



# Information Sheet

## SERIES 6: Soil Health & Conservation

### ~~1. CONSERVATION~~

## **\*6.19 Establishing vegetation in degraded wetlands**

**\* Note: The number of this information sheet has been changed to fit in with our new classification system. Contents will be reviewed in due course**

**A** river catchment should be treated as a natural system requiring special environmental care. Many catchments in the sugar industry have been extensively degraded through the removal of trees, uncontrolled veld burning, cultivation up to the river banks and the drainage of wetlands.

### WETLANDS AND RIVERINE VEGETATION

Wetlands are a vital component of river catchments. They sustain communities of flora and fauna, and are a source of water for the people. They influence the quality of water and the ecosystems throughout the river system. Wetlands include hillside seeps, spongy meadows of grasses and sedges, reedy marshes, swamp forests, moist riparian habitats and coastal estuaries. The wetlands and their connecting streams and rivers are interlinked and perform the following functions:

- Help to stabilise the catchment.

- Provide a stable supply of water throughout the year.
- Maintain water quality by constant filtration.
- Reduce the intensity of floods and droughts.
- Prevent soil erosion.
- Provide wildlife habitats and corridors.
- Provide valuable natural resources.
- Can serve as recreational areas.

### RESTORING RIVERINE VEGETATION

It is possible to re-establish riverine vegetation by following the basic guidelines.

#### *Explore the local catchment and identify problems*

- Test water quality. Determine catchment problems and river bank rehabilitation needs.



*Early stage of waterway stabilisation.*



*Established re-stabilised waterway.*

### ***Eradicate alien plants and protect the river banks***

- Remove alien invasive plants and other forms of disturbance to allow indigenous grasses, sedges and reeds to regenerate. In severely degraded areas, apply a mulch of grass heads collected in similar local habitats.

### ***Replant key local riverine tree species***

- Plant trees in clumps at stress points in degraded areas and along the watercourse.

### ***Maintain the conserved area***

- Water the saplings, control weeds and protect the area to encourage the natural processes to rehabilitate the diverse stream bank vegetation.

## **PROPAGATING TREES FOR PLANTING**

The species recommended for riverine conditions are a combination of pioneer and near climax trees. Those with prolific rooting systems are suited to wet or swampy conditions. Others suited to non-waterlogged conditions should be planted adjacent to the stream and river banks. Some species can be propagated from cuttings.

You can obtain advice from a local nursery or conservation group on suitable species, and how to collect and propagate the seedlings.

### ***Nursery site***

The seedling nursery site must be protected from the wind and should be shaded, either by natural tree shade or by 60% shade cloth. It must have abundant water available.

### ***Nursery management***

The seedlings are best established in compartmental seedling trays, after which they can be transplanted to plastic sleeve bags or pots. The seedling tray compartments should be 10 cm deep.

The seed used must be fresh. The flesh must be removed from seed in berries or fruit (which must be fully ripe). Other seed should be taken from the parent tree when it is dry. Leguminous seeds (found in pods) must be soaked in boiling water and allowed to stand for 24 hours. Small seedlings that germinated in the shelter of parent trees can be transplanted into bags or pots.

Gather seed or seedlings locally, as those from other locations may not be suited to local conditions.

### ***Potting medium***

A medium suitable for seedling trays can be made by mixing one part bagasse or one year old filtercake, with one part loam (or clay soil plus sand). Excess water must drain freely when the seedlings are watered, while the potting medium should retain sufficient moisture to be damp but not saturated.

### ***Sowing the seed***

Seeds should be covered by a layer equivalent to their diameter. After watering the medium, plant one seed in each compartment.

### ***Watering the trays***

Trays must be watered gently with a watering can, or a low pressure hose fitted with a fine spray nozzle. A light watering every day is sufficient unless the weather becomes very dry, hot or windy, when it will be necessary to water more frequently. The best way to gauge this is to feel the soil in the plugs. When the seedlings are well established, pull the plugs out and examine them.

### ***Transplanting***

Always water the soil before transplanting. When the seedlings are 7 to 10 cm high the plugs can be transplanted into black plastic bags filled with potting medium. The bags should be at least 30 cm in diameter and 40 cm deep. A piece of wood in the shape of a plug can be used as a dibble stick to make the planting holes. The seedling plug must be planted at the same level as the soil in the pot.

### ***Watering the pots***

Roots must be encouraged to proliferate by applying water less frequently than was applied to the trays. Apply water gently and estimate the amount required by checking first the soil surface and then the underside of the pots to see that they are equally moist. Avoid saturating the pots.

The trays and pots must be weeded frequently. Indigenous plants do not usually require fertiliser. Initially keep in shady conditions (60%) before moving to less shade when the seedlings are about 20 cm high, and move to 20% shade for hardening when they are about 70 cm high.



## Planting out

When the seedlings are 70 to 120 cm high, they are ready to be planted into a riverine environment. Each tree will require a hole at least twice the size its container. Pioneer and climax species should be placed randomly in clumps rather than rows, at a spacing of three metres apart.

Protect and water the tree seedlings when they are first planted into the riverine habitat. Several near climax

species (which require more attention than pioneer species) can be planted at the same time as the pioneer species to accelerate the rate of succession. Mark each tree with a stake and keep a record to monitor the rehabilitation project.

## RECOMMENDED INDIGENOUS TREES

Botanical name	Common name	Zulu name	Seed collecting time	Propagation method	Weeks to germinate fresh seed
<b>Trees with vigorous rooting systems</b>					
<i>Bridelia micrantha</i>	Mitseeri	umHlalamakwabe	Jan-Mar	-	2-3
<i>Phoenix reclinata</i>	Wild date palm	iSundu	Feb-Jun	1	4-16
<i>Rauvolfia caffra</i>	Quinine tree	umHlambamanzi	Jan-Apr	1 & 3	3-8
<i>Voacanga thouarsii</i>	Wild frangipani	umKhadlu	Dec-Sep	1	1-8
<i>Syzgium lordatum</i>	umDoni	umDoni	Nov-Apr	1	2-4
<i>Ficus natalensis</i>	Natal fig	umThombe	Mar-Jan	1 & 3	2-8
<i>Trichilla emetica</i>	Natal mahogany	Mkuhlu	Mar-Jun	2 & 3	?
<b>Pioneer or precursor trees</b>					
<i>Acacia karoo</i>	Sweet thorn	uMunga	Jan-Mar	2	1-2
<i>Trema Orientalis</i>	Pigeonwood	uBhatini	Jan-Jun	1	1-2
<i>Antidesma venosum</i>	Tasselberry	isiBangamlota	Jan-Apr	1	2-4
<i>Croton sylvaticus</i>	Forestcroton	umHlalanyoni	Feb-May	1	2-4
<b>Ornamental and flowering trees</b>					
<i>Strelitzia nicolai</i>	Natal strelitzia	isiGude	Mar-Jul	1	4-6
<i>Erythrina lysistemon</i>	Common coral tree	umSinsi	Sep-Feb	2 & 3	1-2
<i>Calodendrum capensis</i>	Cape chestnut	umBhaba	Feb-May	2	4-6

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