# 8. Management Units

## 8.1 Overview

The project area contains a number of reserves within the Pourewa Valley, including the Pourewa stream and its tributaries that require restoration work including pest plant control, pest animal control and planting. These reserves have been identified as management units (MU's) in Figure 26, with required weed and pest animal control and planting options outlined.

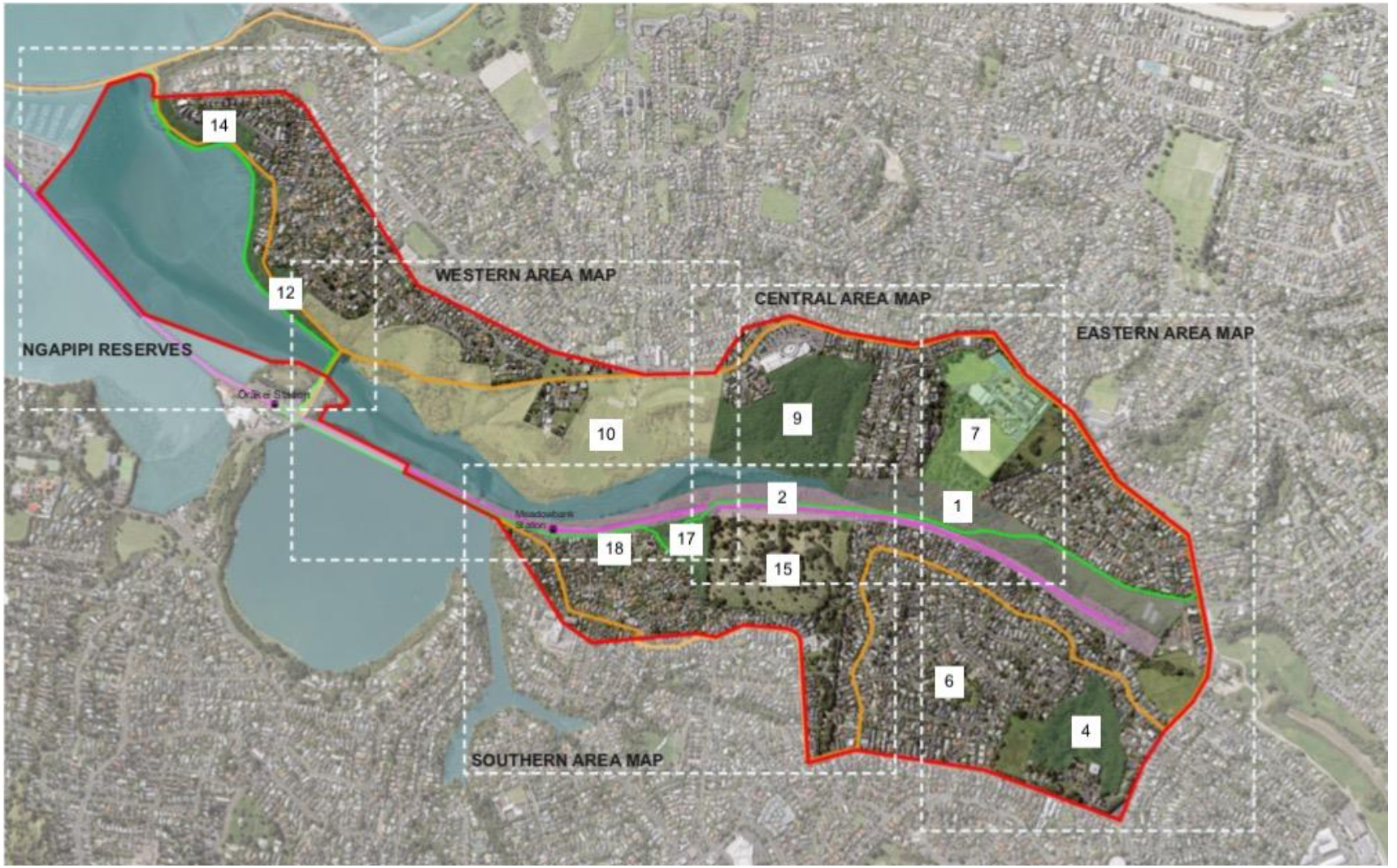


***Figure 26:*** ***Management Units***

## 8.8 Pourewa Creek Recreation Reserve (Management Unit 10)

The land parcel is a Recreation Reserve co-managed by Ngāti Whātua Ōrākei and Auckland Council. This whenua was managed as farmland and horseriding until 2018, after which it has been managed by Ngāti Whātua Ōrākei. It is a mix of open space (under restoration planting), and areas of native and exotic vegetation on the coastal margin and tributaries of Pourewa Stream. A track network is being developed that connects the reserve to Kepa Road at a number of entrances.

The coastal margin area at the top of the bank set back from Pourewa Stream and the vegetated areas of the tributaries to the Pourewa Stream consists of remnant indigenous canopy trees including puriri which are dominant in the canopy with over 80% tree and shrub cover. Pest trees in the canopy include tree privet and hawthorn. A robust understory exists beneath these canopy species; however there are incursions of pest plants including english ivy, privet seedlings that are being managed by manual (non-chemical) control methods by Ngāti Whātua Ōrākei staff and volunteers. These areas are a Significant Ecological Area (SEA) – Coastal Broadleaved Forest (WF4) terrestrial ecosystem. Land directly adjacent to the Pourewa Stream and coast are a Significant Ecological Area (SEA) - Mangrove Forest and Scrub (SA1.2) terrestrial ecosystem. These lower reaches of the Pourewa stream are an area of frequent tidal inundation dominated by mangroves, with tree privet dominating the canopy further from the coast. There are also pest plant incursions including Japanese honeysuckle.


***Figure 41: Pest plant abundance (density % of biomass)***

### 8.8.1 Pest Plant Species & Control Method

| Common name | Threat | ID | Method (chem; non-chem) | Who |
|---|---|---|---|---|
| **Agapanthus** *(Agapanthus praecox)* | Sustained Control | 25,26 | H | Eco-Contractor Volunteer |
| **Arum lily** *(Zantedeschia aethiopica)* | Sustained Control | 16,27 | H | Volunteer Volunteer |
| **Bamboo** *(Phyllostachys species)* | | 25 | H | Eco-Contractor Volunteer |
| **Black Wattle** (*Acacia mearnsii)* | Not listed | 23 | R; H (seedlings); C; CM | Volunteer Volunteer (seedlings)/Eco-Contractor (Trees) |
| **Blackberry** (Rubus fruticosus agg.) | Sustained Control | 3,9 | H; CM | Eco-Contractor Eco-Contractor |
| **Cape Ivy *(Senecio angulatus)*** | Sustained Control | 22 | H | Eco-Contractor Eco-Contractor |
| **Cherry** *(Prunus campanulata)* | Not listed | 27 | R; C; CM | Volunteer Eco-Contractor |
| **Climbing asparagus*** *(Asparagus scandens)* | Sustained Control | 11 | D | Volunteer |
| **Coral Tree** (*Erythrina x sykesii)* | | 22 | R; C; CM | Eco-Contractor Eco-Contractor |
| **Cotoneaster** *(Cotoneaster glaucophyllus)* | Sustained Control | 20,26,27 | H | Eco-Contractor Volunteer |
| **English Ivy** *(Hedera helix)* | Sustained Control | 1,20,27 | H | Eco- Contractor Volunteer |

| | | | | |
|---|---|---|---|---|
| **Field Bindweed** (*Convolvulus arvensis)* | Not listed | 17,20 | H | Eco-Contractor<br>Eco-Contractor |
| **Ginger** (*Hedychium gardnerianum; H. flavescens)* | Sustained Control | 16,18,25,26,27 | H | Volunteer<br>Volunteer |
| **Gorse** *(Ulex*spp.) | Sustained Control | 2,4,6,7,8,9,10 11,14,17,18,19 | CM | Eco-Contractor<br>Eco-Contractor |
| **Hawthorn** *(Crataegus monogyna)* | Sustained Control | 2,3,6,13,14,27 | ? | |
| **Japanese Honeysuckle** *(Lonicera japonica)* | Sustained Control | 2,5,11,14,18 19 20,21 | H | Eco-Contractor<br>Volunteer |
| **Jasmine** *(Jasminum polyanthum)* | Sustained Control | 24 | H | Eco-Contractor<br>Volunteer |
| **Moth Plant** (*Araujia sericifera)* | Sustained Control | 23 | H | Eco-Contractor<br>Volunteer |
| **Pampas** (*Cortaderia jubata and C. selloana)* | Sustained Control | 10,15,16 | H | Eco-Contractor<br>Eco-Contractor |
| **Privet – Chinese** *(Ligustrum sinensis)* | Sustained Control | 23,24,25,26 | R; H (seedlings); C; CM | Volunteer<br>Volunteer (seedlings)/Eco-Contractor (Trees) |
| **Privet – Tree *** *(Ligustrum lucidum)* | Sustained Control | 1,2,3,4,5,6,7,8 9,10,11,**12**,13 14,15,16,17,1 920,21,22,23, 2425,26,27 | R; H (seedlings); C; CM | Volunteer<br>Volunteer (seedlings)/Eco-Contractor (Trees) |
| **Sydney Golden Wattle** *(Acacia longifolia)* | Sustained Control | 10,13,15,17 | R; H (seedlings); C; CM | Volunteer<br>Volunteer (seedlings)/Eco-Contractor (Trees) |

| | | | | |
|---|---|---|---|---|
| **Wandering willie** *(Tradescantia)* | Sustained Control | 27 | H | Eco-Contractor Volunteer |
| **Willow** (*Salix fragilis)* | Sustained Control | 16,22 | C; CM | Eco-Contractor Eco-Contractor |
| **Woolly Nightshade** (*Solanum mauritianum)* | Sustained Control | 9,10,16,23 | R H;C | Volunteer Volunteer |

**Method code: Cut & Paste (CP) Cut – non chemical (C) Ringbark (R) Foliar spray (FS) Drill & Fill (DF) Hand (H) Chip & Mulch (CM) Dig Roots (D)**

***Species where areas of incursion are one species only (ID numbers in bold)**

### 8.8.2 Indicative planting schedule for riparian margins

| Common name | Species | Plant Grade | Spacing (m) |
|---|---|---|---|
| Oioi | *Apodasmia similis* | PB3 | 0.5 |
| Swamp maire | *Syzygium maire* | PB3 | 1 |
| Mahoe | *Melicytus ramiflorus* | PB3 | 1 |
| Puriri | *Vitex lucens* | PB3 | 1 |

### 8.8.3 Indicative planting schedule for forest understory

| Common name | Species | Plant Grade | Spacing (m) |
|---|---|---|---|
| Rimu | *Dacrydium cupressinum* | PB3 | 1 |
| Kahikatea | *Dacrycarpus dacrydioides* | PB3 | 1 |
| Kawakawa | *Piper excelsum* | PB3 | 1 |
| Large leaved Coprosma | *Coprosma grandifolia* | PB3 | 1 |
| Mahoe | *Melicytus ramiflorus* | PB3 | 1 |

| | | | |
|---|---|---|---|
| Puriri | *Vitex lucens* | PB3 | 1 |
| Shining Coprosma | *Coprosma lucida* | PB3 | 1 |
| Kohekohe | *Dysoxylum spectabile* | PB3 | 1 |

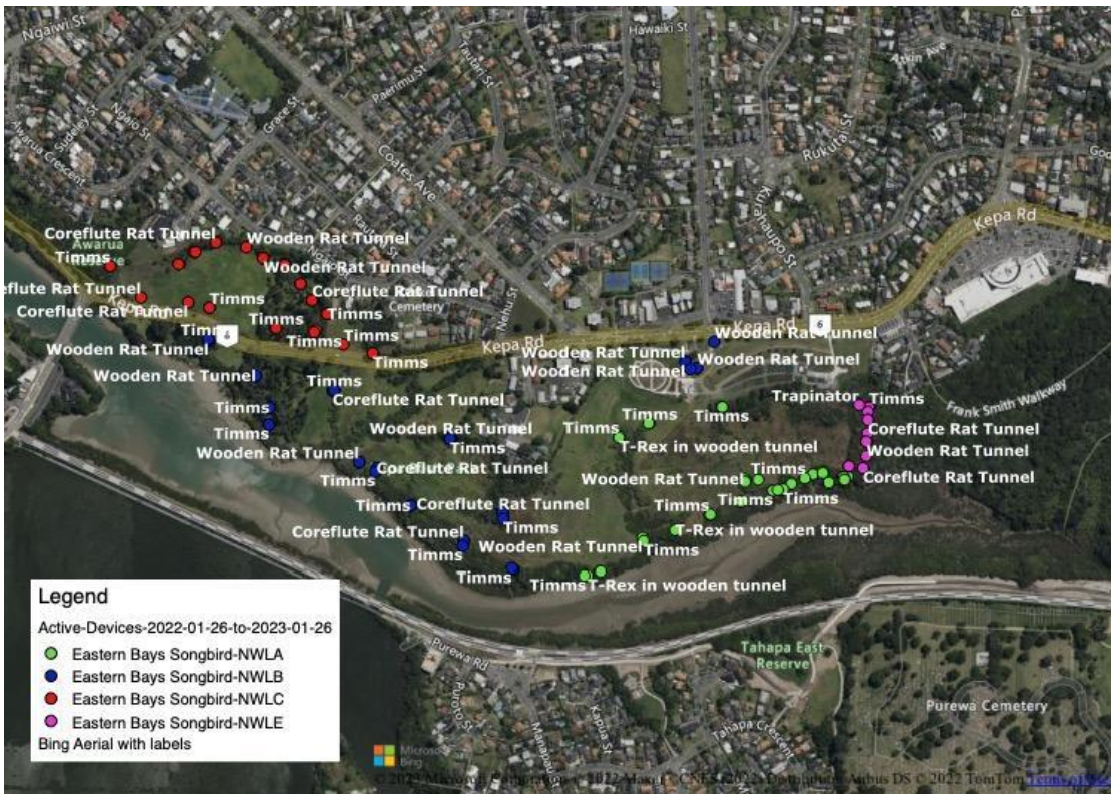


***Figure 42: Pest animal control sites***

### 8.8.4 Pest Animal Species & Control Method

| Species | Method | Trap Types | Who |
|---|---|---|---|
| Rat | T | T-rex in Wooden Tunnel<br>Coreflute Rat Tunnel<br>Wooden Rat Tunnel<br>A24 Good Nature<br>A12 Good Nature | Volunteer |
| Possum | T | Timms<br>Trapinator | Volunteer |
| Mice | T | T-rex in Wooden Tunnel<br>Coreflute Rat Tunnel<br>Wooden Rat Tunnel | Volunteer |

| | | | |
|---|---|---|---|
| | | A12 Good Nature | |
| Hedgehog | T | T-rex in Wooden Tunnel<br>Coreflute Rat Tunnel<br>Wooden Rat Tunnel | Volunteer |
| Stoat | T | A24 Good Nature | Volunteer |
| Wasp | S | Spray | Volunteer |

**Method code: Bait (B) Trap (T) types of trap Spray (S)**


***Figure 43: Water Quality Monitoring sites and In Stream values***

### 8.8.5 Water Quality Results (Baseline)

| Site | Temp | Clarity | Turbidity | PH | D.O | Nitrate | Nitrite | Phosp horous | Phosp hate |
|---|---|---|---|---|---|---|---|---|---|
| West Culvert | 16 | 69 | 6.8 | 6.5 | 10 | 0.05 | 0 | 0.025 | 0.077 |
| Site 2 | 15.5 | 69 | 6.8 | 6 | 6 | 0 | 0 | 0.2 | 15.5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Site 4A | 14.4 | 13[1] | 84.5 | 7 | 9 | 0 | 0 | 0.3 | 0.921 |
| Site 4B | 15 | NA[2] | NA | 6 | 3 | 0.5 | 0 | 0.4 | 1.228 |

### 8.8.6 Volunteer Groups

- Eastern Bays Songbird Project

[1] Most likely due to way water was collected

[2] Did not attempt as too much green algal bloom in water