



# PROJECT TREES

## Newsletter

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### PROJECT TREES

Many people and projects associated with Project Trees have received help from the Brisbane City Council through the provision of trees. It is pleasing that interest in tree planting (its benefits and problems) is expressed by a range of persons in the Council, and below is an article contributed by Ken Morris, Neville Gibson and Charles Oliver of the Special Projects Section of the Works Department. Although the article expresses the personal opinions of its authors and should not be interpreted in any way as representing Council policy, it is a valuable contribution to the Newsletter and of importance to all involved in tree planting projects along creeks.

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#### TO TREE OR NOT TO TREE : THE ENGINEER'S DILEMMA

An engineer charged with the responsibility of designing a flood mitigation scheme on a creek through suburbia is, from the inception of the scheme, caught between the devil and the deep blue sea in regard to trees and other vegetation along the banks and flood plain of the creek.

The need for flood mitigation has arisen from over-development of the lower reach flood plains. As part of the development process, trees and ground cover were removed, frequently right to the water's edge. Consequently, the stability of the stream banks was decreased, and the banks and flood plain became more scour-prone. This in turn led to increased siltation and reduction in the flow capacity of the main stream channel, increased flood levels and general environmental degradation.

Against this background of crisis and degradation the flood mitigation design engineer has in the past endeavoured to maintain the developmental status-quo by providing a nearly sterile smooth-banked vegetation-free open channel through the sterile flood plain. Minimal financial inconvenience to the land-holder was the main external criterion for the design, so that about the only works for which there has been sufficient space was a lined or partly-lined open channel running within a narrow corridor with an absolute minimum of undeveloped land beside it.

Improved hydraulics and lower flood levels resulted, but the ugliness and sterility often remained (or even, in some instances, increased, e.g. Cook's River in Sydney and Gardiner's Creek in Melbourne).

The ugliness and sterility of some of the older schemes has now become so unacceptable that the engineer can no longer submit designs which take no account of the environment.

Recognising that any tree-planting will cause some increase in upstream flood levels, the engineer nevertheless increasingly accepts the planting of trees along the banks and flood plains of older channels. However, care has to be taken to ensure that the enthusiasm of the tree planter does not result in unacceptably increased flood levels.

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- (d) They must have a deep root system so as to be able to withstand some scour around the root system.
- (e) They should in certain circumstances have a dense canopy so as to inhibit development of dense undergrowth.
- (f) They should not be heavy branch-shedders.

To their credit, engineers are becoming increasingly aware of the need for trees as an integral part of flood mitigation design. Also it is most encouraging, and a development for any community to be proud of, that there is such an increase in tree-planting. However, it is essential that in the sensitive creek-side areas, the engineer's hydraulic needs are taken into consideration at an early stage in the planning of any tree-planting program.

Ken Morris, Neville Gibson, Charles Oliver

Once again Lakkari Native Plant Nursery has very generously donated approximately 130 advanced trees and creepers, which are surplus to their requirements, to Project Trees for planting on their different projects.

This is the second donation of trees received from Lakkari. Earlier in the year, approximately 200 advanced trees were given to Project Trees. These have been planted at various sites and the bulk of them are doing well.

Our sincere thanks go to Lakkari Nursery for their very valuable assistance to Project Trees.

### TREE PROJECTS

#### Enoggera Creek

Activity along Enoggera Creek has been less frantic in 1982. We no longer aim to plant thousands of trees a year but rather are concentrating on maintaining those already planted and encouraging self-regeneration of the vegetation. The success of the self-regeneration technique, which involves weeding around and mulching self-sown seedlings is not yet assessable. But in one year I hope to be able to report on this procedure.

We were honoured to have a visit from Professor Yang Hanxi of Academy Sinica, Beijing, China who is Vice-Chairman and Secretary-General of Chinese MAB (Man and the Biosphere) National Committee. On a very hot afternoon we visited three revegetation areas and an area of creek that is relatively unscathed by modern suburbia. He was especially enthusiastic about the flame tree (Brachychiton acerifolium) which was in full flower. We discussed at length the problems and advantages of community involvement: people apparently are the same the world over.

Sue Quinnell

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#### Ithaca Creek Beautification Program (See Figure A for cross section of creek.)

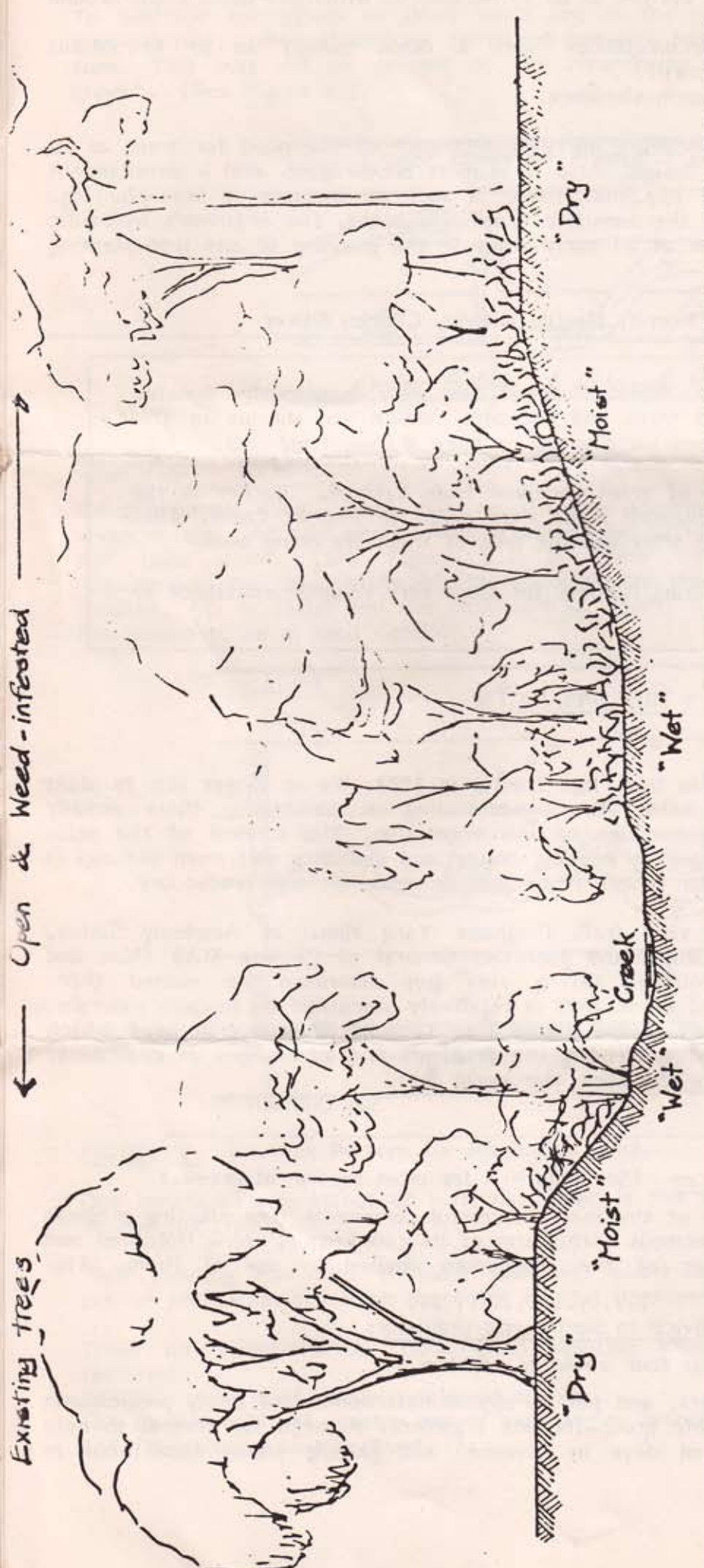
The Ithaca Creek project is one of the most successful community tree planting projects in Queensland, thanks to the enormous enthusiasm of its coordinator, Henk Horchner and his volunteers. Below is a copy of the procedure devised by one of them, Alan Chenoweth:

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Advice to Section Co-ordinators

- (1) Choose a planting day at least four weeks in advance.
- (2) Inform and organise volunteers, and get an approximate number of likely participants - ten people are a manageable group for one organiser. Arrange for several to help with clearing (two to seven days in advance) and placing plants (one hour in advance).

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Full or Partial Shade	Steep Bank with weeds	Narrow fence	Gravel or Sand Stream Bed	Terraces & Sloping Banks with weeds	Top of Bank	Level & Regularly
Shade-tolerant shrubs & vines	Dense planting at toe (wet species) & crest (dry/moist)	Plant only if weed-infested	Melaleuca, Callistemon, Casuarina (wet species)	Dense planting of weed-suppressors (Acacia, Commersonia, Macaranga etc.) + large shade trees.	Eucalypts & other 'dry' species	Leave undulating edge for mower access.

FIGURE A: ITHACA CREEK TYPICAL CROSS-SECTION & REVEGETATION GUIDELINES



- (3) Select a site within your section for planting according to the following priorities:
- a) large gaps in the tree canopy.
  - b) weed infestation, especially those fouling the waterway.
  - c) the area should be manageable for half a day's planting.
  - d) the site should be accessible and easily maintained.
  - e) the site should be close to the home of one of the volunteers, or someone prepared to maintain plants, replace stakes, water and keep an eye on vandalism (this should be organised in advance).
  - f) water available from creek with little effort.
  - g) soil deep and well drained.
  - h) vandalism is unlikely to be a problem.

N.B. The priorities have been selected to encourage community participation by tackling the easiest areas first, and those with the highest chance of success.

- (4) The size of area selected should be manageable for half a day's planting for the likely workforce. Assume ten plants per worker if they dig own holes; 20 if holes are dug beforehand. For maximum weed suppression in open areas, assume 2-4 m per plant, i.e. ten workers can densely plant only 200-400 m of stream bank. This may be extended if weeds are not a major problem, or if there are existing trees and shrubs, but it is safest to limit the area and plant densely. This is also best in areas where the Council regularly mows or slashes - leave broad areas unplanted and concentrate planting in discrete areas which can be left unmown.
- (5) Prepare a rough description of site, e.g. narrow 2-5 m wide band of creekbed on inside curve approx. 300 m above water level with gravelly soil, then a sloping bank to 2 m height with tall grass on good deep soil, then a 5-10 m wide strip on top of bank with tall weeds, occasionally slashed by Council.

Describe site in terms of - sun/shade  
- wet/dry  
- sandy/rocky/deep soil  
- clumps of trees/shrubs  
- weeds and grasses  
- existing maintenance/slashing  
- power-lines, water-mains, sewerage, intersections.

- (6) Contact Project Trees (David Hanger 372-1826 or Sue Quinnell 30-1534) for advice on species. Other resource people are Alan Chenowith (369-4579), Marj. Yarrow (371-1928) or Karen Webster (369-3120).
- (7) Inform local residents and ascertain their feelings. Invite them to become involved. Be prepared to change plans to retain their views or eliminate species of concern to them. (e.g. some people feel strongly about wattles and asthma).
- (8) Organise stakes, tools and buckets.
- (9) At least two days before planting, clear area for planting and leave weeds on ground to dry out. Grass is most easily pulled after rain. Where grass is very thick, a small area of 2 m<sup>2</sup> may be cleared for each plant if quickgrowing shrubs are to be planted in exposed dry and windy sites. Otherwise it is preferable to clear a limited area to be planted densely.
- (10) Check drainage - dig a hole and fill with water. If it has not drained in 24 hours, abandon site and change plans.
- (11) Inform Parks Department of B.C.C. to ensure that plants will not be slashed by maintenance gangs.
- (12) Check with volunteers and arrange a definite starting time so that all may be briefed together.

#### B. PLANTING DAY

- (1) Water all plants to allow easy removal from pots (1 hour in advance).



- (2) Place plants and stakes in position at least 1 hour in advance. Plants should be positioned with reference to the attached list showing suitability for sun and shade, weed suppression, soil type and location on the bank (wet or dry).
- (3) Do not place trees under power-lines, nor obscure the line-of-sight for intersections and bridges. Allow for broad curves of mower/slashed areas for ease of Council maintenance.
- (4) Planting density for maximum weed suppression should be 1-2 m apart for wattles and other quick-growing shrubs. Melaleuca and Callistemon species should be planted in clumps (1-3 m apart), as should Casuarina and Eucalyptus species (2-6 m apart).
- (5) As volunteers arrive, they can assist with the above tasks rather than proceed to dig holes immediately. This may be achieved by organising the digging tools to be brought to the site at the agreed start time.
- (6) When tools arrive, gather the workforce and brief them on planting instructions (best done by demonstration at the first hole), the reasons for planting this particular site, explain why certain species need to be placed high or low on the bank, why planting density needs to be high, and what the final effect will be (e.g. we are trying to create a dense layer of wattles to shade out weeds, with natural-looking clumps of bottlebrush and paperbarks near the stream bed, and eventually a tall canopy of shade trees over the creek). Also thank them for their time.
- (7) Planting instructions -
  - a) Dig hole to same depth as pot but at least twice the diameter, and loosen soil a further 100 mm at the base and sides of hole. Removed soil should be in one heap beside hole.
  - b) Place stake and hammer in.
  - c) Soak hole with  $\frac{1}{2}$  bucket of water and wait for it to drain away - if it does not drain within 2 hours, abandon hole and plant elsewhere.
  - d) Up-end pot while holding plant and soil with the palm of the hand, and tap pot to dislodge roots, remove pot and place on stake.
  - e) Gently place plant upright in hole so that soil is level with natural ground, and backfill half the soil.
  - f) Compact soil firmly around the plant to eliminate air pockets, then backfill remainder of soil and compact.
  - g) Form a shallow basin of about 500 mm diameter around the base of the plant to catch and hold water.
  - h) Add a further  $\frac{1}{2}$  bucket of water to settle soil, eliminate air pockets and thoroughly soak the area.
  - i) Place dead weeds or grass in basin and around the plants to act as mulch (reduces evaporation and weed growth) but not touching young stem.
- (8) Remove pots and any other rubbish from the site, collect all tools and return, and check that stakes are visible and will protect plants from maintenance gangs.

#### C. MAINTENANCE (by section co-ordinator or local volunteer/resident)

##### (1) Watering

- a)  $\frac{1}{2}$  bucket per plant within 3 days of planting,
- b)  $\frac{1}{2}$  bucket twice a week for next 4 weeks,
- c)  $\frac{1}{2}$  bucket once a week for next 8 weeks, then as required.

The above watering regime is the maximum required for hot, sunny, windy weather with no rain, and may be reduced if sufficient rain falls to wet the soil to at least 50 mm depth, or in overcast or cool weather. It is best to keep an eye on plants twice a week and add water if they appear wilted.

Watering is most effective in early morning or late afternoon.

- (2) Check stakes and plants, report losses to section co-ordinator.

Alan Chenoweth



### Some Notes on Projects to Date

At the Ithaca Creek project, some of the more successful species have been:

- Brown Kurrajong - Commersonia fraseri
- Paper bark ti-tree - Melaleuca quinquenervia
- Koda - Ehretia acuminata  
- Macaranga tanarius
- Swamp Mahogany - Eucalyptus robusta
- A Sheoak - Casuarina cunninghamiana
- Blue Quandong - Elaeocarpus grandis
- Flame Tree - Brachychiton acerifolium

All of these species are doing well and should soon provide shade and competition sufficient to reduce the vigour and density of the grass.

On one side of the creek, the Brisbane City Council has cleared all the grass from part of the bank. While this completely removes competition from the surrounding plants, it means that the newly planted trees are exposed to very hot, dry and windy conditions. On the condition that pioneering species are selected for such sites, growth is likely to be satisfactory.

Species such as some Eucalyptus, Acacia oshanesii, A. saligna, A. melanoxylon, A. maidenii, A. fimbriata, A. leiocalyx, A. concurrens and A. falcata are proving successful. Some other species planted in this bare exposed site would possibly grow more vigorously if there was more shade and greater humidity, less wind, lower temperatures near ground level and less reflected heat from the bare soil surface, e.g. Neolitsea dealbata, some Eugenias and Randia fitzalanii.

The advantages in retaining a cover of grass until the planted trees have grown sufficiently are many. By removing all of the pioneering, colonising species - such as weeds and grasses - the stage is set for these same species to recolonise the area more densely than before. Considerable time and expense are involved in completely clearing an area such as this, of all vegetation and the advantages seldom outweigh the disadvantages when partial revegetation of the creek bank is the ultimate aim. It may be of greater benefit to clear a small area of about 2 sq. m., plant our tree and allow it to benefit from the advantages to be gained from the surrounding vegetation. While competition for nutrients, light and water are very important, the advantages of surrounding vegetation are also of considerable significance.

D. Hanger.

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### Moggill Creek

The Moggill Creek revegetation project continues with widespread community support. The latest neighbourhood barbecue was preceded by plantings of homegrown Black Beans (Castanospermum australe) and Hoop Pines (Araucaria cunninghamii) supplied through The Men of the Trees.

The youngsters of the local playgroup, whose ages range from two to four years, were thrilled to help plant various trees donated by Lakkari Nursery. Each tree carries a tag inscribed with child's name, species, and date of planting.

The scouting and guiding movements are really behind our efforts. One of the Kenmore Brownie packs, given a brief talk (on a creek bank) about the conservation aspects of the program, now plays a practical part in the project. They have planted eucalypts, which were surplus to C.S.I.R.O. requirements, and are interested to compare their growth with similar trees planted in the C.S.I.R.O. experiments.

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