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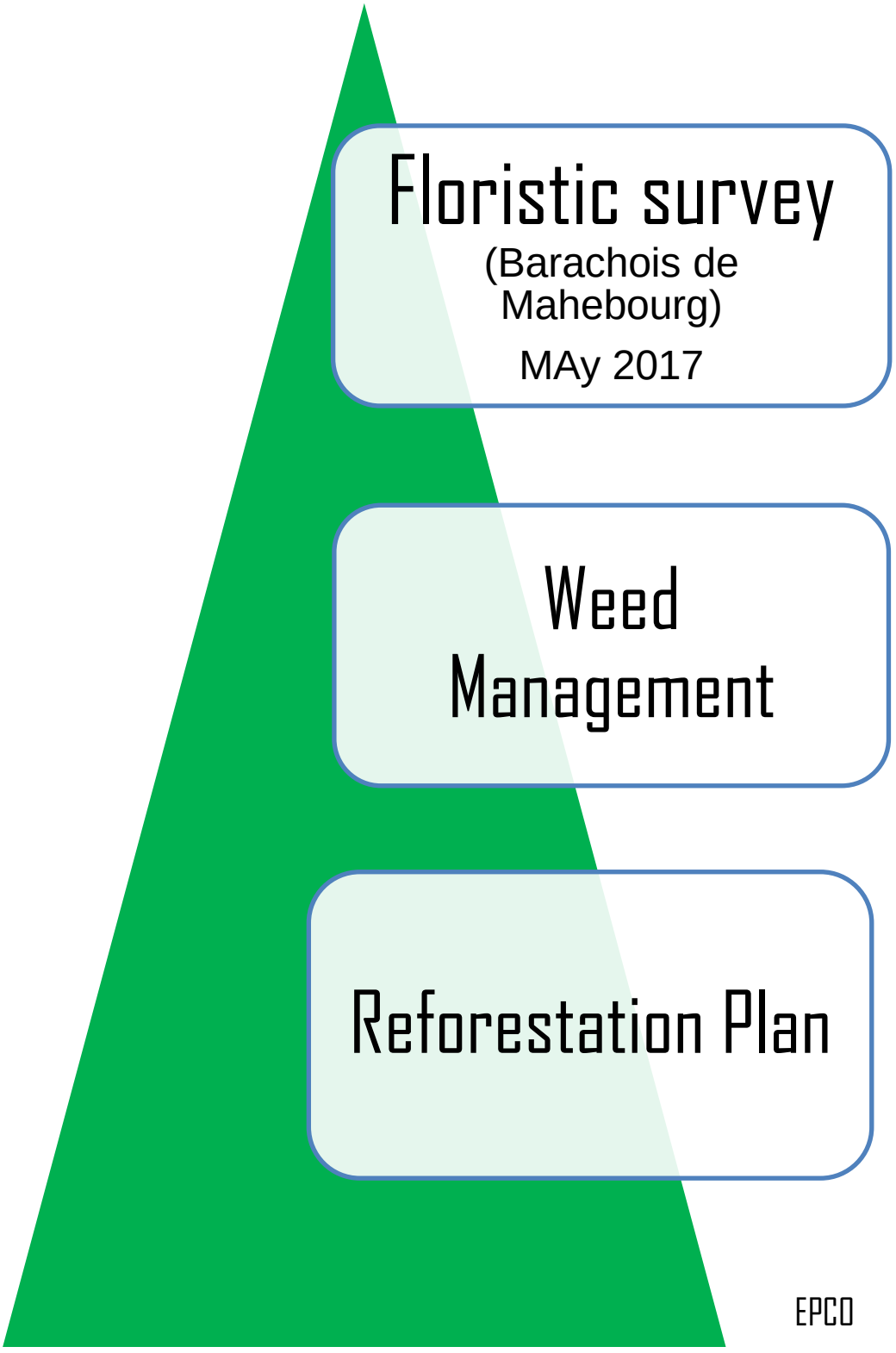


Introduction

EPCO has been granted the permission to use the land that was previously occupied by the Min. Of Fisheries. EPCO plans to remove the weed species, and introduce endemic plants.

The following technical report was conducted upon request from Estelle Deja (EPCO). This report consists of a list of plant species that were identified at the site (La Chaux, Mahebourg) and also some emphasis was given on the possible uses, prior to their removal. Abundance of the species was based on their number and frequencies at different places within the delineated area.

The management plan was developed based upon the request that EPCO who proposed to re-create a native flora within the area. The area studied consisted of shoreline (coastal areas) but also the islets found within this region.

The report was done on a voluntary basis based on our good relationship with Estelle Deja (EPCO) for whom we had already conducted a Consultancy work.

	Name of Plant	Habit: Tree/shrub/Grass/climber	Importance
1	*Santalum album*	Tree	Commercial/religious
2	*Rhizophora mucronta*	Tree	Mangrove, indigenous
3	*Pongamia*	Tree	Prevents coastal erosion
4	*Acacia*	Shrub	Fodder, also considered as weed
5	*Ipomea obscura*	Climber	Fodder, also considered as weed
6	*Sorghum arundinaceum*	Grass	weed
7	*Dicanthium annulatum*	Grass	weed
8	*Cyperus rotundus*	Grass	weed
9	*Eleusine indica*	Grass	weed
10	*Cenchrus echinatus*	Grass	weed
11	*Kyllinga erecta*	Grass	weed
12	*Pnicum rupens*	Grass	weed
13	*Cynodon dactylon*	Grass	weed
14	*Dactyloctenium aegyptium*	grass	weed
15	*Cardiospermum microcarpum*	climber	Weed, but also used as fodder
16	*Phyllanthus amarus*	herb	Weed
17	*Phyllanthus tellenus*	herb	Weed
18	*Senna tora*	Herb	weed
19	*Wikstroemia indica*	shrub	Weed, well adapted to rocky shores
20	*Litsea glutinosa (Bois D'oiseau)*	Tree	Medicinal, weed
21	*Casuarina*	tree	Ornamental

22	*Stachytarpheta urticifolia*	herb	weed
23	*Alamanda*	herb	Ornamental
24	*Cuscuta*	Liana	Parasitic plant
25	*Passiflora foetida*	Climber	weed
26	*Acalypha indica*	herb	weed
27	*Portulaca oleracea*	herb	weed
28	*Desmodium*	herb	weed
29	*Ricinus communis (castor)*	shrub	Weed in Mauritius. But oil from the seeds are commercially exploited
30	*Vitex trifolia*	shrub	weed
31	*Amarathus dubius*	herb	Edible, often consumed as gree vegetable
32	*Caesalpinia bonduc*	Shrub	ornamental
33	*Bidens pilosa*	Herb	weed
34	*Cissus*	Herb	weed
35	*Sida glabra*	Herb	weed
36	*glinus*	Herb	weed
37	*Euphorbia cyathophora*	herb	weed
38	*Fern*	fern	Ornamental
39	*Callistemon acuminatus*	tree	Ornamental
40	*Delonix regia*	Tree	Ornamental
41	*Passiflora edulis*	climber	Fruit tree

Dichanthium annulatum

A popular pasture grass in many areas of the world. It can be used in fields for grazing livestock and cut for hay and silage.

It is tolerant of varied soil conditions, including soils high in clay and sand, poorly drained soils, and soils that are somewhat alkaline and saline.

It forms a turf that can stand up to grazing pressure. It can recover from fire and drought, but it is less tolerant of frost and shade. It does not require fertilizer but it does respond well to a small amount of supplemental nitrogen.

Plantae

Angiosperms

Monocots

Poaceae

Dicanthium

D.annulatum

Abundance: Sparse, restricted to few patches in the area

Importance: Weed, Pasture for cattle

Endemicity: Exotic

Cenchrus echinatus

It is a common invasive weed.

C. echinatus occurs as a weed in many crops worldwide. It is common in cultivated fields, pastures, fallows, orchards, vineyards, coffee, vegetables, bananas, coconuts and lawns, where it can withstand repeated defoliation. It can be found along roadsides and beaches, in open ground and waste places. Crops competing for nutrients with C. echinatus typically have smaller leaf areas and lower growth rates and yields

Plantae

Angiosperms

Monocots

Poaceae

Cenchrus

C. echinatus

Abundance: Uncommon

Importance: Invasive weed species

Endemicity: Rare

Cordia cylindristachya

This plant is normally referred as a magnet for butterflies as well as moths. It is nectariferous and was once very common in the Mauritian landscapes.

The String Bush is a bushy shrub, growing to 1-1.5m tall. In larger and older bushes, the stems of the plant are woody and firm. The leaves of the String Bush are rough and velvety to the touch, relatively hairy, and dull green. Each leaf is eillptical or ovate with a sawtooth edge. The mature leaves are around 5-10cm long. The leaves grow from the stem in alternate arrangement. Young stems are light green, turning woody brown as the bush matures.

Although the String Bush is not an aesthetically attractive plant to landscape designers and gardeners, it is certainly an important addition to any garden that wants to attract butterflies

Plantae
Dicotyledon
Boraginaceae
Cordia
C.*cylindristachya*

Abundance: Uncommon in the region

Importance: weed, but is important for pollinators such as butterflies and moths

Endemicity: Exotic, native to tropical America

Castor *(Ricinus communis)*

Ricinus communis can vary greatly in its growth habit and appearance. The variability has been increased by breeders who have selected a range of cultivars for leaf and flower colours, and for oil production. It is a fast-growing, shrub that can reach the size of a small tree.

Castor oil derived from the seeds have many uses.

An alcoholic extract of the leaf was shown, in lab rats, to protect the liver from damage from certain poisons Methanolic extracts of the leaves of *Ricinus communis* were used in antimicrobial testing against eight pathogenic bacteria in rats and showed antimicrobial properties. The pericarp of *Ricinus* showed central nervous system effects in mice at low doses. At high doses mice quickly died.A water extract of the root bark showed analgesic activity in rats. Antihistamine and anti-inflammatory properties were found in extract of root bark.

Castor oil (seeds) is an effective motor lubricant and has been used in internal combustion engines, including those of World War I airplanes, some racing cars and some model airplanes.

Abundance: common

Importance: Ornamental plant, considered as weed also, has lots of medicinal properties , castor oil exploited in several countries

Endemicity: Exotis

Plantae
Angiosperms
Dicotyledon
Euphorbiaceae
Ricinus
R. communis

Pongamia pinnata/ Millettia pinnata (La coque luche)

Abundance: common

Importance: often considered as semi-mangrove

Coastal shore protection

Ornamental for landscapes

Oil from seeds considered as biodiesel

Endemicity: exotic

Millettia pinnata is well-adapted to arid zones and has many traditional uses. It is often used for landscaping purposes as a windbreak or for shade due to the large canopy and showy fragrant flowers. The flowers are used by gardeners as compost for plants requiring rich nutrient. The bark can be used to make twine or rope and it also yields a black gum that has historically been used to treat wounds caused by poisonous fish. The wood is said to be beautifully grained but splits easily when sawn thus relegating it to firewood, posts, and tool handles.

While the oil and residue of the plant are toxic and will induce nausea and vomiting if ingested, the fruits and sprouts, along with the seeds, are used in many traditional remedies.Juices from the plant, as well as the oil, are antiseptic and resistant to pests. In addition *M. pinnata* has the rare property of producing seeds of 25–40% lipid content of which nearly half is oleic acid Oil made from the seeds, known as pongamia oil, is an important asset of this tree and has been used as lamp oil, in soap making, and as a lubricant for thousands of years.

Plantae
Dicotyledonae
Fabales
Fabaceae
Millettia

Sesbania sp

Sesban is a N-fixing shrub suitable as a soil improver. It provides green manure and its leaves produce rich compost.

Good for Fodder or grazing pasture.

Stems often break during grazing, but the rapid regrowth below the break point improves yield.

Plantae

Angiosperms

Dicotyledonae

Fabales

Fabaceae

Sesbania

Abundance: Uncommon, few patches.

I**mportance**: Forage plant, also considered as weed

Endemicity: Exotic

Phyllanthus amarus

Abundance: Common

Importance: Weeds, but yes medicinal properties are exploited in other countries

Endemicity: Exotic

Phyllanthus amar. belongs to the family Euphorbiaceae is a small herb well known for its medicinal properties and widely used worldwide. *P. amarus* is an important plant of Indian Ayurvedic system of medicine which is used in the problems of stomach, genitourinary system, liver, kidney and spleen. It is bitter, astringent, stomachic, diuretic, febrifuge and antiseptic. The whole plant is used in gonorrhea, menorrhagia and other genital affections. It is useful in gastropathy, diarrhoea, dysentery, intermittent fevers, ophthalmopathy, scabies, ulcers and wounds.

Plantae

Angiosperms

Dicotyledonae

Euphorbiaceae

Phyllanthus

P. amarus

Var

Gazon PIK fesse

Important grass

Good ground cover. Adapts very well to saline conditions and therefore very abundant along coastal shores of Mauritius.

Requires minimal input, tolerates dry conditions.
Prevents soil/ sand erosion .

Abundance: Common

Importance: Prevent soil/sand erosion, also used as lawn grass

Endemicity: Native

L'herbe Bourik

Partial shaded bright green grass, native to east africa coast hence suitable for planting in warm coastal areas, wetlands.

It is well grazed by animals. Leaf-blades are folded lengthwise along the midrib.

Commercial lawn grass in Mauritius.

kingdom:	Plantae
Phylum :	Angiosperms
Class :	Monocots
Subclass :	Commelinids
Order:	Poales
Family:	Poaceae
Subfamily:	Panicoideae
Tribe:	Paniceae
Genus:	***Stenotaphrum***

Abundance: Common

Importance: Common lawn grass

Endemicity: Exotic

Amranthus dubius (Brede malbar)

The plant is a herbaceous with pinkish to violet stems and leaves.

Commonly known as brede malbar in Mauritius, and Red spinach as common English name.

Often considered as invasive weed in Mauritius, though it is also cultivated as vegetable.

This plant is normally harvested from the wild for local use as food.

Plantae

Angiospermae

Dicotyledon

Amaranthaceae

Amaranthus

Abundance: Common

I**mportance**: Edible, consumed as leaf vegetable

Also considered as weed species

Endemicity: Exotic

Achyranthes aspera

Chaff-flower is distributed throughout the tropics. It is an introduced plant species and is considered as a major weed.

It is a small shrub,annual and reached a maximum height of 1 meter.

It is considered as a medicinal plant and has proved to be effective against piles and skin diseases.

Hos also proved to be effective againstcholera, abdominal diseases, absess and acne

Plantae

Angiospermae

Dicotyledon

Amaranthaceae

Achyranthes

A. aspera

Abundance: Common

Importance: Weed, but plant has also shown medicinal properties

Endemicity: Exotic

Ipomoea obscura

Obscure morning glory is an annual herb with slender twinning stem.

The leaves are consumed as vegetable in several African countries.

Sap from the plant are used to treat fits of insanity.

It is also used along with other plant species to treat open sores and pustules. Root decoction is used to treat dysentry

Plantae

Angiospermae

Dicotyledon

Solanales

Convolvulaceae

Ipomoea

I. obscura

Abundance: common

Importance: considered as weed in Mauritius; at times use

Endemicity: exotic

Pithecellobium dulce

The plant is a tree with spiny stem and branches. The flowers produce a fruit/pod which turns pink when ripe and opens to expose the seeds and the edible pulp.

The edible pulp in the seeds is sweet and sour and is eaten raw.

Is considered a medicinal plant to treat gum ailments, toothache and hemorrhages.

Plantae

Angiospermae

Dicotyledon

Fabales

Fabaceae

Abundance: uncommon

Importance: Often used as fence/hedge plants and ornamental

Endemicity: exotic

Eleocharis minuta

Considered as a grass in Mauritius. Grows well along coastal shores , lakes,swamps and wetlands. Can withstand the effects of being submerged for long periods.

Helps to prevent sand/soil erosion along coastlines.

Plantae

Angiospermae

Monocots

Commelinids

Poales

Cyperaceae

Eleocharis

E. minuta

Abundance: common

Importance: prevents erosion

Endemicity: Indigenous to Africa

Cynodon dactylon (chien dents)

Common in Mauritius, commonly known as chien dents.

Also known as Bermuda grass, it has widespread over all the continents and is considered as an invasive weed species.

It is cultivated and use as lawn in sport fields as it regenerated very fast.

Plantae

Angiospermae

Monocots

Commelinids

Poales

Poaceae

Cynodon

C. dactylon

Abundance: common

Importance: considered as invasive weeds, but can be used as lawn grass

Endemicity: Exotic

Bidens pilosa

Weed, native to America, but widespread over Asia, Africa and Australia.

Typical seeds with stiff hairs and get sruck to feathers, fur, socks and clothings.

Also known as soldier vegetable, and is consumed in Africa.

Plantae

Angiospermae

Dicotyledon

Asterales

Asteraceae

Bidens

B. pilosa

Abundance: Quite common

Importance: Invasive weed species

Endemicity : exotic

Dactyloctenium aegyptium

The Egyptian crowfoot grass grows well in heavy soils at damp sites. It is an annual with no stolons, and reaches upto 50 cm tall.

Considered as a traditional food plant as a famine food in Africa.

It is considered as an invasive weed species, but also as early colonizers. Colonizers quickly due to high seed production, and is common along coasts with sandy soils and where ther are water accumulations.

Plantae

Angiospermae

Monocots

Commelinids

Poales

Poaceae

Dactyloctenium

D. aegyptium

Abundance: Quite common

Importance: Invasive weed species

Endemicity : Native to Africa

Kyllinga bulbosa

Abundance: Uncommon

Importance: weed species

Endemicity: Native to Africa

Considered as true sedges. Widespread weed species around the world.

It grows well in damp and moist places, common in wet localities and sandy places.

Root oil is used for liver stimulation and in relieve pruritus, an also for treatment of Diabetes.

Plantae

Angiospermae

Monocots

Commelinids

Poales

Poaceae

Kyllinga

K. bulbosa

Polypodium sp

Polypodium are true ferns. Most of them are abundant but also native to tropics.

Polypodium are common in Mauritian forest, some of them growing as epiphytes on trees.

Normally prefer shaded and moist regions, but this species was reported in lowlands and exposed to sun at Mahebourg

Polypodium and other ferns are also grown as ornamentals.

Plantae

Pteridophyta

Polypodiales

Polypodiaceae

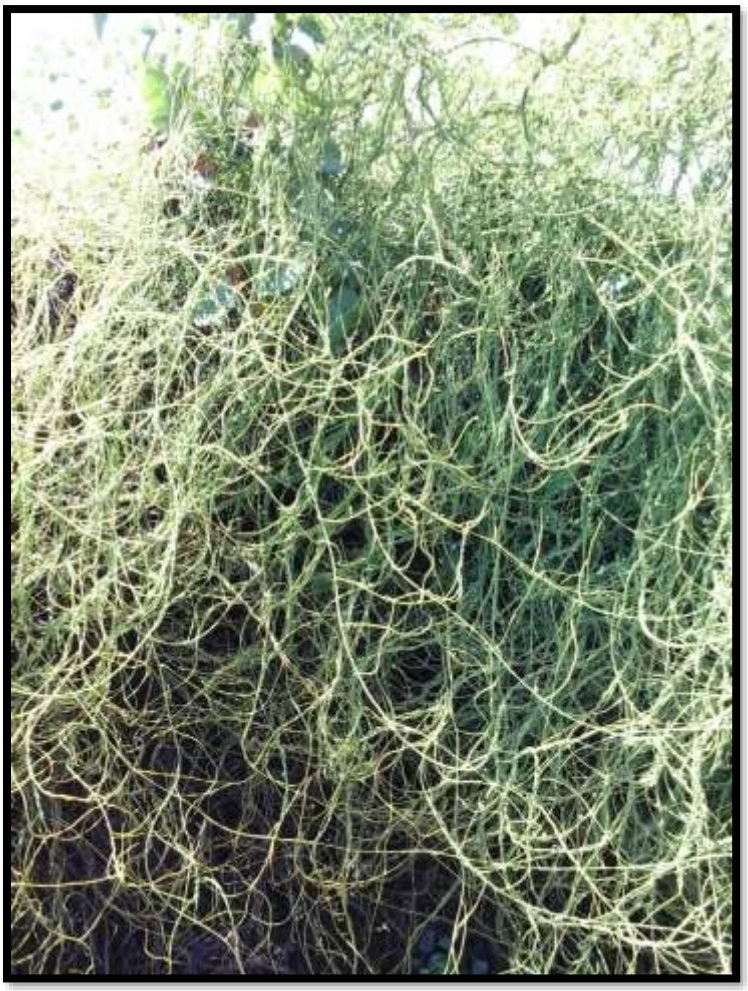
Polypodium

Abundance: Uncommon

Importance: Biodiversity

Endemicity: Reported by Baker, can be considered indigenous

Cuscuta sp



Abundance: Quite common

Importance: considered as weed

Endemicity: Exotic

Dodder is a parasitic plant, which common in Mauritius.

Cuscuta has no chlorophyll and cannot make its own food by photosynthesis. Instead, it grows on other plants, using their nutrients for its growth and weakening the host plant. Agriculturalists consider cuscuta a destructive weed and attempt to eradicate it. It parasitizes wild and cultivated plants.

In Western herbalism, cuscuta was traditionally used to treat liver, spleen, and gallbladder disorders such as **jaundice** ; and to support liver function. Cucuta is also used in Chinese medicine and Ayurvedic medicines.

Plantae

Angiospermae

Dicotyledon

Solanales

Convolvulaceae

Cuscuta

Wikstroemia indica

W. indica is a small tree or shrub, mostly to 1.5 m high, glabrous or branches sparsely hairy, later smooth and shiny. It is often encountered along the coasts.

Toxic if eaten; the fruit appears to be more toxic than the leaves.

Plantae

Angiospermae

Dicotyledon

Malvales

Thymeleaceae

Wilkstroemia

W. indica

Abundace: Quite Common

Importance: Weed and a toxic plant

Endemicity: exotic

Santalum album (sandalwood)

Abundance: Quite common

Importance: Wood exploited for sandalwood

Endemicity: Exotic

Santalum album is a small tropical tree, and is the most commonly known source of sandalwood. Certain cultures place great significance on its fragrant and medicinal qualities. It is also considered sacred in some religions and is used in different religious traditions. The high value of the species has caused its past exploitation, to the point where the wild population is vulnerable to extinction. Indian sandalwood still commands high prices for its essential oil, but due to lack of sizable trees it is no longer used for fine woodworking as before. The plant is widely cultivated and long lived.

In Mauritius the wood is sold in Pooja shops, and are normally grown for commercial use and sold for religious purposes.

Plantae

Angiospermae

Dicotyledon

Santalales

Santalaceae

Santalum

S. album

Acacia

Acacia (genus *Acacia*), genus of about 160 species of trees and shrubs in the pea family (Fabaceae). Acacias are native to tropical and subtropical regions of the world. Acacia belong to FAbales, meaning they root nodules. They also have high protein content and are a good source of fodder for cattle.

Plantae

Angiospermae

Dicotyledon

Santalales

Fabales

Fabaceae

Mimosoideae

Acacia

Abundance: common

Importance: Fodder for cattle

Endemicity: exotic

Litsea glutinosa (Bois D'oiseau)

Abundance: common

Importance: Fodder for cattle amd medicinal

Endemicity: exotic

The Indian laurel (*Litsea glutinosa* is an evergreen, or deciduous, tree that reaches a height of 3-15 m.

Litsea glutinosa is a multipurpose, fast-growing tree. In the Northern Philippines, the leaves are chopped and soaked in water to make plaster. . It is also used in ethnomedicine: in India, its bark and leaves are used as a demulcent and mild astringent for diarrhea and dysentery, and the paste of its roots is used as poultice for sprains and bruises.

In Mauritius it is mostly used as fodder for cattle, and the medicinal properties are also known in Mauritius.

Plantae

Angiospermae

Dicotyledon

Laurales

Lauraceae

Ipomoea nil (Liane cochon)

Ivy morning glory is cultivated as ornamental plant in many places, and the descendants of garden escapees now grow wild. It is a climbing annual herb with three-pointed leaves 3 to 8 centimeters long. The flowers are several centimeters wide and appear in various shades of blue, pink or rose, often with white stripes or edges or blends of colors.

It is used to treat Asthma, bronchitis and also used as diuretic.

Plantae

Angiospermae

Dicotyledon

Solanaales

Convolvuceae

Abundance: Uncommon

Importance: Ornamental, but considered as weed

Endemicity: exotic

Euphorbia heterophylla

Abundance: Quite common

Importance: Ornamental, but now considered as weed

Endemicity: exotic

The Mexican fireplant is a hardy, ruderal species, growing between 30 and 70 cm in height. The leaves at the upper end of the stalk, close to the cyathium, have a striking, scarlet red coloration. Leaves are mainly 2-4 lobed and 4–7 cm long by 1.5–3 cm wide.

It was introduced in many countries as ornamental but it later became a major weed in most of there countries.

It is considered as a toxic plant just as most of the genus euphorbia. Individuals sensitive to latex are known to have strong reactions,including dermatitis and anaphylaxis, to the latex exuded by this plant.

Plantae

Angiospermae

Dicotyledon

Euphorbiacea

Euphorbia

E.heterophylla

Sida rhombifolia

Abundance: common

Importance: Weed

Endemicity: exotic

Paddy's Lucerne stems are erect to sprawling and branched, growing 50 to 120 centimeters in height, with the lower sections being woody. The dark green, diamond-shaped leaves are arranged alternately along the stem, 4 to 8 centimeters long, with petioles that are less than a third of the length of the leaves. They are paler below, with short, grayish hairs. The apical half of the leaves have toothed or serrated margins while the remainder of the leaves are entire (untoothed).

Medicinal uses: Antibiotic, anti-inflammatory, abortive,anti-diabetic,aphrodisiac, sedative, tonic..

Plantae

Angiospermae

Dicotyledon

Malvaceae

Sida

Allamanda cathartica

Allamanda is an ornamental plant and is widely used in Mauritius. It is not considered a weed but, yes it is an exotic and is considered toxic for its latex.

The plant is grown along roadsides and the flowers are plucked in huge quantities by Mauritian for Religious purposes.

Plantae

Angiospermae

Dicotyledon

Apocynaceaeceae

Allamanda

A.cathartica

Abundance: common

Importance: Ornamental

Endemicity: Exotic, Native to America

Turnera ulmifolia

Short ornamental herb with conspicuous yellow flowers. The plant is considered as a weed in Mauritius and many parts of the world.

Plantae

Angiospermae

Dicotyledon

Passifloraceae

Turnera

T.ulmiflora

Abundance: common

Importance: Ornamental

Endemicity: Exotic, Native to America

Flacourtia indica (Prune sauvage)

Bushy thorny plant, considered as a major weed in sugarcane field. Considered as an under-utilised crop, producing small purplish berries (batoco/madagascar plum).

The fruit is eaten ripe, can be fermented to make wine, and made into a jelly as wine.

Plant parts are used in traditional medicine to treat arthritis, cough and pneumonia.

Plantae

Angiospermae

Dicotyledon

Salicaceae

Flacourtia

F.indica

Abundance: common

Importance: weed, under utilized crop

Endemicity: Exotic, Native to Africa

Callistemon (Bottle Brush)

Callistemon is an ornamental tree introduced in the landscapes of Mauritius.

It is commonly known as bottlebrush, for its beautiful red inflorescence ornated with red flowers resembling a bottle brush.

Plantae

Angiospermae

Dicotyledon

Myrtaceae

Callistemon

C. citrinus

Abundance: Uncommon

Importance: Ornamental

Endemicity: Exotic, Native to Australia

Frangula alnus

Buckthorn is a bushy shrub, with protrate stems.

The plant thrives well in dry shady places.

Plantae

Angiospermae

Dicotyledon

Rhamnaceae

Frangula

F.alnus

Abundance: Uncommon

Importance: Ornamental

Endemicity: Exotic, Native to Africa

Caesalpinia bonduc

Abundance: Uncommon

Importance: Ornamental

Endemicity: Exotic

Bonduc/Nicker nut is a climbing plant with stems up to 15 metres long that are usually armed with robust prickle.
The plant is commonly used as a medicinal herb in the areas where it grows, being mainly harvested from the wild. The seeds are often sold in local markets (Not in Mauritius). The plant is occasionally cultivated for its seed oil. This oil is used for cooking.

The seeds are antibacterial, anticancer, antifungal, antiviral, febrifuge, hypocholesterolemic, hypoglycaemic, mildly purgative, stomachic and tonic.. A bitter extract from the seeds is known as 'poor man's quinine' and is used against malaria. The powdered kernel of the seed is taken with water to treat diabetes mellitus. The seeds are used to soothe stomach disorders.

Plantae

Angiospermae

Dicotyledon

Caesalpinaceae

Caesalpinia

C. bonduc

Casuarina equisetifolia (Filaos)

Filaos are evergreen trees that are grown along the coasts of Mauritius. The foliage consists of slender, much-branched green to grey-green twigs bearing minute scale-leaves in whorls of 5–20. The apetalous flowers are produced in small catkin-like inflorescences. *C. equisetifolia* is a common tropical seashore tree and is often planted as a windbreak. The wood of this tree is used commercially for shingles or fencing, and is said to make excellent, hot burning firewood.

The resin exuded from some casuarinas is edible and was a food source for Aboriginal people

Plantae

Angiospermae

Dicotyledon

Casuarinaceae

Casuarina

C. equisetifolia

Abundance: Common

Importance: Ornamental, Landscaping

Endemicity: Exotic

Stachytarpheta jamaicensis

Abundance: Common

Importance: weed, medicinal

Endemicity: Exotic

Blue snake weed belongs to the family of Verbenaceae and is commonly known as Gervao, Brazilian tea, verbena cimarrona, rooter comb, or blue porter weed. It is one of the important plants with high medicinal and nutraceutical benefits.

S. jamaicensis contains various medicinal properties in traditional and folk medicinal systems, with cures for several diseases. This plant has been used traditionally by the elderly as a cure for allergies and respiratory conditions, cough, cold, fever, constipation, digestive complications, and dysentery and promotes menstruation.

It is considered as a major sugarcane weed in Mauritius.

Plantae

Angiospermae

Dicotyledon

Verbenaceaeceae

Stachytarpheta

S, jamaicensis

Senna tora

Abundance: Common

Importance: weed

Endemicity: Exotic

Senna tora is an annual to perennial plant with stems that can become more or less woody; it can grow up to 2 metres tall. Mostly found in waste ground, often in dry to wet thickets, or as a weed in cultivated ground.

Seeds - cooked or roasted in the pods.They are eaten as a side-dish with rice.
The roasted seeds are a coffee substitute. Young, tender leaves and shoots – cooked. They are steamed as a potherb, or cooked and eaten with rice. They contain about 6% protein. The following uses are for the closely related S. obtusifolia, and probably also apply here.

Plantae

Angiospermae

Dicotyledon

Caesalpinanaceae

Senna

S.tora

Passiflora foetida

Abundance: Common

Importance: weed

Endemicity: Exotic, Native to Americas

The goat-scented passion flower is an ill-scented, climbing herbaceous perennial plant, producing stems around 2.5 metres long. These stems scramble over the ground, or clamber into the surrounding vegetation, supporting themselves by means of coiling tendrils. The fruit is gathered from the wild and consumed locally, but is not greatly valued because of its small size. However, the plant is cultivated for its fruit in some tropical areas of America, Africa and Asia

Plantae

Angiospermae

Dicotyledon

Passifloraceae

Passiflora

P. foetida

Desmodium sp

Desmodium belong to Fabaceae and are considered a major weed in Mauritius.

These are mostly inconspicuous, small legumes; few have bright or large flowers. Though some can become sizeable plants, most are herbs or small shrubs. Their fruit are loments, meaning each seed is dispersed individually enclosed in its segment. This makes them tenacious plants and some species are considered weeds in places. Normally the seeds stick to clothing and shoe laces.

Plantae

Angiospermae

Dicotyledon

Fabaceae

Desmodium

Abundance: Common

Importance: weed

Endemicity: Exotic

Acalypha indica

Abundance: Common

Importance: weed

Endemicity: Exotic

Indian nettle is an annual to sometimes short-lived perennial herb that usually grows up to 1.5 metres tall with occasional specimens to 2.5 metres.. An important medicinal plant in the Indian Ocean islands as well as in India, where it is also cultivated for its edible shoots.

Indian nettle contains a number of medically active ingredients including an essential oil, resin, tannins and an alkaloid. It was formerly listed in the British Pharmacopoeia. It has numerous medicinal uses in India and is listed in the Pharmacopoeia of India as an expectorant to treat asthma and pneumonia]. It also has significant antibacterial and antifungal activities, both against human and plant pathogens, and it would be worthwhile continuing research to isolate the active compounds.

Plantae

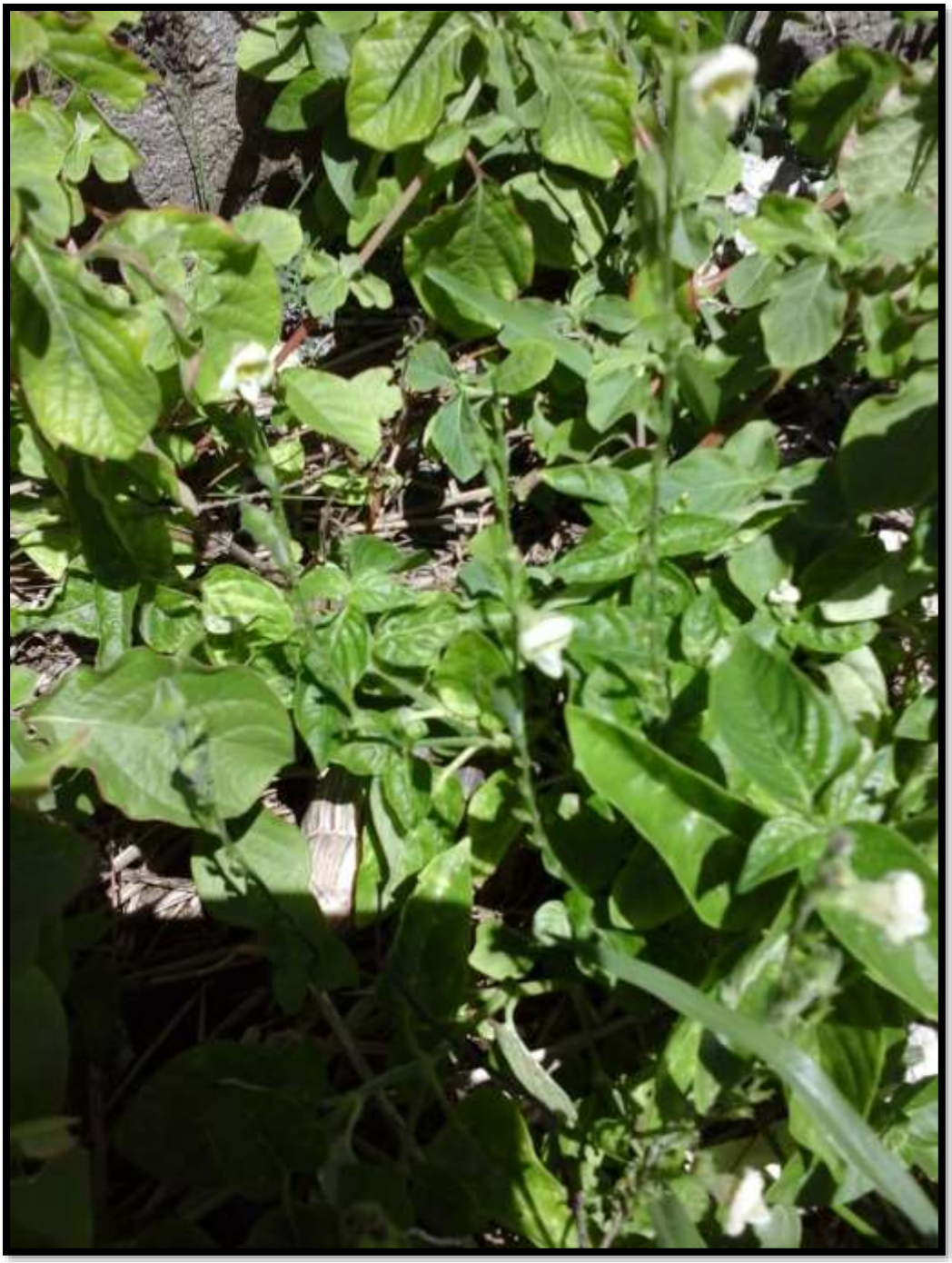
Angiospermae

Dicotyledon

Amaranthaceae

Acalypha

A.indica



Euphorbia prostrata

Abundance: Common

Importance: weed

Endemicity: Exotic

Euphorbia prostrata is a prostrate, annual herb with branches up to 20cm long, tinged purplish, with numerous adventitious roots; the stems contain latex. It is found in disturbed places, gardens, fields and roadsides, usually on sandy or gravelly soild. The plant is a prolific seed producer. Most seeds will germinate at the same time when ecological conditions are favourable, especially during the rainy season. It is considered a weed, and can be a nuisance in crops due to the large number of seedling.
Euphorbia prostrata grows rapidly, flowering and producing fruits just 12 - 14 weeks after germination. It can be found flowering and fruiting throughout the year if enough water is available.

The latex is irritant and blistering to the skin and mucous membranes and is reported to cause blindness

Plantae

Angiospermae

Dicotyledon

Euphorbiaceae

Euphorbia

E.prostata

Axonopus compressus

Axonopus compressus has a creeping stem which roots at the nodes. It is a perennial, stoloniferous, short-spreading grass. Culms ascendent, 20-50 cm tall, solid, and laterally compressed. The leaf sheath is fine and hairy along the outer margin; the nodes densely pubescent; ligule very short, fringed with short hairs; the leaf blade is lanceolate, flat, relatively short, 5-15 cm long by 2.5-16 mm wide, base broadly rounded; margin ciliate, apex obtuse.

It is considered a weed but it is common in pastures and is often controlled by cattle grazing.

Plantae
Angiospermae
Monocots
Poaceae
Axonopus
A. compressus

Abundance: Common

Importance: weed, grass, fodder

Endemicity: Exotic

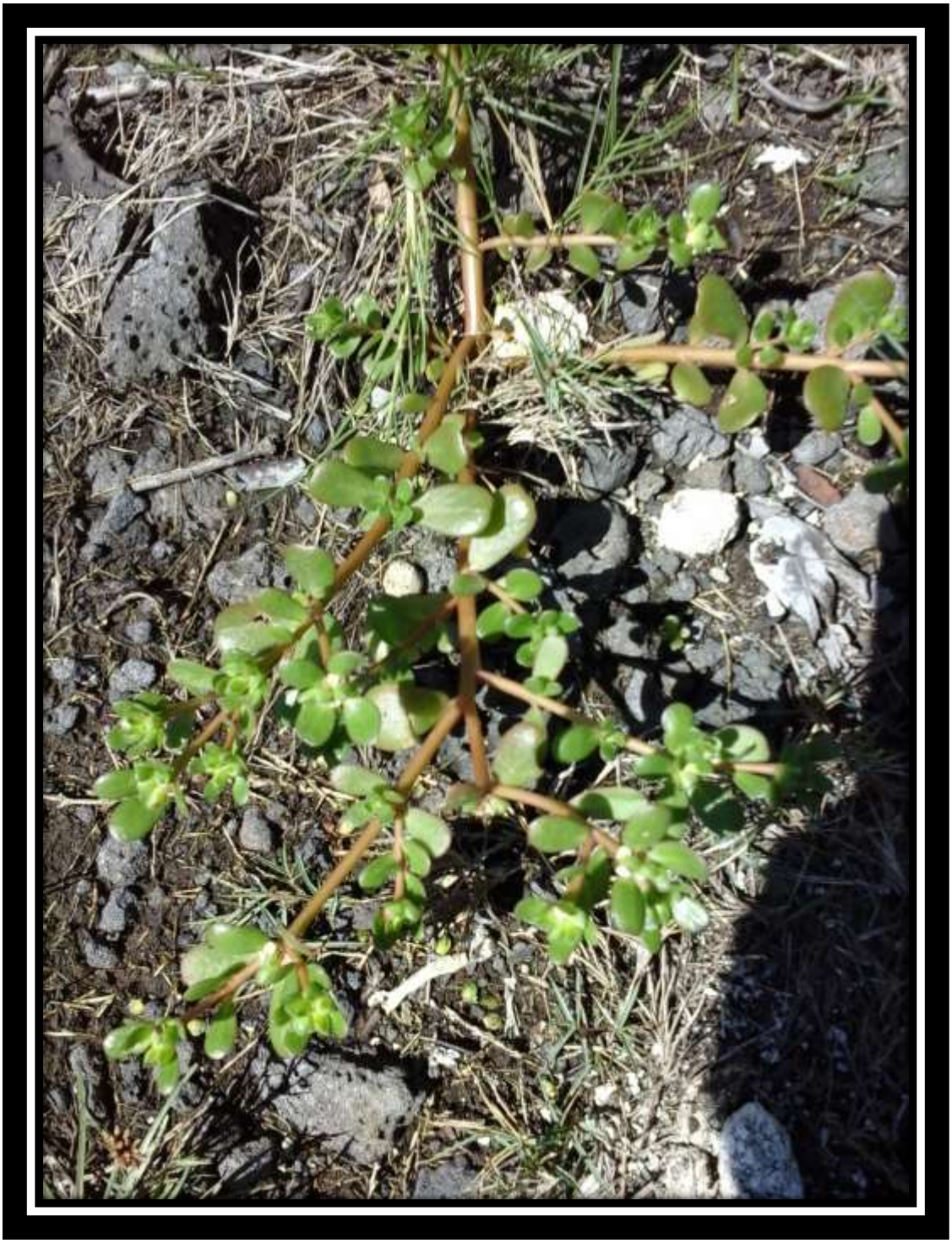
Panicum pseudowoeltzkowii

Abundance: Common grass

Importance: weed, grass, fodder

Endemicity: Exotic

Pottulca oleracea



Reforestation Plan

Introduction

A reforestation plan for this area should accent on three main objectives:

1) Systematic removal of weeds
2) Transplantation of indigenous species
3) Continuous maintenance planted trees and de-weeding

Impacts of weeds

Over the years these weeds have altered the native ecosystems, behavior of animals such as pollinators, changed the soil biota and also competed with remnants of indigenous plants. Major ecological impacts include: 1) gradual change of flora 2) introduced plant pathogens [weeds acting as host] 3) competition with native species for resources and pollinators 4) aesthetic degradation 4) native biodiversity loss

Economic impacts may not always be negative, with the fact that these weeds are present in an abandoned land. Some of these exotic weeds may be used as fodder, and can thus be considered either economically important. Thus, removal may not always entail positive impacts, but can lead to a sudden reduction in pollinator loss. Weed removal should be systematic and progress should be plot by plot viz. at specific areas at specific times

Similarly, reforestation is not just about growing a certain number of indigenous trees and then expecting regeneration. These areas normally turn out into weeded areas within months if not systematically monitored. Selection of plants species being introduced and presence of natural pollinators are essential to ensure successful regenerative capacity of the planted forests.

For a successful reforestation plan accent should be given on the following issues:

1) Define clearly the objectives and actions
2) Native seed / seedling or plant supply
3) Site preparation (de-weeding)
4) Planting and monitoring of growth
5) Maintenance and Evaluation
6) Set broader longer objectives based on first year evaluations.

Of all the components mentioned if accent if given only to a few of them, re-forestation will not be successful.

1) **Define clearly the objectives and actions**

   Normally objectives are set based on pre-defined goals. Nevertheless, over re-forestation program it has been found that financial manoever is often critical in defining long term sustainable re-forestation program. Financial assets will define expanse of re-forestation and also duration of the program.

   Specific objective 1: Carry out a floristic survey of the area. This has been done and compiled for this area being studied. This will help identify the weeds, and consequently define the best techniques for de-weeding.

   Specific Objective 2: De-weeding of selected patches within the whole area. Methods to be employed shall be discussed in later site preparation but can be generalized as : chemical, manual and mechanical methods.

   Specific Objective 3: Planting of native tree/ shrub species.

   Specific objective 4: Defining re-forestation potential. This area could for these main purposes (a) wetland protection/Ramsar site (b) business endeavors for sustainable aquaculture projects (c) re-creational area for people and tourists

2) **Native seed / seedling or plant supply**

   Native plants can be obtained from nurseries of the National Parks and Conservation services (NPCS), Forestry Dept. (min. of Agro-Industry) and Mauritius wildlife Foundation. Plantlets are normally bought, but with proper negociations/ collaborations these can be obtained at minimal or no costs.

   Choice of Plant species

   Plant species selected should adapt to lowland conditions, have a high regenerative capacity, but also hold some cultural values, require minimal care and also enhance the aesthetics of the landscape.

List of species that can be used

Plant species	Habit	Rationale
Psidia	Shrub/Bushy	High regenerative capacity Propagated by cuttings
Pittosporum senacia	Shrub/Bushy	High regenerative capacity
Bois Pomme/Bois de Rennettes	Shrub/Bushy	High regenerative capacity
Hibiscus	Shrub	Ornamental
Trochettia boutoniana	Shrub	Ornamental/ cultural
Coffea macrocarpum	Shrub	
Coffea myrtifolia	Shrub	
Pandanus	Tree	Ornamental/ cultural
Bois d"ebene	Tree	Cultural
Bois Fer	Tree	High regenerative capacity
Palms (Latanier)	Tree	Ornamental/ cultural
Aphloia theiformis	Shrub	ornamental
Hubertia ambavilla	shrub	Ornamental/ cultural

It would be wise to grow a few species but with a higher abundance, rather many species scattered over the area. The above list is based upon certain criteria mentioned. However, the choice of plants may be limited due to the quantities available in the different nurseries.

3) Site preparation (de-weeding)

The target sites may not always require de-weeding. Grasses often act as good ground covers in coastal areas and their removal may not be beneficial whereas, broadleaves are often invasive and prevent growth of native plant species.

Choice of methods of de-weeding will depend upon species being removed. Though chemical herbicides are normally most suitable and faster method for controlling weeds, the closeness to water bodies may restrict their use. Manual de-weeding will be labour intensive and may impose financial constraints. Mechanical methods such as excavators are not advisable for this site.

Kindly note that dead weeds should be removed, and never burned in the area

	Methods		
Habit	**Manual**	**Chemical herbicide**	**Mechanical**
Annuals (Broadleaves)		Foliar spray	
Grasses		Foliar spray	
Trees	Cut-stump	Herbicide applied on cuts	Chain-saw
Shrubs	Cut stumps	Herbicide applied on cuts	Chain-saw

Most effective herbicides: Round- Up/ Glyphosate

Triclopyr

Garlon

After de-weeding, it likely to observe sprouts again, and weekly application of foliar herbicides might be required to get rid of weeds.

4) Planting and monitoring of growth

Plant of native trees should be done at least 3 weeks after de-weeding. The planting methods would be similar for tress and shrubs. The furrows should be $1m^3$, so that there is sufficient supply of soil and space for root growth for good anchorage against winds and cyclones. Soil and compost should be used during transplantation to ensure sufficient nutrient and watering should also be ensured during the initial weeks.

Kindly, note that if weeds are removed, pests such as snails and caterpillars are likely to feed on the transplanted native plants. Thus, monitoring of pest will also be crucial in the initial stages until the plant reaches adult size.

	Growth Monitoring	
Days after transplantation	Watering	Pest- control
Week 1	Daily	Daily
Week2	Daily	Daily
Month	Weekly	Weekly
Year	Weekly	Weekly
Year 2	Not required, unless severe drought	Fortnightly

Pests can preferably be controlled manually.

5) Maintenance and Evaluation

Maintenance will require regular field observations, control of weeds and monitoring the growth of transplanted native plants. (Example of a table to be filled for growth evaluation)

	Growth of Hibiscus	Pest Control	Watering	Blooms	Fruits set
Month 1	Stable (50 cm)	weekly	weekly	NO	NO
Month 2	Few Leaves eaten by caterpillars	weekly	weekly	NO	NO
Month 3	Stable (80 cm)	weekly	weekly	NO	NO
Month 4	stable (1m10)	Fortnightly	Monthly	NO	NO
				NO	NO
Month 12	Stable (1m30)	Aphids controlled		Yes	Yes

6) Set broader longer objectives based on first year evaluations.

i. Evaluate which native species grow better. If some plants have died, they have to be replaced by those species that well adapted to the area.
ii. Assess the resistant weeds. Design better methods for monitoring their growth.
iii. Assess the major constraints and the problems faced during the first year. Re-plan the nest year program taking into consideration all the problems faced.
iv. Hazards. What were the unexpected threats that were not accounted for in the first year. Can these hazards be avoided. If not what measures can we take to minimize their impacts.
v. Ex: (1) some people using the cleared areas for re-creational purposes, but causing significant damage to transplanted plants. Since it is not a restricted area, access cannot be prohibited. Should you place warning signs, signs to state nature of work being done and the reasons to minimize risks of disturbing the native plants grown.
vi. Ex: (2) Climatic events such as high tides that can lead to rise in seawater levels reaching the transplanted plants. Plants may die of such high salt content. Can this be Avoided; no. what can be done: Avoid using native tree species, and focus more on growing mangroves.
vii. If regeneration is successful in selected plots, then expand to other areas.
viii. Create specific re-creational sites for the public (Kiosks, Gazebos, fireplaces)
ix. Remove all weed species.
x. Establish a nursery of indigenous plants at the site for further re-forestation.

Financial Implications

Present Objectives

	Requirements/Expenses	**Constraints/ hazards**	**Time span**
De-weeding	Labour Herbicide Back-pack sprayer Other equipments	Re-sprouting of weeds	1 year
Re-forestation	Labour Plants Water supply Pest Control Transport Planting equipments	Nursery plants available Pests Droughts	2 years
Established indigenous ecological landscape	Water supply Skilled labour Scientific monitoring Supply of Native plants	Cyclones High surges	More than 2 years

Broad Long term Objectives

	Requirements/Expenses	**Constraints/ hazards**	**Time span**
Established indigenous ecological landscape	Water supply Skilled labour Scientific monitoring Supply of Native plants	Cyclones High surges	More than 2 years
Re-creational site	Artificial structures Ex: Gazebos, Kiosks Warning/instruction signs On-site office	Financial permits	More than 2 years
Sustainable, eco-friendly, extensive aquaculture project	EIA clearance Permits Infrastructures: hatcheries, nurseries, defined grow-outs	Theft Permits Diseases Aquaculture pests Water eutrophication	3-4 years

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UoM

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