



REVEGETATING STREAMS IN THE RICHMOND CATCHMENT

A GUIDE TO SPECIES AND PLANTING METHODS



LAND & WATER
CONSERVATION



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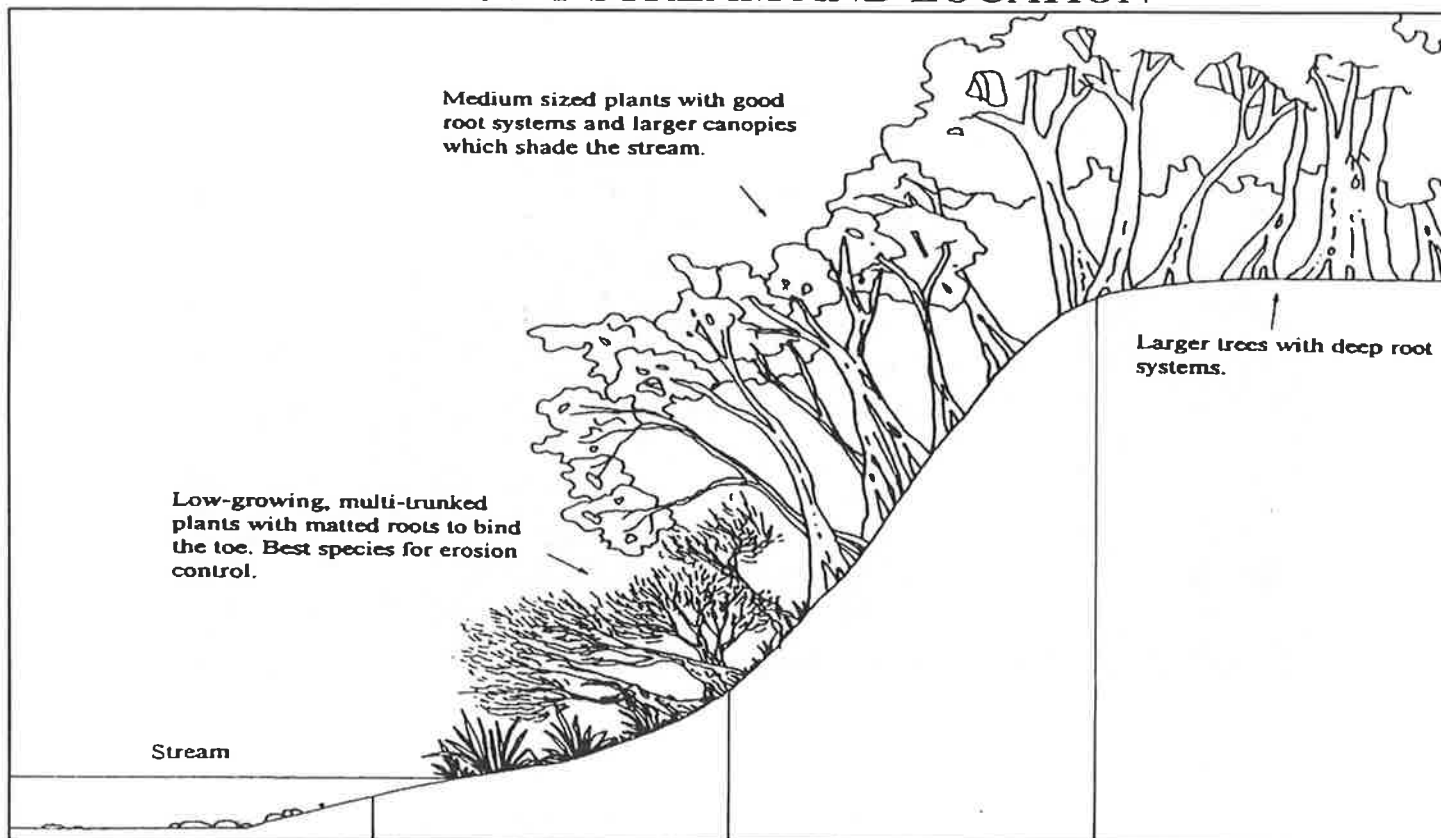


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SPECIES BY STREAM AND LOCATION



STREAM	TOE	MIDDLE	UPPER
<p>Southern tributaries Including Camira, Myall, Bungawalbin, Myrtle, Busby, Battens Bight, Four Mile, and Six Mile Creeks.</p> <p>* poorly drained sites ** Busbys Creek only *** Myall & Camira Creeks only **** Myrtle & Bungawalbin Creeks only</p>	<p><i>Acmena smithii</i> (Creek Form) <i>Callistemon viminalis</i>*** <i>Casuarina cunninghamiana</i> <i>Casuarina glauca</i>* <i>Ficus coronata</i> <i>Leptospermum brachyandrum</i> <i>Lomandra hystrix</i> <i>Lomandra longifolia</i> <i>Melaleuca alternifolia</i>* <i>Melaleuca quinquenervia</i>* <i>Tristaniopsis laurina</i> <i>Waterhousea floribunda</i>****</p>	<p><i>Alphitonia excelsa</i> <i>Castanospermum australe</i>** <i>Casuarina cunninghamiana</i> <i>Casuarina glauca</i>* <i>Cryptocarya microneura</i> <i>Eucalyptus grandis</i> <i>Glochidion ferdinandi</i> <i>Grevillea robusta</i> <i>Lomandra longifolia</i> <i>Melaleuca alternifolia</i>* <i>Melaleuca quinquenervia</i>* <i>Rhodomyrtus psidioides</i></p>	<p><i>Acacia mulacocarpa</i> <i>Acacia fimbriata</i> <i>Acacia irrorata</i> <i>Callistemon salignus</i> <i>Eucalyptus intermedia</i> <i>Eucalyptus seeana</i> <i>Eucalyptus siderophloia</i> <i>Eucalyptus tereticornis</i> <i>Lophostemon suaveolens</i></p>
<p>North-western tributaries Including Mongogarrie, Doubtful, Iron Pot, Eden, Fawcetts, Lynchs, Gradys, and Findon Creeks, and Shannon Brook and Richmond River.</p> <p>* absent from upper reaches ** plant only on streams where already present *** only on upper reaches, on rocky, well-watered streams.</p>	<p><i>Acmena smithii</i> (Creek Form) <i>Callistemon viminalis</i>** <i>Casuarina cunninghamiana</i> <i>Elaeocarpus grandis</i>*** <i>Ficus coronata</i> <i>Lomandra hystrix</i> <i>Lomandra longifolia</i> <i>Melaleuca bracteata</i> <i>Potamophila parviflora</i> <i>Tristaniopsis laurina</i></p>	<p><i>Acacia melanoxylon</i> <i>Aphananthe philippinensis</i> <i>Araucaria cunninghamii</i> <i>Archontophoenix cunninghamiana</i>*** <i>Castanospermum australe</i>* <i>Casuarina cunninghamiana</i> <i>Cryptocarya triplinervis</i> <i>Ehretia acuminata</i> <i>Elaeocarpus obovatus</i> <i>Glochidion ferdinandi</i> <i>Grevillea robusta</i> <i>Hibiscus heterophyllus</i> <i>Hymenosporum flavum</i> <i>Mallotus philippensis</i> <i>Podocarpus elatus</i> <i>Streblus brunonianus</i> <i>Syzygium australe</i></p>	<p><i>Acacia melanoxylon</i> <i>Angophora subvelutina</i> <i>Eucalyptus tereticornis</i> <i>Lophostemon suaveolens</i></p>

STREAM	TOE	MIDDLE	UPPER
<p>North-eastern tributaries Including Back, Websters, Leycester, Jiggi, Terania, Goolmangar, Coopers, Byron, Skinners, and Wilson's River.</p> <p>* only on streams west of, and including, Goolmangar Creek. ** upper reaches of streams only *** for protected sites</p>	<p><i>Acmena smithii</i> (Creek Form) <i>Callistemon viminalis</i>* <i>Casuarina cunninghamiana</i>* <i>Elaeocarpus grandis</i>** <i>Ficus coronata</i> <i>Lomandra hystrix</i> <i>Sloanea australis</i>*** <i>Tristaniopsis laurina</i></p>	<p><i>Aphananthe philippinensis</i> <i>Archontophoenix cunninghamiana</i>*** <i>Austromyrtus fragrantissima</i>*** <i>Castanospermum australe</i> <i>Cryptocarya obovata</i> <i>Desmodium acanthocladum</i> <i>Diploglottis australis</i> <i>Elaeocarpus obovatus</i> <i>Glochidion ferdinandi</i> <i>Grevillea robusta</i> <i>Heritiera trifoliolata</i>*** <i>Hibiscus heterophyllus</i> <i>Polyscias elegans</i> <i>Sloanea australis</i>*** <i>Sloanea woollsii</i>*** <i>Streblus brunonianus</i> <i>Syzygium australe</i> <i>Syzygium francisii</i>*** <i>Syzygium hodgkinsoniae</i>*** <i>Toona australis</i></p>	<p><i>Acacia melanoxylon</i> <i>Alphitonia excelsa</i> <i>Araucaria cunninghamii</i> <i>Commersonia bartramia</i> <i>Ehretia acuminata</i> <i>Elaeocarpus obovatus</i> <i>Eucalyptus grandis</i> <i>Ficus spp.</i> <i>Flindersia schottiana</i> <i>Grevillea robusta</i> <i>Guttoa semiglaucula</i> <i>Hibiscus heterophyllus</i> <i>Jagera pseudorhus</i> <i>Melia azedarach var australasica</i> <i>Toona australis</i></p>

NOW GO TO THE SPECIES DESCRIPTIONS TO CHECK COMMON NAMES AND SEE WHICH ARE BEST FOR YOUR SITE

DESCRIPTION OF RIVERBANK PLANTS NATIVE TO THE RICHMOND CATCHMENT

HEIGHT - refers to the maximum height in an OPEN situation. Some species may grow taller in protected areas.

FROST RESISTANT - refers to the frost resistance of newly planted seedlings. 1 = none or very little frost resistance; 2 = some resistance (light frosts); 3 = frost resistant

PROTECTION WHEN YOUNG - 1 = plant requires watering and protective canopy of taller plants; 2 = may require some watering and protection in exposed sites; 3 = requires no protection

R.F. = abbreviation for rainforest

COMMON / BOTANICAL NAME	BRIEF DESCRIPTION	MAX. HEIGHT	FAST GROWING	PROTECTION WHEN YOUNG	FROST RESISTANT	OTHER USES / COMMENTS	RARE	WILDLIFE
BRUSH IRONBARK WATTLE <i>ACACIA AULACOCARPA</i>	MEDIUM WATTLE WITH BLUISH-GREY PHYLLODES, GREY-BLACK FURROWED BARK, AND PALE YELLOW FLOWERS IN LATE SUMMER/AUTUMN. HARDY	10	X	3	3	FAST-GROWING SCREEN PLANT. TIMBER CAN BE USED FOR RAILS.		ATTRACTS INSECT EATING BIRDS
FRINGED WATTLE <i>ACACIA FIMBRIATA</i>	A BUSHY SHRUB OR SMALL TREE WITH A WEEPING HABIT AND PALE YELLOW FLOWERS. HARDY	6	X	3	3	USEFUL WINDBREAK SPECIES OR SCREEN PLANT		ATTRACTS INSECT EATING BIRDS
GREEN WATTLE <i>ACACIA IRRORATA</i>	SMALL, FERN-LEAVED WATTLE WITH PALE YELLOW FLOWERS. VERY HARDY.	6	X	3	3	GOOD CANOPY SPECIES FOR PROTECTING R.F. PLANTINGS		ATTRACTS INSECT EATING BIRDS
BLACKWOOD <i>ACACIA MELANOXYLON</i>	MEDIUM-SIZED BUSHY WATTLE WITH PALE YELLOW FLOWERS. VERY HARDY	10	X	3	3	USEFUL BUFFER TREE FOR PROTECTING STREAMSIDE AND RAINFOREST PLANTINGS.		SEEDS ATTRACT BIRDS
LILLY PILLY <i>ACMENA SMITHII</i>	MEDIUM-SIZED R.F. TREE WITH A DENSE HABIT AND PINK TO PURPLE FRUIT	10		2	2	SOME FORMS MAKE USEFUL WINDBREAKS IF GIVEN SUFFICIENT WATER		FRUIT ATTRACTS BIRDS
RED ASH <i>ALPHITONIA EXCELSA</i>	A MEDIUM SIZED TREE WITH SOME DROUGHT TOLERANCE. LEAVES HAVE A WHITE UNDERSIDE. HARDY	12	X	3	3	TIMBER SUITABLE FOR BUILDING OR CABINET WORK. STOCK FORAGE TREE. GOOD RAINFOREST REGENERATION TREE.		SEEDS ATTRACT BIRDS
BROAD-LEAVED APPLE <i>ANGOPHORA SUBVELUTINA</i>	A MEDIUM TO TALL, ROUGH-BARKED TREE WITH BROAD LEAVES AND CHARACTERISTIC GNARLED, OR TWISTED, GROWTH. HARDY.	18		3	3	OFTEN RETAINED ON FARMS AS A SHADE TREE. IT IS A USEFUL POLLEN TREE FOR BEES.		PROVIDES NESTING SITES FOR BIRDS
ROUGH-LEAVED ELM <i>APHANANTHE PHILIPPINENSIS</i>	SMALL TO MEDIUM SIZED R.F. TREE WITH STIFF ELM-LIKE LEAVES AND DENSE, DARK CROWN. HARDY	12		2	2	TIMBER HARD AND SUITABLE FOR HANDLES. EDIBLE FRUIT. USEFUL R.F. REGENERATION SPECIES.		FRUIT ATTRACTS BIRDS
HOOP PINE <i>ARAUCARIA CUNNINGHAMII</i>	A TALL, STRAIGHT R.F. TREE WITH SCALY BARK AND DARK GREEN PINE-TYPE LEAVES. THE LARGE CONES ARE PRODUCED IN SUMMER.	30		2	2	USED IN PARK AND HOMESTEAD LANDSCAPING. TIMBER SUITABLE FOR LIGHT CONSTRUCTION AND PLYWOOD.		
BANGALOW PALM <i>ARCHONTOPHOENIX CUNNINGHAMIANA</i>	SINGLE-STEMMED, FEATHER-LEAVED PALM. NEEDS PLENTY OF WATER, BEST FOR WELL-WATERED, PROTECTED SITES.	8	X	1	1	COMMONLY USED IN LANDSCAPING IN YARDS AND AROUND COMMERCIAL CENTRES. BEST FOR PROTECTED SITES.		FRUIT ATTRACTS BIRDS
SWEET MYRTLE <i>AUSTROMYRTUS FRAGRANTISSIMA</i>	A DENSE BUSHY SHRUB OR SMALL R.F. TREE WITH GLOSSY LEAVES, SCENTED WHITE FLOWERS AND ORANGE FRUITS IN LATE SUMMER.	5		1	1	RAINFOREST UNDERSTOREY SPECIES. SLOW GROWING SPECIES PLANTED DUE TO ITS RARITY. BEST IN PROTECTED SITES.	X	
WILLOW BOTTLEBRUSH <i>CALLISTEMON SALIGNUS</i>	SMALL TREE WITH PAPERY BARK, PINK NEW GROWTH AND WHITE BOTTLEBRUSH FLOWERS. VERY HARDY.	6	X	3	3	GOOD WINDBREAK SPECIES. GROWS IN A WIDE RANGE OF SOILS INCLUDING POORLY DRAINED SITES.		FLOWERS ATTRACT HONEYEATERS
WEeping BOTTLEBRUSH <i>CALLISTEMON VIMINALIS</i>	MULTI-STEMMED TREE WITH HARD FLURROWED BARK AND RED BOTTLEBRUSH FLOWERS. VERY HARDY.	5	X	3	2	EXCELLENT EROSION CONTROL SPECIES. USED FOR DIRECT SEEDING.		FLOWERS ATTRACT HONEYEATERS
BLACK BEAN <i>CASTANOSPERMUM AUSTRALE</i>	A DENSE-CROWNED R.F. TREE WITH DARK GREEN LEAVES. PRODUCES ORANGE/RED FLOWERS ON BRANCHES FOLLOWED BY LARGE PODS.	18		2	2	GOOD DECORATIVE TIMBER SPECIES USED FOR TURNERY AND CABINET WORK.		ATTRACTS HONEYEATING BIRDS
RIVER OAK <i>CASUARINA CUNNINGHAMIANA</i>	TALL, PINE-LIKE SPECIES, VERY COMMON ON THE NORTH COAST. HARDY. NEEDS MANAGEMENT AS MAY CONTRIBUTE TO EROSION.	20	X	3	3	FIXES NITROGEN. GOOD CANOPY COVER SPECIES FOR R.F. REGENERATION. DIRECT SEEDING. USED FOR DROUGHT FODDER		LARGER, OLDER TREES USED AS ROOSTING SITES.
SWAMP OAK <i>CASUARINA GLAUCA</i>	MEDIUM, PINE-LIKE SPECIES. COMMON ON POORLY-DRAINED SITES OR BRACKISH RIVERS.	15	X	3	3	FIXES NITROGEN. USEFUL DROUGHT FODDER. DIRECT SEEDING.		LARGER, OLDER TREES USED AS ROOSTING SITES.
BROWN KURRAJONG <i>COMMERSONIA BARTRAMIA</i>	SMALL TREE, WITH LARGE, TOOTHED, RUSTY HAIRD LEAVES AND ATTRACTIVE SPRAYS OF SMALL WHITE FLOWERS IN SUMMER.	15	X	3	2	VERY HARDY REGENERATION SPECIES FOR RAINFORESTS		
MURROGUN <i>CRYPTOCARYA MICRONEURA</i>	A MEDIUM SIZED R.F. SPECIES PRODUCING SHINY BLACK FRUIT IN SUMMER/AUTUMN.	10		1	2	REASONABLY HARDY SPECIES FOR R.F. PLANTINGS.		FRUIT ATTRACTS BIRDS
PEPPERBERRY TREE <i>CRYPTOCARYA OBOVATA</i>	MEDIUM TO TALL DENSLEY-CROWNED R.F. TREE WITH HAIRY NEW GROWTH AND DARK LEAVES.	18		1	1	GOOD SHADE TREE.		FRUIT ATTRACTS BIRDS

COMMON / BOTANICAL NAME	BRIEF DESCRIPTION	MAX. HEIGHT	FAST GROWING	PROTECTION WHEN YOUNG	FROST RESISTANT	OTHER USES / COMMENTS	RARE	WILDLIFE
THREE-VEINED LAUREL <i>CRYPTOCARYA TRIPLINERVIS</i>	SMALL R.F. TREE WITH DARK, THREE-VEINED LEAVES AND PRODUCING BLACK FRUITS IN WINTER/SPRING.	8		2	1	GOOD UNDERSTOREY SPECIES FOR DRIER RAINFOREST SITES.		FRUIT ATTRACTS BIRDS
THORNY PEA <i>DESMODIUM ACANTHOCCLADUM</i>	SMALL, THORNY SHRUB WITH VERY SMALL LEAVES, AND PURPLE, PEA-TYPE FLOWERS.	1		2	1	UNDERSTOREY SPECIES FOR RAINFOREST PLANTINGS.	X	
NATIVE TAMARIND <i>DIPLOGLOTTIS AUSTRALIS</i>	ATTRACTIVE TALL R.F. TREE WITH VERY LARGE COMPOUND LEAVES AND RUSTY HAIRY NEW GROWTH.	15		1	1	ATTRACTIVE TREE USED FOR LANDSCAPING. EDIBLE FRUIT, BEST PLANTED IN PROTECTED SITES.		FRUIT ATTRACTS BIRDS
KODA <i>EHRETIA ACUMINATA</i>	MEDIUM-SIZED R.F. TREE. DECIDUOUS WITH GREY FISSURED BARK AND MASSES OF ORANGE FRUITS IN SUMMER/AUTUMN.	10		2	2	FRUITS ARE ORNAMENTAL.		FRUIT ATTRACTS BIRDS
BLUE QUANDONG <i>ELAEOCARPUS GRANDIS</i>	TALL, BUTTRESSING R.F. TREE WITH SPARSE CANOPY AND LARGE BLUE FRUITS IN SPRING/SUMMER.	30	X	2	1	VALUABLE TIMBER TREE FOR INTERIOR WORK. SHADE TREE. EDIBLE FRUIT.		FRUIT ATTRACTS BIRDS
HARD QUANDONG <i>ELAEOCARPUS OBOVATUS</i>	TALL R.F. TREE TOLERANT OF WET SOILS. HARDY. PRODUCES MASSES OF SMALL BLUE FRUITS.	15		2	2	USEFUL TIMBER TREE FOR INTERIOR WORK SHADE TREE		FRUIT ATTRACTS BIRDS
FLOODED GUM <i>EUCALYPTUS GRANDIS</i>	VERY TALL EUCALYPT WITH SMOOTH WHITE BARK	40+	X	3	2	GOOD HARDWOOD TIMBER TREE FOR LIGHT CONSTRUCTION. GOOD POLLEN TREE.		FLOWERS ATTRACT BIRDS. HABITAT TREE
PINK BLOODWOOD <i>EUCALYPTUS INTERMEDIA</i>	MEDIUM TO TALL EUCALYPT WITH ROUGH GREYISH-BROWN, SCALY BARK AND LARGE CAPSULES. HARDY.	30		3	3	USEFUL HARDWOOD TIMBER TREE, MEDIUM IMPORTANCE AS A POLLEN SOURCE FOR BEES.		FLOWERS ATTRACT BIRDS. HABITAT TREE
NARROW-LEAVED RED GUM <i>EUCALYPTUS SEEANA</i>	A MEDIUM TO TALL EUCALYPT WITH PATCHY, WHITE-GREYISH BARK, AND NARROW LEAVES. HARDY.	20	X	3	3	TIMBER SUITABLE FOR FENCING.		
GREY IRONBARK <i>EUCALYPTUS SIDEROPHLOIA</i>	MEDIUM TO TALL EUCALYPT WITH TOUGH, HARD, FURROWED BARK.	20		3	3	TOUGH, HARD AND DURABLE TIMBER SUITABLE FOR FENCEPOSTS, SLEEPERS, AND BRIDGE TIMBERS. GOOD SOURCE OF NECTAR FOR BEES.		ATTRACTS INSECT EATING BIRDS
FOREST RED GUM <i>EUCALYPTUS TERETICORNIS</i>	A MEDIUM TO TALL EUCALYPT WITH PATCHY, WHITE-GREYISH BARK. OFTEN GROWS ON ALLUVIAL FLOODPLAINS. VERY HARDY.	30	X	3	3	TIMBER SUITABLE FOR HEAVY CONSTRUCTION AND FENCING. GOOD SHADE TREE. USEFUL POLLEN SOURCE FOR BEES.		KOALA FOOD TREE
CREEK SANDPIPER FIG <i>FICUS CORONATA</i>	SMALL BUSHY TREE WITH SANDPAPER LEAVES AND HAIRY FRUITS PRODUCED ON THE TRUNK AND BRANCHES. HARDY	6		2	2	EXCELLENT RIPARIAN SPECIES WITH EDIBLE FRUIT.		FRUIT ATTRACTS BIRDS
OTHER FIGS <i>FICUS</i> SPP.	LARGE TREES WITH BUTTRESS ROOTS AND SPREADING CANOPY.	20		1	1	EXCELLENT SHADE TREE. EDIBLE FRUIT.		FRUIT ATTRACTS BIRDS.
CUDGERIE <i>FLINDERSIA SCHOTTIANA</i>	TALL TREE WITH OPEN CANOPY. VERY HARDY	20	X	2	2	VERY FAST GROWING TREE WHICH IS IDEAL FOR RAINFOREST REGENERATION. USEFUL TIMBER FOR INDOOR WORK		
CHEESE TREE <i>GLOCHIDION FERDINANDI</i>	SMALL TO MEDIUM R.F. TREE WITH SPREADING CANOPY AND ATTRACTIVE FOLIAGE. FRUIT LOOKS LIKE SMALL CHEESES HARDY	10		2	2	EXCELLENT RIPARIAN REGENERATION SPECIES AND SMALL SHADE TREE.		FRUIT ATTRACTS BIRDS
SILKY OAK <i>GREVILLEA ROBUSTA</i>	TALL, SPARSE CANOPIED SPECIES WITH GOLDEN FLOWERS. DROUGHT TOLERANT. VERY HARDY.	15	X	3	3	EXCELLENT SPECIES FOR R.F. REGENERATION. CABINET TIMBER. MINOR TO MEDIUM VALUE FOR BEES.		FLOWERS ATTRACT HONEYEATERS
GUIOA <i>GUIOA SEMIGLAUCA</i>	SMALL R.F. TREE. LEAVES WITH SILVERY UNDERSIDE. HARDY	10		2	2	ATTRACTIVE TREE FOR LANDSCAPING. USEFUL FOR RAINFOREST REGENERATION.		FRUIT ATTRACTS BIRDS
WHITE BOOYONG <i>HERITIERA TRIFOLIOLATA</i>	MEDIUM TO TALL RAINFOREST TREE WITH LEAFLETS ARRANGED IN THREES AND A BRONZE UNDERSURFACE. WINGED FRUIT ARE PRODUCED IN AUTUMN	30		1	1	ORNAMENTAL TIMBER IS USED FOR BUILDING AND CABINET WORK.		
NATIVE HIBISCUS <i>HIBISCUS HETEROPHYLLUS</i>	SMALL TREE WITH LOBED LEAVES AND SPINES ON THE STEMS. LARGE WHITE HIBISCUS FLOWERS WITH DEEP RED CENTRE IN SPRING/SUMMER.	6	X	2	2	USEFUL RAINFOREST REGENERATION SPECIES		
NATIVE FRANGIPANI <i>HYMENOSPORUM FLAVUM</i>	SMALL R.F. TREE PRODUCING NUMEROUS YELLOW AND WHITE FLOWERS IN SPRING. HARDY.	10	X	3	3	USEFUL SPECIES FOR R.F. REGENERATION		FLOWERS ATTRACT BIRDS
FOAMBARK <i>JAGERA PSEUDORHUS</i>	SMALL R.F. TREE WITH ATTRACTIVE FERNY FOLIAGE AND HAIRY YELLOW-BROWN FRUITS. HARDY.	12		2	2	VERY ATTRACTIVE TREE FOR LANDSCAPING. USEFUL FOR RAINFOREST REGENERATION.		FRUIT ATTRACTS BIRDS
THIN-FRUITED TEA TREE <i>LEPTOSPERMUM BRACHYANDRUM</i>	SMALL, MULTI-TRUNKED TREE. THE BARK PEELS IN SPRING, TURNING FROM A COPPER COLOUR TO WHITE. VERY HARDY.	4	X	3	3	GOOD EROSION CONTROL SPECIES. CAN BE USED FOR DIRECT SEEDING.		GOOD HABITAT SPECIES FOR SHADING THE STREAM EDGE.

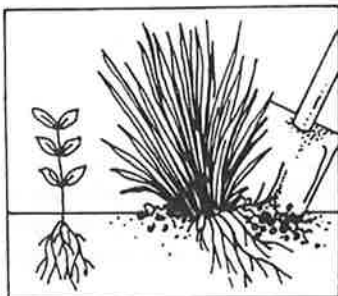
COMMON / BOTANICAL NAME	BRIEF DESCRIPTION	MAX. HEIGHT	FAST GROWING	PROTECTION WHEN YOUNG	FROST RESISTANT	OTHER USES / COMMENTS	RARE	WILDLIFE
SPINY MAT-RUSH <i>LOMANDRA HYSTRIX</i>	SMALL, TUSSOCKY RUSH FORMING THICK CLUMPS. HARDY	1		3	3	GOOD FOR EROSION CONTROL IF PLANTED IN SUFFICIENT DENSITY LARGE SPREADING ROOT SYSTEM		GOOD STREAM EDGE HABITAT SPECIES
SPINY MAT-RUSH <i>LOMANDRA LONGIFOLIA</i>	SMALL, TUSSOCKY RUSH FORMING THICK CLUMPS. HARDY. GROWS IN MORE OPEN AREAS THAN L. HYSTRIX	1		3	3	GOOD FOR EROSION CONTROL IF PLANTED IN SUFFICIENT DENSITY LARGE SPREADING ROOT SYSTEM		GOOD STREAM EDGE HABITAT SPECIES
SWAMP TURPENTINE <i>LOPHOSTEMON SUAVEOLENS</i>	MEDIUM TREE WITH LARGE LEAVES AND FIBROUS, FURROWED PERSISTANT BARK. HARDY	15	X	2	2	TIMBER SUITABLE FOR PILES AND MARINE STRUCTURES GROWS IN POORLY DRAINED SOILS.		USEFUL HABITAT TREE WHEN LARGE
RED KAMALA <i>MALLOTUS PHILIPPENSIS</i>	SMALL BUSHY, DENSE-CROWNED R.F. TREE PRODUCING HARD RED CAPSULES IN SPRING/SUMMER. VERY HARDY	8		2	2	USEFUL RAINFOREST REGENERATION PLANT. FRUIT CAN BE USED FOR DYE. WOOD SUITABLE FOR TOOL HANDLES		
TEA TREE OIL PAPERBARK <i>MELALEUCA ALTERNIFOLIA</i>	SMALL TO MEDIUM SIZED TREE WITH SMALL NARROW, BLUISH-GREEN LEAVES AND WHITISH PAPERY BARK. CREAM BRUSH FLOWERS IN SUMMER/AUTUMN.	6		3	3	USEFUL SCREEN AND WINDBREAK SPECIES FOR POORLY DRAINED AREAS. TEA-TREE OIL EXTRACTED FROM THE LEAVES		FLOWERS ATTRACT HONEY EATING BIRDS
WHITE CLOUD TREE <i>MELALEUCA BRACTEATA</i>	A TALL BUSHY SHRUB OR SMALL TREE WITH SMALL LINEAR LEAVES, HARD FURROWED BARK AND NUMEROUS WHITE, BRUSH FLOWERS IN SUMMER.	6		3	3	USEFUL SCREEN AND WINDBREAK SPECIES. CAN BE DIRECT-SEEDED.		FLOWERS ATTRACT HONEY EATING BIRDS
BROAD-LEAVED PAPERBARK <i>MELALEUCA QUINQUENERVIA</i>	MEDIUM SIZED TREE WITH FIVE-VEINED LEAVES AND WHITISH PAPERY BARK. CREAM BRUSH FLOWERS IN SUMMER/AUTUMN.	10	X	3	3	USEFUL SCREEN AND WINDBREAK SPECIES FOR POORLY DRAINED SITES.		FLOWERS ATTRACT HONEY EATING BIRDS
WHITE CEDAR <i>MELIA AZEDARACH</i> VAR. <i>AUSTRALASICA</i>	VERY HARDY DECIDUOUS TREE PRODUCING YELLOW FRUITS IN AUTUMN/WINTER. DROUGHT TOLERANT.	15	X	3	3	TIMBER USED FOR CABINET AND DECORATIVE WORK		FRUIT ATTRACTS BIRDS
BROWN PINE <i>PODOCARPUS ELATUS</i>	SLOW GROWING, DENSE CROWNED TREE WITH DARK GREEN LEAVES AND BROWN SCALY BARK. FRUITS ARE DARK BLUISH/BLACK.	15		2	2	A VALUABLE SOFTWOOD TIMBER SPECIES WITH A WIDE RANGE OF USES. THE FRUITS ARE EDIBLE.		FRUIT ATTRACTS BIRDS.
CELERY WOOD <i>POLYSCIAS ELEGANS</i>	MEDIUM SIZED R.F. TREE WITH LARGE COMPOUND LEAVES, AN UMBRELLA- SHAPED CANOPY AND LARGE CLUSTERS OF BLUISH FRUITS IN AUTUMN/WINTER.	12	X	2	2	USEFUL RAINFOREST REGENERATION TREE		FRUIT ATTRACTS BIRDS.
RIVER GRASS <i>POTAMOPHILA PARVIFLORA</i>	DENSE, TUSSOCKY GRASS THAT OCCURS ON LARGER RIVERS. USUALLY GROWING WITHIN THE STREAM	1.5		3	3	EXCELLENT EROSION CONTROL SPECIES WHICH CAN BE EASILY GROWN BY DIVISION OF MATURE PLANTS		INSTREAM HABITAT
NATIVE GUAVA <i>RHODOMYRTUS PSIDIODES</i>	A BUSHY, SMALL TREE WITH LIGHT BROWN SCALY BARK. PRODUCES YELLOW, FLESHY FRUITS IN LATE SUMMER/AUTUMN.	6		1	2	THE FRUIT IS EDIBLE. USEFUL RAINFOREST REGENERATION SPECIES		FRUIT ATTRACTS BIRDS
SAIDEN'S BLUSH <i>SLOANEA AUSTRALIS</i>	MEDIUM R.F. TREE WITH LARGE GLOSSY TOOTHED LEAVES. LIKES PLENTY OF WATER.	15		1	1	USEFUL TIMBER TREE FOR INTERIOR WORK. NEEDS A WELL-WATERED PROTECTED SITE.		FRUIT ATTRACTS BIRDS
YELLOW CARABEEN <i>SLOANEA WOOLLSII</i>	MEDIUM R.F. TREE WITH LARGE TOOTHED LEAVES. LIKES PLENTY OF WATER.	15		1	1	USEFUL TIMBER TREE FOR INTERIOR WORK. NEEDS A WELL-WATERED PROTECTED SITE.		FRUIT ATTRACTS BIRDS
WHALEBONE TREE <i>STREBLUS BRUNONIANUS</i>	SMALL TO MEDIUM R.F. TREE WITH GLOSSY, TOOTHED LEAVES, WIRY BRANCHES AND SMALL GREEN FRUITS IN SUMMER/AUTUMN. SLOW GROWING.	8		2	2	HARDY RAINFOREST UNDERSTOREY TREE. HAS A DENSE, COMPACT FORM WHEN PLANTED IN THE OPEN.		FRUIT ATTRACTS BIRDS
BRUSH CHERRY <i>SYZYGIUM AUSTRALE</i>	SMALL, DENSE CROWNED R.F. TREE WITH DARK GREEN LEAVES AND RED FRUITS FROM SUMMER TO EARLY WINTER.	10		2	2	EDIBLE FRUIT. GOOD RIPARIAN R.F. REGENERATION SPECIES		FRUIT ATTRACTS BIRDS. GOOD HOST FOR FERNS.
GIANT WATER GUM <i>SYZYGIUM FRANCISII</i>	MEDIUM, DENSE CROWNED R.F. TREE WITH DARK GREEN LEAVES, PALE BROWN BARK WITH DARK BROWN BLOTCHES, AND PURPLE FRUITS IN SUMMER/AUTUMN.	15		1	1	GOOD SHADE TREE. WITH LARGE SPREADING CROWN. TIMBER SUITABLE FOR BUILDING AND FLOORING.		
RED LILLY PILLY <i>SYZYGIUM HODGKINSONIAE</i>	A SMALL BUSHY, OFTEN MULTI-STEMMED, R.F. TREE WITH LARGE DARK GLOSSY LEAVES AND LARGE RED FRUITS IN SPRING.	8		1	1	GROWN DUE TO ITS RARITY.	X	
RED CEDAR <i>TOONA AUSTRALIS</i>	LARGE R.F. TREE WITH LARGE, COMPOUND LEAVES AND SPREADING CANOPY. SEMI-DECIDUOUS. HARDY.	20	X	2	2	GOOD SHADE TREE. VALUABLE TIMBER TREE. SUBJECT TO ATTACK BY TIP MOTH		
WATER GUM <i>TRISTANIOPSIS LAURINA</i>	MEDIUM SIZED TREE. WITH LIGHT FLAKY BARK AND YELLOW FLOWERS PRODUCED IN SUMMER. HARDY	10	X	2	2	USEFUL EROSION CONTROL SPECIES AND SOME VALUE FOR CABINET WORK. USEFUL NECTAR AND POLLEN SPECIES. USED FOR DIRECT SEEDING		ROOTS PROVIDE HABITAT FOR STREAM DWELLING ANIMALS.
WEEPING MYRTLE <i>WATERHOUSEA FLORIBUNDA</i>	MEDIUM TO LARGE TREE. DENSELY CROWNED WITH WEEPING FOLIAGE AND ROUND GREEN FRUIT IN SUMMER/AUTUMN. HARDY	15	X	2	2	EXCELLENT EROSION CONTROL SPECIES WITH EXTENSIVE MAT LIKE ROOT SYSTEM		ROOTS PROVIDE HABITAT FOR STREAM DWELLING ANIMALS.

HOW DO I PLANT MY SELECTED SPECIES ?

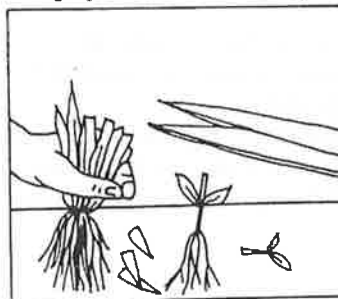
1) DIVISION OR DIRECT TRANSPLANT

Mature clumps of Lomandra or River Grass can be dug up, divided and directly transplanted to moist soil or gravel. Seedlings of Bottlebrush or Tea-tree can also be directly transplanted from site to site.

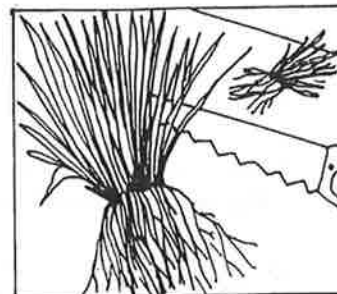
MOST SUITABLE FOR: TOE.



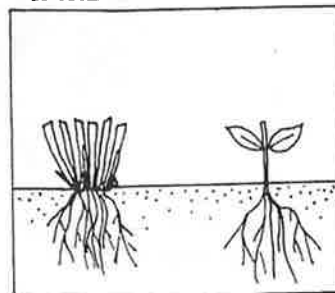
1 Dig up clump or seedling.



3 Cut off tops of leaves or stem to reduce transplant shock.



2 Divide clump with saw, mattock or tomahawk.

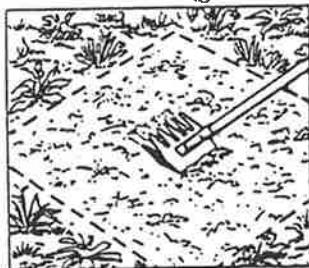


4 Plant in moist soil or gravel.

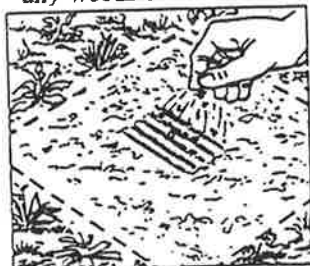
2) DIRECT SEEDING

The seed of some species (Eg. Bottlebrush, Tea-tree, Lomandra, and Water Gum) can be directly sown on site. Seed must be sown in moist, weed-free sand or gravel. The gravel is levelled no higher than 100mm above water level against the bank toe. Using this method we are reproducing the natural conditions which allow plants such as River Oaks, Tea-tree, and Bottlebrush to densely colonise gravel bars. The aim is to achieve dense colonisation, so sowing rates of up to 0.5 grams per square metre of gravel can be used.

MOST SUITABLE FOR: TOE (gravel needs to be moist).



1 Scrape the surface to remove any weeds or weed seed.



3 Mix the seed with moist sand and broadcast over the surface.



2 Rake to prepare the seed bed, and bring fines to the surface.



4 Tamp the surface for fine seed, rake then tamp for coarse seed.

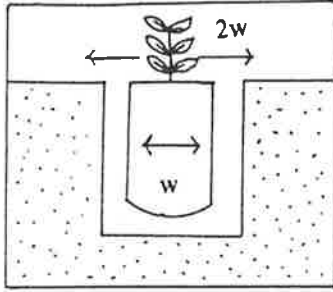
3) TRUNCHEON CUTTINGS

Branches or cuttings up to 3 metres long can be taken from mature trees and planted directly on-site. Half the stem is buried into moist gravel using a crow-bar or water jet. At present this method is mainly used for non-natives such as willows and poplars. See your DLWC adviser before using these species as they may cause problems in your stream.

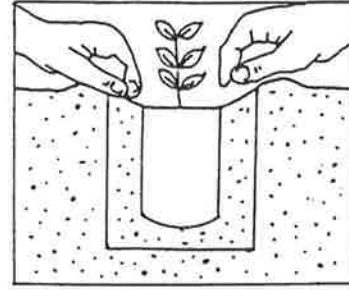
MOST SUITABLE FOR: TOE

4) STANDARD TUBESTOCK

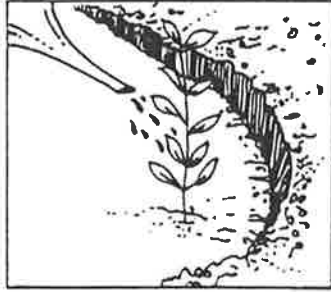
1 Plant when soil is moist and there is no danger of frost.



2 Dig hole twice the width of the pot.



3 **IMPORTANT** After planting, firm the soil to remove air pockets. If planting in coarser materials, place some fine soil in the planting hole.



4 Water in. A slight depression left around the plant will allow water to get where it is needed.

5 Give follow-up water and weed control where needed. (Weeds slow growth by taking water and nutrients).

6 Check trees regularly for damage by animals. Stake and guard where needed.

7 Mulching helps conserve water.

MOST SUITABLE FOR: TOE (0.5 to 1 metre spacings)

MIDDLE BANK (2 metre spacings)

UPPER BANK (2 metres or wider).

5) BROADACRE PLANTINGS

Involves the use of specialised equipment and tubestock for mass plantings on a large scale. See your *DLWC* adviser for detailed information.

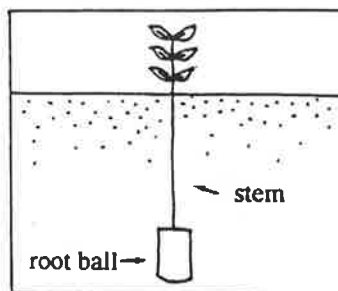
MOST SUITABLE FOR: UPPER BANK/FLOODPLAIN (flat to undulating land).

6) OTHER SPECIALISED METHODS

The use of specialised long-stem tubestock is currently being trialed. This method was developed by Wollombi Landcare Group. It involves the growth of seedlings in standard forestry tubes in a nutrient solution, and encouragement of stem elongation. Trees are planted using a water lancing jet to a depth of one metre or more. Root growth is achieved much more rapidly. Species tolerant of sediment build-up around the stem are used.

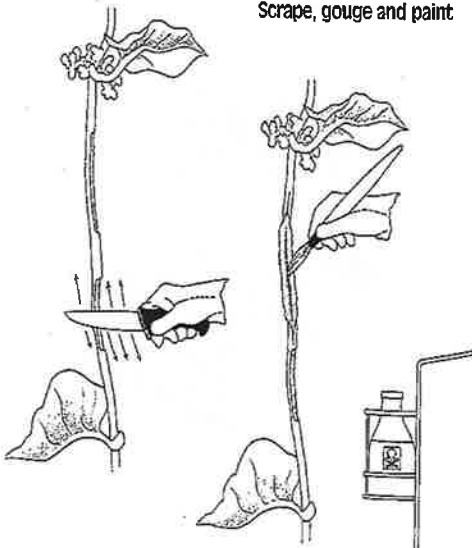
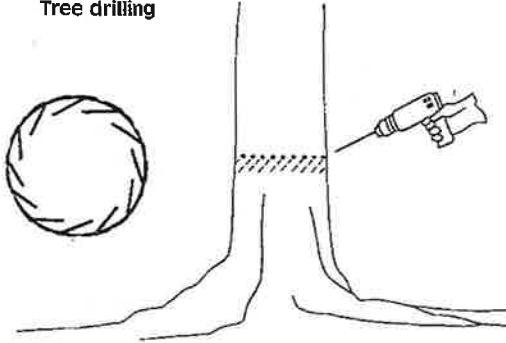
MOST SUITABLE FOR: TOE

MIDDLE BANK

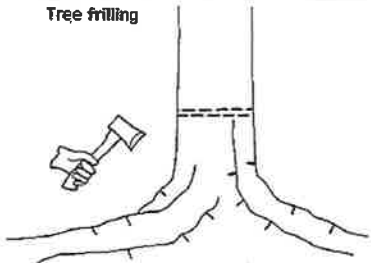



Long-stemmed tube planted in sand. Root growth occurs from the nodes located along the stem.

Appendix 4: General Weed Control Techniques

Method of Removal	Example Species	Other Considerations	Safety Considerations	Examples
<p>Cut and Paint (for small trees up to 10cm basal diameter) – make a horizontal cut as close to the ground as possible with secateurs, loppers or saw and immediately apply herbicide to exposed surface.</p>	<ul style="list-style-type: none"> ▪ Lantana ▪ Bitou bush ▪ Privet ▪ Cassia/senna 	<ul style="list-style-type: none"> ▪ Cuts should be made horizontal to prevent herbicide from running off the stump. ▪ Herbicide to be applied immediately before cell close 	<ul style="list-style-type: none"> ▪ Read label before opening container and follow instructions ▪ Wear protective clothing as directed on the label ▪ Wash hands immediately after use 	<p style="text-align: right;">Scrape, gouge and paint</p> 
<p>Stem injection frilling (for trees with basal diameter greater than 10cm) – At base of tree drill holes at a 45 degree angle into the sapwood at 5 cm intervals and fill with herbicide immediately.</p>	<ul style="list-style-type: none"> ▪ Camphor laurel ▪ Mickey mouse bush 	<ul style="list-style-type: none"> ▪ Plants should be healthy and growing when applied ▪ Deciduous plants should be treated in spring and autumn when leaves are fully formed ▪ For multi-stemmed plants, inject or chip below the lowest branch ▪ Herbicide to be applied immediately before cell close. 		<p style="text-align: center;">Tree drilling</p> 



General Weed Control Techniques Continued

Method of Removal	Example Species	Other Considerations	Safety Considerations	Examples
<p>Frilling (for trees with basal diameter greater than 10cm) - Make a cut with an axe or chisel and fill with herbicide immediately repeat at 5cm intervals.</p>	<ul style="list-style-type: none"> ▪ Camphor laurel ▪ Mickey mouse bush 	<ul style="list-style-type: none"> ▪ Plants should be healthy and growing when applied ▪ Deciduous plants should be treated in spring and autumn when leaves are fully formed ▪ For multi-stemmed plants, inject or chip below the lowest branch ▪ Herbicide to be applied immediately before cell close. 		<p>Tree frilling</p>  <p>The diagram shows a cross-section of a tree trunk with a horizontal dashed line indicating a cut. A hand is shown using an axe to make a V-shaped notch in the bark. The trunk has several roots extending downwards.</p>
<p>Foliar Spray – herbicide sprayed directly onto the weed foliage. This includes spot spraying.</p>	<ul style="list-style-type: none"> ▪ Wild oates ▪ Flatweed ▪ Fishtail oxalis 	<ul style="list-style-type: none"> ▪ Avoid spraying natives ▪ Avoid spraying the ground if using a residual herbicide. 		
<p>Digging entire plant out appropriate for several species to ensure the whole plant is completely removed from the soil.</p>	<ul style="list-style-type: none"> ▪ Bulbs, ▪ tubers ▪ corms 	<ul style="list-style-type: none"> ▪ Ensure reproductive parts are removed to prevent new plants from developing 		 <p>The diagram shows a person's hands pulling a plant out of the soil. The plant has a thick, bulbous base and several roots. The soil is shown being displaced around the plant.</p>

Appendix 5: Exotic vines and scramblers listed as Key Threatening Process

Scientific Name	Common Name
<i>Abrus precatorius</i>	Crabs-eye Creeper
<i>Acetosa sagittate</i>	Potato Vine
<i>Anredera cordifolia</i>	Maderia Vine
<i>Araujia sericifera</i>	
<i>Aristolochia littoralis</i>	Dutchman's Pipe
<i>Aristolochia elegans</i>	Dutchman's Pipe
<i>Asparagus aethiopicus</i>	Ground Asparagus
<i>Asparagus africanus</i>	Asparagus fern
<i>Asparagus asparagoides</i>	Bridal Creeper
<i>Asparagus plumosus</i>	Climbing Asparagus
<i>Asparagus scandens</i>	Climbing Asparagus
<i>Asystasia gangetica var. micrantha</i>	
<i>Caesaplina decapetala</i>	Mysore Thorn
<i>Cardiospermum grandiflorum</i>	Balloon Vine
<i>Clematis vitalba</i>	Old Man's Beard
<i>Delairea odorata</i>	Cape Ivy
<i>Dioscorea bulbifera</i>	Aerial Yam
<i>Dipogon lignosus</i>	
<i>Hedera helix</i>	English Ivy
<i>Ipomoea alba</i>	Moon flower
<i>Ipomoea cairica</i>	Coastal Morning Glory
<i>Ipomoea indica</i>	Morning Glory
<i>Ipomoea purpurea</i>	Morning Glory
<i>Lathurus Tingitanus</i>	
<i>Lonicera japonica</i>	Japanese Honeysuckle
<i>Macfadyena unguis-cati</i>	Cat's Claw
<i>Passiflora suberosa</i>	Corky Passion Flower
<i>Passiflora subpeltata</i>	Passion Flower
<i>Passiflora toriminiana</i>	
<i>Puearia lobata</i>	Kudzu
<i>Senecio angulatus</i>	
<i>Senecio macroglossus</i>	
<i>Solanum jasminoides</i>	Potato Vine
<i>Solanum seafortianum</i>	Climbing Nightshade
<i>Sollya heterophylla</i>	
<i>Thunbergia alata</i>	Black-eyed Susan
<i>Thunbergia grandiflora</i>	Blue Trumpet Vine
<i>Tradescantia fuminensis</i>	
<i>Vinca major</i>	Periwinkle

RATING YOUR RIVER'S VEGETATION

RATING	ASSESSMENT	MANAGEMENT
<p>RED</p> 	<p>VEGETATION ON THE BANKS IS MISSING, BANKS ARE BARE, OR TREES ARE FALLING INTO THE CHANNEL. BANKS MAY BE UNSTABLE.</p>	<p>THERE IS A NEED FOR EXTENSIVE GENERAL REPAIR OF THE CHANNEL AND ITS VEGETATION AND TO APPLY THE RIVERCARE PLANNING METHOD WITH FOLLOW UP DESIGN PLANS.</p> <p>STRUCTURAL WORKS MAY BE NECESSARY WHERE ALIGNMENTS ARE SEVERE. THERE ARE VARIOUS OPTIONS HERE AND YOUR DLWC ADVISOR CAN DISCUSS THEM WITH YOU.</p>
<p>YELLOW</p> 	<p>VEGETATION ON THE BANKS IS EITHER SPARSE, OF THE WRONG KIND, OR ONLY SINGLE SPECIES PRESENT. MOSTLY OLDER, LARGER TREES ARE PRESENT, WITH FEW SEEDLINGS OR YOUNG PLANTS. BANKS BECOMING UNSTABLE.</p> <p>VEGETATION GROWTH WITHIN THE BED OF THE STREAM HAS CONSTRICTED THE MAIN CHANNEL EXCESSIVELY. NO VEGETATION IS PRESENT ON THE BANKS TO RESIST EROSION FORCES.</p>	<p>UNDERTAKE SUPPLEMENTARY PLANTING WHERE NEEDED. AIM TO INCREASE PLANT DIVERSITY. SPELL AREAS FROM STOCK IF REQUIRED, TO ALLOW NATURAL REGENERATION. PREPARE A RIVERCARE PLAN FOR THE RIVER AND ITS VEGETATION AND IMPLEMENT THAT PLAN.</p> <p>SET AN ALIGNMENT WIDTH BASED ON RIVER PARAMETERS (SEE YOUR DLWC ADVISOR). CUT BACK OBSTRUCTING OR EXOTIC VEGETATION. LEAVE THE ROOT SYSTEM INTACT TO REDUCE THE IMPACT OF THE RIVER ON THE BANK. KEEP INSIDE POINTS AND BARS CLEAR OF OBSTRUCTING VEGETATION WITHIN THE ALIGNMENT WIDTH WHERE NEEDED. PLANT THE ERODED BANK WITH VEGETATION.</p>
<p>GREEN</p> 	<p>VEGETATION ON THE BANKS IS IN GOOD CONDITION WITH A GOOD DIVERSITY OF NATIVE TREE, SHRUB, AND GROUND COVER SPECIES.</p>	<p>PRESERVE THE EXISTING STATE.</p> <p>SPELL THE AREA FROM STOCK IF REQUIRED.</p> <p>KEEP FREE OF NOXIOUS WEEDS AND EXOTIC SPECIES.</p> <p>KEEP UP THE GOOD WORK!</p>