

APPENDIX A

MAGNIFICATION OF DRAWINGS

Name of Species	Magnification compared to specimen		Magnification compared to mature plant	
	Vertical	Horizontal	Vertical	Horizontal
<i>Actinistius arborescens</i>	0.20	0.20	0.40	0.10
<i>Agave sisalana</i>	0.10	0.20	0.03	0.10
<i>Arundinella confinis</i>	0.20	0.80	0.20	0.80
<i>Arundo donax</i>	0.10	0.20	0.04	0.10
<i>Byrsonima coriacea</i>	0.20	0.20	0.05	0.10
<i>Chrysobalanus icaco</i>	0.10	0.10	0.03	0.06
<i>Cnemidaria spectabilis</i>	0.20	0.30	0.10	0.20
<i>Cortaderia selloana</i>	0.20	0.20	0.05	0.10
<i>Cymbopogon citratus</i>	0.20	0.40	0.20	0.20
<i>Cynodon dactylon</i>	0.60	0.60	0.50	0.50
<i>Dicranopteris pectinata</i>	0.20	0.30	0.20	0.20
<i>Dracaena fragrans</i>	0.10	0.10	0.03	0.06
<i>Gynerium sagittatum</i>	0.10	0.20	0.04	0.10
<i>Imperata brasiliensis</i>	0.20	0.20	0.10	0.20
<i>Ischaemum timorense</i>	0.50	0.20	0.30	0.10
<i>Isertia parviflora</i>	0.10	0.20	0.05	0.10
<i>Lagenocarpus guianensis</i>	0.30	0.30	0.30	0.30
<i>Miconia acinodendron</i>	0.10	0.20	0.04	0.10
<i>Pandanus odoratissimus</i>	0.10	0.20	0.04	0.10
<i>Panicum maximum</i>	0.10	0.30	0.05	0.20
<i>Paspalum pulchellum</i>	0.20	0.20	0.20	0.20
<i>Pitsairna integrifolia</i>	0.20	0.20	0.20	0.20
<i>Sporobolus indicus</i>	0.20	0.30	0.20	0.30
<i>Sporobolus poiretti</i>	0.30	0.30	0.30	0.30
<i>Zoysia matrella</i>	0.30	0.50	0.20	0.30

APPENDIX B

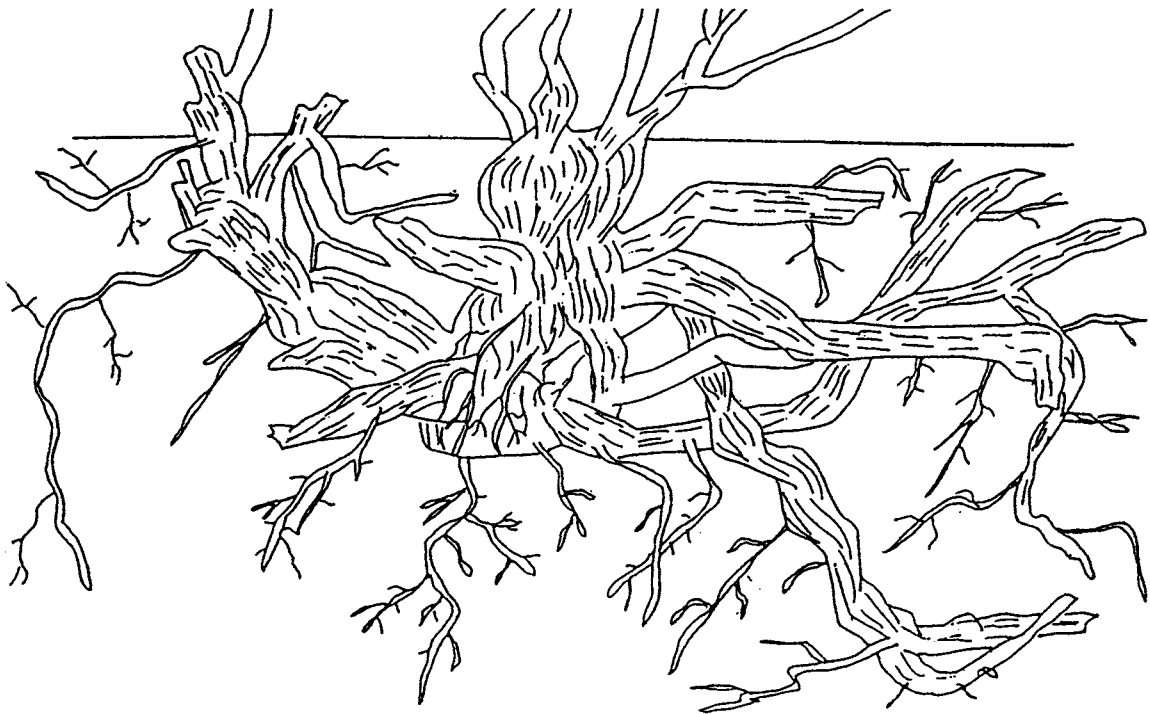
Botanical name:	<i>Actinistus arborescens</i>
Family:	Solanaceae
Common name:	
Classification:	shrub
Bio-engineering attributes	
Root form:	massive thickened underground stems that are strongly branched and bear mainly coarse branched roots; moderate to deep rooted (>100 cm).
Rooting depth:	1 - 2 m
Rooting strength:	extremely strong
Canopy height:	2.5 - 3 m
Canopy spread:	2 m
Bio-engineering use:	good potential for soil conservation purposes
Other uses:	unknown
Method of propagation:	seeds
Ecological and cultural factors	
Potential weediness:	moderate potential to become a weed
Resistance to fire:	unknown
Resistance to grazing:	unknown
Resistance to drought:	dries in the dry season and shoots profusely in the rainy season
Reaction to shade or full sunlight:	grows well in moderate sunlight
Flood tolerance:	unknown

<i>Erosion control:</i>	good potential for erosion control
<i>Natural habitat:</i>	unknown
<i>Rate of growth:</i>	rapid in the rainy season
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

The shoot may die in the dry season but its underground stems send out shoots at the beginning of the rainy season which grow rapidly. Its massive, thickened, branched underground stems hold the soil together against land slippage. Its large leaves provide good ground cover in the rainy season but the drying of leaves in the dry season is a disadvantage. The species is therefore recommended for hillside locations with mild dry seasons.

Actinistius arborescens



Botanical name: *Agave sisalana* Perrine

Family: Agavaceae

Common name: sisal

Classification: shrub

Bio-engineering attributes

Root form: spreading fibrous system; shallow rooting but with some roots reaching moderate depths; good horizontal spread; limited branching; anchoring or bearer roots 2 -4 mm in diameter giving rise to feeder roots which are 1-2 mm in diameter

Rooting depth: extend horizontally 1.5 - 3 m and up to 5 m in the top 30-40 cm of soil

Rooting strength: very strong

Canopy height: 0.7 - 1 m

Canopy spread: 0.7 - 1 m per single plant

Bio-engineering use: useful for holding soil together on road verges, moderately steep embankments, and slopes

Other uses: manufacture of binder and baler twines, ropes in agriculture

Method of propagation: vegetatively by suckers or bulbils, but bulbils are preferred since they are produced in greater quantities (2000 per plant) and these plants are more robust with more leaves. Each bulbil can remain viable for several months after collection

Ecological and cultural factors

Potential weediness none

Resistance to fire: resistant

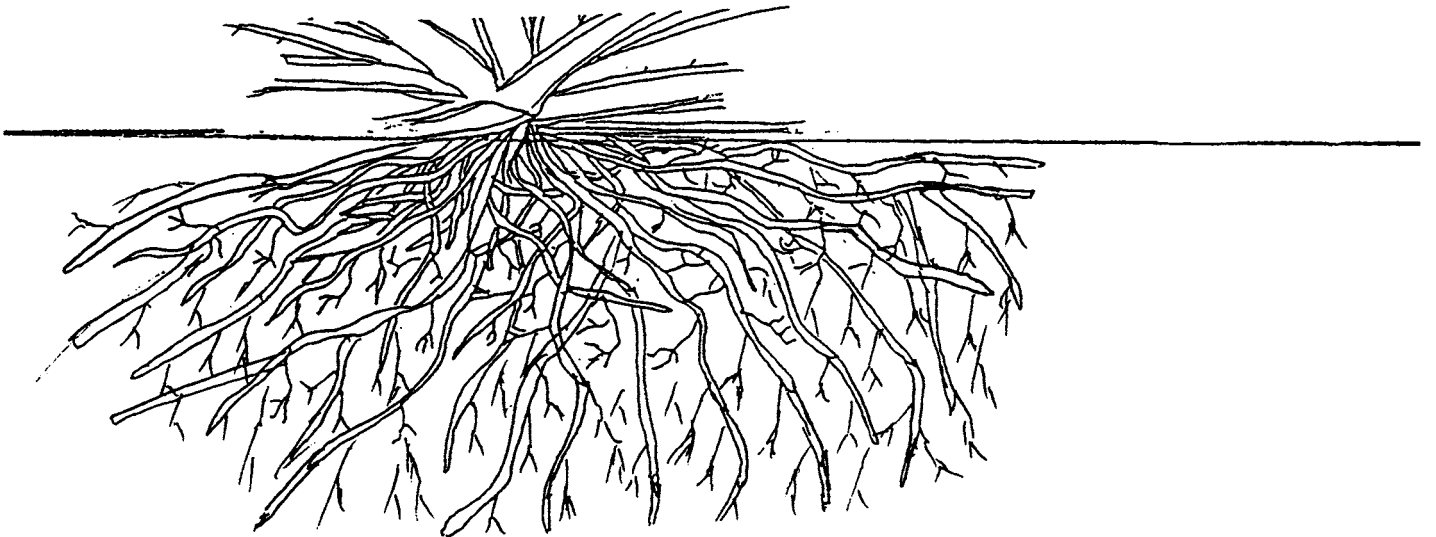
Resistance to grazing: resistant

<i>Resistance to drought:</i>	resistant
<i>Reaction to shade or full sunlight:</i>	requires full sunlight and moderate humidity
<i>Flood tolerance:</i>	cannot withstand water logging
<i>Erosion control:</i>	good erosion control
<i>Natural habitat:</i>	woodland, savannah and grassland areas; from hot and humid coastal belts to the cooler and drier regions and in areas with one or two rainy seasons per year.
<i>Rate of growth:</i>	slow
<i>Ability to spread naturally:</i>	good spreading ability; each plant may produce 5-10 rhizomes at one time and about 20 during its life span

Remarks

Can be grown on a wide range of soils provided they are well drained and rich in bases especially calcium, but thrives best on alluvial and colluvial soils, red earths derived from recent and tertiary coral limestone, non laterized red earths derived from gneiss and on volcanic soils; but can grow under a wide range of conditions. Can be grown as barriers on the contour on roadside embankments to protect the soil against erosion.

Agave sisalana Perrine



Botanical name: *Andropogon bicornis* (L.)

Family: Gramineae

Common name: ridging grass; foxtail

Classification: grass

Bio-engineering attributes

Root form: fibrous; dense rooting at the soil surface

Rooting depth: 20 - 25 cm; can be deeper on light pervious soils

Rooting strength: very strong

Canopy height: 1 m

Canopy spread: 0.7 m

Bio-engineering use: good potential for soil slope stabilization

Other uses: unknown

Method of propagation: root divisions

Ecological and cultural factors

Potential weediness: moderate weed potential but unlikely to become an obnoxious weed

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: resistant

Reaction to shade or full sunlight: grows well in full sunlight

Flood tolerance: unknown

Erosion control: good potential for soil erosion control

Natural habitat: grassy hills and banks

Rate of growth: moderate

Ability to spread naturally: good spreading ability

Remarks

This species is suitable for hillsides where the soil is not very erodible. It can protect against sheet erosion but its relatively shallow rooting would not protect against land slippage where the failure plane is below 30-50 cm. In these situations it has to be planted with other deeper rooted species. It can provide grazing but it needs to be controlled to prevent overgrazing.

Botanical name: *Arundinella confinis* Schult

Family: Gramineae

Common name:

Classification: grass

Bio-engineering attributes

Root form: fibrous; shallow to moderately deep; long coarse primary roots with limited secondary roots

Rooting depth: 20 - 25 cm; extremely strong; cannot be uprooted by hand

Canopy height: 2 - 3 m

Canopy spread: effectiveness obtained by stolons running along the surface of the soil and forming clumps

Bio-engineering use: used to stabilize soils on steep surfaces

Other uses: unknown

Method of propagation: seeds, stolons

Ecological and cultural factors

Potential weediness: unknown

Resistance to fire: very resistant

Resistance to grazing: unknown

Resistance to drought: resistant, grows profusely in the dry season

Reaction to shade or full sunlight: very good tolerance to sunlight and shade

Erosion control: very good at controlling erosion on slopes
Rate of growth: slow to moderate

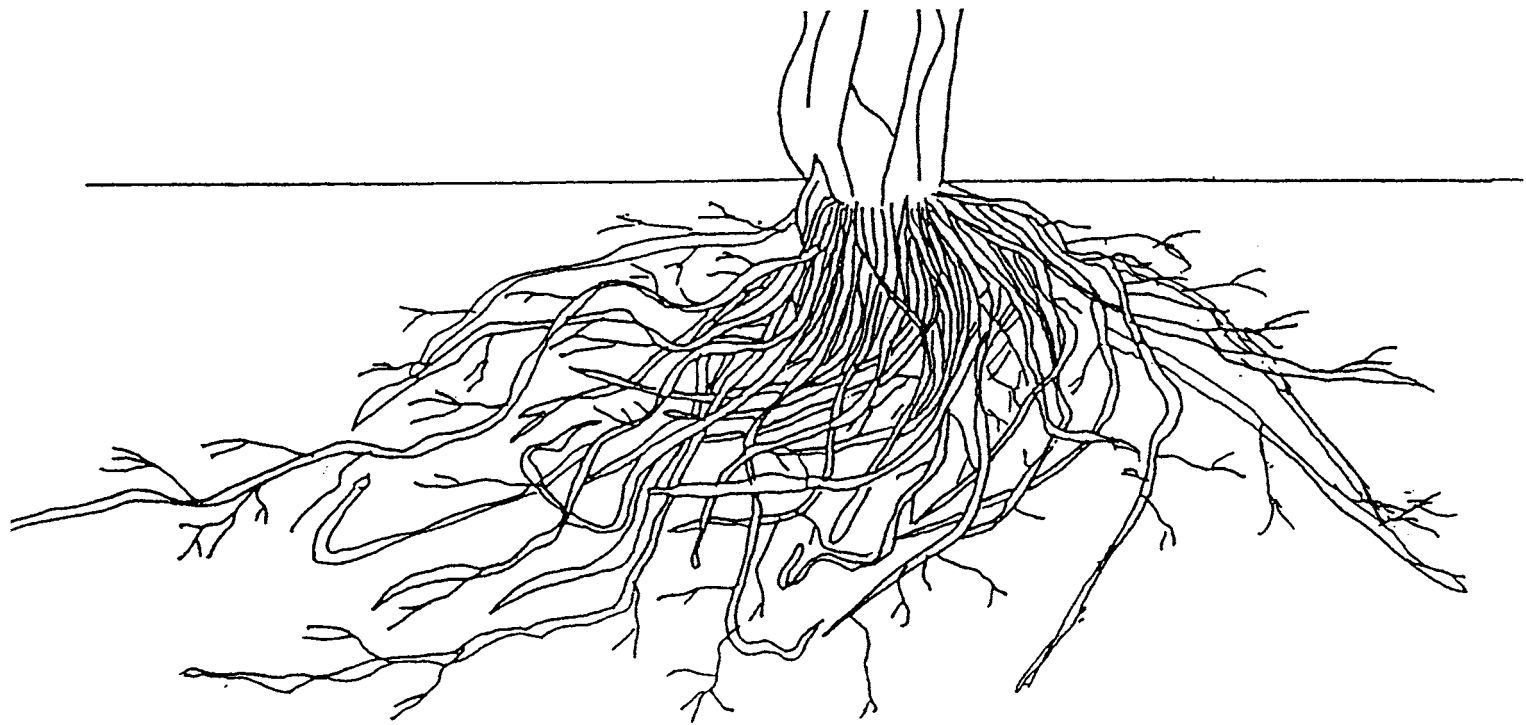
***Ability to spread
naturally:***

good spreading ability

Remarks

Grows on both steep hillsides and on flat land. In both Maracas and Las Cuevas where it was found growing, it appeared to be the first species to regrow after fires and subsequent soil slippage. By virtue of its creeping growth habit it totally covered the top soil. It appeared to grow in conjunction with *Dicranopteris pectinata* only. *Dicranopteris pectinata* appeared after *Arundinella* had established itself and both provided excellent surface cover on the very steep hillsides. Once these two species had established themselves no other ground species were apparently able to grow. This species of *Arundinella* appeared to be a better soil stabilizer on slopes > 20° holding the soil very well since no signs of erosion could be detected when this species was present. It appeared however, that once *D. pectinata* had established itself first, *Arundinella* could not compete with it effectively and tended to be less predominant.

Arundinella confinis Schult



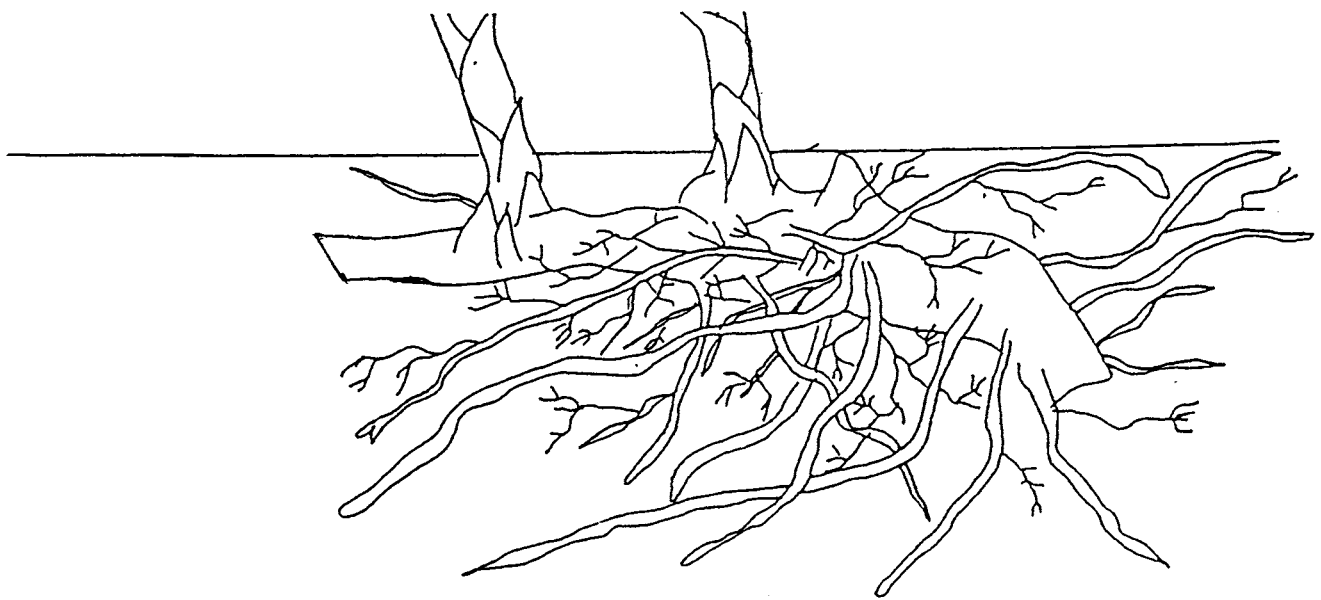
Botanical name:	<i>Arundo donax</i> (L.)
Family:	Gramineae
Common name:	spanish weed, spanish cane, giant reed, carrizo
Classification:	grass
Bio-engineering attributes	
<i>Root form:</i>	fibrous; shallow to moderately deep; large underground rhizomes; coarse primary roots with fine branched roots
<i>Rooting depth:</i>	1.7 m
<i>Rooting strength:</i>	extremely strong
<i>Canopy height:</i>	2 m
<i>Canopy spread:</i>	each plant is approximately 1 m in diameter
<i>Bio-engineering use:</i>	good erosion control potential
Other uses:	woody stems used for light construction work and lattices
Method of propagation:	tillers, cuttings
Ecological and cultural factors	
<i>Potential weediness:</i>	slight to moderate potential to become a weed
<i>Resistance to fire:</i>	resistant
<i>Resistance to grazing:</i>	resistant
<i>Resistance to drought:</i>	resistant
<i>Reaction to shade or full sunlight:</i>	grows well in full sunlight; shade tolerance unknown

<i>Flood tolerance:</i>	tolerant
<i>Erosion control:</i>	good potential for erosion control
<i>Natural habitat:</i>	river banks and moist ground
<i>Rate of growth:</i>	moderate
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

A very hardy species that can withstand a range of environmental conditions; good for stabilizing stream banks against erosion but the production of rhizomes facilitates spread which can be a disadvantage.

Arundo donax.(L.)



Botanical name: *Bromelia plumerii* (E.Morr) L.B.Smith

Family: Bromeliaceae

Common name: ping wing

Classification: shrub

Bio-engineering attributes

Root form: fibrous; horizontal spread to about 0.3 m in the top 50 - 70 cm of soil

Rooting depth: 0.7 m

Rooting strength: very strong

Canopy height: 1.7 m

Canopy spread: 2 m

Bio-engineering use: good potential for soil conservation purposes

Other uses: edible fruit

Method of propagation: seeds; vegetative side shoots

Ecological and cultural factors

Potential weediness: little or no weed potential

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: resistant

Reaction to shade or full sunlight: requires shade

Flood tolerance: unknown

Erosion control: good potential for controlling erosion

Natural habitat: under forested areas

Rate of growth: rapid

Ability to spread naturally: good spreading ability

Remarks

Good as a secondary species in the forest to provide cover to the forest floor. It is not a good species for bright open areas.

Botanical name: *Byrsonima coriacea* (Sw.)

Family: Malpighiaceae

Common name: serrette

Classification: shrub

Bio-engineering attributes

Root form: abundant tuberous roots with branches some of which may be enlarged; swollen underground stem with finer branched roots; moderate to deep rooting

Rooting depth: 1 - 2 m

Rooting strength: very strong

Canopy height: 5 m

Canopy spread: 5 m

Bio-engineering use: good potential for soil conservation purposes

Other uses: fruit is edible

Method of propagation: side shoots, tillers

Ecological and cultural factors

Potential weediness: because it dominated the roadside areas it appears to have the potential to become a weed

Resistance to fire: resistant ; its thick bark protects it from deleterious effects of fire

Resistance to grazing: unknown

Resistance to drought: very resistant

Reaction to shade or full sunlight: requires full sunlight

Flood tolerance: unknown

Erosion control: good potential to be a soil stabilizer

Natural habitat: common in secondary woodlands

Rate of growth: moderate

Ability to spread naturally: good spreading ability

Remarks

Tolerant of poor soil conditions and harsh climatic conditions; this species can be grown on hillsides. Its resistance to fire and ability to resprout from the swollen underground stems make it a good species on hillsides subject to bush fires in the dry season.

Byrsonima coriacea (Sw.)



Botanical name: *Chrysobalanus icaco*

Family: Rosaceae

Common name: fat pork, cacao plum

Classification: shrub, tree

Bio-engineering attributes

Root form: strong thickened underground stems; buttress roots; coarse primary, tap, with fine branched secondary roots; deep and moderately spreading

Rooting depth: 2 m

Rooting strength: extremely strong

Canopy height: 4 m (tree) and 2 m (shrub)

Canopy spread: 2 - 4 m

Bio-engineering use: good potential for erosion control especially in sandy soils

Other uses: fruits eaten by both animals and humans

Method of propagation: seeds, cuttings

Ecological and cultural factors

Potential weediness: little

Resistance to fire: resistant

Resistance to grazing: can withstand grazing

Resistance to drought: resistant

Reaction to shade or full sunlight: grows extremely well in full sunlight and moderate in shade

Flood tolerance: limited tolerance

Erosion control: good potential on slopes 0°-10°

Natural habitat: sandy, saline areas

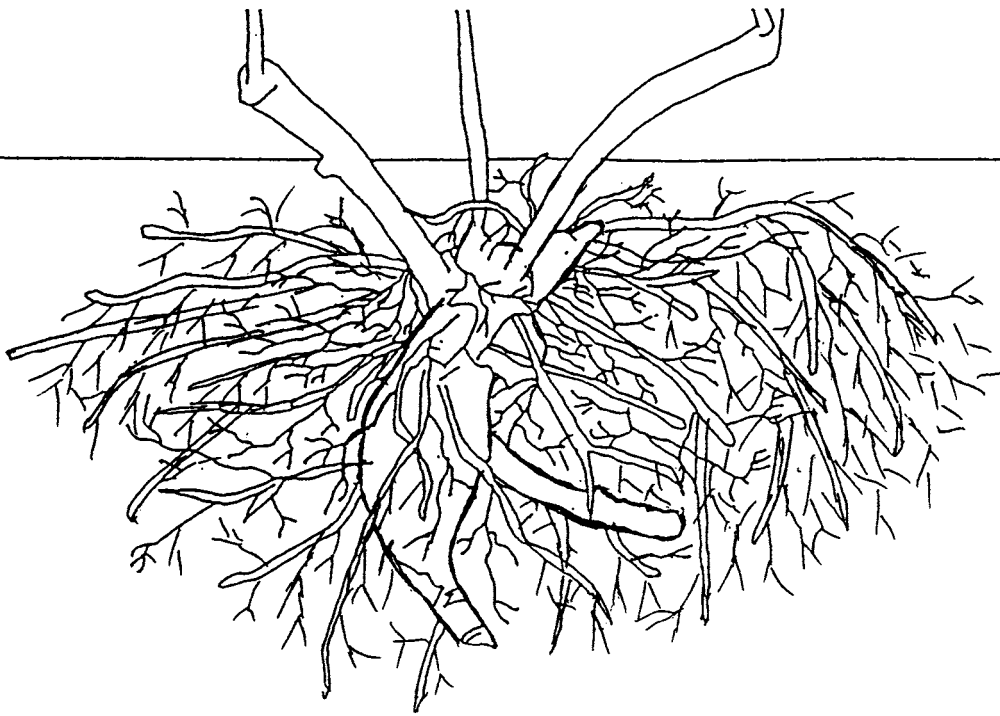
Rate of growth: slow

Ability to spread naturally: good spreading ability

Remarks

Its ability to grow well in sandy and saline soils and in dry windswept localities makes it very suitable for beach and coastal erosion control.

Chrysobalanus icaco



Botanical name: *Cnemideria spectabilis*

Family: Cyathaceae

Common name: tree fern

Classification: fern

Bio-engineering attributes

Root form: fibrous; moderate to deep rooting; roots branched and proliferate more in the lower than the upper part of the soil profile; very strong anchorage; difficult to pull from the soil

Rooting depth: 1 m

Rooting strength: extremely strong

Canopy height: 1.5 m

Canopy spread: 2 m

Bio-engineering use: good potential for soil conservation purposes

Other uses: stems used for growing orchids

Method of propagation: sori

Ecological and cultural factors

Potential weediness: little or no potential to become a weed

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: resistant

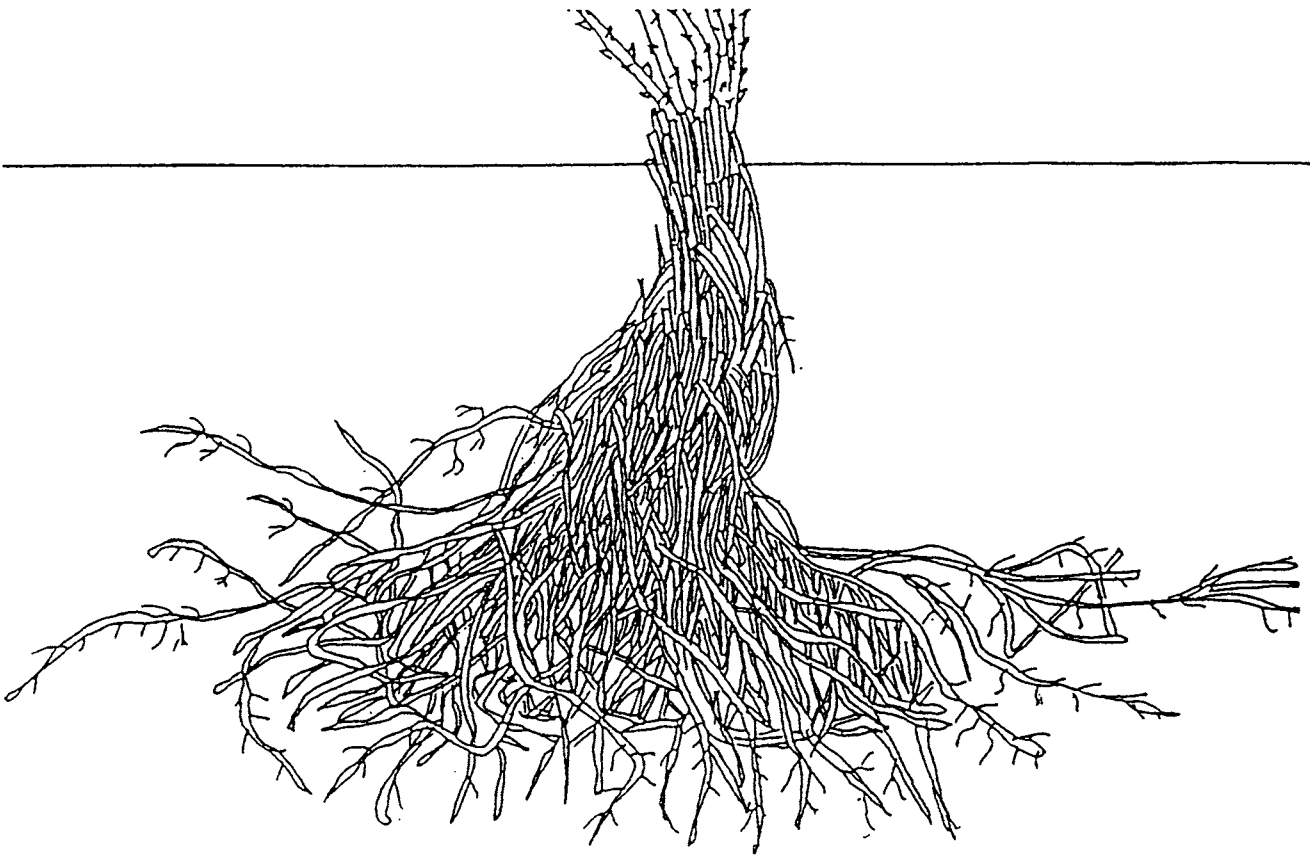
Reaction to shade or full sunlight: grows poorly in full sunlight; grows well in shade

<i>Flood tolerance:</i>	cannot withstand floods
<i>Erosion control:</i>	good for slopes greater than 5° in forested areas
<i>Natural habitat:</i>	forested areas and hills bordering roadsides in the Northern Range; never found on flat lands; requires acid soil and good drainage
<i>Rate of growth:</i>	moderate
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

Suitable as secondary vegetation on forest floors where temperatures are cool, humidity is high and conditions are shaded. The species requires high rainfall for good growth. It would prevent erosion by raindrops falling from forest tree canopy and would be suitable as soil protection during forest establishment.

Cnemidaria spectabilis



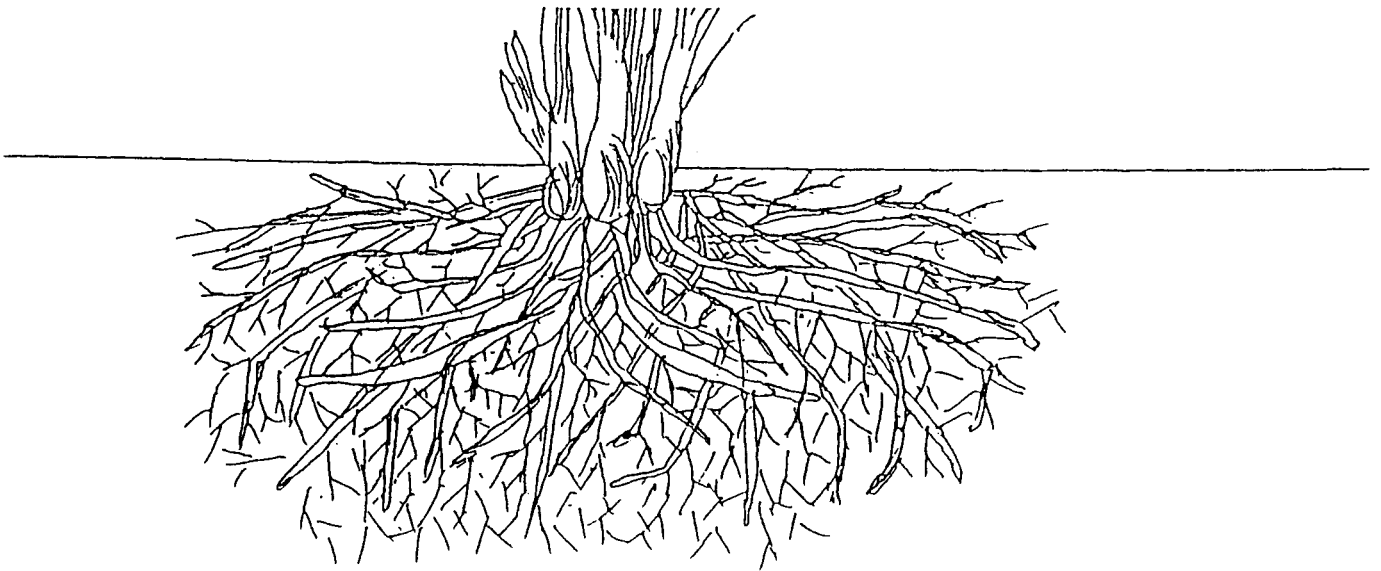
Botanical name:	<i>Cortaderia selloana</i> (Schult.) Aschers & Graebn.
Family:	Gramineae
Common name:	pampas grass
Classification:	grass
Bio-engineering attributes	
Root form:	fibrous; deep rooting; limited branching but close tillering results in moderately dense rooting
Rooting depth:	1 m
Rooting strength:	extremely strong
Canopy height:	2 m
Canopy spread:	spreads by tillering to provide ground cover
Bio-engineering use:	very good potential for erosion control; similar in habit to vetiver
Other uses:	inflorescence used in making carnival costumes
Method of propagation:	seeds, tillers
Ecological and cultural factors	
Potential weediness:	potential as a weed is limited due to slow rate of tillering
Resistance to fire:	resistant
Resistance to grazing:	resistant
Resistance to drought:	very resistant
Reaction to shade or full sunlight:	requires full sunlight for good growth rate
Flood tolerance:	unknown

<i>Erosion control:</i>	very good potential for use in erosion control
<i>Natural habitat:</i>	common to savannahs of Argentina and Brazil
<i>Rate of growth:</i>	slow; does not tiller profusely
<i>Ability to spread naturally:</i>	limited spreading ability

Remarks

This grass has been introduced into Trinidad from South America and is found in the Botanic Gardens. Its seeding ability will limit its utility in contour bunds. It can be effective as a ground cover.

Cortaderia selloana (Schult.)
Aschers & Graebn



Botanical name: *Croton gossipifolius* Vahl.
Family: Euphorbiaceae
Common name: blood wood croton; candle tree
Classification: shrub, tree

Bio-engineering attributes

Root form: strong tap root system spreading horizontally in the top 30 - 60 cm of the soil
Rooting depth: 1 - 2 m
Rooting strength: very strong
Canopy height: 3 - 5 m
Canopy spread: 3 - 5 m
Bio-engineering use: good soil stabilizer holds the soil very well on slopes
Other uses: unknown
Method of propagation: seeds; cuttings

Ecological and cultural factors

Potential weediness: none
Resistance to fire: very resistant; regrows rapidly after exposure to fire
Resistance to grazing: resistant
Resistance to drought: very resistant
Reaction to shade or full sunlight: grows both under shade and in full sunlight
Flood tolerance: unknown

<i>Erosion control:</i>	very good at controlling erosion on hillsides
<i>Natural habitat:</i>	dry hillsides
<i>Rate of growth:</i>	moderate
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

Good for hillsides that become very dry in the dry season.

Botanical name: *Cymbopogon citratus* (DC) Stapf

Family: Gramineae

Common name: lemon grass, fever grass

Classification: grass

Bio-engineering attributes

Root form: thick underground jointed rhizomes with few coarse roots; profuse coarse roots emerge from the group of tillers comprising a plant; roots exhibit limited branching

Rooting depth: 20 - 25 cm

Rooting strength: very strong

Canopy height: 0.7 m

Canopy spread: tillers readily to give good ground cover

Bio-engineering use: used for planting on bunds for soil conservation and as a mulch

Other uses: leaves used as flavouring for food, drinks, medicinal properties, commercial oil

Method of propagation: root matt division; planted at a spacing of about 1 x 0.5 m; seldom produces flowers

Ecological and cultural factors

Potential weediness: minimal

Resistance to fire: very resistant

Resistance to grazing: resistant

Resistance to drought: very resistant

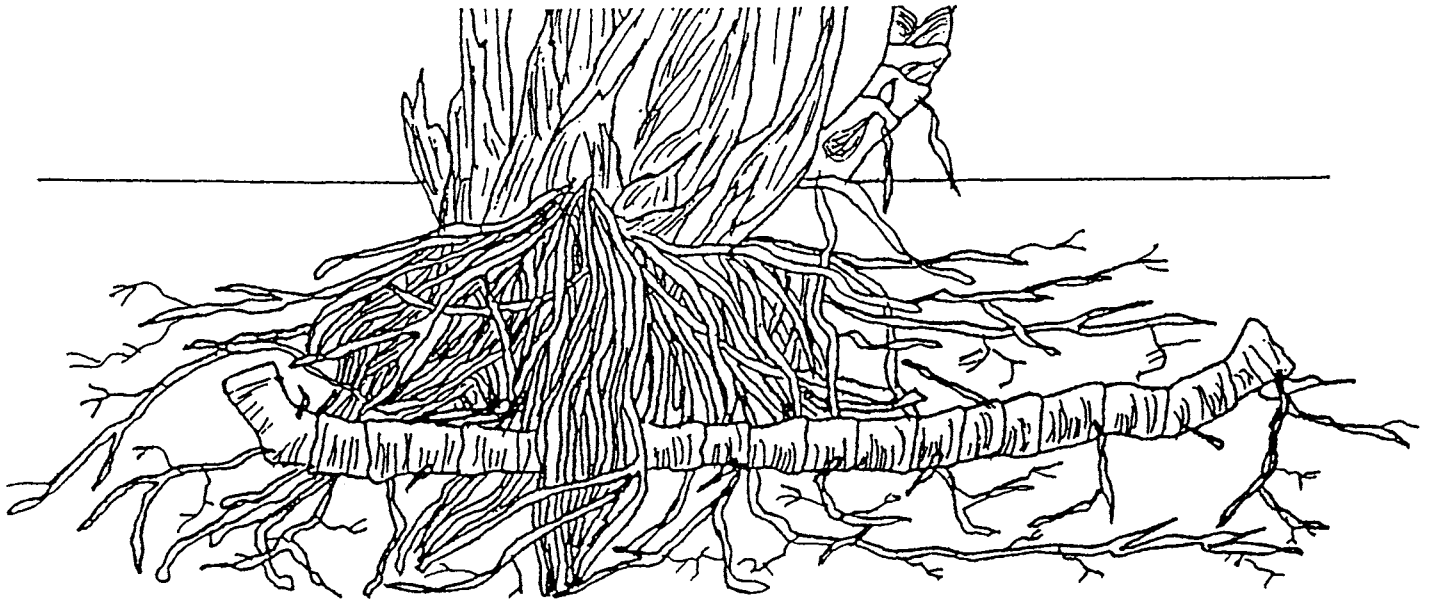
Reaction to shade or full sunlight: can withstand both full sunlight and shade

<i>Flood tolerance:</i>	moderate
<i>Erosion control:</i>	very good erosion control as a ground cover; good potential as a grass barrier or contour bunds
<i>Natural habitat:</i>	widely distributed throughout the tropics; requires warm climate with plenty of sunshine
<i>Rate of growth:</i>	very slow rate of growth
<i>Ability to spread naturally:</i>	slow spreading ability; moderate on the more fertile soils; stems/shoots are produced from the slow growing underground rhizomes

Remarks

Suitable for contour bunds but may need some cutting management to limit spread and ensure the integrity of the contour bunds. It does not grow well on poor infertile soils. Tufted stems arise from rhizomatous rootstocks. It seldom flowers in cultivation.

Cymbopogon citratus (DC) Stapf



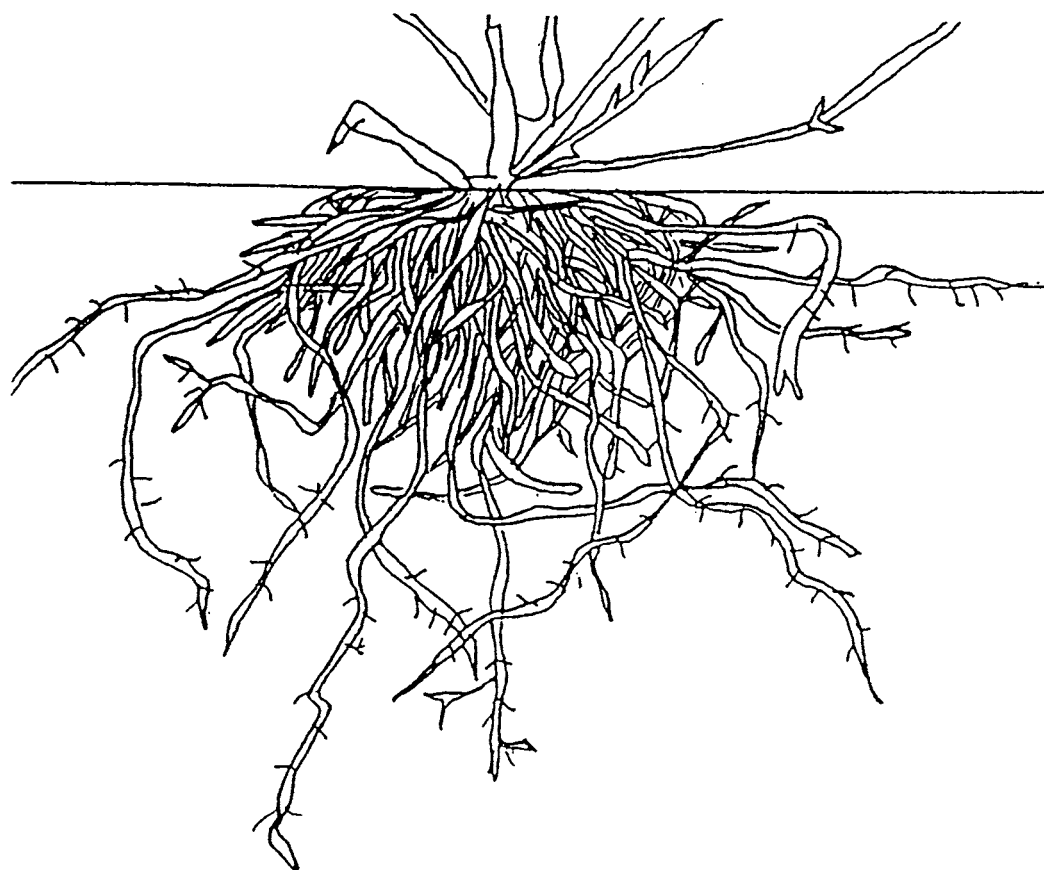
Botanical name:	<i>Cynodon dactylon</i> (L.) Pers.
Family:	Gramineae
Common name:	star grass, bermuda grass, bahama grass, doob
Classification:	grass
Bio-engineering attributes	
Root form:	fibrous; shallow dense rooting but with some primary roots elongated to moderate depths; limited branching; many fine rootlets
Rooting depth:	15 - 20 cm
Rooting strength:	strong; binds tightly to the soil; very difficult to uproot
Canopy height:	1 m
Canopy spread:	stoloniferous and rhizomatous growth habit provides good ground cover and effective soil stabilization
Bio-engineering use:	soil bunds on road embankments and road verges
Other uses:	ornamental purposes as lawn cover
Method of propagation:	rhizomes, seeds
Ecological and cultural factors	
Potential weediness:	could become a serious weed in cultivated land; once it becomes established it is very difficult to eradicate
Resistance to fire:	resistant
Resistance to grazing:	can withstand heavy grazing but not less than 5 cm height
Resistance to drought:	one of the most drought resistant grasses remaining greener longer than any other grass
Reaction to shade or full sunlight:	grows well in full sunlight but cannot tolerate shade

<i>Flood tolerance:</i>	unknown
<i>Erosion control:</i>	very good for control of sheet erosion due to shallow rooting
<i>Natural habitat:</i>	common in open rather dry ground in the tropical regions; prefers a high pH
<i>Rate of growth:</i>	variable depending on existing conditions
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

It can grow on poor infertile soils but it responds to nitrogen and flourishes exceedingly well when the land has been manured. High yielding non-rhizomatous strains exist. It survives drought conditions very well. Good for roadside embankments and road verges.

Cynodon dactylon (L.) Pers



Botanical name: *Dicranopteris pectinata*

Family: Gleicheniaceae

Common name: scrambling fern

Classification: shrub

Bio-engineering attributes

Root form: shallow, limited branching but with good horizontal spread due to the many branched stems which join the many vertical above ground stems

Rooting depth: 30 cm

Rooting strength: very strong

Canopy height: 3 m in the field; maximum height 10 m

Canopy spread: effectiveness is due to distinctive forked pattern of leaf growth which completely covers soil surface

Bio-engineering use: very good potential for bio-engineering uses

Other uses: unknown

Method of propagation: sori, side shoots

Ecological and cultural factors

Potential weediness: slight potential; unlikely to be obnoxious

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: resistant; growth remains profuse in the dry season

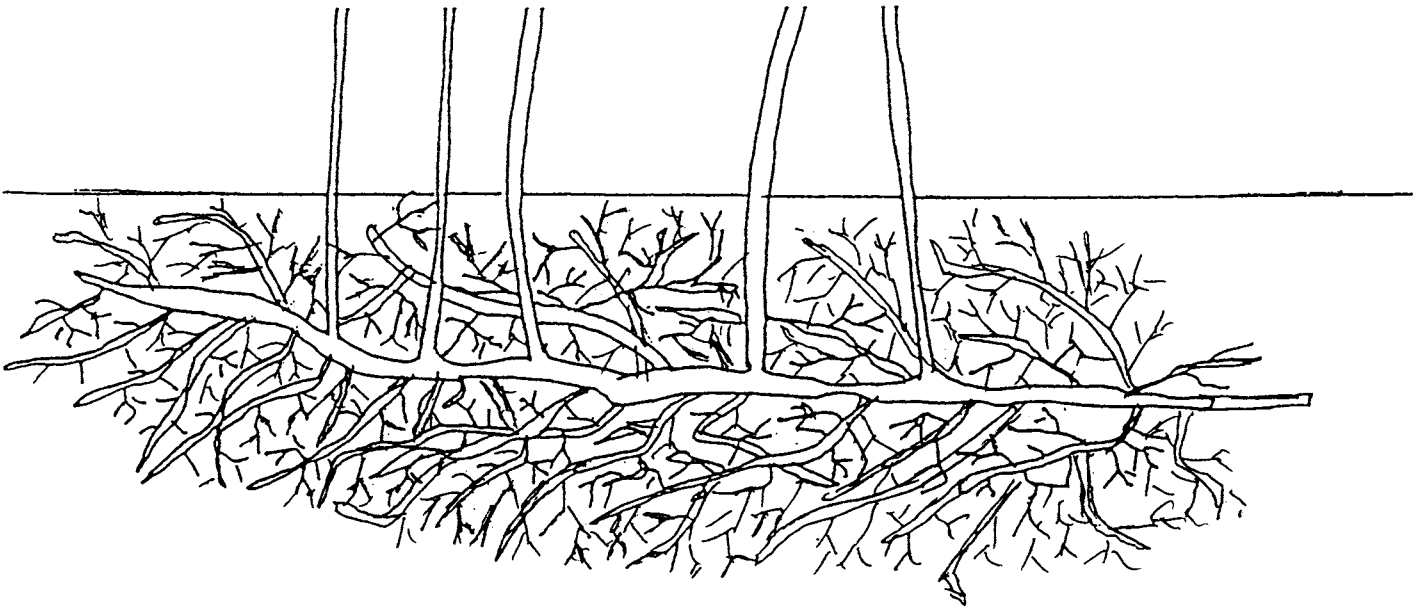
Reaction to shade or full sunlight: thrives extremely well under both conditions especially in full sunlight

<i>Flood tolerance:</i>	unknown
<i>Erosion control:</i>	extremely good erosion control
<i>Natural habitat:</i>	banks, road embankments and steep hillsides in full sunlight and under shade
<i>Rate of growth:</i>	very rapid
<i>Ability to spread naturally:</i>	very good spreading ability

Remarks

The creeping habit of the fern results in complete ground cover, leaving a thick vegetative covering. The fern grows better on slopes less than 20° and in shaded, moist conditions.

Dicranopteris pectinata



Botanical name: *Dracaena fragrans* (L.) Ker-Gawl

Family: Agavaceae

Common name: rhyo

Classification: shrub

Bio-engineering attributes

Root form: fibrous; thickened roots that are deep (>100 cm in the mature plant); moderate to high density of roots in the surface layers; moderate branching

Rooting depth: 1 - 2 m

Rooting strength: extremely strong

Canopy height: 6 m

Canopy spread: 1.5 m per plant

Bio-engineering use: good potential for soil conservation measures

Other uses: used very effectively as windbreaks around cocoa and banana trees in Trinidad; fences

Method of propagation: large cuttings

Ecological and cultural factors

Potential weediness: limited potential to become a weed

Resistance to fire: extremely resistant

Resistance to grazing: resistant

Resistance to drought: very resistant

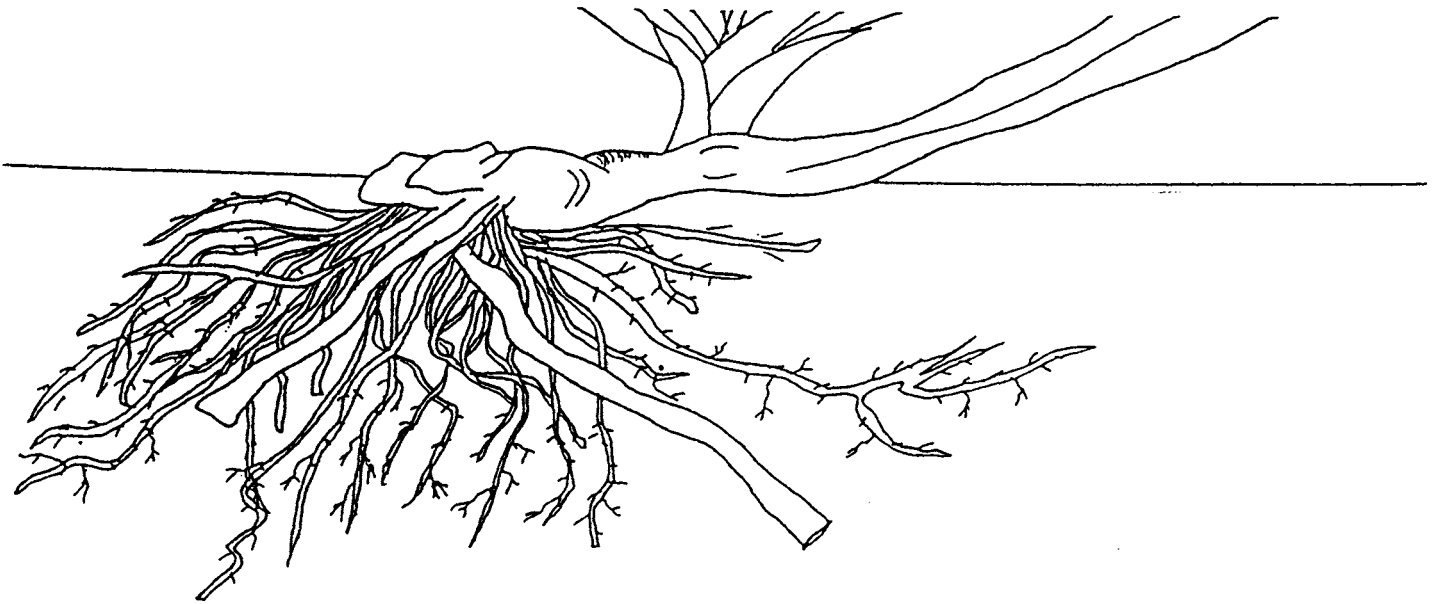
Reaction to shade or full sunlight: grows well in both shade and full sunlight

<i>Flood tolerance:</i>	tolerant
<i>Erosion control:</i>	very good erosion control species; effectively holds the soil against sheet erosion and mild land slips
<i>Natural habitat:</i>	semi desert areas
<i>Rate of growth:</i>	rapid; rate of regrowth very rapid after fires
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

Good for fences on hillsides where it can also protect against erosion; useful on road edges which slope downward to protect the road edges from erosion damage; needs to be trimmed if less than 6 m height is required; grows under a range of climatic conditions.

Dracaena fragrans (L.) Ker-Gawl



Botanical name: *Gynerium sagittatum* (Aubl.) Beauv.

Family: Gramineae

Common name: wild cane; uva grass; white roseau

Classification: grass

Bio-engineering attributes

Root form: thick suberised roots which penetrate deeply into the soil with profuse fine branched roots closer to the soil surface giving rise to tufted rooting habit

Rooting depth: 1 m

Rooting strength: extremely strong

Canopy height: 2m

Canopy spread: each plant is approximately 1 m in diameter

Bio-engineering use: very useful for holding the soils on the banks of rivers

Other uses: stems used for lattices and light construction work

Method of propagation: vegetative side shoots

Ecological and cultural factors

Potential weediness: very little, spreads slowly by tillering

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: resistant

Reaction to shade or full sunlight: grows very well under full sunlight and in moderate shade

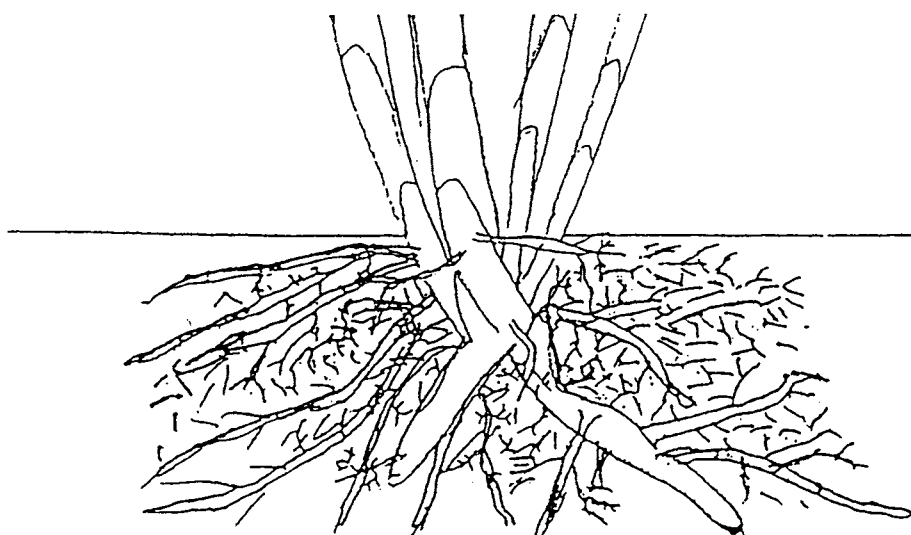
Flood tolerance: very tolerant

<i>Erosion control:</i>	very good erosion control on river banks
<i>Natural habitat:</i>	river banks and low ground forming dense colonies
<i>Rate of growth:</i>	moderate
<i>Ability to spread naturally:</i>	slow spreading ability

Remarks

Grows well under dry or wet conditions and can withstand saline conditions. It occurs on river banks and is not affected by periodic flooding or high river stage. It is suitable for stabilising river banks against stream bank erosion.

Gynerium sagittatum (Aubl.) Beauv.



Botanical name: *Heliconia psittacorum*

Family: Heliconiaceae

Common name: wild ginger

Classification: shrub

Bio-engineering attributes

Root form: spreading tube roots

Rooting depth: 20 - 30 cm

Rooting strength: very strong

Canopy height: 0.5 m

Canopy spread: varies with spread of plants by rhizomatous growth

Bio-engineering use: useful for covering soil of arid regions

Other uses: flowers could be used in the ornamental industry

Method of propagation: division of the rootstock; rhizome

Ecological and cultural factors

Potential weediness: some potential to become a weed

Resistance to fire: very resistant

Resistance to grazing: very resistant

Resistance to drought: very resistant

Reaction to shade or full sunlight: grows well in full sunlight and shade

Flood tolerance: tolerates flood

Erosion control: good potential for erosion control especially on lands that are liable to be razed by fires

Natural habitat: arid savannah regions

Rate of growth: very rapid

Ability to spread naturally: good spreading ability

Remarks

This species recovers rapidly after fires and can therefore protect the soil against erosion by rainfall which follow. It grows well in full sunlight and shade and therefore can be a secondary species on the forest floor or a protective species on exposed hillsides of gentle to moderate slopes. Because of its spreading ability it must not be introduced into agricultural lands or the perimeter of agricultural land.

Botanical name: *Imperata brasiliensis*

Family: Gramineae

Common name: house grass

Classification: grass

Bio-engineering attributes

Root form: fibrous sparse root system with limited branching;
shallow rooting

Rooting depth: 20 cm

Rooting strength: strong

Canopy height: 0.8 - 1 m

Canopy spread: 5 cm per plant but effectiveness for ground cover is
via its spreading habit due to rhizomatous growth

Bio-engineering use: good for covering soil especially after fires have
razed the vegetation

Other uses: unknown

Method of propagation: rhizomes, seeds

Ecological and cultural factors

Potential weediness: moderate since it grows rapidly and spreads

Resistance to fire: very resistant to fire; one of its features is that after
exposure to fires it immediately begins to flower and
hence young plants establish very rapidly

Resistance to grazing: unknown

Resistance to drought: resistant

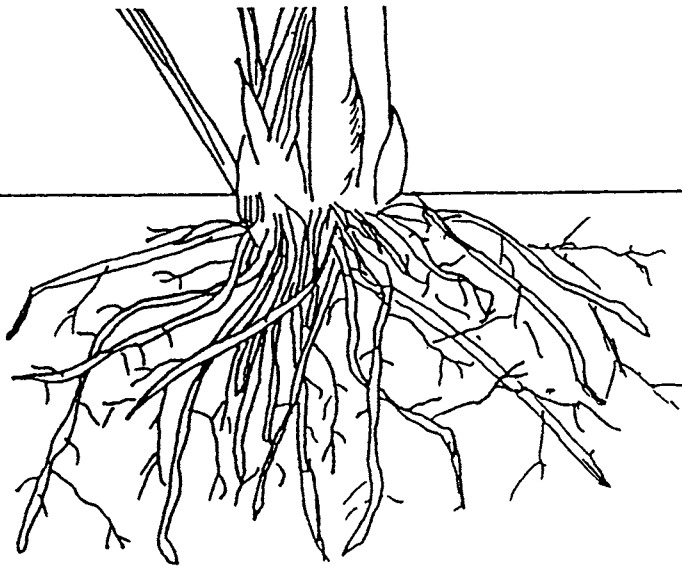
Reaction to shade or full sunlight: very tolerant to full sunlight and to some shade

<i>Flood tolerance:</i>	unknown
<i>Erosion control:</i>	very good erosion control
<i>Natural habitat:</i>	open dry ground at low altitudes
<i>Rate of growth:</i>	appears to have very rapid rate of growth
<i>Ability to spread naturally:</i>	very good spreading ability; if it were left unchecked, it would cover an area which it is invading within a few months

Remarks

Can tolerate both dry and some waterlogged conditions; good for roadside embankments and road verges.

Imperata brasiliensis



Botanical name: *Ischaemum timorense* Schult

Family: Gramineae

Common name: lucuntu

Classification: grass

Bio-engineering attributes

Root form: fibrous; moderately deep; long coarse primary roots with limited secondary branching

Rooting depth: 15 cm

Rooting strength: very strong

Canopy height: 0.5 m

Canopy spread: rhizomatous spread which promotes rapid ground cover

Bio-engineering use: very good soil binding properties on road embankments and on road verges

Other uses: fed as fodder to livestock

Method of propagation: seeds, rhizomes

Ecological and cultural factors

Potential weediness: some potential to become a weed

Resistance to fire: appears to be resistant

Resistance to grazing: cannot withstand grazing below 5 cm

Resistance to drought: resistant

Reaction to shade or full sunlight: tolerates both shade and full sunlight

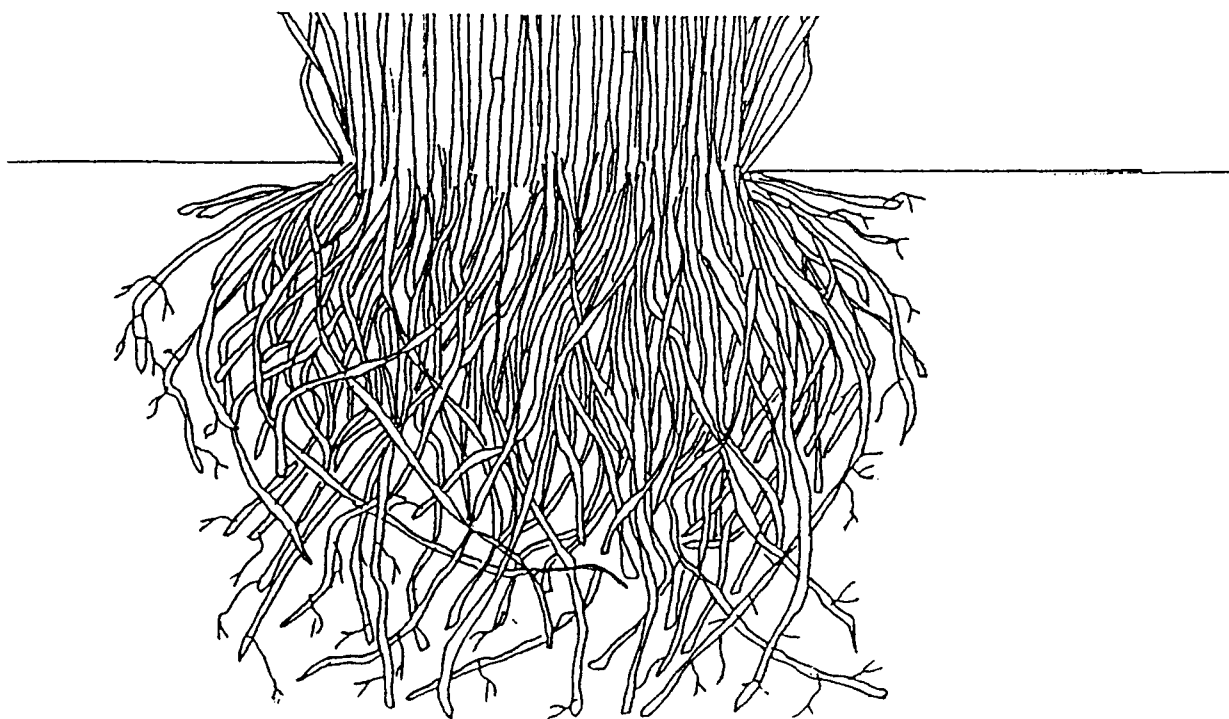
Flood tolerance: unknown

<i>Erosion control:</i>	very good against erosion on road embankments and on road verges
<i>Natural habitat:</i>	unknown
<i>Rate of growth:</i>	rapid
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

The ability of this grass to spread rapidly and to tolerate dry, wet and high temperature conditions and to grow on poor soils is an advantage for vegetating, bare or denuded soil slopes. However, its rapid spreading ability especially where the environmental conditions are favourable can encourage the species to become a weed and this needs careful assessment. Under dry conditions, the shoots die back annually leaving a tufted matt of dried leaves on the surface of the soil which remain adhered to the roots. At the start of the rainy season new shoots are produced from the tufted matt.

Ischaemum timorense Schult



Botanical name: *Ixertia parviflora* (Vahl.)

Family: Rubiaceae

Common name: wild ixora

Classification: shrub, small tree

Bio-engineering attributes

Root form: abundant, enlarged, tuberous roots, emanating from thickened stem base; thinner moderately branched roots; moderately deep rooting; good horizontal spread

Rooting depth: 1 - 2 m

Rooting strength: very strong

Canopy height: 2.5 m (shrub) or 6 - 8 m (tree)

Canopy spread: 1 - 2 m

Bio-engineering use: good soil stabilizing potential

Other uses: ornamental uses

Method of propagation: seeds, cuttings

Ecological and cultural factors

Potential weediness: very little potential to become a weed

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: very resistant

Reaction to shade or full sunlight: responds very well to full sunlight; reaction to shade unknown

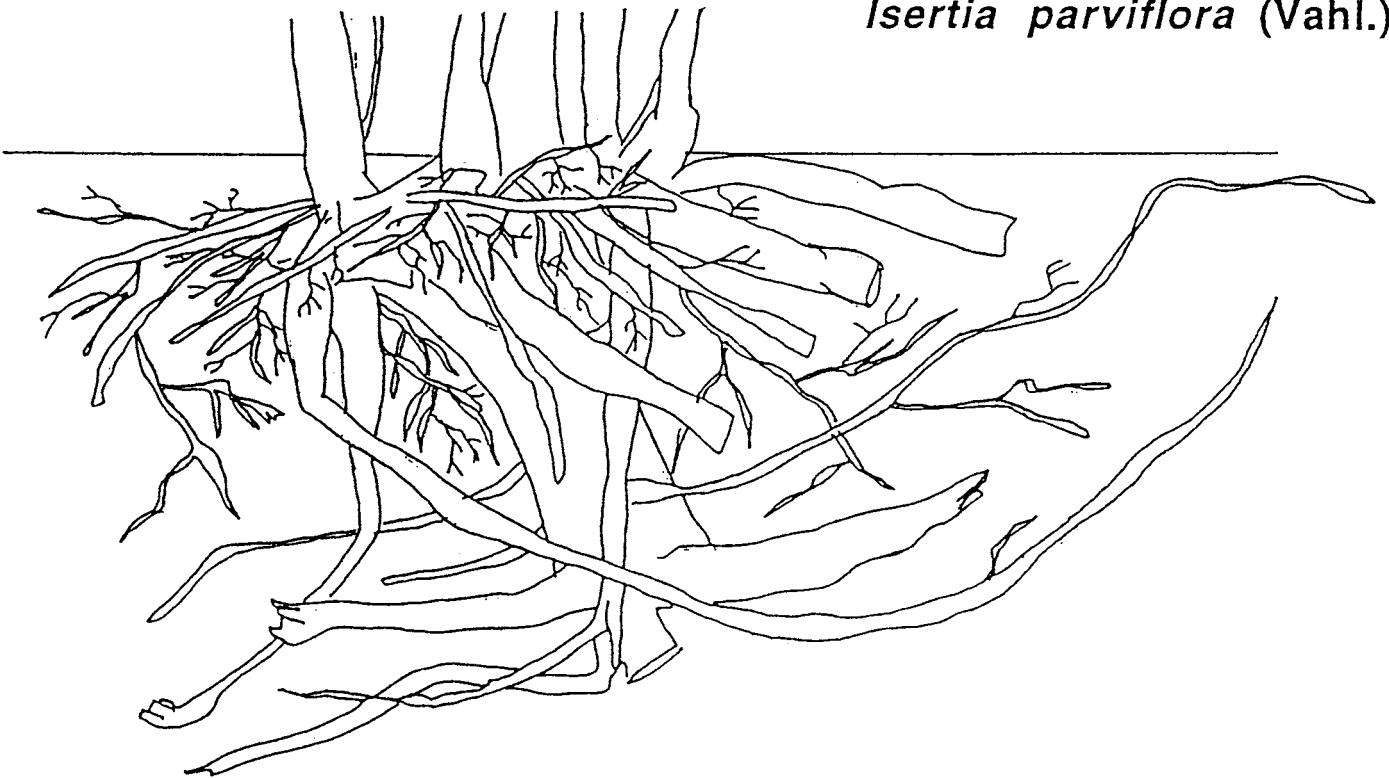
Flood tolerance: some tolerance

<i>Erosion control:</i>	good potential for erosion control
<i>Natural habitat:</i>	common in woodlands throughout Trinidad
<i>Rate of growth:</i>	moderate
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

This species is very tolerant of high temperatures and dry soil conditions. It can grow on relatively poor soils. It is suitable for hillsides and can be used on leeward sides of mountains with strong wet and strong dry seasons.

Isertia parviflora (Vahl.)



Botanical name: *Lagenocarpus guianensis* Nees

Family: Cyperaceae

Common name:

Classification: sedge

Bio-engineering attributes

Root form: fibrous; shallow to moderately deep; dense roots with limited secondary branching

Rooting depth: 20 - 25 cm

Rooting strength: very strong

Canopy height: 1 m

Canopy spread: 0.3 m

Bio-engineering use: good erosion control potential for road embankments and road verges

Other uses: unknown

Method of propagation: side shoots, tillers

Ecological and cultural factors

Potential weediness: some potential to become a weed

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: very resistant

Reaction to shade or full sunlight: requires full sunlight

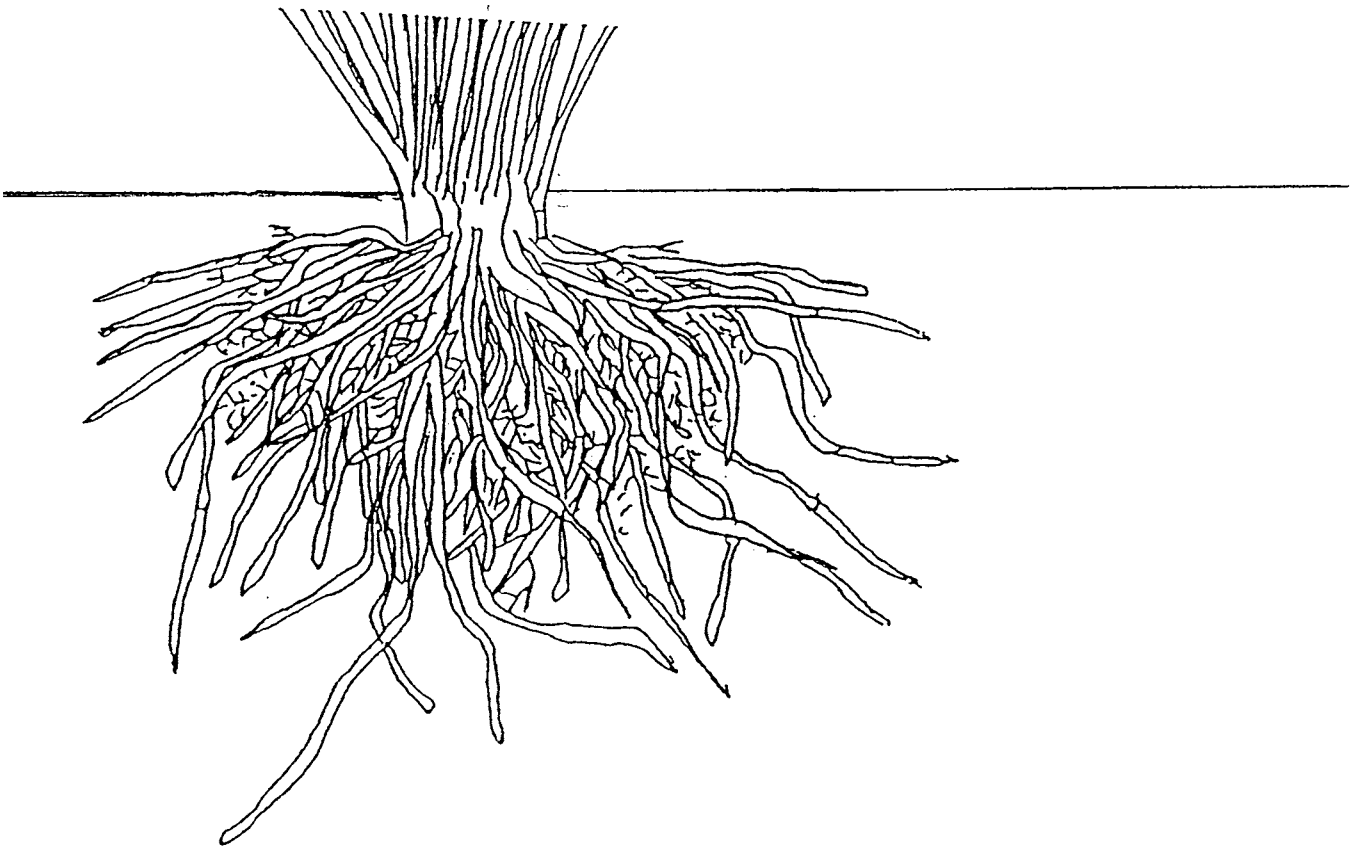
Flood tolerance: tolerant

<i>Erosion control:</i>	good for erosion control on road embankments and road verges
<i>Natural habitat:</i>	Aripo savannah
<i>Rate of growth:</i>	very rapid
<i>Ability to spread naturally:</i>	very good spreading ability

Remarks

This sedge is very tolerant to a range of soil and tropical climatic conditions. It is relatively shallow rooting but can protect the soil against raindrop impact and sheet erosion of the topsoil. Its ability to spread rapidly increases its potential to become a weed.

Lagenocarpus guianensis Nees



Botanical name: *Miconia acinodendron*

Family: Melastomaceae

Common name: monkey bone

Classification: shrub

Bio-engineering attributes

Root form: fibrous; well developed branched underground stem with thickened roots; abundant fine branched roots; good horizontal spread; good root distribution to moderate depths(80 - 90 cm)

Rooting depth: 1 m

Rooting strength: very strong

Canopy height: 1 - 3 m

Canopy spread: 1 - 3 m

Bio-engineering use: good soil stabilizing potential

Other uses: unknown

Method of propagation: seeds, cuttings

Ecological and cultural factors

Potential weediness: none

Resistance to fire: resistant

Resistance to grazing: unknown

Resistance to drought: unknown

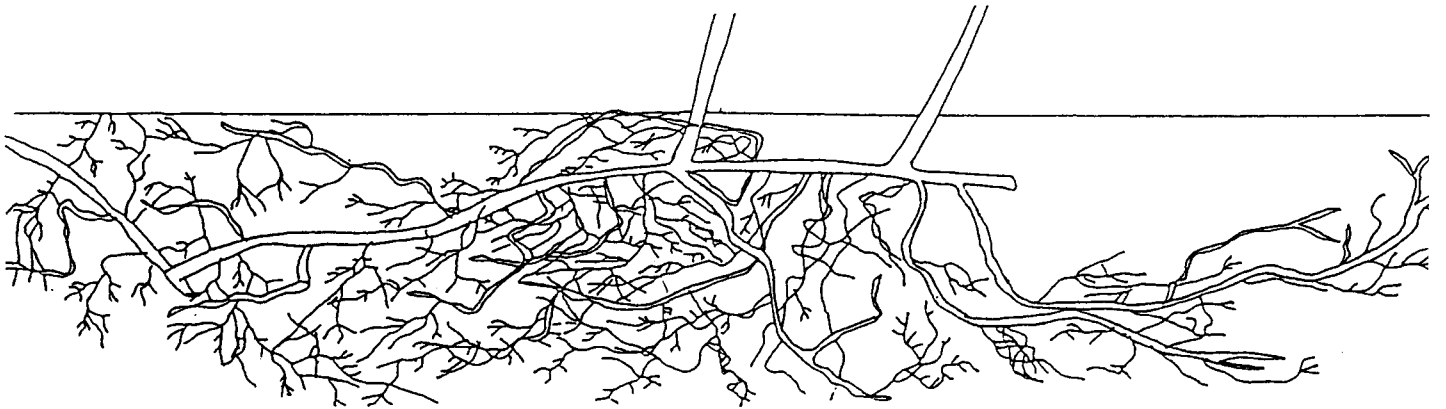
Reaction to shade or full sunlight: grow wells in shade and limited sunlight

<i>Flood tolerance:</i>	unknown
<i>Erosion control:</i>	good erosion control potential
<i>Natural habitat:</i>	thickets and forests in moist districts inTrinidad; only grows in forested areas and roadside undergrowth
<i>Rate of growth:</i>	rapid
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

Good as a secondary species in forested areas and roadside undergrowth where it provides additional protection against erosion.

Miconia acinodendron



Botanical name:	<i>Nephrolepis multiflora</i> (Roxb.) Jarret ex Morton
Family:	Davalliaceae
Common name:	hassar back fern, giant sword fern
Classification:	shrub
Bio-engineering attributes	
Root form:	fibrous, thick and extensive
Rooting depth:	15 - 20 cm
Rooting strength:	strong
Canopy height:	1-2 m
Canopy spread:	plants grow vertically and with a narrow spread; close growing plants establish complete ground cover
Bio-engineering use:	good soil stabilizing potential
Other uses:	cut foliage in the ornamental industry
Method of propagation:	sori, side shoots
Ecological and cultural factors	
Potential weediness:	none
Resistance to fire:	some resistance
Resistance to grazing:	resistant
Resistance to drought:	resistant
Reaction to shade or full sunlight:	grows well in both
Flood tolerance:	tolerant

<i>Erosion control:</i>	good erosion control possibilities
<i>Natural habitat:</i>	roadsides; on the trunks of palm trees
<i>Rate of growth:</i>	very rapid
<i>Ability to spread naturally:</i>	very good spreading ability

Remarks

A very common fern on roadside embankments and on the edges of forests. Although it grows better under shade, it does well under both conditions. It is suitable for roadside embankments and as a secondary species on the forest floor. It resprouts readily after it has been burnt by fire.

Botanical name: *Palicourea crocea* (Sw.) R&S

Family: Rubiaceae

Common name: palicourea

Classification: shrub

Bio-engineering attributes

Root form: tap root system; well developed branched underground stem with thickened roots; abundant fine branched roots; good horizontal spread; good root distribution to moderate depths

Rooting depth: 0.7-1 m

Rooting strength: very strong

Canopy height: 1 - 3 m

Canopy spread: 2 - 3 m

Bio-engineering use: holds edges of soil very well

Other uses: unknown

Method of propagation: seeds; cuttings

Ecological and cultural factors

Potential weediness: ubiquitous in Trinidad, but is not a potential weed

Resistance to fire: moderate resistance

Resistance to grazing: since it is a euphorbiaceae, it may be resistant

Resistance to drought : shows strong preference for shady habitat, but may not be drought resistant

Reaction to shade or full sunlight: grows very well under shade but growth is restricted in full sunlight

<i>Flood tolerance:</i>	some tolerance to flood
<i>Erosion control:</i>	very good at controlling erosion on both upward and downward sloping embankments
<i>Natural habitat:</i>	favours semi shady or moist situations; borders of forests
<i>Rate of growth:</i>	moderate
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

This shrub is good for controlling erosion at the edges of roadsides and edges of forests. Its attractive colours enhance its aesthetic value as a roadside plant. It is not likely to become a weed.

Botanical name: *Pandanus odoratissimus* L.f.

Family: Pandanaceae

Common name: screw pine

Classification: shrub, tree

Bio-engineering attributes

Root form: conspicuous aerial stilt roots; elongated coarse roots which emerge from the base of the rosette of leaves; branching is limited and consists mainly of fine branched roots

Rooting depth: 2 - 4 m under ideal conditions

Rooting strength: extremely strong

Canopy height: 6 m

Canopy spread: 2 m

Bio-engineering use: very good as a soil binder and for use as fences

Other uses: ornamental purposes; handicraft; perfumes

Method of propagation: offsets; division of suckers or by cuttings

Ecological and cultural factors

Potential weediness: very little potential to become a weed

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: resistant

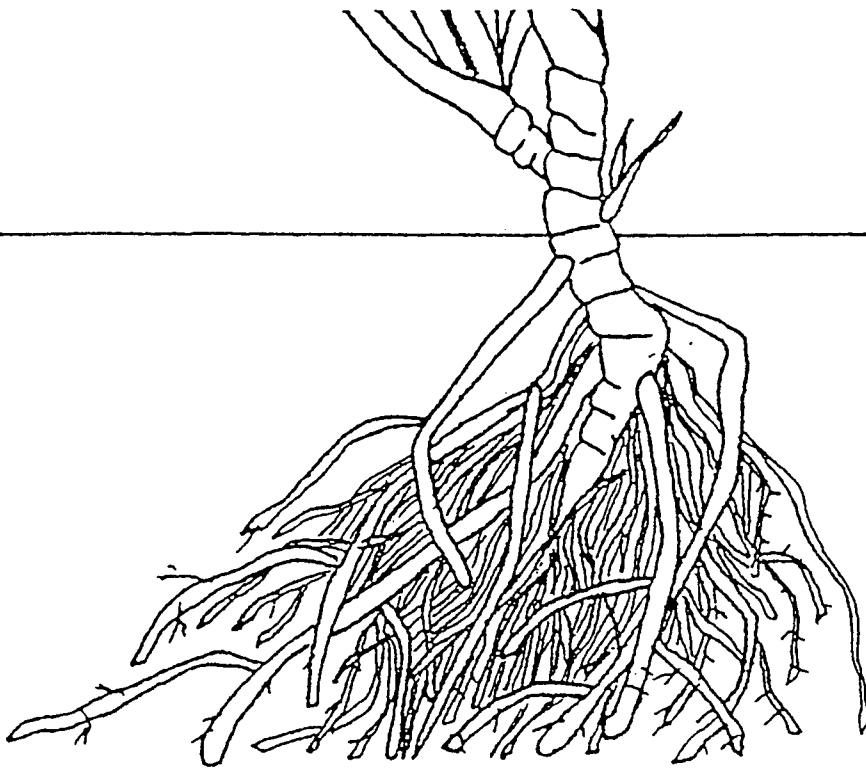
Reaction to shade or full sunlight: grows very well in full sunlight and shade

<i>Flood tolerance:</i>	very good tolerance
<i>Erosion control:</i>	extremely good species for controlling erosion
<i>Natural habitat:</i>	wild forms grow along coasts producing a belt of dense impenetrable vegetation above the high water mark. The cultivated plants are often grown along the banks of rivers, canals, ponds, and fields
<i>Rate of growth:</i>	moderate
<i>Ability to spread naturally:</i>	moderate to good spreading ability

Remarks

A hardy species which tolerates a wide range of conditions including salinity. Can be used to protect against erosion and to protect the banks of water courses.

Pandanus odoratissimus L.f.



Botanical name: *Panicum maximum* Jacq.

Family: Gramineae

Common name: guinea grass

Classification: grass

Bio-engineering attributes

Root form: tufted matt of fibrous roots close to the surface with branched roots extending to moderate depths (30 - 60 cm); good horizontal spread; many fine rootlets throughout the root system

Rooting depth: 0.7 m

Rooting strength: very strong

Canopy height: 3 m

Canopy spread: grows in clumps which can be 2 m wide; spreads by stolons which run along the surface of the soil

Bio-engineering use: could be used to bind soil on road verges, roadside embankments, and gently sloping hillsides

Other uses: forage, brooms from inflorescence

Method of propagation: spreads slowly by seed; more rapidly by stolons which root at the nodes; tillers

Ecological and cultural factors

Potential weediness: moderate; not likely to become an obnoxious weed

Resistance to fire: very resistant

Resistance to grazing: some resistance; should not be grazed below 15 cm

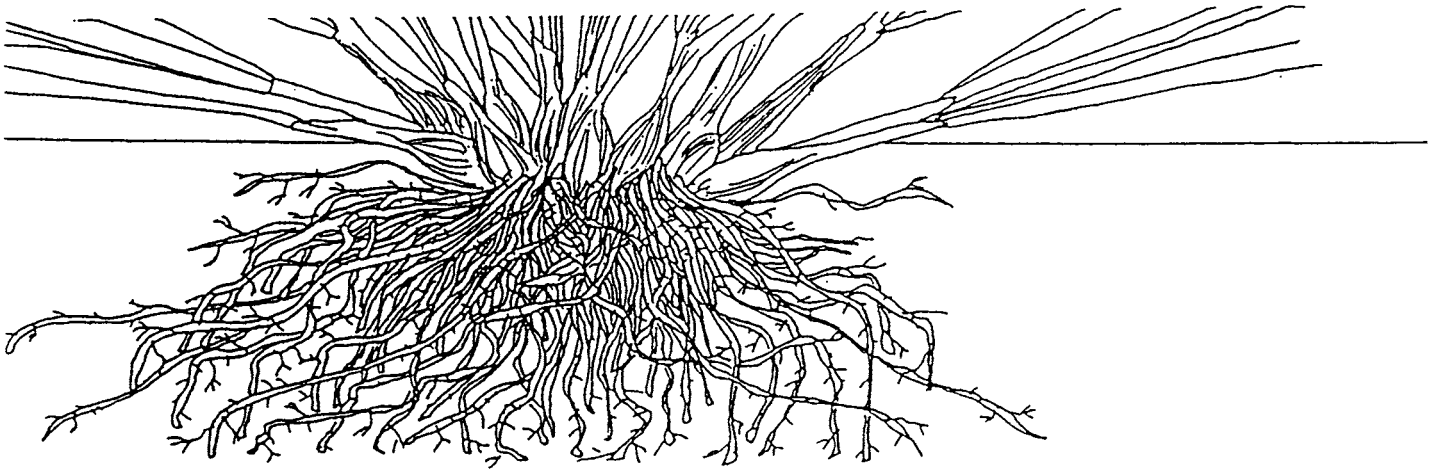
Resistance to drought: may largely desiccate in the dry season, but readily regenerates with rainfall

<i>Reaction to shade or full sunlight:</i>	grows well in full sunlight; fairly tolerant to shade
<i>Flood tolerance:</i>	cannot tolerate waterlogging
<i>Erosion control:</i>	its great bulk aids in erosion control, but its generally tussocky growth makes it less valuable than other species
<i>Natural habitat:</i>	grassland; open woodlands; shady places
<i>Rate of growth:</i>	easy establishment especially using root divisions; rapid growth in fertile soils
<i>Ability to spread naturally:</i>	spreads slowly by seed unless in fertile soil; spreads easier by tillers and stolons

Remarks

Will grow on a wide range of soils, but produces poor stands on infertile soils and shows little tolerance of saline conditions; well adapted to sloping, cleared land in rainforest areas where it will support heavy stocking; less suitable for droughty or seasonally-droughty conditions; can be a fire hazard in the dry season; will tolerate acid conditions if drainage is good.

Panicum maximum Jacq.



Botanical name: *Paspalum pulchellum* Kunth.

Family: Gramineae

Common name:

Classification: grass

Bio-engineering attributes

Root form: fibrous; shallow; dense rooting

Rooting depth: 15 cm

Rooting strength: very strong binding roots

Canopy height: 0.8 m

Canopy spread: 0.3 m

Bio-engineering use: very good soil binding properties on roadside embankments and on road verges

Other uses: unknown

Method of propagation: rhizomes

Ecological and cultural factors

Potential weediness: some potential to become a weed

Resistance to fire: resistant

Resistance to grazing: unknown, but if grazed cannot withstand grazing < 5 cm height

Resistance to drought: resistant

Reaction to shade or full sunlight: grows well in full sunlight; shade tolerance unknown

Flood tolerance: tolerant

Erosion control: very good potential to control erosion especially on road embankments and on road verges

Natural habitat: savannahs

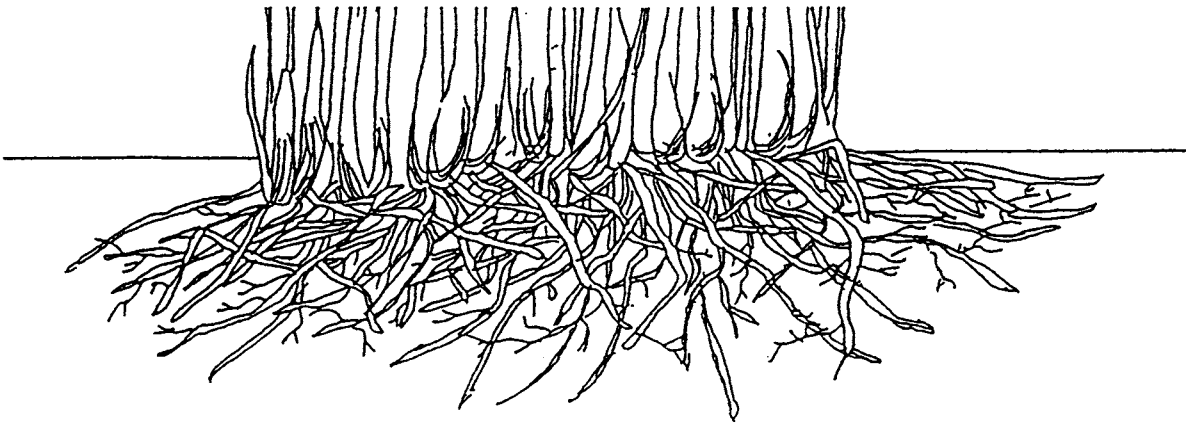
Rate of growth: appears to be very rapid

Ability to spread naturally: good spreading ability

Remarks

Dominant plant in the Aripo savannah (covered about 90% of the savannah; withstands the alternating flooding and drought conditions of the Aripo savannah; does not require cutting; its rhizomatous growth habit allows it to spread fairly rapidly but it can be a disadvantage; its weed potential needs to be assessed.

Paspalum pulchellum Kunth.



Botanical name: *Pitsairna integrifolia* Ker - Gawl

Family: Bromeliaceae

Common name:

Classification: shrub

Bio-engineering attributes

Root form: fibrous; shallow rooting but with some roots reaching moderate depths; moderate horizontal spread; limited branching

Rooting depth: 0.25 - 0.3 m

Rooting strength: very strong

Canopy height: 1 m

Canopy spread: 1 m

Bio-engineering use: very good soil stabilizing potential for steep slopes and rocky outcrops.

Other uses: possible use in the ornamental industry for its flowers

Method of propagation: seeds, side shoots

Ecological and cultural factors

Potential weediness: little or no possibility of becoming a weed in non rocky areas

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: resistant

Reaction to shade or full sunlight: grows well in full sunlight and limited shade

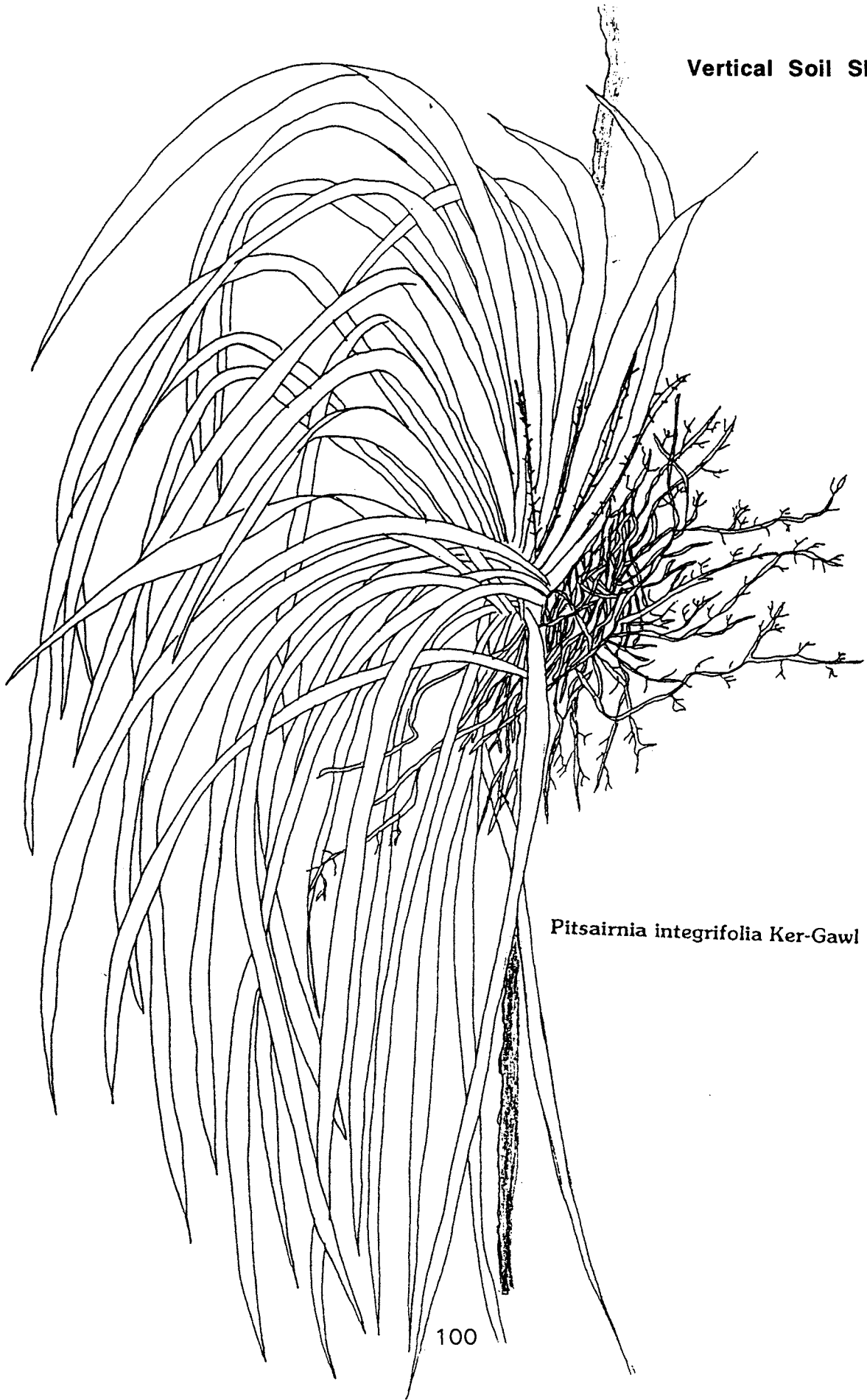
Flood tolerance: unknown

<i>Erosion control:</i>	very good erosion control on rocky areas
<i>Natural habitat:</i>	dry rocky places, roadsides, banks; often a conspicuous feature of the local flora; found in many locations in Trinidad
<i>Rate of growth:</i>	rapid
<i>Ability to spread naturally:</i>	very good spreading ability

Remarks

This species is particularly suited to dry soil conditions and locations that are seasonally very dry

Vertical Soil Slope



***Pitsairnia integrifolia* Ker-Gawl**

Botanical name:	<i>Rhynchospora barbata</i> (Vahl) Kunth.
Family:	Cyperaceae
Common name:	
Classification:	sedge
Bio-engineering attributes	
Root form:	fibrous
Rooting depth:	10 - 20 cm
Rooting strength:	strong
Canopy height:	15 - 45 cm
Canopy spread:	20 cm
Bio-engineering use:	some usage in sandy soils where it grows well spreading easily and covering the soil surface
Other uses:	unknown
Method of propagation:	division of the rootstock
Ecological and cultural factors	
Potential weediness:	limited potential
Resistance to fire:	very resistant
Resistance to grazing:	very resistant
Resistance to drought:	very resistant
Reaction to shade or full sunlight:	requires full sunlight
Flood tolerance:	tolerates flood
Erosion control:	good erosion control potential

Natural habitat: sandy arid regions

Rate of growth: very rapid

Ability to spread naturally: very good spreading ability

Remarks

This sedge tolerates low soil fertility and a range of tropical climatic conditions. Its very shallow rooting habit reduces its potential for erosion control but its short height, ability to spread rapidly on sandy or pervious soils makes it a suitable candidate where these conditions exist or the plant characteristics are desired.

Botanical name:	<i>Rhynchospora cephalotes</i> (L.) Vahl
Family:	Cyperaceae
Common name:	
Classification:	sedge
Bio-engineering attributes	
Root form:	fibrous; shallow to moderately deep; dense roots with limited secondary branching
Rooting depth:	25 cm
Rooting strength:	strong
Canopy height:	0.7 m
Canopy spread:	effectiveness obtained by clumps which are contiguous
Bio-engineering use:	useful for protecting road verges and road embankments
Other uses:	unknown
Method of propagation:	seeds, side shoots
Ecological and cultural factors	
Potential weediness:	moderate potential to become a weed
Resistance to fire:	resistant
Resistance to grazing:	resistant
Resistance to drought:	resistant
Reaction to shade or full sunlight:	requires full sunlight for good growth
Flood tolerance:	can tolerate some waterlogging

Erosion control: good erosion control on road verges and road embankments

Natural habitat: roadsides

Rate of growth: rapid

Ability to spread naturally: very good spreading ability

Remarks

This sedge is very tolerant of low fertility soils and a wide range of soil moisture conditions. It is relatively shallow rooting but can protect the soil against raindrop impact and sheet erosion of the topsoil. Seed production encourages rapid spread which is good for vegetatively denuded slopes but its potential to become a weed has to be assessed.

Botanical name: *Spathiphyllum cannifolium* (Drysander) Schott.

Family: Araceae

Common name: wild anthurium

Classification: shrub

Bio-engineering attributes

Root form: tube roots which spread horizontally in the top 30 - 50 cm of soil

Rooting depth: 0.3 - 0.5 m

Rooting strength: very strong

Canopy height: 1 m

Canopy spread: 0.7 - 0.9 m

Bio-engineering use: holds the soils of the banks of rivers and streams very effectively

Other uses: ornamental industry for its flowers

Method of propagation: side shoots; propagates rapidly

Ecological and cultural factors

Potential weediness: can become a weed because of its tube roots which are difficult to eradicate once they become established

Resistance to fire: because of its tube roots this species could regenerate after fires

Resistance to grazing: unknown

Resistance to drought: some tolerance

Reaction to shade or full sunlight: tends to prefer cooler environments and hence may not grow well in full sunlight

Flood tolerance: tolerant

Erosion control: could be a good erosion control species on river banks

Natural habitat: river banks and related waterway areas

Rate of growth: rapid regrowth

Ability to spread naturally: very good spreading ability

Remarks

Flood tolerant; grows well in moist places and is suitable for erosion control on river and stream banks.

Botanical name:	<i>Sporobolus indicus</i> (L.)
Family:	Gramineae
Common name:	broom grass, tapia grass, wire grass, lizard grass, mulatto plant
Classification:	grass

Bio-engineering attributes

Root form:	fibrous, but with good horizontal spread and matting close to the surface as a result of abundant branching of fine roots.
Rooting depth:	15 - 20 cm
Rooting strength:	very strong
Canopy height:	0.3 - 0.5 m
Canopy spread:	spread per clump is about 0.3 m
Bio-engineering use:	excellent as a soil stabilizer on road embankments and road verges
Other uses:	used for fodder, for stuffing mattresses, principal fibre in tapia plastering for constructing native houses.
Method of propagation:	cuttings, seed

Ecological and cultural factors

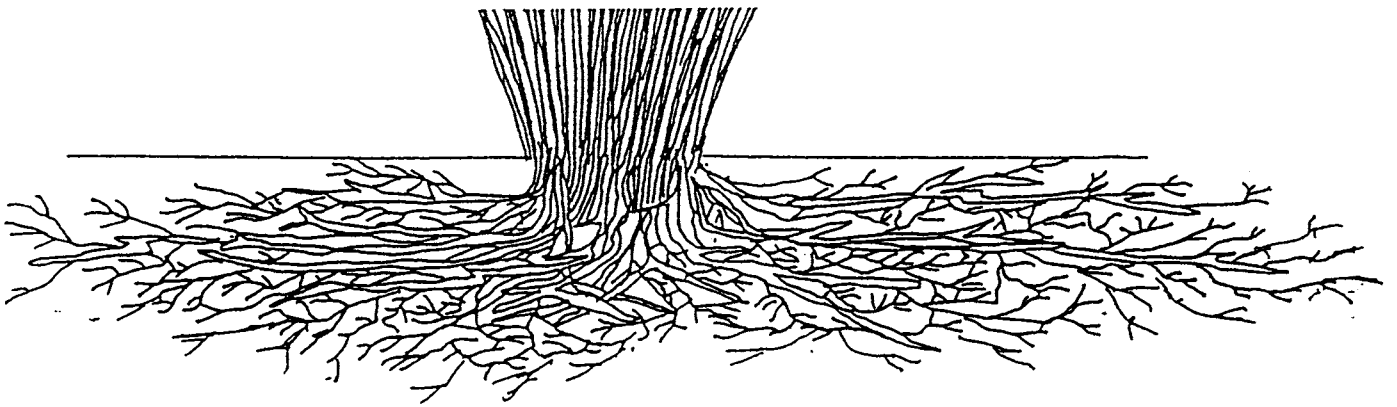
Potential weediness:	could become a weed if left unchecked
Resistance to fire:	resistant
Resistance to grazing:	resistant
Resistance to drought:	very resistant

<i>Reaction to shade or full sunlight:</i>	performs extremely well in full sunlight and well in shade
<i>Flood tolerance:</i>	tolerant
<i>Erosion control:</i>	very good erosion control on road verges and on road embankments
<i>Natural habitat:</i>	roadsides, grassy hills, and dry savannahs
<i>Rate of growth:</i>	rapid
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

The height of the plant is manageable for roadside embankments so cutting is not required. However, a possible disadvantage of this species is its rapid growth and good spreading ability. It seeds fairly readily and is very tolerant of dry conditions. It should not be planted on roadside embankments which are adjacent to cultivated pastures.

Sporobolus indicus (L.)



Botanical name: *Sporobolus poiretii* (Roem. and Schult)

Family: Gramineae

Common name: smutgrass

Classification: grass

Bio-engineering attributes

Root form: dense fibrous root system; strong roots that exhibit good vertical penetration; limited fine root branches

Rooting depth: 15 - 20 cm

Rooting strength: very strong

Canopy height: 0.5 - 1 m

Canopy spread: spread per mat is about 0.5 m

Bio-engineering use: good as a soil stabilizer on road embankments and on road verges

Other uses: unknown

Method of propagation: tillers, seed

Ecological and cultural factors

Potential weediness: fertile seed production contributes to spread; could become a weed if left unchecked

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: very resistant

Reaction to shade or full sunlight: performs extremely well in full sunlight and well in shade

Flood tolerance: tolerant

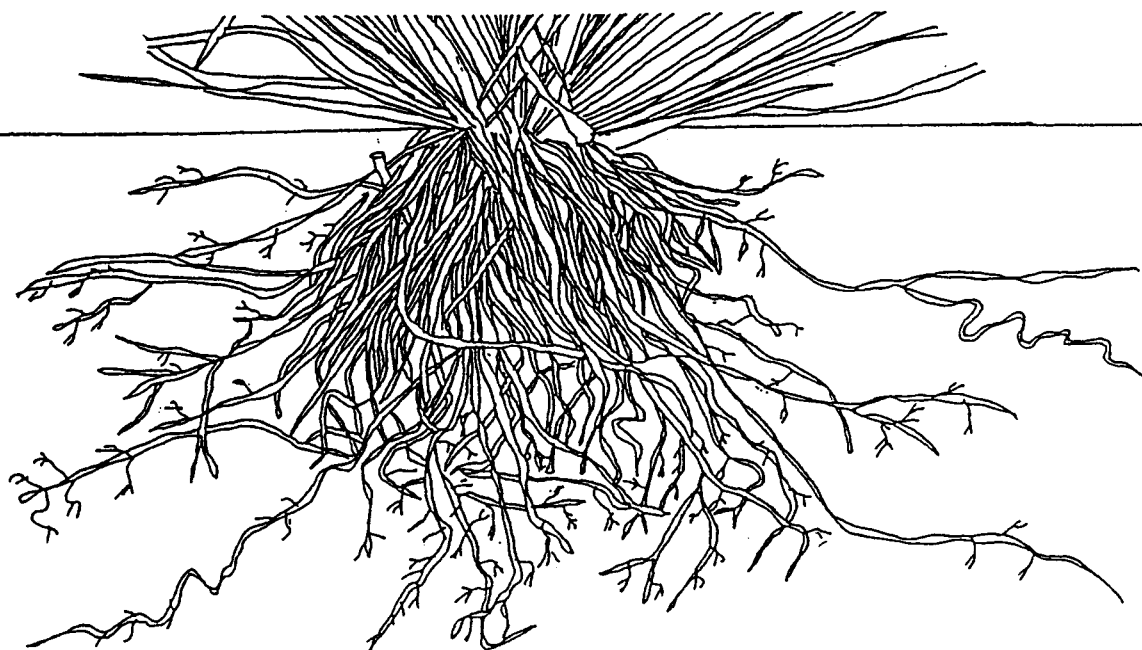
<i>Erosion control:</i>	good erosion control on road verges and on roadside embankments
<i>Natural habitat:</i>	open ground, grassland, and waste places
<i>Rate of growth:</i>	rapid
<i>Ability to spread naturally:</i>	good spreading ability

Remarks

This grass readily colonizes droughty, poor fertility soils. It is a relatively short grass and no cutting is necessary.

Sporobolus poiretii

(Roem. & Schult)



Botanical name: *Tridax decumbens* L.

Family: Compositeae

Common name: tridax

Classification: shrub

Bio-engineering attributes

Root form: fibrous; shallow rooting with horizontal spread in the top 15 - 20 cm of soil; limited secondary branching

Rooting depth: 15 - 20 cm

Rooting strength: strong

Canopy height: 25 cm

Canopy spread: stolons which creep along the ground

Bio-engineering use: useful as soil surface cover on sandy areas

Other uses: unknown

Method of propagation: stolons; cuttings

Ecological and cultural factors

Potential weediness: pantropical weed

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: resistant

Reaction to shade or full sunlight: grows well under full sunlight and moderate shade

Flood tolerance: tolerant

<i>Erosion control:</i>	good erosion control
<i>Natural habitat:</i>	grassy places, waste or cultivated land
<i>Rate of growth:</i>	rapid
<i>Ability to spread naturally:</i>	spreads rapidly

Remarks

Useful as a soil cover on sandy saline soils.

Botanical name: *Zoysia matrella* (L.) Merr.

Family: Gramineae

Common name: manilla grass

Classification: grass

Bio-engineering attributes

Root form: fibrous; shallow to moderately deep rooting; thick strong underground rhizomes; fine roots with limited branching

Rooting depth: 25 cm

Rooting strength: very strong

Canopy height: 30 - 35 cm

Canopy spread: by rhizomatous growth

Bio-engineering use: very good soil binder on road embankments and road verges

Other uses: ornamental purposes for lawn cover

Method of propagation: seeds, but usually vegetatively by sprigs, setts

Ecological and cultural factors

Potential weediness: little potential

Resistance to fire: resistant

Resistance to grazing: resistant

Resistance to drought: very resistant

Reaction to shade or full sunlight: grows best in full sunlight

Flood tolerance: tolerant

Erosion control: good erosion control since it effectively covers the soil surface by forming a dense matt over it; its roots are very matted and thick effectively holding the top 5 - 10 cm of the soil.

Natural habitat: sandy areas

Rate of growth: slow

Ability to spread naturally: spreads slowly

Remarks

Not aggressive but persistent grower eventually pushing out other grasses or herbaceous species which die back in the dry season; no cutting or other management required once the grass has been established and has covered the ground; tolerant to a wide range of soil conditions.

Zoysia matrella (L.) Merr.

