i>Syncarpia glomulifera</i>	Turpentine
<i>Toona ciliata</i>	Red Cedar

SMALL TREES/ SHRUBS

<i>Babingtonia virgata</i>	Twiggy Baeckea—Clarence
<i>Breynia oblongifolia</i>	Breynia
<i>Leptospermum brachyandrum</i>	Thin-fruited Tea Tree
<i>Leptospermum polygalifolium</i>	Creek Tea Tree
<i>Melaleuca alternifolia</i>	Teatree
<i>Tabernaemontana pandanifolia</i>	Bannana Bush

GRASSES/ LILLYS

<i>Lomandra hysterix</i>	River Mat — Rush
<i>Lomandra longifolia</i>	Spiny Mat — Rush
<i>Crinum pedunculatum</i>	River Lilly
<i>Oplismenus aemulus</i>	Oplismenus — Native Grass
<i>Phragmites australis</i>	Common Reed

WETLAND SPECIES

<i>Bulboschoenus fluviatilis</i>	Marsh Clubrush
<i>Baumea rubiginosa</i>	Twigrush
<i>Baumea juncea</i>	Bare Twigrush
<i>Baumea tetragona</i>	Square Twigrush
<i>Cyperus lucidus</i>	Leafy Flatsedge
<i>Cyperus gunni</i>	Flatsedge
<i>Carex gaudichaudiana</i>	Carex
<i>Carex appressa</i>	Tall Sedge
<i>Gahnia sieberiana</i>	Red-fruited Saw Sedge
<i>Gahnia filum</i>	Chaffy Sawsedge
<i>Juncus kraussii</i>	Sea Rush
<i>Juncus usitatus</i>	Common Rush
<i>Lepironia articulata</i>	Sedge
<i>Melastoma affine</i>	Bluetongue
<i>Phylidrum lanuginosum</i>	Frogmouth
<i>Schoenoplectus mucronatus</i>	Club Rush
<i>Schoenoplectus validus</i>	River Club Rush



Moreton Bay Fig—fruits



Foambark—fruits



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Contact details

Clarence Landcare Inc

Julie Mousley

t: 02 6643 5009

f: 02 6643 5006

e: landcare@ceinternet.com.au

w: www.clarencelandcare.com.au

Northern Rivers Catchment Management Authority

Nigel Blake

t: 02 6642 0633