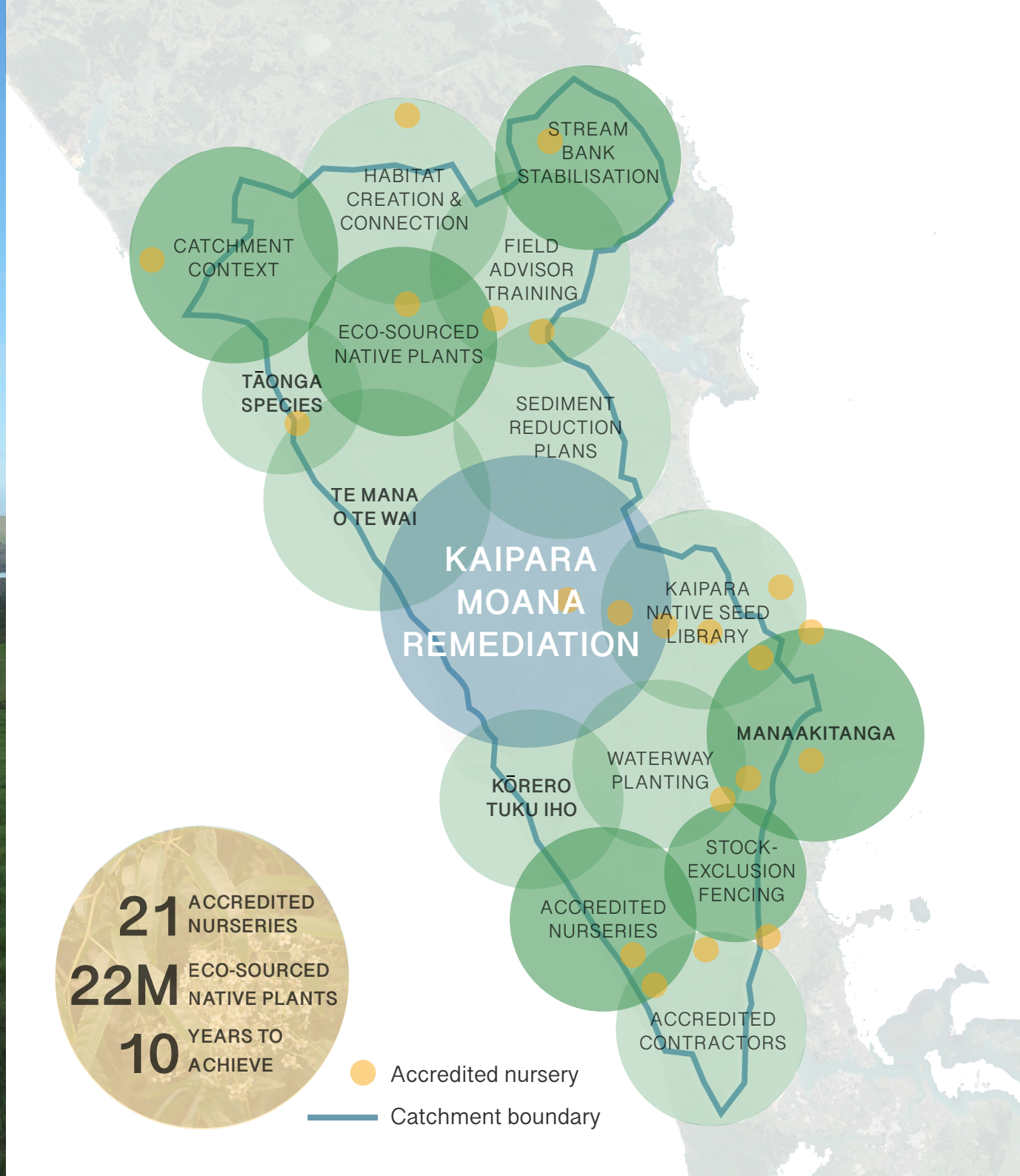
KAIPARA MOANA REMEDIATION

KMR PLANTING GUIDE

*"The **mauri** (life-force) of Kaipara Moana is restored and protected, and the harbour's significance is recognised, for the well-being of Kaipara Uri and for all New Zealanders."*

- KMR Vision



PLANTING WITH SRP's

The KMR **Landowner Grant Scheme** and **Whenua Whānui Fund** are connecting Kaipara landowners with locally-trained Field Advisors and Kaitiaki to deliver collaborative **Sediment Reduction Plans** (SRP's).

SRP's will target **fencing and planting of waterways and eroding hillslopes** throughout the Kaipara catchment, with a goal of planting 20-22 million site-suited, eco-sourced, locally-grown native plants over the next 10 years. SRP's will support fencing and/or native planting projects that:

- protect waterways, wetlands and adjacent sensitive land
- conserve soils and reduce on-farm erosion in and around waterways
- protect, establish & reconnect native habitat

SRP's are designed to complement current and proposed regional and national environmental policies, ensuring relevance and value over time. They are provided by KMR cost-free to Kaipara landowners on qualifying properties.

*Go to **www.kmr.org.nz** for more information, and to apply for a SRP*

KAIPARA MOANA REMEDIATION

Example of a typical SRP planting & fencing plan


KMR Field Advisor training

PLANTING **ZONES**

The primary focus of KMR planting will initially be waterway/wetland edges and water-adjacent eroding hill slopes, with a strong emphasis on bank stability and sediment filtration - **species selection** is linked to geomorphological and hydrological processes.

To simplify a complex topic, we have divided the riparian zone into **4 planting zones**:

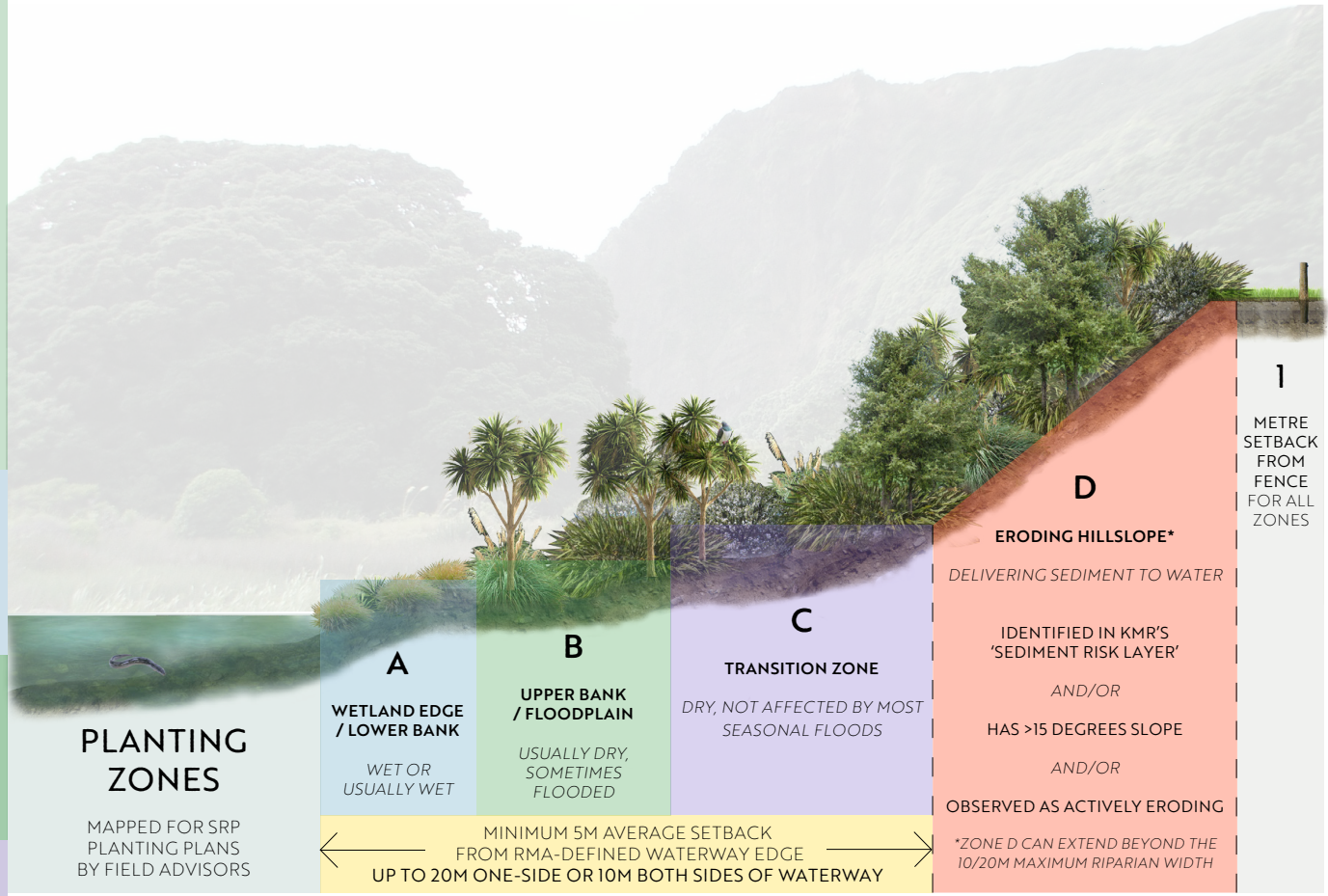
ZONE A: WETLAND EDGE / LOWER BANK
- dominated by sedges, rushes & grasses
- average 1 metre spacing
- 9000 stems per hectare

ZONE B: UPPER BANK / FLOODPLAIN
- mix of sedges, shrubs & trees
- average 1.5 metre spacing
- 4500 stems per hectare

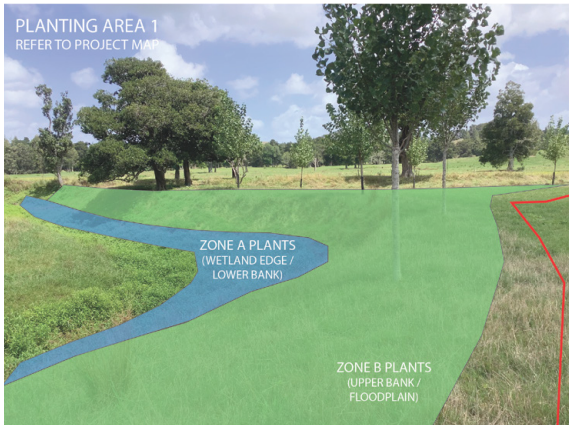
ZONE C: TRANSITION ZONE
- focus on shrubs & long-lived tree species
- average 1.5 metre spacing
- 4500 stems per hectare

ZONE D: ERODING HILLSLOPE
- focus on shrubs & long-lived tree species
- average 2 metre spacing
- 2500 stems per hectare

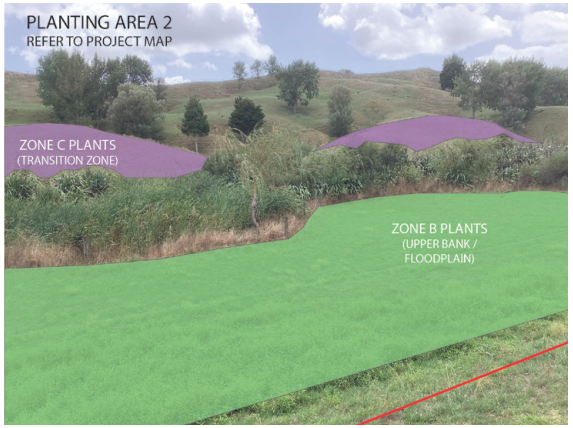
Planting zones are mapped and photographed by Field Advisors as part of the SRP process. Each zone aligns with a corresponding **plant list**, provided to **accredited nurseries** by KMR. Final species selection is decided by KMR, based on **eco-source** & nursery stock availability.



A simplified zonation of riparian planting areas to assist site-specific species selection



Planting zones align with KMR native plant lists



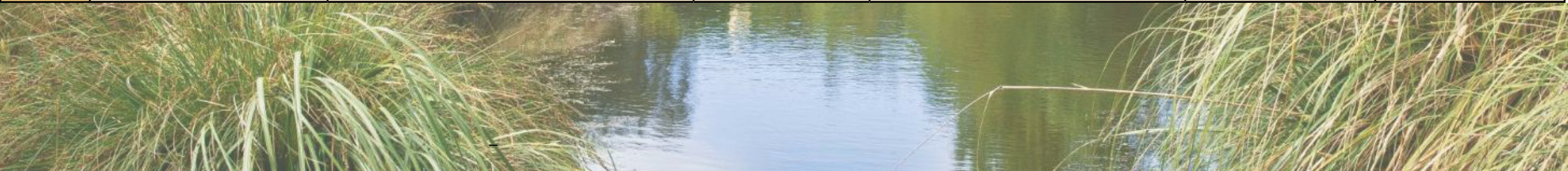
Field Advisor photos assist planting contractors

ZONE A: KAIPARA PLANTS FOR WETLAND EDGES / LOWER BANKS

1 METRE SPACING = 9000 STEMS/HECTARE: *GO-TO SPECIES HIGHLIGHTED BLUE*

***TE PAIAKA - NATIVE ROOT STUDY**
THESE SPECIES ESPECIALLY EFFECTIVE FOR STREAM BANK EROSION MITIGATION

STAGE	INGOA MĀORI	BOTANICAL NAME	FORM	COASTAL / INLAND / ESTUARINE	AMOUNT TO USE	ECO-DISTRICT
PRIMARY PLANTING OPEN GROUND	**Oioi**	***Apodasmia similis***	rush	**C/E**	**+++**	**5, 8, 9**
	Toetoe	*Austroderia fulvida*	grass	C/I	+	1 - 9
	Kukuraho	*Bolboschoenus fluviatilis*	sedge	C/I/E	+++	1 - 9
	Pūrei	*Carex dissita*	sedge	I	++	1 - 9
	Rautahi	*Carex geminata*	sedge	C/I	+++	1 - 9
		Carex lambertiana	sedge	C/I	+++	1 - 9
	Rautahi	***Carex lessoniana***	sedge	C/I	+++	1 - 9
	Pūkio	*Carex secta*	sedge	C/I	+	1 - 9
	Pūkio	***Carex virgata***	sedge	I	++	1 - 9
	Mingimingi	*Coprosma propinqua var. propinqua*	shrub	C/I/E	+	1 - 9
	Hukihuki	*Coprosma tenuicaulis*	shrub	I	+	1 - 9
	Tī kōuka	***Cordyline australis***	tree	C/I/E	++	1 - 9
	Tutu	*Coriaria arborea*	tree	I	+	1 - 9
	Toetoe Upoko Tangata	*Cyperus ustulatus*	sedge	C/I/E	++	1 - 9
	Wīwī	*Ficinia nodosa*	sedge	C/E	++	1 - 9
	Wīwī	***Juncus edgariae***	rush	C/I	+	1 - 9
		Juncus pallidus	rush	C/I/E	+	1 - 9
		Machaerina articulata	sedge	C/I	++	1 - 9
		Machaerina rubiginosa	sedge	C/I	+++	1 - 9
	Kiokio	***Parablechnum novae-zelandiae***	fern	C/I	++	1 - 9
	Harakeke	*Phormium tenax*	shrub	C/I/E	+	1 - 9
	Mākaka	*Plagianthus divaricatus*	shrub	C/E	+	5, 8, 9
SECONDARY ENRICHMENT, NEEDS SHELTER	**Kahikatea**	***Dacrycarpus dacrydioides***	conifer	I	+	1 - 9
	Parataniwha	*Elatostema rugosum*	herb	I	++	1 - 9
	Kiekie	*Freycinetia banksii*	climber	I	+	1 - 9
	Piupiu	*Pakau pennigera*	fern	C/I	+	1 - 9
	Para	*Ptisana salicina*	fern	I	+	1 - 9
	Maire Tawaki	***Syzygium maire***	tree	C/I	+	1 - 9



ZONE B: KAIPARA PLANTS FOR UPPER BANKS / FLOODPLAINS

1.5 METRE SPACING = 4500 STEMS/HECTARE: *GO-TO SPECIES HIGHLIGHTED GREEN*

***TE PAIAKA - NATIVE ROOT STUDY**
THESE SPECIES ESPECIALLY EFFECTIVE FOR STREAM BANK EROSION MITIGATION

STAGE	INGOA MĀORI	BOTANICAL NAME	FORM	COASTAL / INLAND / ESTUARINE	AMOUNT TO USE	ECO-DISTRICT
PRIMARY (PLANTING OPEN GROUND)	Makomako	*Aristotelia serrata*	tree	I	+	1-9
	Toetoe	*Austroderia fulvida*	grass	C/I	++	1-9
		Carex lambertiana	sedge	C/I	++	1-9
	Pūkio	***Carex virgata***	sedge	I	++	1-9
	Mingimingi	*Coprosma propinqua var. propinqua*	shrub	C/I/E	+	1-9
		Coprosma rigida	shrub	I	+	1-9
	Tī kōuka	***Cordyline australis***	tree	C/I/E	++	1-9
	Tutu	*Coriaria arborea*	tree	I	+	1-9
	Whau	*Entelea arborescens*	tree	C/I	+	1-9
	Kānuka	*Kunzea linearis*	tree	C/E	+	5
	Mānuka	***Leptospermum scoparium var. scoparium***	tree	C/I/E	++	1-9
	Mahoe	***Melicytus ramiflorus***	tree	C/I/E	+	1-9
	Pōhuehue	*Muehlenbeckia complexa*	groundcover	C/E	+	5, 8, 9
	Mapoū	***Myrsine australis***	tree	C/I/E	++	1-9
		Olearia solandri	shrub	C/E	+	5, 8, 9
	Tauhinu	*Ozothamnus leptophyllus*	shrub	C/E	++	5, 8, 9
	Kiokio	*Parablechnum novae-zelandiae*	fern	C/I	++	1-9
	Harakeke	***Phormium tenax***	shrub	C/I/E	+	1-9
	Mākaka	*Plagianthus divaricatus*	shrub	C/E	+	5, 8, 9
	Mānatu	***Plagianthus regius subsp. regius***	tree	C/I	+	1-9
	Kōwhai	*Sophora chathamica*	tree	C/E	+	5, 8, 9
	Kōwhai	*Sophora microphylla*	tree	C/I	+	1-9
SECONDARY (ENRICHMENT, NEEDS SHELTER)	Makamaka	*Ackama rosifolia*	tree	I	+	1-9
	Maukoro	*Carmichaelia australis*	shrub	C/I	+	1-9
	Putaputawētā	*Carpodetus serratus*	tree	C/I	+	1-9
	Mamakū	*Cyathea medullaris*	tree fern	I	+	1-9
	Kahikatea	***Dacrycarpus dacrydioides***	conifer	I	+	1-9
	Whekī	*Dicksonia squarrosa*	tree fern	I	+	1-9
	Pukatea	*Laurelia novae-zelandiae*	tree	I	+	1-9
	Piupiu	*Pakau pennigera*	fern	C/I	+	1-9
	Para	*Ptisana salicina*	fern	I	+	1-9
	Nīkau	*Rhopalostylis sapida*	tree	C/I	+	1-9
	Pātētē	*Schefflera digitata*	tree	C/I	+	1-9
	Maire Tawaki	*Syzygium maire*	tree	C/I	+	1-9

ZONE C: KAIPARA PLANTS FOR TRANSITION ZONE / DRY

1.5 METRE SPACING = 4500 STEMS/HECTARE: *GO-TO SPECIES HIGHLIGHTED PURPLE*

***TE PAIAKA - NATIVE ROOT STUDY**
THESE SPECIES ESPECIALLY EFFECTIVE FOR STREAM BANK EROSION MITIGATION

STAGE	INGOA MĀORI	BOTANICAL NAME	FORM	COASTAL / INLAND / ESTUARINE	AMOUNT TO USE	ECO-DISTRICT
PRIMARY (PLANTING OPEN GROUND)	Makomako	*Aristotelia serrata*	tree	I	+	1-9
	Karamū	*Coprosma macrocarpa subsp. minor*	shrub	C/I	+	1-9
	Taupata	*Coprosma repens*	shrub	C/I/E	+	1-9
	Kāramuramu	***Coprosma robusta***	shrub	C/I	+	1-9
	Tī kōuka	***Cordyline australis***	tree	C/I/E	++	1-9
	Korokia	*Corokia cotoneaster*	shrub	C/I	+	1-9
	Akeake	*Dodonaea viscosa*	tree	C/I/E	+	1-9
	Whau	***Entelea arborescens***	tree	C/I	+	1-9
	Kāpuka	*Griselinia littoralis*	tree	C/I	+	1-9
	Koromiko	*Hebe macrocarpa var. macrocarpa*	shrub	C/I	+	1-9
	Koromiko	*Hebe stricta var. stricta*	shrub	C/I	+	1-9
	Houhere	***Hoheria populnea***	tree	C/I	+	1-9
	Kānuka	***Kunzea linearis***	tree	C/E	+	5
	Kānuka	***Kunzea robusta***	tree	C/I	++	1-9
	Kānuka	***Kunzea amathicola***	tree	C/E	++	5, 8, 9
	Mānuka	*Leptospermum scoparium var. scoparium*	tree	C/I/E	++	1-9
	Mahoe	*Melicytus ramiflorus*	tree	C/I/E	+	1-9
	Pōhutukawa	*Metrosideros excelsa*	tree	C/E	+	5, 8, 9
	Māpou	*Myrsine australis*	tree	C/I/E	++	1-9
	Tanguru	*Olearia albida*	tree	C	+	5, 8, 9
	Akepiro	*Olearia furfuracea*	tree	C/I	+	1-9
	Karo	*Pittosporum crassifolium*	tree	C/E	++	5, 8, 9
	Tarata	*Pittosporum eugenioides*	tree	C/I	+	1-9
	Kōhūhū	*Pittosporum tenuifolium*	tree	C/I	+	1-9
	Tōtara	***Podocarpus totara***	conifer	C/I	+	1-9
	Houpara	*Pseudopanax lessonii*	tree	C	++	5, 8, 9
	Kōwhai	*Sophora microphylla*	tree	C/I	+	1-9
SECONDARY ENRICHMENT, NEEDS SHELTER	**Kauri**	***Agathis australis***	conifer	C/I	+	1-9
	Tītoki	*Alectryon excelsus subsp. excelsus*	tree	C/I	+	1-9
	Taraire	*Beilschmiedia taraire*	tree	I	+	1-9
	Karaka	*Corynocarpus laevigatus*	tree	C/I	+	1-9
	Rewarewa	*Knightia excelsa*	tree	C/I	+	1-9
	Tānekaha	*Phyllocladus trichomanoides*	conifer	C/I	+	1-9
	Pūriri	***Vitex lucens***	tree	C/I	+	1-9

ZONE D: KAIPARA PLANTS FOR ERODING HILLSLOPES

2 METRE SPACING = 2500 STEMS/HECTARE: *GO-TO SPECIES HIGHLIGHTED RED*

***TE PAIAKA - NATIVE ROOT STUDY**
THESE SPECIES ESPECIALLY EFFECTIVE FOR STREAM BANK EROSION MITIGATION

STAGE	INGOA MĀORI	BOTANICAL NAME	FORM	COASTAL / INLAND / ESTUARINE	AMOUNT TO USE	ECO-DISTRICT
PRIMARY (PLANTING OPEN GROUND)	Karamū	*Coprosma macrocarpa subsp. minor*	shrub	C	++	1-9
	Taupata	*Coprosma repens*	shrub	C/E	+	5, 8, 9
	Kāramuramu	***Coprosma robusta***	shrub	C/I	++	1-9
	Tī kōuka	***Cordyline australis***	tree	C/I/E	++	1-9
	Korokia	*Corokia cotoneaster*	shrub	C/I	+	1-9
	Akeake	*Dodonaea viscosa*	tree	C/E	++	1-9
	Koromiko	*Hebe macrocarpa var. macrocarpa*	shrub	C/I	+	1-9
	Napuka	*Hebe speciosa*	shrub	C	+	5
	Koromiko	*Hebe stricta var. stricta*	shrub	C/I	++	1-9
	Houhere	*Hoheria populnea*	tree	C/I	+	1-9
	Kānuka	***Kunzea robusta***	tree	C/I	+++	1-9
	Mānuka	***Leptospermum scoparium var. scoparium***	tree	C/I/E	+++	1-9
	Mahoe	***Melicytus ramiflorus***	tree	C/I/E	++	1-9
	Pōhutukawa	*Metrosideros excelsa*	tree	C/E	+	5, 8, 9
	Pōhuehue	*Muehlenbeckia complexa*	groundcover	C/E	+	5, 8, 9
	Māpou	*Myrsine australis*	tree	C/I/E	++	1-9
	Tanguru	*Olearia albida*	tree	C	+	5, 8, 9
	Akepiro	*Olearia furfuracea*	tree	C/I	+	1-9
	Tauhinu	*Ozothamnus letophyllus*	shrub	C/E	++	5, 8, 9
	Harakeke	***Phormium tenax***	shrub	C/I/E	++	1-9
	Karo	*Pittosporum crassifolium*	tree	C/E	++	5, 8, 9
	Tarata	*Pittosporum eugenioides*	tree	C/I	+	1-9
	Kōhūhū	*Pittosporum tenuifolium*	tree	C/I	++	1-9
	Tōtara	***Podocarpus totara***	conifer	C/I/E	++	1-9
	Houpara	*Pseudopanax lessonii*	tree	C/E	++	5, 8, 9
SECONDARY ENRICHMENT, NEEDS SHELTER	Kauri	*Agathis australis*	conifer	C/I	+	1-9
	Taraire	*Beilschmiedia taraire*	tree	I	+	1-9
	Karaka	***Corynocarpus laevigatus***	tree	C/I	++	1-9
	Hangehange	*Geniostoma ligustrifolium*	shrub	C/I	++	1-9
	Rewarewa	*Knightia excelsa*	tree	C/I	+	1-9
	Rātā	*Metrosideros robusta*	tree	C/I	+	1-9
	Whauwhaupaku	*Pseudopanax arboreus*	tree	C/I	++	1-9
	Tānekaha	*Phyllocladus trichomanoides*	conifer	C/I	+	1-9
	Pūriri	*Vitex lucens*	tree	C/I	+	1-9

KAIPARA CATCHMENT ECO-DISTRICTS

Eco-districts group landscapes in relation to their soils, hydrology, indigenous habitat & climate. They help us understand biodiversity patterns, and can serve as a guide for what species to plant, and where to collect our seed from. **Kaipara Moana catchment contains 9 eco-districts:**

1 Whangaruru
2 Tangihua
3 Whangārei
4 Tutamoe
5 Kaipara
6 Tokatoka
7 Waipū
8 Ōtamatea
9 Rodney

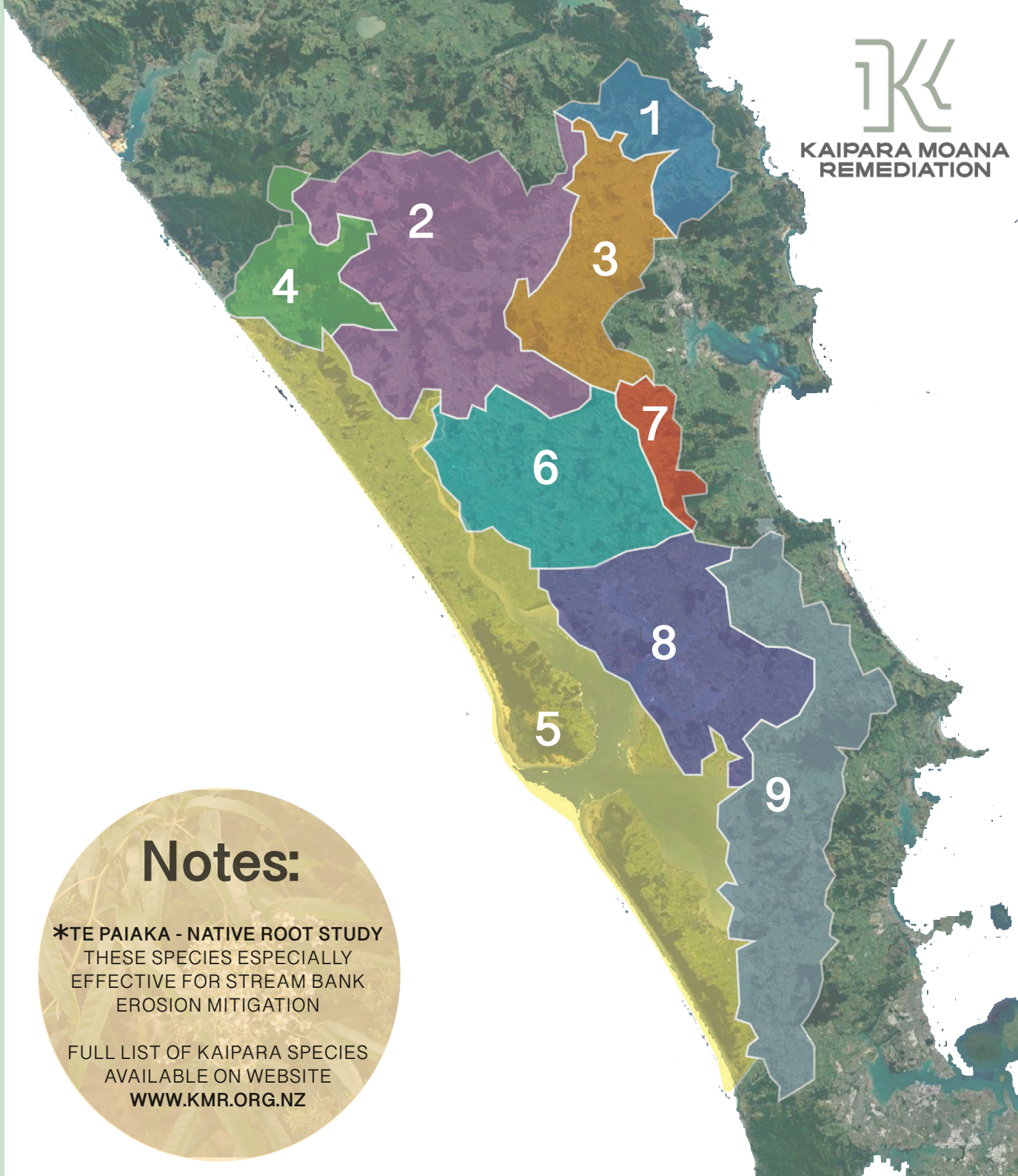
Some facts about plants our eco-districts:

-Most of our Kaipara plants are found across ALL eco-districts (1-9). Exceptions to this rule are mostly found in sandy or wetland environments, which contain our rarest species.

-**Kānuka** (*Kunzea* species) are particularly locale-specific - care should be taken to select the correct species for your area.

-When possible, collect seed from healthy habitat in the eco-district into which the plants will be planted.

-Avoid planting seedlings sourced from outside of the region - **use KMR-accredited nurseries only.**



KAIPARA MOANA REMEDIATION

Notes:

*TE PAIAKA - NATIVE ROOT STUDY
THESE SPECIES ESPECIALLY EFFECTIVE FOR STREAM BANK EROSION MITIGATION

FULL LIST OF KAIPARA SPECIES AVAILABLE ON WEBSITE
WWW.KMR.ORG.NZ