

## 5 Rārangi orotā / List of organisms declared as pests





The organisms listed in Table 2-Table 4 are classified as pests. The tables also indicate what management programme or programmes will apply to the pest and if a good neighbour rule (GNR) applies.

Attention is also drawn to the **statutory obligations** of any person under s52 and s53 of the Biosecurity Act. Those sections ban anyone from selling, propagating or distributing any pest, or part of a pest (e.g. vegetative fragments that may spread), covered by the RPMP. Not complying with s52 and s53 is an offence under the Biosecurity Act, and may result in the penalties noted in s157(1).

**Table 2 Animal organisms classified as pests. GNR = Good neighbour rule**

Animal		Programme																			
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>7</sup>	Page(s)	
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	Site-led			
Argentine ant	<i>Linepithema humile</i>				✓												✓				96, 248
Asian paddle crab	<i>Charybdis japonica</i>																✓				393
Australian droplet tunicate	<i>Eudistoma elongatum</i>																✓				395
bearded dragon	<i>Amphibolurus barbatus</i> syn. <i>Pogona barbata</i>					✓											✓				131, 250

<sup>7</sup> Indicates particular regard given to the Waitākere Ranges Heritage Area in one or more of the statutory programmes for that species.

Animal		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>7</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	Site-led		
blue-tongued skink	<i>Tiliqua scincoides and T. nigrolutea</i>					✓											✓			133, 252
brown bullhead catfish <sup>8</sup>	<i>Ameiurus nebulosus</i> syn. <i>Ictalurus nebulosus</i>					✓						✓					✓			135, 228, 254
Canadian geese	<i>Branta canadensis</i>					✓											✓			136, 256
cat (unowned)	<i>Felis catus</i>				✓													✓	✓	98, 303
<i>Clavelina oblonga</i>	<i>Clavelina oblonga</i>																✓			397
Darwin's ant	<i>Doleromyrma darwiniana</i>				✓												✓			101, 257
eastern rosella	<i>Platycercus eximius</i>					✓											✓			137, 259

<sup>8</sup> Note also that the Fisheries (Amateur Fishing) Regulations 2013 (promulgated under the Fisheries Act 1993) provide that a person must not possess a live brown bullhead catfish. The Fisheries (Commercial Fishing) Regulations 2001 also provides that no person may sell live brown bullhead catfish.



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Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>7</sup>	Page(s)	
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	Site-led			
eastern water dragon	<i>Physignathus lesueurii lesueurii</i>					✓											✓				138, 261
feral deer	<i>Cervus, Axis, Dama, Odocoileus, Elaphurus</i> spp. including any hybrid	✓														✓				✓	94, 236
feral goat	<i>Capra hircus</i>															✓				✓	238
feral pig	<i>Sus scrofa</i>				✓					✓	✓						✓			✓	105, 175, 181, 263
galah	<i>Cacatua roseicapilla</i>					✓											✓				140, 265
gambusia <sup>9</sup>	<i>Gambusia affinis</i>					✓											✓				141, 267

<sup>9</sup> Also an unwanted organism (Biosecurity Act 1993).

Animal		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>7</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	Site-led		
goldfish	<i>Carassius auratus</i>					✓											10✓			142, 269
hedgehog	<i>Erinaceus europaeus</i>				✓												✓			107, 270
Indian ring-necked parakeet	<i>Psittacula krameri</i>					✓											✓			143, 271
Japanese mantis shrimp	<i>Oratosquilla oratoria</i>																✓			399
koi carp <sup>11</sup>	<i>Cyprinus carpio</i>					✓						✓					✓			144, 273
Lightbulb ascidian	<i>Clavelina lepadiformis</i>																✓			401
magpie	<i>Gymnorhina sp.</i>																✓			275
Mediterranean fanworm	<i>Sabella spallanzanii</i>																✓			403

<sup>10</sup> When outside of containment

<sup>11</sup> Also an unwanted organism (Biosecurity Act 1993) and noxious fish (Freshwater Fisheries Regulations 1983).

Animal		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>7</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	Site-led		
monk parakeet	<i>Myiopsitta monachus</i>					✓											✓			145, 276
mouse	<i>Mus musculus</i>				✓												✓			109, 277
mustelids (ferret, stoat, weasel)	<i>Mustela furo</i> , <i>M. erminea</i> and <i>M. nivalis</i>				✓			✓	✓	✓							✓		✓	111, 171, 175, 182, 278
myna	<i>Acridotheres tristis</i>																✓			280
perch <sup>12</sup>	<i>Perca fluviatilis</i>					✓						✓					✓			146, 228, 282
plague skink (syn. rainbow skink)	<i>Lampropholis delicata</i>				✓												✓			113, 284

<sup>12</sup> Also a sports fish in Auckland/Waikato Fish and Game region (Freshwater Fisheries Regulations 1983).

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Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>7</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	Site-led		
possum	<i>Trichosurus vulpecula</i>				✓				✓							✓			✓	115, 171, 244
pyura sea squirts	<i>Pyura praeputialis</i> <sup>13</sup> and <i>P. doppelgangera</i>																✓			405
rabbit and hare	<i>Oryctolagus cuniculus</i> , <i>Lepus europaeus</i>				✓												✓			117, 286
rainbow lorikeet	<i>Trichoglossus haematodus</i> and all hybrids					✓											✓			147, 288
rat	<i>Rattus rattus</i> , <i>Rattus norvegicus</i> , <i>Rattus exulans</i>				✓				✓	✓	✓						✓		✓	119, 171, 175, 183, 289
red-eared slider	<i>Trachemys scripta elegans</i> , <i>T. scripta</i>					✓											✓			148, 291

<sup>13</sup> Previously known as *Pyura stolonifera praeputialis*

Animal		Programme																		
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		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	Site-led		
	<i>scripta</i> , <i>T. scripta troostii</i>																			
rook	<i>Corvus frugilegus</i>												✓							232
rudd <sup>14</sup>	<i>Scardinius erythrophthalmus</i>					✓						✓					✓			150, 228, 294
shingleback lizard	<i>Tiliqua rugosa</i>																✓ <sup>15</sup>			296
snake-neck turtle	<i>Chelodina longicollis</i>					✓											✓			151, 297
styela sea squirt	<i>Styela clava</i>																✓			407
sulphur-crested cockatoo	<i>Cacatua galerita</i>					✓											✓		✓	153, 246

<sup>14</sup> Also a noxious fish (Freshwater Fisheries Regulations 1983), and sports fish in Auckland/Waikato Fish and Game region (Freshwater Fisheries Regulations 1983).

<sup>15</sup> When outside of containment

Animal		Programme																			
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>7</sup>	Page(s)	
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	Site-led			
tench <sup>16</sup>	<i>Tinca tinca</i>					✓							✓				✓				154, 228, 299
wallaby	<i>Macropus</i> , <i>Petrogale</i> and <i>Wallabia</i> spp.								✓					✓ <sup>17</sup>							171, 234
wasp: <i>Vespula</i> and paper	<i>Vespula germanica</i> , <i>V. vulgaris</i> , <i>Polistes chinensis</i> and <i>P. humilis</i>																✓				301

<sup>16</sup> Also a sports fish in Auckland/Waikato Fish and Game region (Freshwater Fisheries Regulations 1983).

<sup>17</sup> Remainder of region other than Kawau



Table 3 Pathogen organisms declared as pests. GNR = Good neighbour rule

Pathogen		Programme																Waitākere <sup>18</sup>	Page(s)	
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Hunua Ranges	Whole region						
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Exclusion	Exclusion	Eradication	Progressive containment	Sustained control			GNR
Dutch elm disease	<i>Ophiostoma novo-ulmi</i>															✓				308
kauri dieback disease	<i>Phytophthora agathidicida</i>	✓											✓				✓		✓	121, 222, 310

<sup>18</sup> Indicates particular regard given to the Waitākere Ranges Heritage Area in one or more of the statutory programmes for that species.

**Table 4 Plant organisms classified as pests. GNR = Good neighbour rule.**

§ = land occupier responsibilities

\* = species listed on the 2012 National Pest Plant Accord (NPPA) species.

Plant		Programme																				
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)		
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR				
African club moss	<i>Selaginella kraussiana</i> *																✓				327	
African feather grass	<i>Cenchrus macrourus</i> syn. <i>Pennisetum macrourum</i> *														✓							313
African pig's ear*	<i>Cotyledon orbiculata</i> *																✓					327
agapanthus	<i>Agapanthus praecox</i> <sup>20</sup>											✓	§				✓		✓			186, 327

<sup>19</sup> Indicates particular regard given to the Waitākere Ranges Heritage Area in one or more of the statutory programmes for that species.

<sup>20</sup> For the purpose of this plan, agapanthus means:

- Prior to 1 April 2022, all *Agapanthus praecox* tall form cultivars (those exceeding 600mm height); and
- From 1 April 2022, all *Agapanthus praecox* cultivars, except for any low fertility cultivar which is determined by Auckland Council to produce less than 2% viable seeds compared to high fertility cultivars that were evaluated under the same conditions and location. Cultivars already meeting this test will be listed on the Auckland Botanic Gardens website <http://www.aucklandbotanicgardens.co.nz/>

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		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR			
<i>Akebia trifoliata</i>	<i>Akebia trifoliata</i>													✓							313
alder	<i>Alnus glutinosa</i>																✓				327
alligator weed	<i>Alternanthera philoxeroides</i> *					✓					✓						✓		✓		155, 215, 327
aristea	<i>Aristea ecklonii</i> *										✓						✓		✓		215, 327
artillery plant	<i>Lamium galeobdolon</i> syn. <i>Galeobdolon luteum</i> syn. <i>Lamium galeobdolon</i> *																✓				327
arum lily	<i>Zantedeschia aethiopica</i> * <sup>21</sup>																✓				327

<sup>21</sup> Green goddess variety listed in the NPPA only

Plant		Programme																						
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		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR						
Asiatic/ Japanese knotweed	<i>Reynoutria japonica</i> syn. <i>Fallopia japonica</i> , <i>R. sachalinensis</i> syn. <i>F. sachalinensis</i> * and hybrids																		✓					322
asparagus species	<i>Asparagus drepanophyllus</i> and <i>A. umbellatus</i>																		✓					313
Australian sedge	<i>Carex longebrachiata</i>																							327
baccharis	<i>Baccharis halimifolia</i>																							327
balloon vine and small balloon vine	<i>Cardiospermum grandiflorum</i> * and <i>C. halicacabum</i> *																		✓					313

Plant		Programme																		
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		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
bamboo species	<i>Phyllostachys aurea</i> , <i>Phyllostachys nigra</i> , <i>Pleioblastus auricomus</i> , <i>Pleioblastus hindsii</i> , <i>Pseudosasa japonica</i> , <i>Chimonobambusa quadrangularis</i>																✓			327
banana passionfruit	<i>Passiflora tripartita</i> var. <i>mollissima</i> , <i>P. mixta</i> and <i>P. tarminiana</i> *																✓			327
bangalow palm	<i>Archontophoenix cunninghamiana</i>										✓						✓		✓	215, 327
barberry	<i>Berberis glaucocarpa</i>																✓			327
bartlettina	<i>Bartlettina sordida</i>																✓			327
Bathurst bur	<i>Xanthium spinosum</i>																✓§			327

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		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
berry heath	<i>Erica baccans</i>																✓			327
black wattle	<i>Acacia mearnsii</i>																✓			327
blackberry (wild aggregates)	<i>Rubus fruticosus</i> agg.																✓			327
bladderwort species	<i>Utricularia arenaria*</i> , <i>U. gibba*</i> , <i>U. livida</i> and <i>U. sandersonii</i>																✓			327
blue morning glory	<i>Ipomoea indica*</i>										✓						✓		✓	215, 327
blue passion flower	<i>Passiflora caerulea*</i>																✓			327
blue spur flower	<i>Plectranthus ecklonii</i> and <i>P. grandis</i>																✓			327
Bolivian fuchsia	<i>Fuchsia boliviana*</i>																✓			327
bomarea	<i>Bomarea caldasii</i> and <i>B. multiflora*</i>																✓			327



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		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR			
boneseed	<i>Chrysanthemoides monilifera</i> *						✓										✓		✓	160, 215, 327	
boxthorn	<i>Lycium ferocissimum</i>				✓		✓											✓		✓	127, 160, 215, 327
Brazilian pepper tree	<i>Schinus terebinthifolius</i> *																	✓			327
Brazilian rattlebox	<i>Sesbania punicea</i>					✓												✓			155, 327
broomsedge	<i>Andropogon virginicus</i>													✓							313
brush wattle	<i>Paraserianthes lophantha</i>										✓							✓		✓	327
buddleia	<i>Buddleja davidii</i>																	✓			327
bur daisy	<i>Calotis lappulacea</i>																	✓			327
burdock	<i>Arctium minus</i>																	✓			327

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bushy asparagus	<i>Asparagus aethiopicus</i> * syn. <i>A. densiflorus</i>						✓				✓	✓					✓		✓	160, 188, 327
buttercup bush	<i>Senna septemtrionalis</i>																✓			327
Californian bulrush	<i>Schoenoplectus californicus</i> *																✓			327
Californian thistle	<i>Cirsium arvense</i>																✓			327
Canary Island ivy	<i>Hedera helix</i> subsp. <i>canariensis</i>																✓			327
Cape honey flower	<i>Melianthus major</i>																✓			327
Cape ivy	<i>Senecio angulatus</i>																✓			327
Cape pond weed	<i>Aponogeton distachyos</i>						✓													160
Cape sundew	<i>Drosera capensis</i>																✓			327
carex	<i>Carex divulsa</i>																✓			327

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<i>Carex scoparia</i>	<i>Carex scoparia</i>						✓									✓			160, 327	
castor oil plant	<i>Ricinus communis</i>															✓			327	
cat's claw creeper	<i>Macfadyena unguis-cati*</i>															✓			327	
cathedral bells	<i>Cobaea scandens*</i>														✓				322	
<i>Cenchrus</i> spp. (except kikuyu grass and pearl barley)	<i>Cenchrus</i> spp.* syn. <i>Pennisetum</i> spp. (excl. <i>C. clandestinus</i> and <i>C. americanus</i> )															✓			327	
century plant	<i>Agave americana</i>															✓			327	
Chilean flame creeper	<i>Tropaeolum speciosum*</i>															✓			327	
Chilean glory creeper	<i>Eccremocarpus scaber*</i>															✓			327	
Chilean needle grass	<i>Nassella neesiana*</i>													✓					313	

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Chilean rhubarb	<i>Gunnera tinctoria</i> *																✓				327
Chinese fan palm	<i>Trachycarpus fortunei</i>										✓						✓		✓		215, 327
Chinese holly grape	<i>Mahonia lomariifolia</i>																✓				327
chocolate vine	<i>Akebia quinata</i> *																✓				327
<i>Clematis flammula</i>	<i>Clematis flammula</i> *					✓											✓				155, 327
climbing asparagus	<i>Asparagus scandens</i> *						✓				✓	✓					✓		✓		160, 191, 327
climbing dock	<i>Rumex sagittatus</i>																✓				327
climbing gloxinia	<i>Lophospermum erubescens</i>						✓										✓				160, 327
climbing spindle berry	<i>Celastrus orbiculatus</i> *																✓				322

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		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
coast banksia	<i>Banksia integrifolia</i>										✓						✓		✓	193, 327
coltsfoot	<i>Tussilago farfara</i> *																✓			327
cotoneaster	<i>Cotoneaster glaucophyllus</i> and <i>C. franchetii</i>																✓			327
crack willow	<i>Salix fragilis</i> *																✓			327
creeping fig	<i>Ficus pumila</i>																✓			327
dally pine	<i>Psoralea pinnata</i>																✓			327
Darwin's barberry	<i>Berberis darwinii</i> *																✓			327
devil's fig	<i>Solanum torvum</i>														✓					313
devil's tail	<i>Persicaria perfoliata</i> syn. <i>Polygonum perfoliatum</i>																✓			327
divided sedge	<i>Carex divisa</i>																✓			327

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
drooping prickly pear	<i>Opuntia monacantha</i> and other spp.																✓			327
dusky coral pea	<i>Kennedia rubicunda</i> *																✓			327
eel grass	<i>Vallisneria australis</i> *					✓											✓			155, 327
egeria	<i>Egeria densa</i> *						✓					✓					✓			160, 226, 327
elaeanthus	<i>Elaeagnus x reflexa</i>																✓			327
elephant's ear	<i>Alocasia macrorrhiza</i> syn. <i>A. brisbanensis</i>																✓			327
elodea	<i>Elodea canadensis</i>					✓											✓ <sup>22</sup>			155, 327

<sup>22</sup> Outside of secure containment only



Plant		Programme																						
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)				
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR						
English ivy	<i>Hedera helix</i> subsp. <i>helix</i>																	✓						327
false tamarisk	<i>Myricaria germanica</i> *																							327
fatsia	<i>Fatsia japonica</i>																							327
ferny asparagus	<i>Asparagus plumosus</i> *																							327
firethorn*	<i>Pyracantha angustifolia</i>																							327
Formosa lily	<i>Lilium formosanum</i> *																						✓	195, 327
furcraea	<i>Furcraea foetida</i> , <i>F. parmentieri</i> and <i>F. selloa</i>																							327
German ivy	<i>Senecio mikanioides</i> syn. <i>Delairea odorata</i>																							327
giant hogweed	<i>Heracleum mantegazzianum</i> *																							312

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
giant reed	<i>Arundo donax</i> *						✓				✓					✓		✓	160, 215, 327	
giant rhubarb	<i>Gunnera manicata</i>															✓			327	
goat's rue	<i>Galega officinalis</i>															✓			327	
gorse	<i>Ulex</i> spp.									✓						✓§	✓	✓	327	
great reedmace	<i>Typha latifolia</i> *													✓					313	
green cestrum	<i>Cestrum parqui</i> *													✓					313	
grey willow	<i>Salix cinerea</i> *						✓									✓			160, 327	
guava	<i>Psidium cattleianum</i>															✓			327	
Guinea grass	<i>Megathyrsus maximus</i> syn. <i>Panicum maximum</i> * <sup>23</sup>															✓			327	

<sup>23</sup> pubiglumis variety listed in the NPPA only

Plant		Programme																	Waitākere <sup>19</sup>	Page(s)
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region						
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
gypsywort	<i>Lycopus europaeus</i>																✓			327
hakea	<i>Hakea</i> spp.																✓			327
hawkweed	<i>Pilosella</i> spp. syn. <i>Hieracium</i> spp.* <sup>24</sup>																✓			327
hawthorn	<i>Crataegus monogyna</i>																✓			327
heather	<i>Calluna vulgaris</i> * (excluding double flowered cultivars)																✓			327
hemlock	<i>Conium maculatum</i>																✓			327
Himalayan honeysuckle	<i>Leycesteria formosa</i>																✓			327
holly-leaved senecio	<i>Senecio glastifolius</i>																✓			327

<sup>24</sup> *Pilosella* x *stoloniflora* group listed in the NPPA only

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
hornwort	<i>Ceratophyllum demersum</i> *					✓							✓				✓			155, 226, 327
horsetail	<i>Equisetum</i> spp.*																✓			327
houltuynia	<i>Houttuynia cordata</i> *														✓					322
<i>Hydrocotyle umbellata</i>	<i>Hydrocotyle umbellata</i>						✓										✓			160, 327
iceplant	<i>Carpobrotus edulis</i> and hybrids*																✓			327
Italian arum	<i>Arum italicum</i>																✓			327
Italian jasmine	<i>Jasminum humile</i> *																✓			327
Japanese cherry	<i>Prunus serrulata</i>																✓			327
Japanese honeysuckle	<i>Lonicera japonica</i> *										✓						✓		✓	215, 327

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
Japanese spindle tree	<i>Euonymus japonicus</i> *																✓			327
Japanese walnut	<i>Juglans ailantifolia</i> *																✓			327
jasmine	<i>Jasminum polyanthum</i>										✓						✓		✓	202, 327
kangaroo acacia	<i>Acacia paradoxa</i>							✓									✓			168, 327
khasia berry	<i>Cotoneaster simonsii</i> *																✓			327
kudzu vine	<i>Pueraria montana</i> syn. <i>P. lobata</i>																✓			327
lagarosiphon, oxygen weed	<i>Lagarosiphon major</i> *					✓											✓			155, 327
lantana	<i>Lantana camara</i> *																✓ <sup>25</sup>	§		318

<sup>25</sup> Rural Auckland only

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
lizard's tail	<i>Saururus cernuus</i>																✓			327
lodgepole pine <sup>26</sup>	<i>Pinus contorta</i> *																✓			327
loquat	<i>Eriobotrya japonica</i>																✓			327
Madeira vine	<i>Anredera cordifolia</i> *							✓			✓						✓		✓	168, 215, 327
male fern	<i>Dryopteris filix-mas</i>																✓			327
marram grass	<i>Ammophila arenaria</i>																✓			327
marshwort	<i>Nymphoides montana</i> *														✓					313
Mexican daisy	<i>Erigeron karvinskianus</i> *																✓			327

<sup>26</sup> Wilding pines are also subject to a nationally coordinated management programme, see <http://www.wildingconifers.org.nz/about-us/programme-2/>



Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
Mexican devil	<i>Ageratina adenophora</i>																✓			327
Mexican feather grass	<i>Nassella tenuissima</i> *													✓						313
Mexican water lily	<i>Nymphaea mexicana</i> *																✓			327
Mickey Mouse plant	<i>Ochna serrulata</i> *					✓											✓			155, 327
mile-a-minute	<i>Dipogon lignosus</i> *							✓									✓			168, 327
mist flower	<i>Ageratina riparia</i>																✓			327
monkey apple	<i>Syzygium smithii</i> syn. <i>Acmena smithii</i> *										✓						✓		✓	215, 327
montbretia	<i>Crocsmia x crocosmiiflora</i>																✓			327
Montpellier broom	<i>Genista monspessulana</i>																✓			327

Plant		Programme																				
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)		
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR				
	syn. <i>Teline monspessulana</i>																					
Morton Bay fig	<i>Ficus macrophylla</i>																			✓		327
moth plant	<i>Araujia sericifera</i> syn. <i>Araujia hortorum</i> *				✓ §		✓				✓ §	✓								✓		128, 160, 204, 327
nardoo	<i>Marsilea mutica</i>																			✓		327
nassella tussock	<i>Nassella trichotoma</i> *														✓							313
needle grass	<i>Austrostipa rudis</i>																			✓		322
nodding thistle	<i>Carduus nutans</i>																			✓ §		327
Noogoora bur	<i>Xanthium strumarium</i> syn. <i>occidentale</i>																			✓		324
Norfolk Island hibiscus	<i>Lagunaria patersonii</i>										✓									✓		215, 327
nutgrass	<i>Cyperus rotundus</i>																			✓		327

Plant		Programme																				
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)		
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR				
old man's beard	<i>Clematis vitalba</i> *															✓						322
oxylobium	<i>Callistachys lanceolata</i>																✓					327
palm grass	<i>Setaria palmifolia</i>																✓					327
pampas grass	<i>Cortaderia jubata</i> * and <i>C. selloana</i> *										✓						✓		✓			215, 327
paperbark poplar	<i>Melaleuca quinquenervia</i>																✓					327
parrot's feather	<i>Myriophyllum aquaticum</i> *					✓												✓				155, 327
perennial nettle	<i>Urtica dioica</i>																✓					327
periwinkle	<i>Vinca major</i>										✓						✓					327
phoenix palm	<i>Phoenix canariensis</i>										✓						✓		✓			215, 327
<i>Phragmites karka</i>	<i>Phragmites karka</i>														✓							313

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
pitted crassula	<i>Crassula multicava</i> *																✓			327
plectranthus	<i>Plectranthus ciliatus</i> *																✓			327
plumeless thistle	<i>Carduus acanthoides</i>																✓			327
Port Jackson fig	<i>Ficus rubiginosa</i> *																✓			327
prickly-leaved wattle	<i>Acacia verticillata</i>																✓			327
privet, Chinese	<i>Ligustrum sinense</i>										✓						✓		✓	215, 327
privet, tree	<i>Ligustrum lucidum</i> *						✓				✓						✓		✓	160, 215, 327
purple groundsel	<i>Senecio elegans</i>							✓												168
queen of the night	<i>Cestrum nocturnum</i> *																✓			327

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
Queensland poplar	<i>Homalanthus populifolius*</i>						✓										✓			160, 327
Queensland umbrella tree	<i>Schefflera actinophylla</i>																✓			327
ragwort	<i>Jacobaea vulgaris</i> (syn. <i>Senecio jacobaea</i> )																✓			327
red dragon	<i>Persicaria microcephala</i>																✓			327
red valerian	<i>Centranthus ruber</i>																✓			327
reed sweet grass	<i>Glyceria maxima</i>						✓										✓			327
rhamnus	<i>Rhamnus alaternus*</i>			✓		✓					✓	✓					✓		✓	125, 155, 209, 327
rhaphiolepis / Sexton's bride	<i>Rhaphiolepis umbellata</i>						✓										✓			160, 327

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
rhus tree	<i>Toxicodendron succedaneum</i> syn. <i>Rhus succedanea</i>						✓										✓			327
rough tree fern	<i>Cyathea cooperi</i> *																✓			327
royal fern	<i>Osmunda regalis</i> *							✓			✓						✓		✓	168, 215, 327
rum cherry	<i>Prunus serotina</i> *																✓			327
saffron thistle	<i>Carthamus lanatus</i>																✓			327
<i>Sagittaria</i> spp.	<i>Sagittaria</i> <sup>*27</sup> spp. (except <i>S. teres</i> )																✓			322
salt water paspalum	<i>Paspalum vaginatum</i>										✓						✓		✓	215, 327
scrambling lily	<i>Geitonoplesium cymosum</i>													✓						313

<sup>27</sup> *Sagittaria montevidensis*, *S. sagittifolia* and *S. platyphylla* listed in the NPPA only

Plant		Programme																			
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)	
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR			
<i>Selaginella</i> spp.	<i>Selaginella martensii</i> , <i>S. moellendorffii</i> , <i>S. uncinata</i>																✓				327
Senegal tea	<i>Gymnocoronis spilanthoides</i> *																✓				322
sharp rush	<i>Juncus acutus</i>					✓					✓						✓		✓		155, 215, 327
sheep's bur	<i>Acaena agnipila</i>																✓				327
skeleton weed	<i>Chondrilla juncea</i>																✓				327
smilax	<i>Asparagus asparagoides</i> *							✓									✓				168, 327
snow poppy	<i>Eomecon chionantha</i> *																✓				327
soap aloe	<i>Aloe maculata</i>																✓				327
Spanish broom	<i>Spartium junceum</i>						✓										✓				160, 327

Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
Spanish heath	<i>Erica lusitanica</i>																✓			327
spartina	<i>Spartina alterniflora</i> , <i>S. anglica</i> and <i>S. x townsendii</i>															✓ <sup>28</sup>	✓ <sup>29</sup>			322, 327
spiny broom	<i>Calicotome spinosa</i>																✓			327
strangling fig	<i>Ficus microcarpa</i>																✓			327
sweet briar	<i>Rosa rubiginosa</i>																✓			327
sweet pea shrub	<i>Polygala myrtifolia</i> (excl. cv. 'Grandiflora')*																✓			327
sweet pittosporum	<i>Pittosporum undulatum</i> *					✓											✓			155, 327
Sydney golden wattle	<i>Acacia longifolia</i>																✓			327

<sup>28</sup> Excluding Kairapara Harbour

<sup>29</sup> Kaipara Harbour only



Plant		Programme																		
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR		
Taiwan cherry <sup>30</sup>	<i>Prunus campanulata</i>																✓			327
Tasmanian ngaio	<i>Myoporum insulare</i> and hybrids*										✓						✓		✓	215, 327
tradescantia	<i>Tradescantia fluminensis</i> *																✓			327
tree lupin	<i>Lupinus arboreus</i>																✓			327
tree of heaven	<i>Ailanthus altissima</i> *						✓										✓			160, 327
tuber ladder fern	<i>Nephrolepis cordifolia</i> *																✓			327
tutsan	<i>Hypericum androsaemum</i> *																✓			327
undaria	<i>Undaria pinnatifida</i>																✓			409
variegated thistle	<i>Silybum marianum</i>																✓§			327

<sup>30</sup> Excludes sterile cultivars 'Mimosa' and 'Pink clouds'

Plant		Programme																				
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)		
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR				
velvet groundsel	<i>Roldana petasitis</i> (syn. <i>Senecio petasitis</i> )																✓				327	
water plantain	<i>Alisma plantago-aquatica</i>						✓															160
water poppy	<i>Hydrocleys nymphoides</i> *														✓							313
water primrose	<i>Ludwigia peploides</i> subsp. <i>montevidensis</i> *																	✓				327
white-edged nightshade	<i>Solanum marginatum</i> *														✓							313
wild broom	<i>Cytisus scoparius</i> (excl. cultivated varieties)																✓ <sup>31</sup>					322
wild ginger	<i>Hedychium gardnerianum</i> * and <i>H. flavescens</i> *						✓					✓	✓					✓		✓		160, 211, 327


<sup>31</sup> Service delivery in rural Auckland only

Plant		Programme																			
Common name	Scientific name	Hauraki Gulf Controlled Area				Aotea Great Barrier Island			Kawau Island	Waiheke Island	Parks		Priority lakes	Whole region					Waitākere <sup>19</sup>	Page(s)	
		Exclusion	Eradication	Progressive containment	Site-led	Exclusion	Eradication	Progressive containment	Eradication	Eradication	Site-led	GNR	Site-led	Exclusion	Eradication	Progressive containment	Sustained control	GNR			
wild kiwifruit	<i>Actinidia</i> species (wild varieties only)															✓ §					320
woolly nightshade	<i>Solanum mauritianum</i> *						✓				✓ §	✓					✓		✓		160, 213, 327
yellow bristle grass	<i>Setaria pumila</i>																✓				327
yellow flag iris	<i>Iris pseudacorus</i> *																✓				327
yellow guava	<i>Psidium guajava</i>																✓				327
yellow passionfruit	<i>Passiflora ligularis</i>																✓				327
yellow water lily	<i>Nuphar lutea</i> *																✓				327

**Table 5 Organisms managed under national-led programmes, which may be assisted by Auckland Council.**

National Interest Pest Responses	
Common name	Scientific name
Alpine newt	<i>Ichthyosaura alpestris</i>
Cape tulip	<i>Homeria flaccida</i> syn. <i>Moraea flaccida</i>
Hydrilla	<i>Hydrilla verticillata</i>
Johnson grass	<i>Sorghum halepense</i>
Manchurian wild rice	<i>Zizania latifolia</i>
Myrtle rust	<i>Austropuccinia psidii</i> syn. <i>Puccinia psidii</i>
Phragmites	<i>Phragmites australis</i>
Pyp grass	<i>Ehrharta villosa</i>
Salvinia	<i>Salvinia molesta</i>
Sea spurge	<i>Euphorbia paralias</i>
Water hyacinth	<i>Eichhornia crassipes</i>
White bryony	<i>Bryonia cretica</i>
Other Ministry for Primary Industries-led Unwanted Organism eradication or progressive containment programmes	
Common name	Scientific name
Bat-wing passion flower	<i>Passiflora apetala</i>
Cabomba	<i>Cabomba caroliniana</i>
Chinese knotweed	<i>Persicaria chinensis</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Velvet leaf	<i>Abutilon theophrasti</i>





**6 Tarāwaho whakahaere kaupapa  
koiora orotā / Pest management  
framework**



## 6.1 Hōtaka whakahaere kaupapa koiora orotā / Pest management programmes

One or more pest management programmes will be used to control pests and any other organisms covered by this RPMP. The types of programme are defined by the NPD and reflect outcomes in keeping with:

- the extent of the invasion
- whether it is possible to achieve the desired control levels for the pests.

The intermediate outcomes for five programmes are described below.

1. **Exclusion Programme:** to prevent the establishment of the subject, or an organism being spread by the subject, that is present in Aotearoa / New Zealand but not yet established in an area.
2. **Eradication Programme:** to reduce the infestation level of the subject, or an organism being spread by the subject, to zero levels in an area in the short to medium term.
3. **Progressive Containment Programme:** to contain or reduce the geographic distribution of the subject, or an organism being spread by the subject, to an area over time.
4. **Sustained Control Programme:** to provide for ongoing control of the subject, or an organism being spread by the subject, to reduce its impacts on values and spread to other properties.
5. **Site-led Pest Programme:** that the subject, or an organism being spread by the subject, that is capable of causing damage to a place is excluded or eradicated from that place, or is contained, reduced, or controlled within the place to an extent that protects the values of that place.

## 6.2 Ngā Whāinga / Objectives

Objectives have been set for each pest or class of pests. As required by the NPD, the objectives include:

- the particular adverse effect/s to be addressed (s54(a) of the Biosecurity Act)
- the intermediate outcomes of managing the pest
- the geographic area to which the objective applies
- the level of outcome, if applicable
- the period for achieving the outcome
- the intended outcome in the first 10 years of the plan (if the period is greater than 10 years).

For example:

- Over the duration of the plan Auckland Council will exclude giant hogweed (*Heracleum mantegazzianum*) from establishing in the region to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.
- Over the duration of the plan Auckland Council will manage climbing asparagus (*Asparagus scandens*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

### 6.3 Ngā tikanga matua hei whakahaere kaupapa orotā / Principal measures to manage pests

The principal measures used in the RPMP to achieve the objectives are in four main categories. Each category contains a suite of tools to be applied in appropriate circumstances.

1. Requirement to act – occupiers of a place or other persons may be required to act where RPMP rules dictate:
  - pests are to be controlled
  - management plans are to be prepared and submitted
  - the presence of pests is to be reported
  - actions are to be reported (type, quantity, frequency, location, programme completion)
  - pests are not to be spread (propagated, sold, distributed), and pathways are to be managed (e.g. machinery, gravel, animals).
2. Monitoring and surveillance – inspection by the Council may include:
  - visiting properties or doing surveys to determine whether pests are present (surveillance), or rules and management programmes are complied with, or to identify areas that control programmes will apply to (places of value, exclusion zones, movement control areas)
  - taking limited control actions, where doing so is effective and cost efficient
  - monitoring effectiveness of control.
3. Enforcement:
  - managing compliance to regulations (rule enforcement, action on default, prosecution, exemptions)
4. Service delivery (control) – the Council may deliver the service:
  - where it is funded to do so
  - by providing control tools, including sourcing and distributing biological agents, or provisions (e.g. traps, chemicals).

#### 5. Education and advice – the Council may:

- provide general purpose education, advice, awareness, behaviour change, and publicity activities to land occupiers and the public about pests and pathways (and control of them)
- encourage land owners occupiers to control pests
- facilitate or fund community and land occupier self-help groups and committees
- help other agencies with control, advocacy, and the sharing or sourcing of funding
- promote industry requirements and best practice to contractors and land occupiers
- encourage land occupiers and other persons to report any pests they find or to control them

#### 6. Research and development:

- facilitate or commission research independently or in collaboration with other parties.

### 6.4 Ngā Ture / Rules

Rules play an integral role in securing many of the pest management outcomes sought by the RPMP. They create a safety net to protect land occupiers as well as the regional community and its assets (including parkland and other native ecosystems) from the effects of the actions or inactions of others where non-regulatory means are inappropriate or do not succeed. Importantly, amendments to the Biosecurity Act by the Biosecurity Law Reform Act 2012 now bind the Crown by those rules identified as **Good Neighbour Rules** in RPMPs.

The Biosecurity Act prescribes the matters that may be addressed by rules, and the need to:

- specify if the rule is to be designated as a ‘Good Neighbour Rule’ (s73(3)(i));
- explain the purpose of the rule (s73(5));
- specify if breaching the rule is an offence under the Act (s73(6)(d); and
- specify if an exemption to the rule, or any part of it, is allowable or not (s78).

Exemptions may apply to any or all of the rules contained within this RPMP, on written application to Auckland Council.

Rules can apply generally, or to different classes or descriptions of persons, places, goods, or other things.

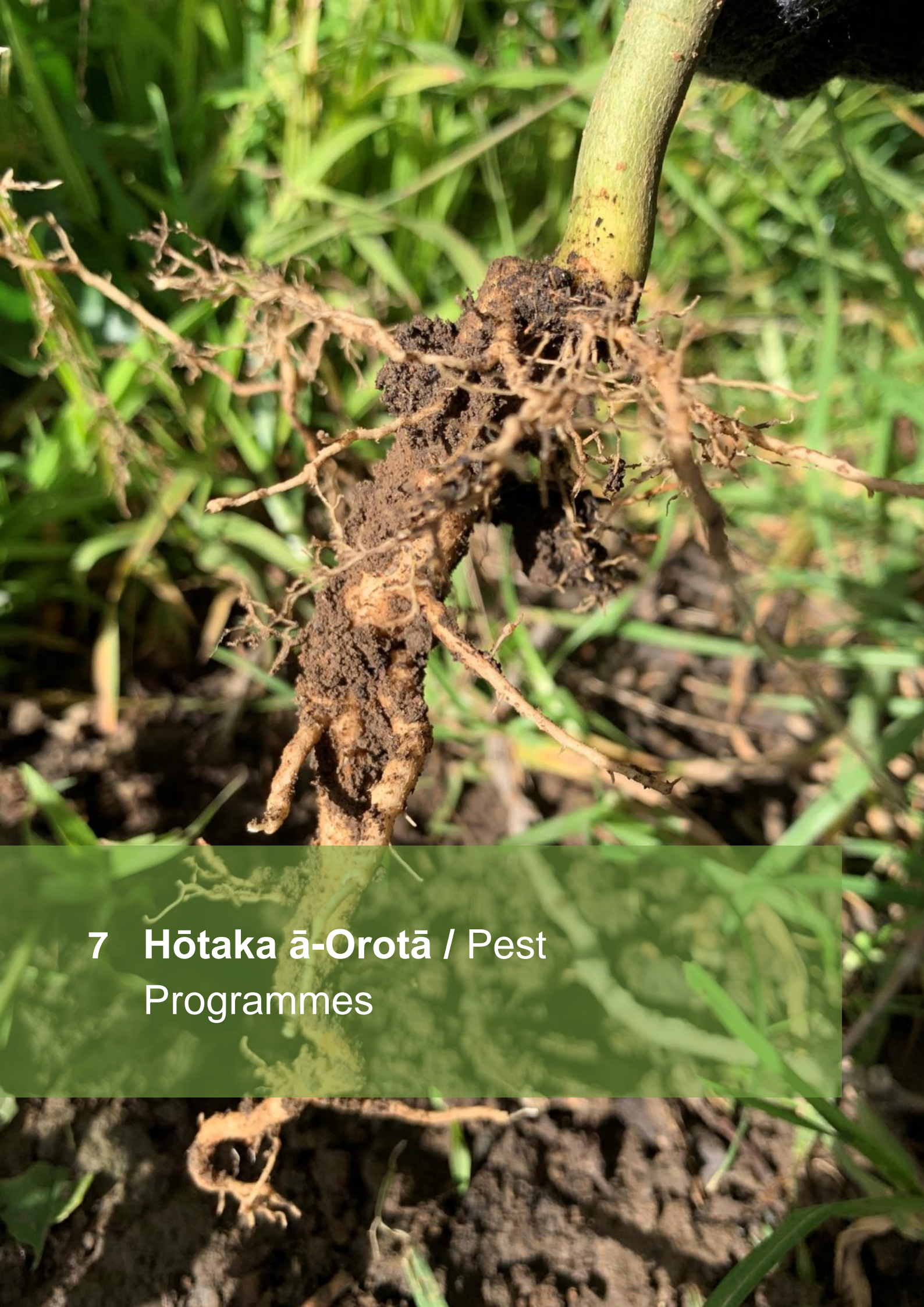


Before a rule can be identified as a Good Neighbour Rule in the RPMP, the Council must be satisfied that the requirements of the NPD have been met. Of particular note, the Good Neighbour Rule will:

- identify who the GNR applies to—either all occupiers, or a specified class of occupier
- identify the pest to be managed
- state that the pest must already be present on the occupier’s land
- state that the occupier of the adjacent or nearby land must, in the view of the management agency, be taking reasonable measures to manage the pest on their land
- (if relevant) state the particular values or uses of the neighbouring land that the pest’s spread affects, and that the Good Neighbour Rule is intended to address.

For example, all occupiers of any transport corridor land that is located within the buffer area, as defined in Map 6, of a park which is managed for Formosa lily, must control all Formosa lily on that land prior to seed set.





## 7 Hōtaka ā-Orotā / Pest Programmes



The following sections set out the statutory programmes of this plan, which work together as described above in section 4.2. Where there is any inconsistency between two or more programmes for any given species which apply to one site, the more stringent programme applies.

## **7.1 Te Rohe Āta Whakahaere o Tīkapa Moana / Hauraki Gulf Controlled Area**

Ko Tīkapa Moana te kāinga o tētahi o ngā wāhi muia e te hia nei momo manu haumoana o te ao. Ko ōna moutere he wāhi e taea te tū āraitia, e māmā atu te muru rawa i ngā āhua momo koiora orotā i ērā i te tuawhenua nei. Ko Ruapuke (1 ha) o te kāhui motu Noises te motu tuatahi i Aotearoa kia murua i te kiore, i whakatūturutia tēnei i te tau 1964. Mai i taua wā, i tere piki ake ngā hangarau muru, ināianei neke atu i te haurua o ngā motu kua noho koiora orotā-kore kē. Nā ēnei murunga i āhei ai te whakahoki ake anō i ētahi o ngā momo i te noho wehi ki Tīkapa Moana.

Ko tā ngā hōtaka e whai ake nei he tiaki i ngā tikanga hauropi whakahira me te noho ārai o te matawhenua o ngā moutere o Tīkapa Moana, mā roto atu i ngā whakaritenga e āhei ai te aukati i te hora tonu o ngā orotā ki ētahi atu moutere hōu (tae atu ki ngā ture mau Raihana Orotā-Kore o te hunga whai umanga kaikawekawe), āpiti hoki ko te mana o te kaunihera me ngā kaupupuri whenua ki te tiaki i ngā āhua orotā i ētahi wāhi hei ārai, hei whakaheke iho rānei i ngā raru.

The Hauraki Gulf is home to one of the highest diversities of seabirds in the world. Islands have the advantage of being geographically defendable, making it easier than on the mainland to completely remove some pest species. The tiny Ruapuke / Maria Island (1 ha) in the Noises group was the site of Aotearoa / New Zealand's first island rodent eradication, with success confirmed in 1964. Since then, eradication technology has grown rapidly, so that now over half of the islands in the gulf are free of mammalian pests. These eradications have enabled the reintroduction of numerous threatened species to Te Tīkapa Moana / Hauraki Gulf islands such as Tiritiri Matangi, Rotoroa and Rangitoto-Motutapu. The subsequent success of these islands as sanctuaries is testament to the collaborative vision, financial investment and sustained hard work of many individuals and organisations across community groups, non-government organisations and agencies such as Department of Conservation and Auckland Council.

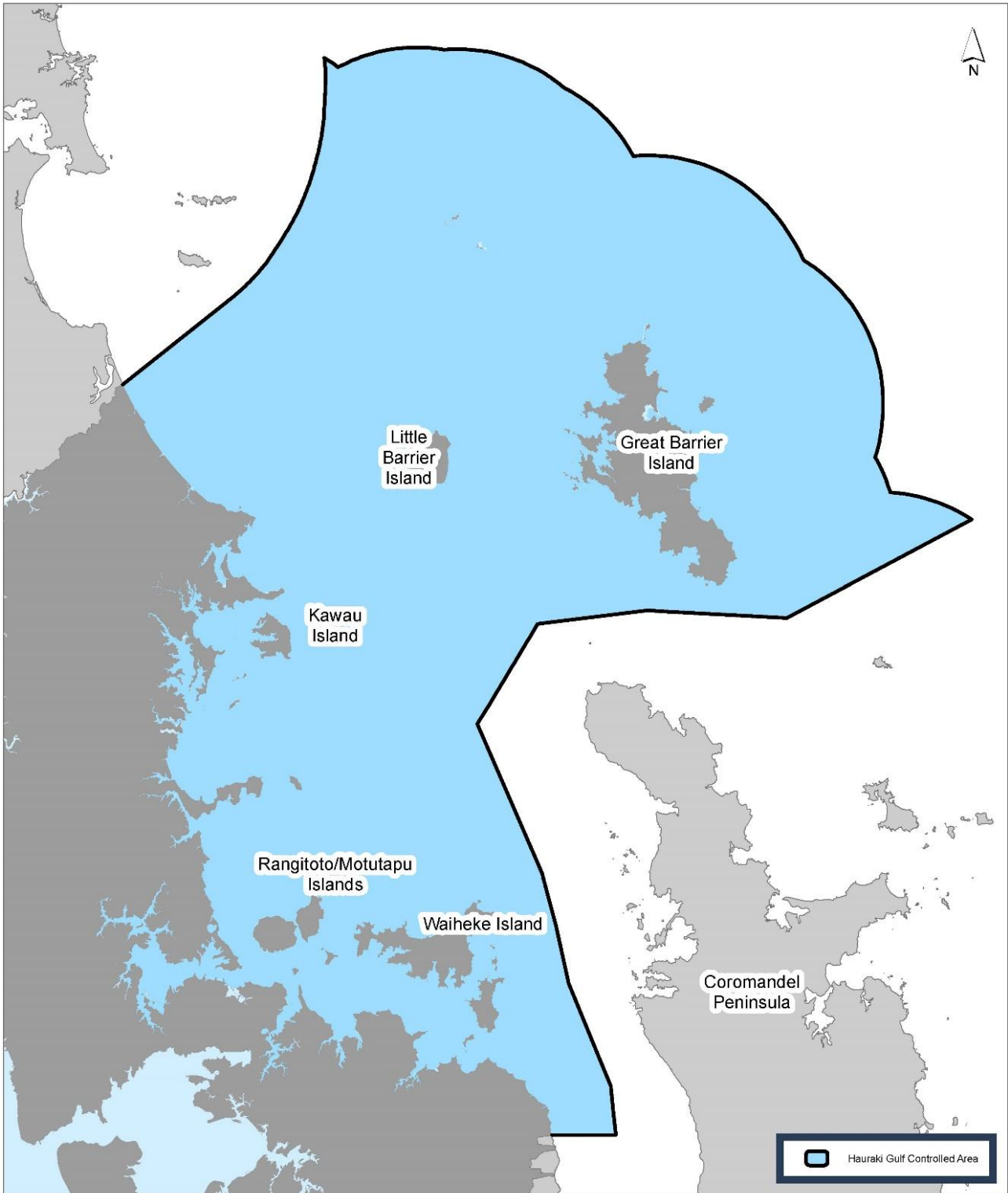
The following programmes protect the high ecological values and strategically defendable geography of Te Tīkapa Moana / the Hauraki Gulf islands, through a combination of measures to prevent further spread of pests to new islands (with rules including Pest Free Warrants for commercial transport operators), along with control by Council or land occupiers to manage pests at certain sites to prevent or reduce impacts. Auckland Council is the management agency for the Hauraki Gulf Controlled Area. In addition to all rules and default powers provided under this Regional Pest Management Plan, species named anywhere in this Regional Pest Management Plan may also be subject to controls under the Hauraki Gulf Controlled Area. The species subject to controls under the Hauraki Gulf

Controlled Area are specified in the Controlled Area Notice. Boundaries of the Hauraki Gulf Controlled Area are shown in Map 2.

The subsequent sections set out programmes to eradicate, exclude or contain named pests from individual islands, namely Aotea / Great Barrier Island Group, and Moutere o Waiheke / Waiheke Island. In addition to these, Council may undertake incursion responses for other low incidence species on islands as required over the lifetime of the plan.



Aotea / Great Barrier Island Group



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### Hauraki Gulf Controlled Area



Scale @ A4  
= 1:681,993

Date Printed:  
1/10/2020



**Map 2. Area where Hauraki Gulf Controlled Area pest programmes apply.**



### 7.1.1 Te noho wātea o te kararehe orotā / Exclusion pest animals

These exclusion pest animals are potential pest animals which are not known to be established in the Hauraki Gulf Controlled Area. These pest animals all have the potential to establish here and are capable of causing adverse effects to the environmental, economic, human health, social or cultural values of the Hauraki Gulf Controlled Area. It is a key regional priority to ensure these species do not establish on Te Tīkapa Moana / the Hauraki Gulf islands, to protect the values of those islands and past investment in island eradications. Council may, at its discretion, undertake incursion responses to species other than those listed in the following section.

#### 7.1.1.1 Feral deer (*Cervus*, *Axis*, *Dama*, *Odocoileus*, *Elaphurus* spp.)

Feral deer are medium to large-sized ungulates. Red deer have reddish-brown coats and can reach 180kg. Fallow deer are much smaller and have a chestnut coloured coat. Heavy and selective deer browsing on native plants, particularly schefflera/patete, three-finger, horoeka/lancewood, and mouku/hen and chicken fern, can radically change forest structure and impact below-ground processes by altering the nature of litter inputs into the soil. Feral deer are also spill-over hosts and potential reservoirs of bovine TB.



**Objective:** Over the duration of the plan Auckland Council will exclude feral deer<sup>32</sup> (*Cervus*, *Axis*, *Dama*, *Odocoileus*, *Elaphurus* spp. including any hybrid) from the Hauraki Gulf Controlled Area to prevent adverse effects on the environment.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of feral deer (*Cervus*, *Axis*, *Dama*, *Odocoileus*, *Elaphurus* spp. including any hybrid) in the Hauraki Gulf Controlled Area.

#### Rules:

7.1.1.1.1 No person shall move or distribute any deer into the Hauraki Gulf Controlled Area (as defined in Map 2).

The purpose of rule 7.1.1.1.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

<sup>32</sup> A feral deer includes any deer that is not:

- a) being kept or farmed in accordance with the Wild Animal Control Act 1977; and
- b) identified in accordance with the National Animal Identification and Tracing Act 2012.

### Principal measures of achievement:

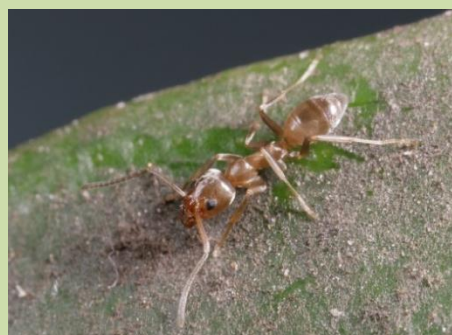
Service delivery (control)	Undertake incursion responses Te Tīkapa Moana / the Hauraki Gulf islands, in partnership with the Department of Conservation where appropriate.
Monitoring and surveillance	Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, to determine the presence of new incursions and status of existing or historical sites.
Education and advice	Provide information and advice on identification, impacts and control of the pest animal.
Enforcement	Enforce conditions of transport within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.

## 7.1.2 Wāhi whai tupu orotā / Site-led animals

These site-led pest animals are present in the Hauraki Gulf Controlled Area, and have potential to cause serious impacts on the environmental, cultural and economic values of Te Tīkapa Moana / the Hauraki Gulf islands. The following programmes seek to minimise further spread of these pest animals to new islands, and in some cases also manage existing island populations to reduce their impacts on those islands.

### 7.1.2.1 Argentine ant (*Linepithema humile*)

Argentine ant workers are uniformly light brown insects, wingless and are roughly 2–3mm long. Queens are larger (10-12mm) and dark brown. They have a broad diet and impact on many invertebrate species through predation, competition and interference, and will also prey on hatchlings in nests. They feed extensively on honeydew produced by aphids and scale insects, and therefore protect these insects from predators. This can severely impact on the horticulture industry and will often kill fruit trees due to an increase in scale insects. Production losses in the poultry industry can be caused by Argentine ants killing hatchlings, and to the apiculture industry due to hive robbing. Argentine ants will often bite humans and can become major nuisances in homes and gardens. They can also interfere with pest plant biocontrol.



Richard Toft, Entecol

**Objective:** over the duration of the plan Auckland Council will manage Argentine ants (*Linepithema humile*) to protect values in the Hauraki Gulf Controlled Area to reduce adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is controlled within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

#### Rules:

- 7.1.2.1.1 No person shall move or allow to be moved any Argentine ant to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.1.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.



7.1.2.1.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

The purpose of rule 7.1.2.1.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.1.2 and 7.1.2.1.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Undertake incursion responses on Argentine ant-free islands, in partnership with the Department of Conservation where appropriate. Includes long-term projects to eradicate populations on Kawau and Aotea / Great Barrier island group.
Monitoring and surveillance	Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly Argentine ant-free islands, to determine the presence of new incursions and status of existing or historical sites.
Education and advice	Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of ants to offshore islands.
Enforcement	Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.
Requirement to act	All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.  All commercial transport operators within the Hauraki Gulf to obtain and maintain Pest Free Warrant status.  All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.

### 7.1.2.2 Unowned cat

Cats are small-bodied carnivorous mammals (2-7kg as adults) with variable coat colours. Adults are active both day and night, switching activity patterns in response to opportunity, favouring small terrestrial mammals (rodents and rabbits) but prey-switching to take a wide variety of other taxa (birds, bats, reptiles, amphibians, invertebrates) according to their availability. Cat predation is one of the main threats to tūturiwhatu / New Zealand dotterels, and juvenile kiwi and burrowing seabirds such as tāiko / black petrel and tītī / Cook's petrels are also at risk. Cats can also facilitate disease and parasite transmission to native species, particularly *Toxoplasma gondii*, which is dependent on cats to complete its lifecycle. Fatal toxoplasmosis has been reported in tutumairekurai / Hector's and Maui's dolphins, terehu / bottle nose dolphins, kēkeno / NZ fur seals, kiwi, kererū/kukupā and kākā. However, cats are also Aotearoa / New Zealand's most popular companion animal, and Auckland Council recognises the need to balance wildlife protection with protection of companion animal values.



Manaaki Whenua Landcare Research

**Objective:** Over the duration of the plan Auckland Council will manage cats to protect values in places to reduce adverse effects on the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “protecting values in places” which means that cats, that are capable of causing damage to the Hauraki Gulf Controlled Area, are controlled within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

#### Rules:

7.1.2.2.1 No person shall move or allow to be moved any unowned<sup>33</sup> cat to or among islands within the Hauraki Gulf Controlled Area (as defined in Map 2)

<sup>33</sup> Unowned cat means:

- a) Any cat which is not:
  - i. Microchipped, or otherwise identified with owner's name and address; and
  - ii. Registered on the New Zealand Companion Animal Register <https://www.animalregister.co.nz/>; and
- b) which is within any site that contains a resident or breeding or roosting population of any regionally or nationally threatened bird, reptile or amphibian, and is in a rural area.

- 7.1.2.2.2 No person shall bring any cat within 200m of any cat-free island within the Hauraki Gulf Controlled Area.
- 7.1.2.2.3 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.2.4 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

The purpose of rules 7.1.2.2.1 and 7.1.2.2.2 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.2.3 and 7.1.2.2.4 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

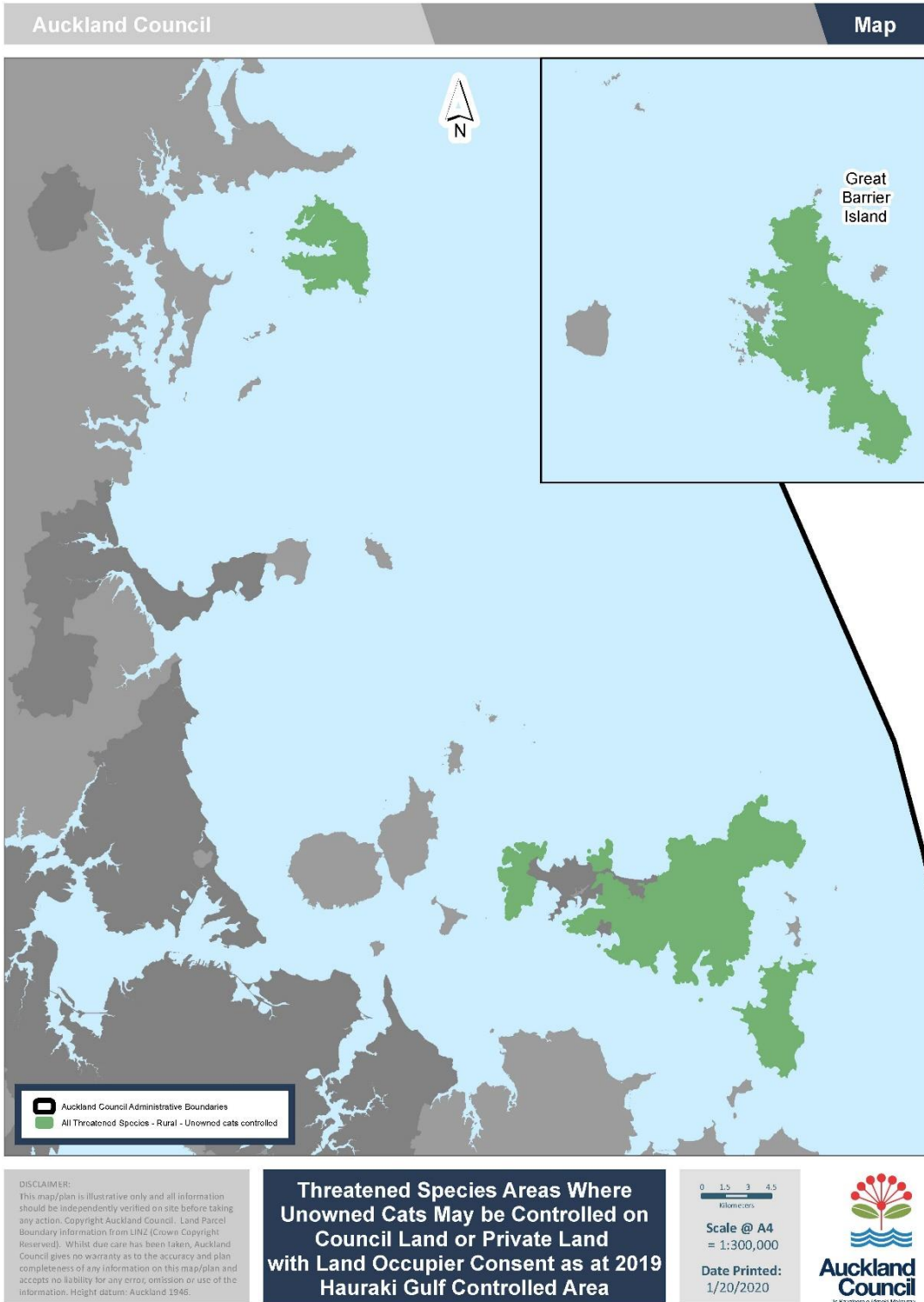
### Principal measures of achievement:

Service delivery (control)	<p>Undertake incursion responses on cat-free islands, in partnership with the Department of Conservation where appropriate.</p> <p>Council may undertake control of unowned cats as part of integrated management of other pest threats to protect threatened species. Accordingly, Council may consider unowned cat control at sites meeting the follow criteria:</p> <ol style="list-style-type: none"> <li>a. the site contains a resident or breeding or roosting population of any threatened native bird, reptile or amphibian species; and</li> <li>b. the site is within a rural area; and</li> <li>c. where that site is: <ol style="list-style-type: none"> <li>i. public land; or</li> <li>ii. private land with consent of the private land occupier.</li> </ol> </li> </ol> <p>Map 3 indicatively shows the extent of sites meeting these threatened species criteria based on current knowledge as at January 2019.</p> <p>Sites shown in Map 4 are intensively managed and of particular value to threatened species programmes. At these sites, Council may control any cat as a pest in accordance with the Biosecurity Act 1993, to prevent recovery programmes being undermined.</p>
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*Note: based on current knowledge of species distributions at time of writing, sites that meet these criteria are shown in Map 3. Note also cat control will only be undertaken on public land or on private land with consent of land occupier (see principle measures of achievement overleaf).*

*Note: this programme does not prevent the continuing sale and distribution of cats within the region.*

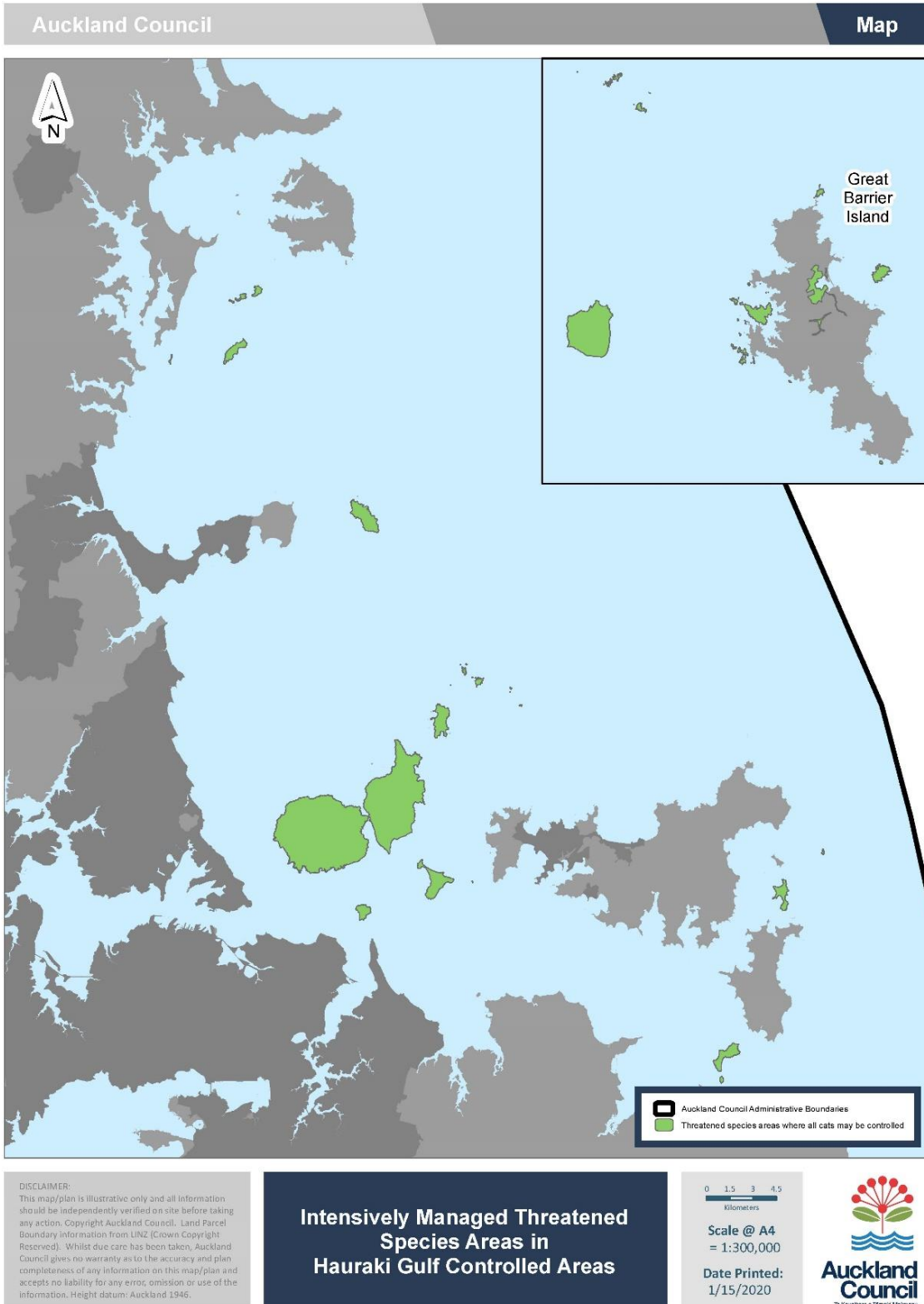
Monitoring and surveillance	Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of cat-free islands, to determine the presence of new incursions and status of existing or historical sites. Undertake inspections, monitoring and surveillance of unowned cat populations in and around sites containing threatened species.
Enforcement	Enforce conditions of transport within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators, and that all cats being moved within the Hauraki Gulf are microchipped and remain at all times a distance of at least 200m from any cat-free island.
Education and advice	<p>Provide information and advice on responsible pet ownership (particularly de-sexing, microchipping, registration on the Companion Animal Register and containment options). Advice will be prioritised to communities near threatened species populations or biodiversity focus areas to assist cat owners in these areas to minimise the impacts of their companion animals on nearby wildlife.</p> <p>Provide information on impacts and management of cats, and how to reduce risk of accidental introduction of cats to offshore pest-free islands.</p> <p>Notify communities near intended cat management at least 4 weeks prior to control of unowned cats.</p> <p>Provide advice and support to community groups undertaking cat management, with priority given to activity in or around biodiversity focus areas or threatened species populations.</p>
Requirement to act	<p>Cat owners to ensure owned cats are microchipped and registered if transporting cats to or among islands within Hauraki Gulf Controlled Area, and to ensure all cats are kept a distance of at least 200m away from any cat-free island at all times.</p> <p>All persons intending to move a building to or among Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All commercial transport operators within the Te Tīkapa Moana / the Hauraki Gulf to obtain and maintain Pest Free Warrant status.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>



**Map 3 Indicative distribution of threatened species populations within rural areas in the Hauraki Gulf Controlled Area, based on current knowledge of species' distributions as of 2019. Unowned cats may be controlled in rural areas to protect threatened species on Council land or on private land with land occupier consent<sup>34</sup>.**

<sup>34</sup> Any sites where unowned cat control is actually planned to be carried out can be viewed at higher resolution online at <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html>





**Map 4 Intensively managed sites for threatened species protection. Any cat may be controlled at these sites<sup>35</sup>.**

<sup>35</sup> Any sites where cat control is actually planned to be carried out can be viewed at higher resolution online at <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html>

### 7.1.2.3 Darwin's ant (*Doleromyrma darwiniana*)

Darwin's ants are small omnivorous insects (2-5mm) with dark brown heads and light brown bodies, which give off a strong odour when crushed. Impacts are expected to be similar to Argentine ants. Their preference for sweet foods may lead to the invasion of vineyards and orchards, and facilitate high densities of scale insects and aphids by tending them for honeydew, further impacting plant health. They are also likely to compete strongly with other native species that feed on honeydew or nectar. Predation by Darwin's ants has been implicated as a factor in the failure of the boneseed leaf roller moth biocontrol agent, thereby indirectly facilitating the spread of the pest plant.



Richard Toft, Entocol

**Objective:** over the duration of the plan Auckland Council will manage Darwin's ants (*Doleromyrma darwiniana*) to protect values in place to reduce adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "protecting values in places" which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is controlled within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

**Rules:**

- 7.1.2.3.1 No person shall move or allow to be moved any Darwin's ant to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.3.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.3.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

The purpose of rule 7.1.2.3.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.3.2 and 7.1.2.3.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Undertake incursion responses on Darwin's ant-free islands, in partnership with the Department of Conservation where appropriate. Includes long-term projects to eradicate populations on Aotea / Great Barrier.
Monitoring and surveillance	Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly Darwin's ant-free islands, to determine the presence of new incursions and status of existing or historical sites.
Education and advice	Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of ants to offshore islands.
Enforcement	Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.
Requirement to act	<p>All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All commercial transport operators within the Hauraki Gulf to obtain and maintain Pest Free Warrant status.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>



### 7.1.2.4 Feral pig (*Sus scrofa*)

Feral pigs are large (sometimes over 300kg), black to brown, stoutly built mammals with large heads and well-developed canine teeth. They actively scavenge during the day and will overturn large areas of soil to consume soil invertebrates, especially earthworms. In invaded ecosystems, they prey on and compete with native species, alter nutrient cycles, damage vegetation and soil, and facilitate the spread of pest plants and plant diseases, including kauri dieback disease. They are of high risk to the primary production industry as vectors of bovine tuberculosis. International trading options may be reduced if the Aotearoa / New Zealand feral pig population became a reservoir for swine fever or foot and mouth disease. Feral pig attacks on humans are rare but could be potentially fatal.



Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will manage feral pigs<sup>36</sup> (*Sus scrofa*) to protect values in places to reduce adverse effects on the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga, as well as economic well-being, the environment, human health and enjoyment of the natural environment.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is managed within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

**Rules:**

7.1.2.4.1 No person shall move or allow to be moved any feral pig to or within the Hauraki Gulf Controlled Area (as defined in Map 2).

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

The purpose of this rule is to protect the values of the Hauraki Gulf Controlled Area.

<sup>36</sup> A feral pig includes any pig that is not:

- a) held behind effective fences or otherwise constrained; and
- b) identified by ear tag

### Principal measures of achievement:

Service delivery (control)	<p>Manage the pest animal in and around biodiversity focus areas within the Hauraki Gulf Controlled Area to levels that enhance ecosystem function and resilience, and protect the values of the Hauraki Gulf Controlled Area.</p> <p>Respond to incursions on pig-free islands, in partnership with the Department of Conservation where appropriate. See also section 7.4.1 for eradication of feral pigs from Waiheke.</p>
Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of key risk areas, particularly pig-free islands, to determine the presence of new incursions and status of existing or historical sites.</p>
Education and advice	<p>Provide information and advice on identification, impacts and control of the pest animal, and ways to reduce biosecurity risks associated with keeping or hunting of pigs.</p>
Enforcement	<p>Enforce conditions of movement within the Hauraki Gulf Controlled Area.</p>
Requirement to act	<p>All persons in possession of pigs to comply with directions from Auckland Council biosecurity regarding adequate containment of pigs to prevent release from captivity, and ear tagging for identification.</p>

### 7.1.2.5 Hedgehog (*Erinaceus europaeus*)

Hedgehogs are small brown to grey, insectivorous mammals with spiny coats. They are voracious nocturnal predators, consuming invertebrates, ground nesting birds' eggs and small reptiles. They also vector a wide variety of human, bird, pet and agricultural diseases, including bovine TB.



Department of Conservation

**Objective:** over the duration of the plan Auckland Council will manage hedgehogs (*Erinaceus europaeus*) to protect values in place to reduce adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is controlled within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

#### Rules:

- 7.1.2.5.1 No person shall move or allow to be moved any hedgehog to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.5.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.5.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

The purpose of rule 7.1.2.5.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.5.2 and 7.1.2.5.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Undertake incursion responses on hedgehog-free islands, in partnership with the Department of Conservation where appropriate.
Monitoring and surveillance	Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly hedgehog-free islands, to determine the presence of new incursions and status of existing or historical sites.
Education and advice	Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of hedgehogs to offshore islands.
Enforcement	Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.
Requirement to act	<p>All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All commercial transport operators within the Hauraki Gulf to obtain and maintain Pest Free Warrant status.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>

### 7.1.2.6 Mouse (*Mus musculus*)

Mice are small grey-brown or black rodent omnivores which can be found in almost every habitat type. They directly impact native reptile and invertebrate populations through predation but also indirectly, as a food source facilitating other invasive predators. Excessive consumption of seeds by mice can greatly reduce native seedling recruitment and potentially modify plant communities in invaded ecosystems. Mice are also particularly damaging to cereal production and the food services industry, attacking and contaminating stored produce at all stages.



Nga Manu Images

**Objective:** over the duration of the plan Auckland Council will manage mice (*Mus musculus*) to protect values in places to reduce adverse effects on the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga, as well as economic well-being, the environment, human health and enjoyment of the natural environment.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is managed within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

**Rules:**

- 7.1.2.6.1 No person shall move or allow to be moved any mouse to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.6.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.6.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.1.2.6.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.6.2 and 7.1.2.6.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

**Principal measures of achievement:**

Service delivery (control)	<p>Undertake incursion responses on mouse-free islands, in partnership with the Department of Conservation where appropriate.</p> <p>Consider management of the pest animal in biodiversity focus areas within the Hauraki Gulf Controlled Area to levels that enhance ecosystem function and resilience, and protect the values of the Hauraki Gulf Controlled Area.</p>
Monitoring and surveillance	<p>Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly mouse-free islands, to determine the presence of new incursions and status of existing or historical sites.</p>
Education and advice	<p>Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of mice to offshore islands.</p>
Enforcement	<p>Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.</p>
Requirement to act	<p>All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All commercial transport operators within Te Tīkapa Moana / the Hauraki Gulf to obtain and maintain Pest Free Warrant status.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>



### 7.1.2.7 Mustelids: Ferrets (*Mustela furo*), Stoats (*Mustela erminea*), and Weasels (*Mustela nivalis*)

Ferrets, stoats and weasels belong to a group of animals known as mustelids. Ferrets are the largest of the mustelids (600-1,300g) and can be distinguished by a dark 'mask' across their eyes. Stoats are smaller (200–350g) with orange-brown coats and a black tip at end of the tail. Weasels are the smallest (60–120g), with orange-brown coats and a uniformly brown tail.

Mustelids are bold generalist predators and can have devastating impacts on native birds, amphibians, reptiles, molluscs, and insects. Ferrets mostly threaten ground nesting birds while stoats and weasels have contributed to the decline and extinction of many forest birds, particularly cavity nesting species. Mustelids also vector a wide range of agricultural diseases including canine distemper and bovine tuberculosis (TB).



Stoat, Department of Conservation

**Objective:** over the duration of the plan Auckland Council will manage mustelids (*Mustela furo*, *Mustela erminea*, *Mustela nivalis*) to protect values in places to reduce adverse effects on the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga, as well as economic well-being, the environment, human health and enjoyment of the natural environment.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is managed within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

#### Rules:

- 7.1.2.7.1 No person shall move or allow to be moved any mustelid to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.7.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.7.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

The purpose of rule 7.1.2.7.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.7.2 and 7.1.2.7.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

### Principal measures of achievement:

Service delivery (control)	<p>Undertake incursion responses on mustelid-free islands, in partnership with the Department of Conservation where appropriate (see also Waiheke and Kawau eradications in sections 0 and 7.4).</p> <p>Manage the pest animal in and around biodiversity focus areas within the Hauraki Gulf Controlled Area to levels that enhance ecosystem function and resilience, and protect the values of the Hauraki Gulf Controlled Area.</p>
Monitoring and surveillance	<p>Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly mustelid-free islands, to determine the presence of new incursions and status of existing or historical sites.</p>
Education and advice	<p>Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of mustelids to offshore islands.</p>
Enforcement	<p>Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.</p>
Requirement to act	<p>All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All commercial transport operators within the Te Tīkapa Moana / the Hauraki Gulf to obtain and maintain Pest Free Warrant status.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>



### 7.1.2.8 Plague skink (*Lampropholis delicata*)

Also known as : rainbow skinks

Plague skinks are small brown lizards with an iridescent rainbow sheen to their scales visible under bright light. The skinks are generalist predators of a wide variety of invertebrates and are prevalent in suburban gardens, parks, disturbed sites, urban areas, open rocky land, farmland and scrub. They have higher reproductive rates and reach maturation faster than native skinks, reaching densities of 300-400 per 100m<sup>2</sup>. Such high population densities can result in plague skinks out-competing native reptiles, particularly native mokomoko kapa/ copper skinks.



**Objective:** over the duration of the plan Auckland Council will manage plague skinks (*Lampropholis delicata*) to protect values in place to reduce adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is controlled within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

#### Rules:

- 7.1.2.8.1 No person shall move or allow to be moved any plague skink to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.8.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.8.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

The purpose of rule 7.1.2.8.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.8.2 and 7.1.2.8.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Undertake incursion responses on plague skink-free islands, in partnership with the Department of Conservation where appropriate.
Monitoring and surveillance	Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly plague skink-free islands, to determine the presence of new incursions and status of existing or historical sites.
Education and advice	Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of skinks to offshore islands.
Enforcement	Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.
Requirement to act	<p>All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All commercial transport operators within the Te Tīkapa Moana / the Hauraki Gulf to obtain and maintain Pest Free Warrant status.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>

### 7.1.2.9 Possum (*Trichosurus vulpecula*)

Possums are small marsupials with thick bushy tails, weighing between 1.4-6.4kg and can be grey, brown or black in colour. Possums will prey on eggs and chicks of various threatened birds, including kōkako, and compete for nest sites with hole-nesting birds, such as kiwi and parakeets. Heavy selective browsing by possums can suppress or eliminate preferred plants. This can alter the vegetation composition in invaded ecosystems and ultimately lead to the collapse of palatable canopy species, such as Northern rātā. Possums are also considered serious agricultural pests. They are vectors for bovine TB in cattle and compete directly with stock for pasture.



Nga Manu Images

**Objective:** over the duration of the plan Auckland Council will manage possums (*Trichosurus vulpecula*) to protect values in place to reduce adverse effects on the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga, as well as economic well-being, the environment, human health and enjoyment of the natural environment.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is managed within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

#### Rules:

- 7.1.2.9.1 No person shall move or allow to be moved any possum to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.9.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.9.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

The purpose of rule 7.1.2.9.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.9.2 and 7.1.2.9.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

### Principal measures of achievement:

Service delivery (control)	Undertake incursion responses on possum-free islands, in partnership with the Department of Conservation where appropriate (see also section <a href="#">7.3.1</a> for eradication programme on Kawau, representing the last remaining possum population within the Hauraki Gulf Controlled Area).
Monitoring and surveillance	Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly possum-free islands, to determine the presence of new incursions and status of existing or historical sites.
Education and advice	Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of possums to offshore islands.
Enforcement	Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.
Requirement to act	<p>All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All commercial transport operators within Te Tīkapa Moana / the Hauraki Gulf to obtain and maintain Pest Free Warrant status.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>

### 7.1.2.10 Rabbits (*Oryctolagus cuniculus*) and hares (*Lepus europaeus*)

Rabbits and hares are small terrestrial herbivorous mammals. Rabbits are about the size of a small domestic cat, often grey-brown in colour. Hares are larger than rabbits and have black tipped ears. They will heavily browse native seedlings and low-growing native plants in open habitats, such as sand dunes and grasslands, suppressing threatened species and altering vegetation composition. As prey species, they indirectly contribute to increased predation pressure on native species by supporting populations of introduced predators, including unowned cats and mustelids. In agricultural systems, excessive browsing can cause major damage to pastures, with 7-10 rabbits estimated to eat as much as one sheep.



Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will manage pest rabbits<sup>37</sup> (*Oryctolagus cuniculus*) and hares (*Lepus europaeus*) to protect values in place to reduce adverse effects on the environment, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga, as well as economic well-being, the environment, human health and enjoyment of the natural environment.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is controlled within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

#### Rules:

- 7.1.2.10.1 No person shall move or allow to be moved any pest rabbit or hare to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.10.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.10.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

<sup>37</sup> Pest rabbit means any rabbit within the Hauraki Gulf Controlled Area that is not:

- i. One of the following breeds: New Zealand white, angora, Flemish giant, rex, chinchilla, Californian, Netherland dwarf, Dutch, tan, and silver fox; and
- ii. Securely contained

The purpose of rule 7.1.2.10.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.10.2 and 7.1.2.10.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	<p>Undertake incursion responses on rabbit-free islands, in partnership with the Department of Conservation where appropriate.</p> <p>Manage the pest animal in and around biodiversity focus areas within the Hauraki Gulf Controlled Area to levels that enhance ecosystem function and resilience, and protect the values of the Hauraki Gulf Controlled Area.</p>
Monitoring and surveillance	<p>Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly rabbit-free islands, to determine the presence of new incursions and status of existing or historical sites.</p>
Education and advice	<p>Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of rabbits to offshore islands.</p>
Enforcement	<p>Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.</p>
Requirement to act	<p>All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All commercial transport operators within the Te Tīkapa Moana / the Hauraki Gulf to obtain and maintain Pest Free Warrant status.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>



### 7.1.2.11 Rats: ship rats (*Rattus rattus*), Norway rats (*Rattus norvegicus*), kiore<sup>38</sup> (*R. exulans*)

Rats are small black, grey or brown mammals with naked tails. Rats occupy a wide range of terrestrial habitats throughout Aotearoa / New Zealand. Rats are generalist omnivores; their diet includes seed predation and preying on small animals such as invertebrates, reptiles, amphibians and juvenile birds. They compete with native birds for nests and burrows, and have been implicated in the decline of a number of threatened birds, particularly seabirds. Excessive consumption of seeds by rats can greatly reduce native seedling recruitment and ultimately modify plant communities in invaded ecosystems. Rats are particularly damaging to cereal production, stored products and the food services industry, and are a potential disease vector to humans.



Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will manage rats (*Rattus rattus*, *Rattus norvegicus*, *Rattus exulans*) to protect values in places to reduce adverse effects on the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga, as well as economic well-being, the environment, human health and enjoyment of the natural environment.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is controlled within the Hauraki Gulf Controlled Area to an extent that protects the values of that place.

#### Rules:

- 7.1.2.11.1 No person shall move or allow to be moved any rat to or within the Hauraki Gulf Controlled Area (as defined in Map 2).
- 7.1.2.11.2 All commercial transport operators moving goods or people to or among Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.2.11.3 All persons intending to move a building to or among islands in the Hauraki Gulf Controlled Area must notify Auckland Council at least ten working days prior to movement, to arrange inspection and approval by Auckland Council.

<sup>38</sup> Council acknowledges that kiore are culturally significant for mana whenua and the need for operational engagement with mana whenua where relevant.



The purpose of rule 7.1.2.11.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.1.2.11.2 and 7.1.2.11.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	<p>Undertake incursion responses on rat-free islands, in partnership with the Department of Conservation where appropriate (see also sections 7.3 and 7.4 for Kawau and Waiheke eradications).</p> <p>Manage the pest animal in and around biodiversity focus areas within the Hauraki Gulf Controlled Area to levels that enhance ecosystem function and resilience, and protect the values of the Hauraki Gulf Controlled Area.</p>
Monitoring and surveillance	<p>Undertake inspections of buildings and other risk goods to prevent movement of the pest animal. Undertake monitoring and surveillance of key risk areas, particularly rat-free islands, to determine the presence of new incursions and status of existing or historical sites.</p>
Education and advice	<p>Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental introduction of rats to offshore islands.</p>
Enforcement	<p>Enforce conditions of movement within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.</p>
Requirement to act	<p>All persons intending to move a building to or among Te Tīkapa Moana / the Hauraki Gulf islands to notify Auckland Council at least ten working days prior to intended date of movement, and to provide access for inspection within two working days prior to the date of movement.</p> <p>All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.</p>

### 7.1.3 Te noho wātea o te kitakita orotā / Exclusion pest pathogens

At the time of writing<sup>39</sup>, kauri dieback is not known from Hauraki Gulf islands, with the exception of Aotea / Great Barrier. There is no known cure for kauri dieback disease, and once present in a catchment it is difficult to contain spread of the disease. For these reasons, keeping kauri dieback off these defensible islands is a top regional priority. See also the Kohukohunui / Hunua exclusion zone (Section 7.5.4.) and Sustained Control programme for the remainder of the region (Section 7.7.5.2).

#### 7.1.3.1 Kauri dieback disease (*Phytophthora agathidicida*)

Symptomatic kauri trees infected with kauri dieback disease exhibit root and collar rot, resin-exuding lesions, yellowing of leaf tissue, canopy thinning and mortality. Human-mediated movement of contaminated soil is the main cause of jump-dispersal between kauri forests but it can be spread locally by feral pigs. The disease can be incurably fatal to kauri trees of all ages and, in the absence of effective treatment, has mid to long-term potential to cause functional extinction of kauri as a canopy species. Kauri are ecosystem engineers, with profound effects on soil chemistry, and associated plant and animal communities. Consequently there is a potential for catastrophic loss of associated unique ecosystems.



**Objective:** over the duration of the plan Auckland Council will exclude kauri dieback (*Phytophthora agathidicida*) from establishing within kauri dieback exclusion zones (as identified in Map 5) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of kauri dieback within kauri dieback exclusion zones.

#### Rules:

- 7.1.3.1.1 No person shall distribute, move or release kauri dieback disease in the Auckland region.
- 7.1.3.1.2 No person shall move untreated kauri plant material to or among Hauraki Gulf Controlled Area islands, unless the purpose of the movement is to dispose of the material at an approved Auckland Council containment landfill<sup>40</sup>.

<sup>39</sup> 1 February 2019

<sup>40</sup> Approved at time of writing:

- 7.1.3.1.3 All commercial transport operators moving goods or people to or among Te Tikapa Moana / the Hauraki Gulf Islands must attain and maintain Pest Free Warrant accreditation.
- 7.1.3.1.4 All occupiers of a commercial passenger boat or aircraft exit or entry point to the Hauraki Gulf Controlled Area islands must:
- i. provide information, supplied by Auckland Council, to passengers about kauri dieback disease;
  - ii. provide space for an Auckland Council-maintained phytosanitary station for passengers to use to prevent the spread of kauri dieback disease.

The purpose of rule 7.1.3.1.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.1.3.1.2 and 7.1.3.1.3 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

The purpose of rule 7.1.3.1.4 is to require the occupier of a place to carry out specified treatments or procedures to assist in preventing the spread of the pest.

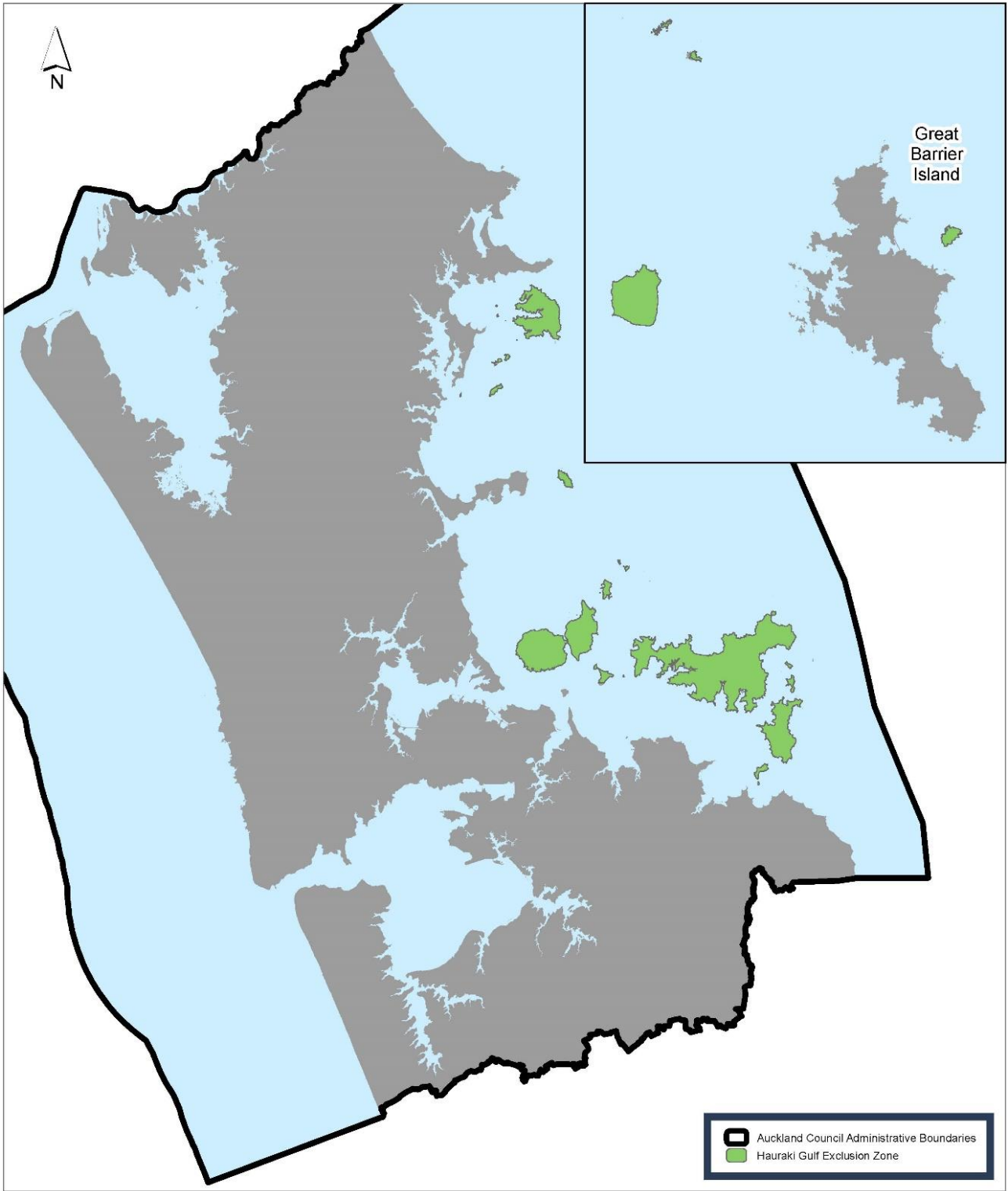
A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

- 
1. Ridge Road Quarries, Ridge Road, Bombay (accepts soil only)
  2. EnviroWaste Hampton Downs Landfill, 136 Hampton Downs Road, RD2, Te Kauwhata (accepts soil and organic material).
  3. Waste Management's Redvale Landfill, Landfill Access Road, Dairy Flat (the use of a bin liner is required at this landfill) – accepts soil and organic matter.

*Other facilities may be approved over the lifetime of the plan. Updates, if any, to the list of approved landfills may be obtained on enquiry to Auckland Council.*

### Principal measures of achievement:

Service delivery (control)	<p>Provide and maintain phytosanitary stations at key entry and exit points to Te Tīkapa Moana / the Hauraki Gulf islands.</p> <p>Enter any property within the specified geographic area of the programme and carry out management of this species.</p> <p>Manage known vectors, including feral pigs.</p>
Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance, to determine the presence of new incursions and status of existing or historical sites. Specifically, improve understanding of disease absence (or presence) in non-symptomatic areas.</p> <p>Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across kauri lands.</p>
Enforcement	<p>Enforce restrictions on the movement of the pest and kauri plant material.</p> <p>Enforce requirements for phytosanitary stations at entry and exit points to Te Tīkapa Moana / the Hauraki Gulf.</p> <p>Enforce conditions of transport within the Hauraki Gulf Controlled Area, including Pest Free Warrant accreditation for all commercial transport operators.</p>
Education and advice	<p>Provide information and advice on identification and impacts of kauri dieback, and how to avoid spreading the pest.</p>
Requirement to act	<p>All persons to take practicable steps to avoid transport and distribution of kauri dieback e.g. ensure all footwear and other equipment are free of soil, especially when exiting areas known to be infected with kauri dieback disease or entering any island.</p> <p>Land occupiers of commercial entry or exit points to Te Tīkapa Moana / the Hauraki Gulf to make information available to all customers, and to allow Auckland Council to install and maintain phytosanitary stations.</p> <p>Persons moving kauri to or among Te Tīkapa Moana / the Hauraki Gulf islands to apply for an exemption (subject to hygiene status of source) or substitute with on-island sources.</p>
Research and development	<p>Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, and ecological impacts of kauri dieback disease on kauri and its ecosystem.</p>



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**Kauri Dieback**  
**Hauraki Gulf Exclusion Zone**

0 2.5 5 7.5  
 Kilometers  
**Scale @ A4**  
 = 1:600,000  
**Date Printed:**  
 1/16/2020



**Map 5 Hauraki Gulf kauri dieback exclusion zone.**

## 7.1.4 Aukati haere noa i te tupu orotā / Progressive containment pest plants

Rhamnus is too widespread in the Hauraki Gulf Controlled Area for eradication to be possible in the short term, but populations may be contained or reduced over time. Given this species' substantial impacts in these coastal ecosystems, intervention to prevent more extensive spread within the Hauraki Gulf is likely to be cost effective.

### 7.1.4.1 Rhamnus (*Rhamnus alaternus*)

Also known as: evergreen buckthorn

Rhamnus is an evergreen shrub up to about 5m high with glossy serrated leaves, small green flowers and dark glossy red or black fruit. It forms dense stands, preventing the recruitment of native plants in scrublands, forest margins and plantations. It will also act as low scrub on coastal cliffs, inshore and offshore islands and rocky outcrops.



**Objective:** over the duration of the plan Auckland Council will progressively contain rhamnus (*Rhamnus alaternus*) to reduce adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of rhamnus, within the Hauraki Gulf Controlled Area over time.

#### Rules:

7.1.4.1.1 All occupiers of any land within the Hauraki Gulf Controlled Area (as defined in Map 2) who identify an infestation of rhamnus on that land must report the infestation to Auckland Council.

The purpose of this rule is to require a person to take specified actions to enable the management agency to determine or monitor the presence or distribution of the pest or a pest agent.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites. Undertake inspections, monitoring and surveillance of nurseries, markets and online plant trade.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.
Requirement to act	Land occupiers to report suspected new infestations.



## 7.1.5 Wāhi whai tupu orotā / Site-led pest plants

These site-led pest plants are plants present in the Hauraki Gulf Controlled Area that cause adverse effects to the environmental, economic, social or cultural values of the Hauraki Gulf Controlled Area. The following programmes provide for these species to be controlled to protect the values of these islands.

### 7.1.5.1 Boxthorn (*Lycium ferocissimum*)

Boxthorn is a densely branched and spiny evergreen shrub up to 6m tall with creamy purple flowers and fleshy red fruit. It is a pest plant in coastal habitats; inhibiting the regeneration of native plants, ensnaring seabirds and impeding access to nesting sites. Spines can become imbedded in bone or soft tissue, resulting in infection and pseudo-tumours.



**Objective:** over the duration of the plan Auckland Council will manage boxthorn (*Lycium ferocissimum*) to protect values in places to prevent adverse effects on the economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to the Hauraki Gulf Controlled Area, is controlled within that area to an extent that protects the values of Te Tīkapa Moana / the Hauraki Gulf.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites. Undertake inspections, monitoring and surveillance of nurseries, markets and online plant trade.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

### 7.1.5.2 Moth plant (*Araujia hortorum*)

Moth plant is a perennial climber with scrambling stems, glossy leaves, white or pale pink flowers borne in clusters or singly, and fleshy pear-shaped fruit. It smothers and kills plants up to medium-high canopy, preventing recruitment in forest, coastline, cliffs, shrublands, mānawa/mangroves, inshore and offshore islands, orchards and disturbed habitats. Based on its life-form, there can be long-term potential for catastrophic impacts on forest structure. Milky latex in stems, leaves and roots are poisonous and cause dermatitis.



**Objective:** over the duration of the plan Auckland Council will manage moth plant (*Araujia hortorum*) to protect values in place to reduce adverse effects on the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga, as well as economic well-being, the environment, human health and enjoyment of the natural environment.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Waiheke and Rākino islands is controlled within Waiheke and Rākino islands to an extent that protects the values of those places.

Note: although contained within the Hauraki Gulf Controlled Area section of the plan, this moth plant programme applies only on Waiheke and Rākino, reflecting the relatively lower infestations on these islands, and past history of investment relative to other islands (though see also eradication programme on Aotea in section 7.2.3). The Department of Conservation manages moth plant on its own islands outside of this Regional Pest Management Plan framework.

#### Rules:

7.1.5.2.1 All occupiers of land on Waiheke or Rākino island must destroy all moth plant on that land.

The purpose of rule 7.1.5.2.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

### Principal measures of achievement:

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce land occupier responsibility to control the pest plant pursuant to the rules in this section. Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.
Requirement to act	Land occupiers to destroy plants when instructed.

## 7.2 Aotea / Great Barrier Island Group

E mau tonu ana i ngā moutere o Aotea te rahi o ngā uara kanorau-koiora o te rohe, mai i te noho kāinga mō te tāiko me te pāteke. Hei tohu o te hiranga nui o te āhua taketake tuku iho me te noho ārai o te matawhenua o te kāhui moutere o Aotea, tērā tēnei RPMP te tohi motuhake me te whakanui i a Aotea me ngā motu iti e horapa ana i a ia, ki ētahi momo hōtaka e aro nei ki te whakaiti iho i tō rātou pokea e te tipu orotā, i runga atu i te para huarahi hei aukati, kei uru atu he raru hōu.

Aotea / Great Barrier island group has retained some of the region's highest biodiversity values, including being home to threatened species such as the tāiko / black petrel and pāteke / brown teal. In recognition of Aotea / Great Barrier island group's outstanding natural heritage and defensible geography, this RPMP gives special recognition to Aotea / Great Barrier and the surrounding smaller islands in this group, through a range of programmes targeting low incidence pest plants for control, as well as managing pathways to prevent new incursions.

In addition to those species identified below in section 7.2, Hauraki Gulf-wide programmes may also be used specifically to protect Aotea / Great Barrier. For instance under section 7.1.2.1, bringing a rat to Aotea / Great Barrier is not allowed, and Council may undertake an incursion response if Norway rats are detected on Aotea / Great Barrier. Similarly, region-wide pest plant eradication programmes (such as old man's beard) apply equally on Aotea / Great Barrier as they do elsewhere in the region. Council may also undertake incursion responses on Aotea / Great Barrier for additional species outside of this Regional Pest Management Plan if deemed appropriate.



Aotea / Great Barrier island group



## 7.2.1 Te noho wātea o te kararehe orotā / Exclusion pest animals

These exclusion pest animals are potential pests which are not known to be established in the Aotea / Great Barrier island group. These pest animals all have the potential to establish on Aotea / Great Barrier island group and are capable of causing adverse effects to the island's environmental, economic, human health, social or cultural values. Early intervention to manage pathways and respond in the event of incursions is a cost effective approach to prevent or minimise future costs of these pests within the high ecological value island group.

### 7.2.1.1 Bearded dragon (*Amphibolurus barbatus* syn. *Pogona barbata*)

Also known as: coastal or eastern bearded dragon

Bearded dragons are grey-brown reptiles, between 55-58cm long and throats covered with distinctive spiny scales which can be raised to form a black "beard". As opportunistic omnivores, bearded dragons are likely to prey on native invertebrates and compete for food and resources with native lizards and birds. There is added potential for disease transmission to native reptiles (e.g. adenovirus infections, skin conditions). Bites to humans may cause prolonged swelling and bleeding with the risk of disease transmission to humans.



**Objective:** over the duration of the plan Auckland Council will exclude bearded dragons (*Pogona barbata*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "exclusion" which means to prevent the establishment of bearded dragons on the Aotea / Great Barrier island group.

#### Rules:

- 7.2.1.1.1 No person shall move or allow to be moved any bearded dragon to Great Barrier island group.
- 7.2.1.1.2 No person shall breed bearded dragons on Great Barrier island group.
- 7.2.1.1.3 No person shall distribute or release (or cause to be released or distributed), any bearded dragon on Great Barrier island group.

The purpose of rules 7.2.1.1.1 and 7.2.1.1.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.2.1.1.2 is to regulate activities that may affect measures taken to implement the plan.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.
Requirement to act	Pet owners to ensure secure containment and prevent breeding.

### 7.2.1.2 Blue-tongued skink: common (*Tiliqua scincoides*) and blotched (*T. nigrolutea*)

Blue-tongued skinks are lizards up to 40-70cm long with distinctive blue tongues. They can either have dark bands around the body (common) or are mostly black with varying amounts of light brown, grey, yellow or orange blotches (blotched). They are likely to prey on native invertebrates, smaller lizards, birds and their eggs, and may compete with native species for food and other resources. There is further potential for disease and parasite transmission to other reptiles.



JJ Harrison

**Objective:** over the duration of the plan Auckland Council will exclude blue-tongued skinks (*Tiliqua scincoides* and *Tiliqua nigrolutea*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of blue-tongued skinks on the Aotea / Great Barrier island group.

#### Rules:

- 7.2.1.2.1 No person shall move or allow to be moved any blue-tongued skinks to Great Barrier island group.
- 7.2.1.2.2 No person shall breed blue-tongued skinks on Great Barrier island group.
- 7.2.1.2.3 No person shall distribute or release (or cause to be released or distributed), any blue-tongued skinks on Great Barrier island group.

The purpose of rules 7.2.1.2.1 and 7.2.1.2.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.2.1.2.2 is to regulate activities that may affect measures taken to implement the plan.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.



**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.
Requirement to act	Pet owners to ensure secure containment and prevent breeding.

### 7.2.1.3 Brown bullhead catfish (*Ameiurus nebulosus* syn. *Ictalurus nebulosus*)

Brown bullhead catfish are scaleless dark brown to olive green fish which are most easily distinguished by eight whiskery barbels around the mouth. Adults can grow up to 250-500mm long. They are opportunistic generalist feeders, which have been documented eating common bullies as well as a wide range of invertebrates including kōura. Their presence in wai māori / freshwater bodies can contribute to poor water clarity by extensive consumption of zooplankton, thereby exacerbating algal blooms. Bottom feeding can also cause the re-suspension of sediment and up-rooting of submerged aquatic plants. These impacts can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton.



Stephen Moore

**Objective:** over the duration of the plan Auckland Council will exclude brown bullhead catfish (*Ameiurus nebulosus*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "exclusion" which means to prevent the establishment of brown bullhead catfish on the Aotea / Great Barrier island group.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible fishing as well as identification, impacts and control of the pest animal.

### 7.2.1.4 Canadian goose (*Branta canadensis*)

Canadian geese are large (4.5-5.5kg) light brown birds with black heads and white chinstraps. They can be very aggressive towards other wildlife; potential impacts on co-occurring bird species can include displacement from territories and mortality. Goose grazing on pastures can be at levels of appreciable economic impact but tend to be concentrated heavily on farms with the most suitable habitat. Canadian geese pose a high risk of bird strike at airports due to their substantial body size. Faecal contamination of water bodies, pasture and crops with pathogens such as *Salmonella* and *Escherichia coli*, including antibiotic-resistant strains, may pose a risk to human health.



**Objective:** over the duration of the plan Auckland Council will exclude Canadian geese (*Branta canadensis*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of Canadian geese on the Aotea / Great Barrier island group.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on identification, impacts and control of the pest animal.

### 7.2.1.5 Eastern rosella (*Platycercus eximius*)

Eastern rosellas are brightly coloured parakeets approximately 30cm long and 90-120g in weight, with red heads, white cheeks and mostly yellow-green bodies. They are seed predators, consuming seeds from a range of native plants including harakeke, tōtara and pōhutukawa, and nectar from pūriri and other native plants. They are also implicated as a reservoir for transmission of Beak and Feather Disease Virus to native parrot species, which is likely to pose a higher risk as rosellas increase in range and population density.



**Objective:** over the duration of the plan Auckland Council will exclude eastern rosellas (*Platycercus eximius*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of eastern rosellas on the Aotea / Great Barrier island group.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the release of the pest animal outside of containment.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.

### 7.2.1.6 Eastern water dragon (*Intellagama lesueurii* syn. *Physignathus lesueurii lesueurii*)

Eastern water dragons are large lizards with brownish-grey bodies and black stripes along the ridge of the back, tail and limbs. Males are up to 1kg in weight and 80-90cm long. Females are shorter and lighter. They are likely to prey on a wide range of small terrestrial, freshwater and inter-tidal fauna, including insects, crabs, molluscs and crustaceans, and may impact upon native plants via herbivory. There is further potential to spread diseases such as Salmonella to native reptiles.



Margaret Stanley

**Objective:** over the duration of the plan Auckland Council will exclude eastern water dragons (*Intellagama lesueurii*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of eastern water dragons on the Aotea / Great Barrier island group.

**Rules:**

- 7.2.1.6.1 No person shall move or allow to be moved any eastern water dragon to Great Barrier island group.
- 7.2.1.6.2 No person shall breed eastern water dragons on Great Barrier island group.
- 7.2.1.6.3 No person shall distribute or release (or cause to be released or distributed), any eastern water dragon on Great Barrier island group.

The purpose of rules 7.2.1.6.1 and 7.2.1.6.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.2.1.6.2 is to regulate activities that may affect measures taken to implement the plan.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.
Requirement to act	Pet owners to ensure secure containment and prevent breeding.

### 7.2.1.7 Galah (*Eolophus roseicapillus*)

Galahs are colourful parrots weighing up to 325g, with white crowns, grey wings and pink chests. They are ground feeding granivores, but will also eat buds, flowers, berries and insect larvae. They may compete with native hole-nesting birds for nest cavities and act as reservoirs or vectors of wildlife diseases and human pathogens. Galahs are a major pest of grain crops in Australia. The impact on grain crops is likely to worsen if galah populations increase in Tāmaki Makaurau / Auckland.



**Objective:** over the duration of the plan Auckland Council will exclude galahs (*Eolophus roseicapillus*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of galahs on the Aotea / Great Barrier island group.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the release of the pest animal outside of containment.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.



### 7.2.1.8 *Gambusia* (*Gambusia affinis*)

*Gambusia* are small (3.5-6cm), silver fish which occupy shallow margins of still or slow moving water bodies including lakes, wetlands, ponds and streams. *Gambusia* prey on zooplankton, eggs and larvae of fish, and a diverse range of aquatic and terrestrial macroinvertebrates. This can induce avoidance behaviours such as changes in habitat use in a range of native fish and crustaceans. Their presence in wai māori / freshwater bodies can contribute to poor water clarity by altering patterns of nutrient cycling via the consumption of zooplankton, subsequently exacerbating algal blooms.



Stephen Moore

**Objective:** over the duration of the plan Auckland Council will exclude *Gambusia affinis* from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of *Gambusia affinis* on the Aotea / Great Barrier island group.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible fishing as well as identification, impacts and control of the pest animal.

### 7.2.1.9 Pest goldfish (*Carassius auratus*)

Pest goldfish are small-medium sized (100-400g) fish which may vary in colour, from red-gold, bronze-black through to olive-green. Pest goldfish are generalist feeders consuming aquatic plants, algae, insects, crustaceans, small fish and fish eggs; potentially competing with native fish for resources. The predation of zooplankton, up-rooting of aquatic plants and re-suspension of nutrients and sediments into the water column may contribute to reduced water clarity and algal blooms in invaded wai māori / freshwater ecosystems.



**Objective:** over the duration of the plan Auckland Council will exclude pest goldfish<sup>41</sup> (*Carassius auratus*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of goldfish on the Aotea / Great Barrier island group.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, distribution, breeding and release of the pest animal outside of containment.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.
Requirement to act	Pet owners required to effectively contain goldfish.

<sup>41</sup> A pest goldfish means any goldfish that is not:

- a) held in effective containment on private land; or
- b) otherwise constrained in an enclosed water body on private land.

### 7.2.1.10 Indian ring-necked parakeet (*Psittacula krameri*)

Indian ring-necked parakeets are green parrots (38-42cm long) with a red band (males) or an indistinct emerald band (females) encircling their necks. They are highly aggressive to other species, including native birds and small mammals such as bats, and have the potential to competitively exclude other cavity-nesting species through eviction, early occupancy and successful defence of cavities. They pose further risk to native parrots as potential vectors of disease, including Beak and Feather Disease Virus. Overseas, Indian ring-necked parakeets are considered primary production pests and can cause economically significant damage to grain crops such as maize and may also attack fruit in orchards such as citrus, guava and grapes.



**Objective:** over the duration of the plan Auckland Council will exclude Indian ring-necked parakeets (*Psittacula krameri*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of Indian ring-necked parakeets on the Aotea / Great Barrier island group.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the release of the pest animal outside of containment.
Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.

### 7.2.1.11 Koi carp (*Cyprinus carpio*)

Koi carp are an ornamental strain of common carp measuring up to 700mm long, variable in colour but can be distinguished by the presence of a pair of barbels. Koi carp can negatively impact submerged aquatic plant communities via plant uprooting and reduced light penetration, and alter invertebrate communities via predation and habitat modification. Waterfowl, native fish and kōura are also at risk from increased water turbidity, due to koi carp stirring sediment when feeding, and resource competition. Invasion may contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton.



Stephen Moore

**Objective:** over the duration of the plan Auckland Council will exclude koi carp (*Cyprinus carpio*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "exclusion" which means to prevent the establishment of koi carp on the Aotea / Great Barrier island group.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible fishing as well as identification, impacts and control of the pest animal.

**7.2.1.12 Monk parakeet (*Myiopsitta monachus*)**

Also known as: Quaker parrots

Monk parakeets are medium sized greenish-grey parrots weighing between 90-120g. They will feed on vegetables, orchard fruit, and grain crops (e.g. maize and sunflower seeds) resulting in substantial crop losses and control efforts overseas. Native birds may be at risk via competition for food and disease transmission, and native vegetation may be impacted via feeding damage and herbivory. Monk parakeets will build chambered nests that may exceed 1000kg; nesting on power line poles, satellite dishes and other utility structures resulting in power outages, fires, and considerable time and money spent removing nests and repairing damage.



Murray Foubister

**Objective:** over the duration of the plan Auckland Council will exclude monk parakeets (*Myiopsitta monachus*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of monk parakeets on the Aotea / Great Barrier island group.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the release of the pest animal outside of containment.
Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.

### 7.2.1.13 Perch (*Perca fluviatilis*)

Perch are olive green-grey fish (< 1kg) with six or more dark vertical bands across their sides. They can contribute to poor water clarity via the consumption of zooplankton, thereby exacerbating algal blooms. Feeding habits can also cause the re-suspension of sediment and up-rooting of submerged aquatic plants. Combined effects of zooplankton feeding and bottom feeding habits can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton. Perch presence has been associated with reduced abundance of common bullies, and impacts are likely on other native fish such as tuna (eels), Īnanga, galaxiids and paraki/smelt through predation, aggressive attacks and competition for prey.



**Objective:** over the duration of the plan Auckland Council will exclude perch (*Perca fluviatilis*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "exclusion" which means to prevent the establishment of perch on the Aotea / Great Barrier island group.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible fishing as well as identification, impacts and control of the pest animal.



### 7.2.1.14 Rainbow lorikeet (*Trichoglossus haematodus*)

Rainbow lorikeets are brightly coloured long-tailed parrots (75-157g), with blue heads, green wings and orange-yellow breasts. They are potential reservoirs for transmission of parrot-specific diseases to native parrots. Beak and Feather Disease Virus has been recorded in captive rainbow lorikeets in Aotearoa / New Zealand. They aggressively out-compete native nectar feeding avifauna including tūī, kōmakobellbird and hihi. These combined effects make them a threat to Tīkapa Moana / Hauraki Gulf islands habitats such as Hauturu / Little Barrier Island and Tiritiri Matangi Island. Unwanted Organism managed by the Department of Conservation and Ministry of Primary Industries as a National Interest Pest Response.



**Objective:** Over the duration of the plan Auckland Council will exclude rainbow lorikeets (*Trichoglossus haematodus*) from establishing on the Great Barrier Island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of rainbow lorikeets on the Aotea / Great Barrier island group.

#### Principal measures of achievement:

Service delivery (Control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and Surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the release of the pest animal outside of containment.
Education and Advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.



### 7.2.1.15 Red-eared slider (*Trachemys scripta elegans*, *T. scripta scripta*, *T. scripta troostii*)

Red-eared sliders are turtles with olive to brown carapaces patterned with yellow spots or stripes, and a distinctive red stripe behind each eye. They inhabit a wide variety of still or slow-moving water bodies including ponds, lakes, wetlands, rivers and drainage ditches. As opportunistic omnivores, potential impacts are likely via herbivory and the predation of zooplankton, molluscs, fish, frogs, crustaceans, insects, gastropods, birds and small reptiles. There are further risks to native reptiles and amphibians via disease transmission. Wetland bird reproductive success may be impacted through the displacement of parent birds from nests to use as basking sites. Feeding habits and associated activities are likely to result in food-web and ecosystem process impacts, and reduced water quality in invaded habitats.



© Rod Morris, Department of Conservation

**Objective:** over the duration of the plan Auckland Council will exclude red-eared sliders and related sub-species (*Trachemys scripta elegans*, *T. scripta scripta*, *T. scripta troostii*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of red-eared slider turtles on the Aotea / Great Barrier island group.

**Rules:**

7.2.1.15.1 No person shall move or allow to be moved any red-eared slider to Great Barrier island group.

7.2.1.15.2 No person shall breed red-eared slider on Great Barrier island group.

7.2.1.15.3 No person shall distribute or release (or cause to be released or distributed), any red-eared slider on Great Barrier island group.

The purpose of rules 7.2.1.15.1 and 7.2.1.15.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.2.1.15.2 is to regulate activities that may affect measures taken to implement the plan.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.
Requirement to act	Pet owners to ensure secure containment and prevent breeding.

### 7.2.1.16 Rudd (*Scardinius erythrophthalmus*)

Rudd are fish with bright red fins, usually 200-250mm as adults, but can be larger. Extensive herbivory can negatively affect aquatic plant growth, survival and community composition, sometimes leading to aquatic plant collapse in lakes. Some high impact aquatic weeds, including hornwort, are selectively avoided by rudd and may thus be further competitively advantaged. They may compete with native fish such as paraki/smelt and common bullies for invertebrate prey. Facilitation of nutrient and sediment suspension in the water column and predation of zooplankton by rudd can contribute to regime shifting of lakes from clear to turbid states.



Stephen Moore

**Objective:** over the duration of the plan Auckland Council will exclude rudd (*Scardinius erythrophthalmus*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of rudd on the Aotea / Great Barrier island group.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible fishing as well as identification, impacts and control of the pest animal.

### 7.2.1.17 Snake-neck turtle (*Chelodina longicollis*)

Snake-neck turtles are medium-sized turtles with characteristically long necks (approximately 60% of the shell length). They are likely to prey on a range of zooplankton, aquatic and terrestrial invertebrates, amphibians, carrion, fish and crustaceans. Snake-neck turtles can dig nesting burrows in the ground which may disturb gardens, golf courses, gravel roads and other recreational land. They are carriers of *Salmonella* and risk transmitting the disease to native reptiles and humans.



**Objective:** over the duration of the plan Auckland Council will exclude snake-neck turtles (*Chelodina longicollis*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of snake-neck turtles on the Aotea / Great Barrier island group.

**Rules:**

7.2.1.17.1 No person shall move or allow to be moved any snake-neck turtle to Great Barrier island group.

7.2.1.17.2 No person shall breed snake-neck turtles on Great Barrier island group.

7.2.1.17.3 No person shall distribute or release (or cause to be released or distributed), any snake-neck turtle on Great Barrier island group.

The purpose of rules 7.2.1.17.1 and 7.2.1.17.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.2.1.17.2 is to regulate activities that may affect measures taken to implement the plan.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.
Requirement to act	Pet owners to ensure secure containment and prevent breeding.

### 7.2.1.18 Sulphur-crested cockatoo (*Cacatua galerita*)

Sulphur-crested cockatoos are large stocky white parrots with a forward-curving yellow crest. In the Tāmaki Makaurau / Auckland region farmers have reported damage to pecan nuts, walnuts, feijoas, and plum crops but cockatoos have also been recorded damaging various cereal crops nationally. Birds will often attack kauri, rimu and other species, stripping bark, eating the growing tips, seed, flowers and fruit, and digging into the trees with their beaks. There is also a potential risk the cockatoos will spread Psittacine Beak and Feather Disease to native parrots.



**Objective:** over the duration of the plan Auckland Council will exclude sulphur-crested cockatoos (*Cacatua galerita*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of sulphur-crested cockatoos on the Aotea / Great Barrier island group.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the release of the pest animal outside of containment.
Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.

### 7.2.1.19 Tench (*Tinca tinca*)

Tench are olive green-bronze fish (30-70cm), distinguished by red eyes, two barbels, large soft-rayed fins and copious mucous. They can contribute to poor water clarity via the consumption of zooplankton, thereby exacerbating algal blooms. Bottom feeding also causes the re-suspension of sediment and up-rooting of submerged macrophytes. These combined effects can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton. Indirect effects to native fish species diversity via transmission of parasites, reduced water clarity, and/or competition for invertebrate prey are also likely.



**Objective:** over the duration of the plan Auckland Council will exclude tench (*Tinca tinca*) from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "exclusion" which means to prevent the establishment of tench on the Aotea / Great Barrier island group.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on responsible fishing as well as identification, impacts and control of the pest animal.



## 7.2.2 Te noho wātea o te tupu orotā / Exclusion pest plants

These exclusion pest plants are potential pests which are not known to be established in the Aotea / Great Barrier island group. These pest plants all have the potential to establish on the Aotea / Great Barrier island group and are capable of causing adverse effects to the island's environmental, economic, human health, social or cultural values. Early intervention to manage pathways and respond in the event of incursions is a cost effective approach to prevent or minimise future costs of these pests within the high ecological value island group. Council will undertake active surveillance across the Aotea / Great Barrier island group to detect new pest plant incursions. Council may, at its discretion, undertake incursion responses to species other than those listed in the following section.

**Objective:** over the duration of the plan Auckland Council will exclude the pest plants specified below from establishing on the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "exclusion" which means to prevent the establishment of the pest plants specified below on the Aotea / Great Barrier island group.

### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on identification and impacts of the pest plant, and how to avoid spreading aquatic pest plants.

### Alligator weed (*Alternanthera philoxeroides*)

Alligator weed is a perennial emergent aquatic bottom-rooted herb forming extensive floating mats on the water's surface but can also grow terrestrially, preferring damp ground. The dense mats can alter aquatic habitat structure (e.g. water flow, light penetration), alter invertebrate community composition and reduce native plant cover and diversity in wetlands and margins of water bodies. It will also displace valuable pasture species and block drainage channels, exacerbating flooding on farmland.



### Brazilian rattlebox (*Sesbania punicea*)

Brazilian rattlebox is a deciduous shrub or small tree with red-orange flowers in showy inflorescences late spring-autumn and long winged seed pods. It will form dense almost monospecific stands, competitively excluding native plant species in perennial wetlands and watercourses, pasture, forest and scrub ecosystems. Dense growth in watercourses impedes water flow, exacerbates flooding, bank destabilisation and erosion, and can impede human access to watercourses. As a nitrogen fixing plant, it also has the potential to alter nutrient cycling regimes in invaded habitats.



Eric Hunt

### *Clematis flammula*

*Clematis flammula* is a deciduous perennial woody climber, reaching up to 5-6m with white flowers between January and March and hairy plumed seeds. It has a smothering climbing habit and moderate shade tolerance therefore scrub and bush margins are most at risk of invasion, including in coastal areas. Uncertain to what extent intact forest is at risk. Closely related plants are highly invasive.



### Eel grass (*Vallisneria australis*)

Eel grass is a bottom-rooted freshwater aquatic plant with strap-like leaves up to 5.5m long. Male flowers consist of large pollen-filled sacs produced at the base of mature plants. Female flowers are small and green and produced on the end of a very long, spirally coiled stalk that can extend to the water's surface. It is capable of forming dense stands which may displace other submerged plant species in suitable wai māori / freshwater habitats. These stands have the potential to impede drainage, exacerbating flooding, and impede recreational water uses. Entanglement in the pest plant can lead to drowning.



### Elodea (*Elodea canadensis*)

Elodea is a submerged, bottom-rooting freshwater aquatic plant up to 5m tall, with small white and purple flowers borne at the surface of the water from November to January. It can reduce flow velocity and impede gas exchange in wai māori / freshwater ecosystems resulting in lowered dissolved oxygen levels and increased sedimentation. It may also impede water flow in drains, exacerbating flooding.



### Hornwort (*Ceratophyllum demersum*)

Hornwort is a perennial submerged aquatic plant up to 7m tall which can be anchored to sediment by stems, or forms free-floating mats. Leaves are 10-40mm long, narrow, branched and whorled forming complex architecture. Hornwort forms dense monospecific stands which can displace all native submerged vegetation down to 15m depth. The dense stands alter water flow, increase flooding risk and impede recreational access of waterbodies. Because it can grow to greater depths than other aquatic pest plants, it is the species likely to have greatest impacts on deep-water charophyte meadows. Kōura are also likely to be especially impacted due to requirement for open habitat.



Rohan Wells, NIWA

### Lagarosiphon/ oxygen weed (*Lagarosiphon major*)

Oxygen weed is a bottom-rooted submerged perennial aquatic herb with downward curving leaves, arranged in spirals on the stem. It is capable of forming dense stands; displacing native aquatic herb species, altering habitat availability for fish and invertebrates, and affecting dissolved oxygen levels by reducing gas exchange. The stands also can impede recreational water access to water bodies.



Rohan Wells, NIWA

### Mickey Mouse plant (*Ochna serrulata*)

Mickey Mouse plant is a shrub up to 3m tall with serrated leaves and yellow flowers borne September to March. The fruit resemble the face of Mickey Mouse (black fruit attached to red sepals), and are produced in autumn. It is shade tolerant and bird dispersed, therefore has the potential to invade intact forest ecosystems. It is known to dominate scrub layers where invasive overseas, therefore impacts on native plants via competition and suppressing recruitment are likely.



### Parrot's feather (*Myriophyllum aquaticum*)

Parrot's feather is a submerged, bottom-rooted perennial aquatic herb of which the top 10cm of foliage can be emergent. Sprawling foliage is pale grey-green and leaves are finely divided, feathery and arranged in whorls of 4 to 6. It is ranked as one of Aotearoa / New Zealand's worst aquatic pest plants, and is especially problematic in shallow, sheltered, nutrient rich lakes and wetlands. It can displace other plant species through rapid growth, shading and the release of biochemicals, thereby decreasing native plant species' richness. An increase in cover of parrot's feather is also associated with a decrease in invertebrate abundance and diversity in invaded water-bodies.





### Rhamnus (*Rhamnus alaternus*)

Also known as: evergreen buckthorn

Rhamnus is an evergreen shrub up to about 5m high with glossy serrated leaves, small green flowers and dark glossy red or black fruit. It forms dense stands, preventing the recruitment of native plants in scrublands, forest margins and plantations. It will also act as low scrub on coastal cliffs, inshore and offshore islands and rocky outcrops.



### Sharp rush (*Juncus acutus*)

Sharp rush is a perennial spiny rush up to 1m tall with sharp tips and clumped green to brown flower heads borne in summer followed by red, orange or brown fruit. It forms dense stands which can displace native salt marsh vegetation, impair plant recruitment, reduce native plant richness and alter invertebrate communities.



### Sweet pittosporum (*Pittosporum undulatum*)

Sweet pittosporum is a shrub or small tree varying in height with wavy, prominently margined leaves, white bell shaped flowers and orange globular fruit. It is an invader of pasture, roadsides, coastal bluffs, cliffs and open scrubland but is also able to exploit gaps and edges to invade mature forest. Invasion is associated with reductions in native plant species richness and cover. It has the potential to hybridise with New Zealand *Pittosporum* spp. with impacts on genetic diversity possible.



### 7.2.3 Te murunga o te tupu orotā / Eradication pest plants

These eradication pest plants are present in low numbers or have a limited distribution within the Aotea / Great Barrier island group, and eradicating them appears to be feasible and cost-effective. These pests all have the potential to establish widely on Aotea / Great Barrier island group, and are capable of causing adverse effects to the islands' environmental, economic, human health, social or cultural values. Early intervention to prevent their extensive establishment is a cost effective approach to protecting the island from these pests, many of which are highly damaging elsewhere in the region.

**Objective:** over the duration of the plan Auckland Council will eradicate the pest plants specified below from the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “eradication” which means to reduce the infestation level of the subject to zero levels in an area in the short to medium term.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

### Boneseed (*Chrysanthemoides monilifera*)

Boneseed is an evergreen shrub or small tree up to 3m in height with leathery irregularly serrated leaves, bright yellow flowers produced from September to February and hard oval green fruit which ripen to black. It is likely to crowd out native plants in open coastal areas or disturbed habitats, including freshly cleared forestry plantations. It may also alter plant community composition through allelopathy and competition, alter patterns of nutrient cycling, and facilitate other weeds. The plant is highly flammable and therefore a fire risk in invaded ecosystems.



### Boxthorn (*Lycium ferocissimum*)

Boxthorn is a densely branched and spiny evergreen shrub up to 6m tall with creamy purple flowers and fleshy red fruit. It is a pest plant in coastal habitats; inhibiting the regeneration of native plants, invading coastal pastures, ensnaring seabirds and impeding access to nesting sites. Spines can become imbedded in bone or soft tissue, resulting in infection and pseudo-tumours.



### Bushy asparagus (*Asparagus aethiopicus* syn. *A. densiflorus*)

Bushy asparagus is a scrambling perennial herb with a thick mat of tuberous roots, white flowers borne between October and March and red berries. Stems are hairy and bear 10mm long spines. Dense infestations are capable of excluding native vegetation particularly in coastal and forest ecosystems, and may impede recreational access to natural areas. Other impacts may be similar to climbing asparagus.





### Cape pond weed (*Aponogeton distachyos*)

Cape pond weed is a bottom-rooted perennial aquatic plant with surface-floating linear leaves and white flowers borne on spikes emergent above the water's surface. Impacts appear to be relatively minor compared to some other aquatic weed species however there is some potential for competition with native freshwater vegetation, therefore this species is not desirable on Aotea / Great Barrier island group. There is also minor potential for entanglement of recreational equipment on long reaching stems.



### Carex scoparia

*Carex scoparia* is a dense, green grass-like perennial sedge up to 90cm tall. Inflorescences have brown/green oblong spikes and are borne late spring to early summer. It invades wetlands and lake margins potentially out-competing native wetland plants, and altering habitat for native fauna (e.g. impeded fish access to spawning sites). Closely related species are invasive, capable of forming almost monocultural swards, excluding native plant species and dramatically reducing plant diversity.



### Climbing asparagus (*Asparagus scandens*)

Climbing asparagus is a scrambling or climbing perennial, with tuberous fleshy roots, thin scale-like leaves, red berries and long, usually white, solitary flowers. It smothers forest floor and understorey up to 4m, causing reductions in native plant abundance and species richness, and promoting further invasion by other pest plant species via raised light levels. In the long-term there is the potential for increased erosion through catastrophic loss of canopy and an overall transformative loss of forest ecosystems throughout the region.



### Climbing gloxinia (*Lophospermum erubescens*)

Climbing gloxinia is a climbing perennial herb with triangular leaves and red, pink or white trumpet-shaped flowers borne January to March. Moderate impacts may be expected based on its smothering habit and history of invasiveness. It is capable of invading very harsh dry environments. Threatened species may be at risk in a wide range of habitats including in rocky outcrops, grasslands and forests.



### Egeria (*Egeria densa*)

Egeria is a bottom-rooted submerged perennial aquatic herb with long stems (3m and over) and white flowers borne at the water's surface between November and January. It forms dense stands displacing native aquatic plants and altering the habitat structure of macroinvertebrates and fish. Resultant impacts can include lowered dissolved oxygen levels, increased sedimentation, changes to primary production and nutrient cycling capacity of the invaded water body.



### Giant reed (*Arundo donax*)

Also known as: bamboo reed, donax cane, arundo grass, cow cane, river cane, reed grass.

Giant reed is a sturdy perennial grass with large, spreading clumps of thick culms up to 6m tall, maize-like leaves and large fluffy purplish to silver inflorescences standing above the foliage. It invades riparian areas, wetlands and saltmarshes, altering hydrology by blocking water flow and displacing native plants by creating vast monocultures. Dense stands can impede drainage and exacerbate flooding in agricultural systems.



### Grey willow (*Salix cinerea*)

Also known as: pussy willow, shrub willow, grey sallow

Grey willow is a deciduous shrub or small tree up to 7m high with greenish grey to dark purple stems, oval leaves and 1.5–3.5cm long catkins appearing before the leaves. It forms vast dense stands and thickets causing blockages, flooding and structural changes in waterways. This can affect native plant species in wetlands and riparian ecosystems, through competition, shading and altered hydrology.



### *Hydrocotyle umbellata*

*Hydrocotyle umbellata* is a semi-aquatic perennial, herb with tiny, white, star shaped flowers occurring in umbels of 10-60 flowers. It is a terrestrial plant in wet soils or aquatic in freshwater up to 1.5m deep. Appearance and growth form is variable depending on the invaded habitat type, either floating, creeping or mat forming. It forms dense monocultures that can exclude native plants and has the potential to hybridise with native *Hydrocotyle* spp. In agricultural systems, it may impact irrigation and drainage.



### Moth plant (*Araujia hortorum*)

Moth plant is a perennial climber with scrambling stems, glossy leaves, white or pale pink flowers borne in clusters or single and fleshy, pear-shaped fruit. It smothers and kills plants up to medium-high canopy, preventing recruitment in forest, coastline, cliffs, shrublands, mānawa/mangroves, inshore and offshore islands, orchards and disturbed habitats. Based on its life-form, there can be long-term potential for catastrophic impacts on forest structure. Milky latex in stems, leaves and roots are poisonous and cause dermatitis.





### Queensland poplar (*Homalanthus populifolius*)

Queensland poplar is a shrub or small tree up to 5m tall with heart-shaped leaves turning red during cooler months, and inconspicuous flowers, borne in racemes up to 17cm long. It has the potential to displace native plant species in scrubland, regenerating bush, pine forest and coastal ecosystems, and may become a notable pest plant of roadsides and gardens.



Weedbusters

### Reed sweet grass (*Glyceria maxima*)

Reed sweet grass is an erect clumping perennial grass, reaching almost 2m, with long, branched yellow-green to purple tinged flower heads. It produces creeping rhizomes which can form dense mats that are attached at the bank but are floating in deeper water in still or slow moving water bodies. These dense mats can trap sediment and accumulate masses of decomposing vegetation; altering stream morphology, dissolved oxygen levels and other biophysical properties of invaded wai māori / freshwater ecosystems.



### Rhaphiolepis / sexton's bride (*Rhaphiolepis umbellata*)

Rhaphiolepis/ sexton's bride is a perennial shrub up to 3m tall with white and pink flowers borne in inflorescences between July and December, and purple-black fruit ripening between March and April. It invades coastal areas, particularly coastal cliffs, displacing native vegetation.



### Rhus tree (*Toxicodendron succedaneum*)

Rhus tree is a deciduous tree up to 8m tall with pinnate leaves that turn red in autumn and yellow-green flowers borne in inflorescences up to 200mm long. It invades urban and coastal habitats, wastelands and bush margins and poses a high risk to human health. Contact with sap can cause severe contact dermatitis characterised by itchy, burning red welts and swelling. Rhus tree is also rated as the most allergenic plant in New Zealand. Naturalisation can therefore substantially reduce enjoyment of the outdoor environment.



### Spanish broom (*Spartium junceum*)

Spanish broom is a deciduous shrub up to 3m tall with yellow pea-like flowers borne in loose racemes during summer and autumn. It is invasive in disturbed sites, often on hill country but also including poor or retired pasture, cliffs, transport corridors and riparian margins. Spanish broom is capable of forming dense monospecific stands which can reduce the cover of native plants in invaded habitats. As a nitrogen fixer, it has the potential to alter plant community compositions, including facilitating other exotic plant invasions, through elevated soil nutrient levels.



### Tree of heaven (*Ailanthus altissima*)

Tree of heaven is a deciduous tree, up to 25m tall with a strong unpleasant odour, pale green-white flowers borne in spring and seeds encapsulated by twisted papery sheaths in autumn. It is a coloniser of disturbed open habitats, capable of forming dense stands which suppress other plant species through chemical inhibition. The leaf litter is high in nitrogen and decomposes rapidly, altering nutrient cycling regimes in some ecosystems, and facilitating the invasion of other pest plant species. Root intrusions can damage culturally important archaeological sites.



### Tree privet (*Ligustrum lucidum*)

Tree privet is a medium sized evergreen tree growing up to 10m tall with white, fragrant flowers borne in clusters during spring-summer and poisonous purple-black berries. It displaces native shrubs and trees and can form dense stands which dominate the canopy layer and prevent recruitment of native species, thereby altering vegetation structure and diversity in forest and shrubland ecosystems. Root intrusions can damage archaeological features on maunga and other significant wāhi. Some people may have a reaction to privet, often as a cross-reactivity to their main allergens.





### Water plantain (*Alisma plantago-aquatica*)

Water plantain is an emergent perennial herb up to 1m tall with oval leaves and multi-branched clusters of small pale lilac flowers produced in summer. It invades wetlands and other slow-moving water bodies impeding water flow, trapping debris causing silt to build up and potentially displacing native species where it occurs. It will also grow in damp pasture and has the potential to exacerbate flooding due to impeded drainage ditches.



### Wild ginger (*Hedychium gardnerianum* and *H. flavescens*)

Also known as: kahili ginger (*H. gardnerianum*), yellow ginger (*H. flavescens*)

Both wild ginger species are herbaceous perennial plants that can grow up to 3m tall with large green leaves and orange berries. Kahili ginger has yellow flowers with red stamens, and yellow ginger has creamy flowers. They form dense stands preventing recruitment and suppressing up to 90% of native vegetation in forest ecosystems, potentially resulting in long-term impacts on forest composition. Invasion may alter decomposition and nutrient cycling patterns, and increase erosion in the long-term through loss of canopy.



### Woolly nightshade (*Solanum mauritianum*)

Woolly nightshade is a perennial shrub or small tree, up to 4m high with grey-green furry leaves, violet flowers and dull yellow berries. It forms dense stands in disturbed scrub or forest, roadsides, pasture margins, urban areas and riparian margins, inhibiting the regeneration of native plant species in invaded sites. It can displace pasture grasses and clover, reducing food availability for stock, and will colonise clear-felled areas in forestry plantations. Direct or indirect contact with the plant may cause skin irritation and respiratory problems.





## 7.2.4 Aukati haere noa i te tupu orotā / Progressive containment pest plants

These progressive containment pest plants are present in low numbers or have a limited distribution within the Aotea / Great Barrier island group, yet have the potential to be highly damaging pests if they were to become widespread on the islands. Eradication may not be feasible in the short-term (for instance some species have very long-lived seed banks). Nonetheless, progressively containing these species is a cost effective approach to preventing their spread and impact on this high ecological value island group.

**Objective:** over the duration of the plan Auckland Council will progressively contain the pest plants specified below to zero density from the Aotea / Great Barrier island group to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of the pest plant to an area over time.

### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

### Kangaroo acacia (*Acacia paradoxa*)

Kangaroo acacia is a perennial shrub up to 3m with 10mm long spines, inflorescences of many yellow flowers and leaves reduced to winged leaf stalks. It can form extremely dense stands potentially excluding native vegetation in open or disturbed sites including coastal areas, scrubland and forest margins. It is a nitrogen-fixing plant, potentially altering soil fertility, nutrient cycling dynamics and plant community compositions in invaded ecosystems.



### Madeira vine (*Anredera cordifolia*)

Also known as: Madeira, mignonette vine, potato vine, lamb's tail.

Madeira vine is a perennial climbing vine up to 40m long with heart-shaped or oval fleshy leaves and drooping inflorescences of small fragrant cream flowers from January to April. It can rapidly invade disturbed forest and margins, plantations, gullies, scrublands, coastline, dunes and riparian margins by smothering and sometimes crushing understory plants.



### Mile-a-minute (*Dipogon lignosus*)

Mile-a-minute is an evergreen perennial climbing vine, with pea-like, white, pink or red flowers borne from July to January. It invades scrubland, forest margins, stream banks, wetlands, coastal areas including banks and open coastal forest; smothering trees and destroying forest structure. It is capable of nitrogen fixing and has the potential to alter nutrient cycling patterns, possibly favouring other exotic plants.



### Purple groundsel (*Senecio elegans*)

Purple groundsel is an annual herb up to 60cm tall displaying deeply lobed leaves and purple flowers with yellow discs borne August-May. It invades coastal systems, the region's highest value dune ecosystems being most at risk. It is likely to out-compete co-occurring native plants, and has faster growth rates and a longer flowering period than some closely related native species.



**Royal fern (*Osmunda regalis*)**

Royal fern is a tall deciduous perennial fern with fronds up to 3m long. It forms dense stands in wetlands and freshwater ecosystems, which are likely to impact on native fauna and flora through mechanisms such as competition or habitat restructuring. It has the potential for obstructing access and reducing enjoyment of the natural freshwater environment, and may impact on the mauri of wai māori.

**Smilax (*Asparagus asparagoides*)**

Smilax is a scrambling perennial plant with branched green stems up to 3m and greenish-white flowers appearing between July and August, followed by red berries. It forms dense patches and smothers low growing plants and seedlings, usually in low canopy forests or coastal habitats. These dense stands can also obstruct access to recreational areas and smother garden plants.





## 7.3 Moutere o Kawau / Kawau Island

### 7.3.1 Te murunga o te kararehe orotā / Eradication pest animals

Kei te motu o Kawau anake te huinga warapi i te rohe o Tāmaki Makaurau. He mea wetiweti tēnei ki tuawhenua nei, ina hoki te raru o ngā ngahere taketake me ngā pāmu i te warapi. Heoi anō rā, he raru anō hoki tō te muru anake i ngā warapi i Kawau, pērā i te āhei o te piki ake o ngā koiora orotā whakataetae mai pērā i te kiore, te paihamu, ngā tupu orotā rānei. Koia ngā hōtaka te whai ake nei, te aro ki te muru i ngā koiora orotā i Kawau pērā i te kiore, te wīhara, te paihamu me te warapi anō hoki hei tiaki i a Kawau me te rohe i ngā whakaweti a te warapi, hei karo hoki i ngā raru te tūpono ake i te patu noa iho i ngā warapi. Ka whakahaeretia e te Kaunihera o Tāmaki Makaurau tēnei hōtaka, ina kitea he pūtea tautoko mai i waho kē. Ko te muru koiora orotā i te moutere nohoa e te tangata he ahunga hōu e taea ai te taumata o Tāmaki Makaurau Orotā Kore/ Aotearoa Konihi Kore 2050.



7.3 Moutere o Kawau / Kawau island

Kawau island is home to kiwi, rare native plant species and large areas of regenerating native bush. Situated in close proximity to Tāwharanui and Shakespear Open Sanctuaries, as well as other pest-free islands, Kawau has the potential to become home to many more native birds if invasive mammals are removed from the island and habitat regenerates. Kawau Island holds the only population of wallabies in the Tāmaki Makaurau / Auckland region. This poses a very real risk to the mainland, with wallabies having severe impacts on native forest as well as pastoral farming. However, eradication of wallabies, alone, from

Kawau has the potential to have perverse outcomes, such as creating an advantage for competing pests like rats and possums or pest plants. The following programmes combine to cover a multi-species eradication of pest mammals from Kawau, including rats, stoats and possums as well as wallabies, to protect Kawau and the region from the threat of wallabies, while also avoiding unintended outcomes that might arise from managing wallabies in isolation. Auckland Council will manage this programme, contingent on external funding contributions. Eradication of pest mammals from an inhabited island also represents a step-change achievement towards achievement of Pest Free Auckland / Predator Free New Zealand 2050. In addition to mammal eradications, this plan provides for on-going eradication of Argentine ants from Kawau, under section 7.1.2.1.

**Objective:** over the duration of the plan Auckland Council will eradicate the pest animals specified below from Kawau Island to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “eradication” which means to reduce the infestation level of the subject to zero levels in an area in the short to medium term.

**Principal measures of achievement:**

Service delivery (control)	<p>Coordinate a multi-species eradication in collaboration with the Department of Conservation, Local Board, mana whenua and community.</p> <p>Enter any property within the specified geographic area of the programme and carry out control work on this species.</p> <p>Protect the island from reinvasion following eradication, through implementation of Hauraki Gulf Controlled Area programmes.</p>
Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.</p>
Enforcement	<p>Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal, including pathway measures to prevent reinvasion following eradication.</p>
Education and advice	<p>Provide information and advice on pest animal identification, impacts and control.</p> <p>Provide information and advice on how to avoid spreading the pest animal.</p>

### Possum (*Trichosurus vulpecula*)

Possums are small marsupials with thick bushy tails, weighing between 1.4-6.4kg and can be grey, brown or black in colour. Possums will predate on eggs and chicks of various threatened birds, including kōkako, and compete for nest sites with hole-nesting birds, such as kiwi and parakeets. Heavy plant browsing by possums can suppress or eliminate preferred plants by selective browsing. This can alter the vegetation composition in invaded ecosystems and ultimately lead to the collapse of palatable canopy species, such as Northern rātā. Possums are also considered serious agricultural pests. They are vectors for bovine TB in cattle and compete directly with stock for pasture.



Nga Manu Images

### Rats: ship rats (*Rattus rattus*), Norway rats (*Rattus norvegicus*)

Rats are small black, grey or brown mammals with naked tails. Rats occupy a wide range of terrestrial habitats throughout Aotearoa / New Zealand. Rats are generalist omnivores, their diet includes seed predation, and preying on small animals such as invertebrates, reptiles, amphibians and juvenile birds. They compete with native birds for nests and burrows, and have been implicated in the decline of a number of threatened birds, particularly seabirds. Excessive consumption of seeds by rats can greatly reduce native seedling recruitment and ultimately modify plant communities in invaded ecosystems. Rats are particularly damaging to cereal production, stored products and the food services industry, and are a potential disease vector to humans.



Ship rat, Manaaki Whenua Landcare Research



**Mustelids: ferrets (*Mustela furo*), stoats (*Mustela erminea*), and weasels (*Mustela nivalis*)**

Ferrets, stoats and weasels belong to a group of animals known as mustelids. Ferrets are the largest of the mustelids (600-1,300g) and can be distinguished by a dark 'mask' across their eyes. Stoats are smaller (200–350g) with orange-brown coats and a black tip at end of the tail. Weasels are the smallest (60–120g), with orange-brown coats and a uniformly brown tail.

Mustelids are bold generalist predators and can have devastating impacts on native birds, amphibians, reptiles, molluscs, and insects. Ferrets mostly threaten ground nesting birds while stoats and weasels have contributed to the decline and extinction of many forest birds, particularly cavity nesting species. Mustelids are also a vector of a wide range of agricultural diseases including canine distemper and bovine tuberculosis (TB).



Stoat, Department of Conservation

**Wallaby (*Macropus*, *Petrogale* and *Wallabia* spp.)**

Wallabies are medium-sized, semi-nocturnal marsupial mammals. They compete directly with livestock for pasture and have a substantial diet overlap with sheep resulting in large production losses in the sheep and beef industry. They also damage newly planted radiata pine plantations, browse native forest seedlings and destroy understorey, favouring kāmahi and māhoe.



## 7.4 Moutere o Waiheke / Waiheke Island

### 7.4.1 Te murunga o te kararehe orotā / Eradication pest animals

He kāinga a Waiheke nō te tini manu takutai moana, repo kei te rarua te kōkopu, me te rahi atu o ngā uara kanorau-koiora e whakawetihia ana e te orotā. Tēra a Waiheke te noho hei kāinga hōu mō ētahi momo hōu kei te rarua, pērā i te kiwi, ina taea ngā koiora orotā te muru. Āpiti atu ki tērā he poto noa te kauhoe atu i Waiheke ki ētahi atu motu orotā-kore, ina ka noho tonu ngā koiora orotā pērā i te kiore me te wīhara i runga o Waiheke, ka mau tonu te āhei kia pokea anō aua moutere. Ko ngā hōtaka e whai ake nei e aro ana ki te muru i te hia momo koiora orotā i Waiheke mai i te kiore, te wīhara me te poaka puihi. Ka whakahaeretia e te Kaunihera o Tāmaki Makaurau tēnei hōtaka, ina kitea he pūtea tautoko mai i waho kē. Ko te muru koiora orotā i te moutere nohoa e te tangata he ahunga hōu e taea ai te taumata o Tāmaki Makaurau Orotā Kore / Aotearoa Konihi Kore 2050.

Moutere o Waiheke / Waiheke Island



Waiheke is home to many native shorebirds, wetlands with threatened kōkopu, and other high biodiversity values that are threatened by pests. Waiheke has the potential to be home to new threatened species introductions, such as kiwi, if mammalian pests are removed. The community-led initiative Te Korowai o Waiheke has a goal of eradicating rats and stoats from the island as part of a broader vision to protect and restore the island's native biodiversity. In addition, Waiheke is within swimming distance of other pest-free islands, and while pests such as rats and stoats remain on Waiheke this poses a source of on-going reinvasion of surrounding islands. The following programmes combine to cover a multi-species eradication of pest mammals from Waiheke, including rats, stoats and feral pigs.

Auckland Council will contribute to these programmes, contingent on continued external funding contributions. Eradication of pest mammals from an inhabited island also represents a step-change achievement towards achievement of Pest Free Auckland / Predator Free New Zealand 2050.

**Objective:** over the duration of the plan Auckland Council and Te Korowai o Waiheke partners will eradicate the pest animals specified below from Waiheke Island to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “eradication” which means to reduce the infestation level of the subject to zero levels in an area in the short to medium term.

**Principal measures of achievement:**

Service delivery (control)	<p>Contribute to a multi-species eradication in collaboration with the Department of Conservation, Local Board, mana whenua and community.</p> <p>Enter any property within the specified geographic area of the programme and carry out control work on these species.</p> <p>Protect the island from reinvasion following eradication, through implementation of Hauraki Gulf Controlled Area programmes.</p>
Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.</p>
Enforcement	<p>Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal, including pathway measures to prevent reinvasion following eradication.</p>
Education and advice	<p>Provide information and advice on pest animal identification, impacts and control.</p> <p>Provide information and advice on how to avoid spreading the pest animal.</p>

### Feral pigs<sup>42</sup> (*Sus scrofa*)

Feral pigs are large (sometimes over 300kg), black to brown, stoutly built mammals with large heads and well-developed canine teeth. They actively scavenge during the day and will overturn large areas of soil to consume soil invertebrates, especially earthworms. In invaded ecosystems, they prey on and compete with native species, alter nutrient cycles, damage vegetation and soil, and facilitate the spread of weeds and plant diseases, including kauri dieback disease. They are of high risk to the primary production industry as vectors of bovine tuberculosis. International trading options may be reduced if the Aotearoa / New Zealand feral pig population became a reservoir for swine fever or foot and mouth disease. Feral pig attacks on humans are rare but could be potentially fatal.



Manaaki Whenua Landcare Research

### Rats: ship rats (*Rattus rattus*), Norway rats (*Rattus norvegicus*)

Rats are small black, grey or brown mammals with naked tails. Rats occupy a wide range of terrestrial habitats throughout Aotearoa / New Zealand. Rats are generalist omnivores, their diet includes seed predation, and preying on small animals such as invertebrates, reptiles, amphibians and juvenile birds. They compete with native birds for nests and burrows, and have been implicated in the decline of a number of threatened birds, particularly seabirds. Excessive consumption of seeds of native plants by rats can greatly reduce seedling recruitment and ultimately modify plant communities in invaded ecosystems. Rats are also considered primary production pests, and are particularly damaging to cereal production and stored products. They are domestic pests, a nuisance to the food services industry and a potential disease vector to humans.



Ship rat, Manaaki Whenua Landcare Research

<sup>42</sup> A feral pig includes any pig that is not:

- a) held behind effective fences or otherwise constrained; and
- b) identified by ear tag



**Mustelids: ferrets (*Mustela furo*), stoats (*Mustela erminea*), and weasels (*Mustela nivalis*)**

Ferrets, stoats and weasels belong to a group of animals known as mustelids. Ferrets are the largest of the mustelids (600-1,300g) and can be distinguished by a dark 'mask' across their eyes. Stoats are smaller (200–350g) with orange-brown coats and a black tip at end of the tail. Weasels are the smallest (60–120g), with orange-brown coats and a uniformly brown tail.

Mustelids are bold generalist predators and can have devastating impacts on native birds, amphibians, reptiles, molluscs, and insects. Ferrets mostly threaten ground nesting birds while stoats and weasels have contributed to the decline and extinction of many forest birds, particularly cavity nesting species. Mustelids are also a vector of a wide range of agricultural diseases including canine distemper and bovine tuberculosis (TB).



Stoat, Department of Conservation

## 7.5 Whenua Papa Rēhia me ōna Rohe Hauropi Hiranga / Parkland with Significant Ecological Areas

Ko Tāmaki Makaurau te tāone nui pokea rawa e te tarutaru. Ina tirohia te rārangi roa o te tupu orotā kei konei, e tūpono noa mai rānei ki te rohe, he pai kē atu pea te aukati i te rahi o te tipu orotā i ngā wāhi kanorau-koiora uara nui i te aro ki te rārangi momo poto nei puta noa i te rohe. Kua whakarite te Kaunihera o Tāmaki Makaurau kia “hīkoitia e ia tana kupu”, mā te tauira whakahaere tōtika rawa hei aukati mate orotā i ngā whenua o te kaunihera. Ko ngā hōtaka e whai ake nei ka tuitui i ngā mahi a te kaunihera, te hunga mahi kawekawe, (pērā i a NZTA me Auckland Transport) me ngā kaupupuri whenua kia hua ai ngā painga kanorau-koiora mai i te mahi tahi a te katoa ki te tiaki i ngā whenua papa rēhia me ōna Rohe Hauropi Hiranga. Ka tohu hoki aua hōtaka i te take tiaki kararehe orotā i ngā whenua papa rēhia marihi kia tūturu ai ō rātou whiwhi ki ngā hua o te kotahi o ngā mahi whakahaere.

Tāmaki Makaurau / Auckland is the weediest city in the country. Given the long list of existing and emerging pest plant species in the region, controlling a whole suite of pest plants at sites of high biodiversity value can be a more effective approach than targeting a smaller list of species for region-wide control. Tāmaki Makaurau / Auckland has an extensive network of regional and local parks which include some of the region’s most important areas of native vegetation (e.g. Te Wao Nui a Tiriwa me Kohukohunui / Waitākere and Hunua Ranges Regional Parks) as well as fenced sanctuaries (Tāwharanui and Shakespear) that have enabled extensive reintroductions of threatened species. Auckland Council is committed to “walking the talk”, role-modelling best-practice pest management on Council lands to protect these special areas for all Aucklanders, now and into the future. The following programmes will coordinate the efforts of the Council, transport corridor operators (such as NZTA and Auckland Transport) and private land owners to ensure maximum biodiversity benefits are achieved through collective action to protect parkland containing Significant Ecological Areas (SEAs)<sup>43</sup>. Rule enforcement will be implemented following systematic community engagement to facilitate voluntary pest plant management, rather than on a reactive complaints basis.

The following programmes also provide for pest animal control on high value parkland, to ensure these areas receive comprehensive integrated management. There are no requirements for nearby land occupiers to control pest animals in the manner required for pest plants (although see Section 7.7.2 for rules relating to deer and goat farming in the Waitākere and Hunua Ranges). While there are no statutory rules for pest animal control by surrounding land occupiers, Council will prioritise such areas for support of voluntary action by individuals and community groups. See also sections 4.2.5 and 4.2.6.

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<sup>43</sup> SEAs are areas of significant indigenous vegetation and significant habitats of indigenous fauna, which must be protected as a matter of national importance in line with Section 6(c) of the RMA. See Definitions section for further detail.



### 7.5.1 Wāhi whai kararehe orotā / Site-led pest animals

The pest animals in the following section are all capable of causing extensive damage to native ecosystems and the native plants and animals that call those ecosystems home. The following programmes provide for management of pest animals on high ecological value parkland, particularly in Te Wao Nui a Tiriwa / the Waitākere Ranges and Kohukohunui / Hunua Ranges, to levels that will protect the ecological integrity of that parkland. Other pest animals (such as possums, deer and goats) may also be controlled on parkland, under region-wide programmes in section 7.7.



Te Rau Puriri Regional Park, South Head



### 7.5.1.1 Feral pigs (*Sus scrofa*)

Feral pigs are large (sometimes over 300kg), black to brown, stoutly built mammals with large heads and well-developed canine teeth. They actively scavenge during the day and will overturn large areas of soil to consume soil invertebrates, especially earthworms. In invaded ecosystems, they prey on and compete with native species, alter nutrient cycles, damage vegetation and soil, and facilitate the spread of weeds and plant diseases, including kauri dieback disease. They are of high risk to the primary production industry as vectors of bovine tuberculosis. International trading options may be reduced if the Aotearoa / New Zealand feral pig population became a reservoir for swine fever or foot and mouth disease. Feral pig attacks on humans are rare but could be potentially fatal.



Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will manage feral pigs<sup>44</sup> (*Sus scrofa*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within that parkland to an extent that protects the values of that parkland.

**Principal measures of achievement:**

Service delivery (control)	Feral pigs maintained below ecological damage thresholds in Te Wao Nui a Tiriwa / Waitākere, Kohukohunui / Hunua and other Significant Ecological Areas on parkland to enhance ecosystem function and resilience, and protect the values of that parkland. Zero or near zero density will be aimed for to reduce the spread of kauri dieback in the Waitākere Ranges, if feasible.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Education and advice	Provide information and advice on pest animal identification, impacts and control, and responsible hunting practices.

<sup>44</sup> A feral pig includes any pig that is not:  
 a) held behind effective fences or otherwise constrained; and  
 b) identified by ear tag

**7.5.1.2 Mustelids: ferrets (*Mustela furo*), stoats (*Mustela erminea*), and weasels (*Mustela nivalis*)**

Ferrets, stoats and weasels belong to a group of animals known as mustelids. Ferrets are the largest of the mustelids (600-1,300g) and can be distinguished by a dark ‘mask’ across their eyes. Stoats are smaller (200–350g) with orange-brown coats and a black tip at end of the tail. Weasels are the smallest (60–120g), with orange-brown coats and a uniformly brown tail.

Mustelids are bold generalist predators and can have devastating impacts on native birds, amphibians, reptiles, molluscs, and insects. Ferrets mostly threaten ground nesting birds while stoats and weasels have contributed to the decline and extinction of many forest birds, particularly cavity nesting species. Mustelids are also a vector of a wide range of agricultural diseases including canine distemper and bovine tuberculosis (TB).



Department of Conservation

**Objective:** over the duration of the plan Auckland Council will manage Mustelids (*Mustela furo*, *Mustela erminea*, *Mustela nivalis*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within that parkland to an extent that protects the values of that parkland.

**Principal measures of achievement:**

<p>Service delivery (control)</p>	<p>Manage the pest animal in or around Significant Ecological Areas on parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland. Priority given to protection of Te Wao Nui a Tiriwa / the Waitākere Ranges and Kohukohunui / Hunua Ranges, provided kauri dieback spread risk can be managed adequately.</p>
<p>Monitoring and surveillance</p>	<p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.</p>
<p>Education and advice</p>	<p>Provide information and advice on pest animal identification, impacts and control. Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around Te Wao Nui a Tiriwa / the Waitākere Ranges and Kohukohunui / Hunua Ranges and other biodiversity focus areas.</p>

**7.5.1.3 Rats (*Rattus rattus*, *Rattus norvegicus*, *Rattus exulans*<sup>45</sup>)**

Rats are small black, grey or brown mammals with naked tails. Rats occupy a wide range of terrestrial habitats throughout Aotearoa / New Zealand. Rodents are generalist omnivores, their diet includes seed predation, and preying on small animals such as invertebrates, reptiles, amphibians and juvenile birds. They compete with native birds for nests and burrows, and have been implicated in the decline of a number of threatened birds, particularly seabirds. Excessive consumption of seeds by rodents can greatly reduce native seedling recruitment and ultimately modify plant communities in invaded ecosystems. Rats are particularly damaging to cereal production, stored products and the food services industry, and are a potential disease vector to humans.



Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will manage rats (*Rattus rattus*, *Rattus norvegicus*, *Rattus exulans*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within that parkland to an extent that protects the values of that parkland.

**Principal measures of achievement:**

<p>Service delivery (control)</p>	<p>Manage the pest animal in or around Significant Ecological Areas on parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland. Priority given to protection of Te Wao Nui a Tiriwa / the Waitākere Ranges and Kohukohunui / Hunua Ranges, provided kauri dieback spread risk can be managed adequately.</p>
<p>Monitoring and surveillance</p>	<p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.</p>
<p>Education and advice</p>	<p>Provide information and advice on pest animal identification, impacts and control. Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around Te Wao Nui a Tiriwa / the Waitākere Ranges and Kohukohunui / Hunua Ranges and other biodiversity focus areas.</p>

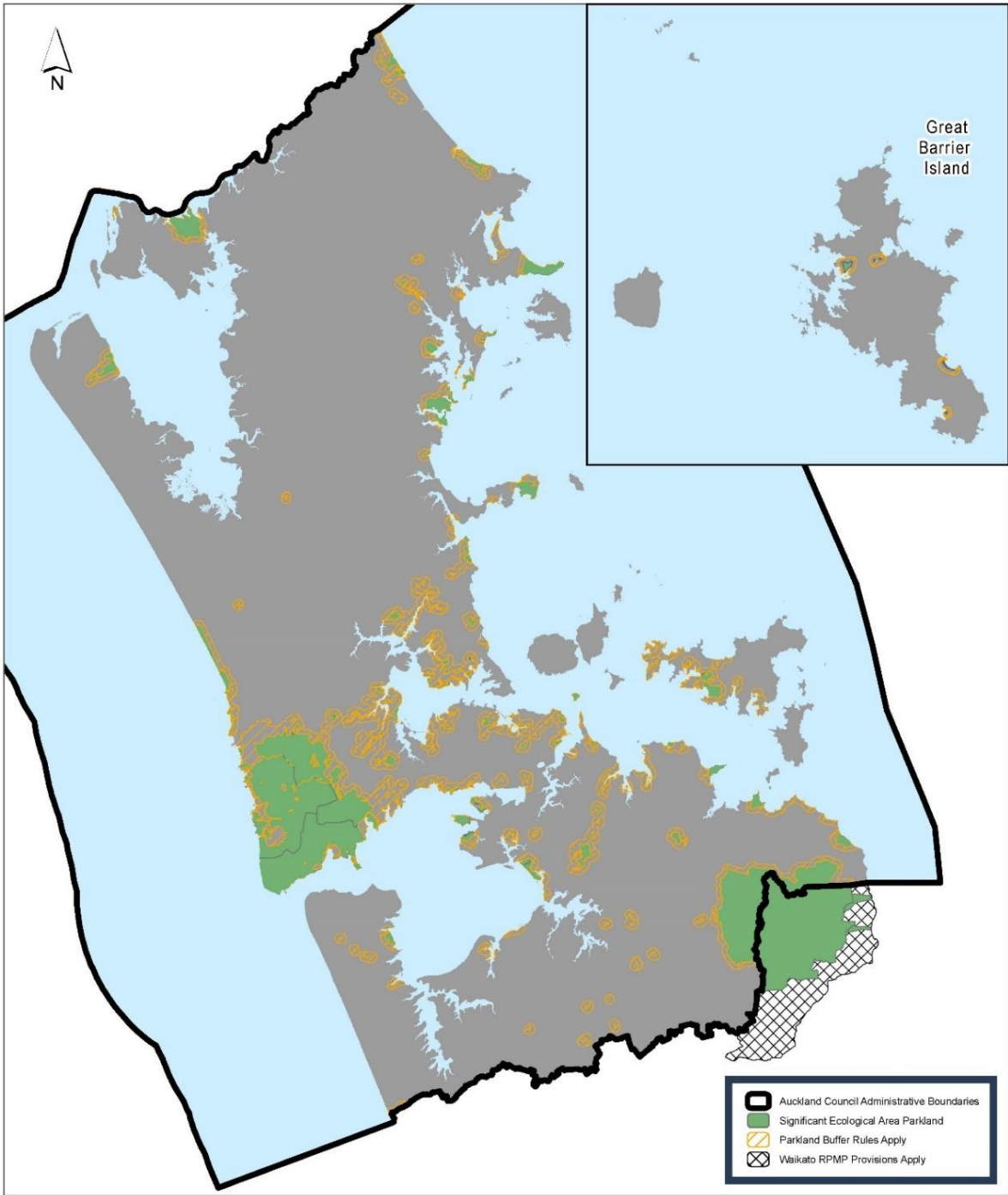
<sup>45</sup> Council acknowledges that kiore are culturally significant for mana whenua and the need for operational engagement with mana whenua where relevant.

## 7.5.2 Wāhi whai tupu orotā /Site-led pest plants managed on-park and in surrounding buffer areas

The pest plants in the following section are all capable of damaging native ecosystems, in some cases having the potential to lead to wide-scale canopy collapse and ecosystem loss on our region's parkland if not adequately managed. The species in this section are subject to management programmes both on-park and in a c.500m buffer around parkland, focusing on Te Wao Nui a Tiriwa / the Waitākere Ranges and Kohukohunui / Hunua Ranges and other high ecological value parkland in the region (see Map 6 and Appendix 2). Land occupier obligations within the buffer area apply across all land tenures, including transport corridors and Crown land as well as private property. For some species, Auckland Council will undertake pest plant management in the buffer areas as well as on-park, while for other species rules require pest plants to be managed in buffer areas by the land occupiers in those buffer areas.

Operational implementation of buffer rules will involve a substantial community engagement and education component to encourage land occupiers to recognise and voluntarily remove pest plants, where possible delivered in collaboration with community conservation volunteers. This will be supported by rule enforcement when required. In contrast with the legacy approach of enforcement on receipt of complaint, enforcement in park buffers will be delivered in a systematic, planned manner, with sites phased in over the lifetime of the plan. If the buffer programme proves successful, and budget allows, similar buffer rules may be introduced to buffer more parks and/or priority Significant Ecological Areas on other land tenure, or to address further pest plant species, either in the RPMP 2029-2039, or sooner by partial plan review of the current RPMP. An operational review of the buffer programme will be conducted within five years of the plan becoming operative, to assess progress. Council will also annually assess progress in buffer implementation and provide updates to interested community groups. Council will actively seek opportunities to accelerate buffer implementation through collaboration with community groups and other interested parties.





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**Regional Pest Management Plan**  
**Significant Ecological Area Parkland**

0 2.5 5 7.5  
 Kilometers  
 Scale @ A4  
 = 1:600,000  
 Date Printed:  
 1/16/2020



**Map 6 Areas<sup>46</sup> where Parkland with Significant Ecological Areas site-led pest plant programmes apply.**

<sup>46</sup> Note, see Appendix 2 for more detailed local maps. These parks and Good Neighbour Rule buffer areas can also be viewed at higher resolution online at <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html>



### 7.5.2.1 Agapanthus<sup>47</sup>

Agapanthus is a perennial evergreen herb with leathery leaves and erect stems that terminate in many white, blue or purple flowered umbels. Plant height ranges from 100-500mm for dwarf forms and up to 1.2m for tall forms. It forms almost monocultural infestations which exclude native vegetation, especially in coastal areas including cliffs and rocky outcrops. It ranks in the top ten plants resulting in calls to the National Poisons Centre. Rhizomes and other plant parts are toxic if ingested, resulting in vomiting and diarrhoea. Contact allergens are capable of causing rashes, burning sensations and mouth ulcerations, especially in children.



**Objective:** over the duration of the plan Auckland Council will manage agapanthus (all *Agapanthus* cultivars) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

**Rules:**

7.5.2.1.1 All occupiers of any transport corridor land that is located within the buffer area, as defined in Map 6, of any park which is managed for agapanthus, must destroy all agapanthus on that land prior to seed set.

Rule 7.5.2.1.1 is a good neighbour rule.

The purpose of rule 7.5.2.1.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

<sup>47</sup> For the purpose of this plan, agapanthus means:

- a) Prior to 1 April 2022, all *Agapanthus praecox* tall form cultivars (those exceeding 600mm height); and
- b) From 1 April 2022, all *Agapanthus praecox* cultivars, except for any low fertility cultivar which is determined by Auckland Council to produce less than 2% viable seeds compared to high fertility cultivars that were evaluated under the same conditions and location. Cultivars already meeting this test will be listed on the Auckland Botanic Gardens website <http://www.aucklandbotanicgardens.co.nz/>

### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce land occupier responsibility to control the pest plant pursuant to the rules in this section.
Education and advice	Provide information and advice on pest plant identification, impacts and control.  Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers of transport corridor land to control plants when instructed to prevent seed set.

### 7.5.2.2 Blue morning glory (*Ipomoea indica*)

Blue morning glory is a high-climbing, perennial plant with twining stems, three-lobed hairy leaves and blue to purple tubular flowers borne in clusters from January to December. It can completely smother and suppress other plant species on the ground or in the canopy, in forest and scrub margins, around gardens and plantations.



**Objective:** over the duration of the plan Auckland Council will manage blue morning glory (*Ipomoea indica*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

### 7.5.2.3 Bushy asparagus (*Asparagus aethiopicus* syn. *A. densiflorus*)

Bushy asparagus is a scrambling perennial herb with a thick mat of tuberous roots, white flowers borne between October and March and red berries. Stems are hairy and bear 10mm long spines. Dense infestations are capable of excluding native vegetation particularly in coastal and forest ecosystems, and may impede recreational access to natural areas. Other impacts may be similar to climbing asparagus.



**Objective:** over the duration of the plan Auckland Council will manage bushy asparagus (*Asparagus aethiopicus*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Rules:

7.5.2.3.1 All occupiers of any land that is located within the buffer area, as defined in Map 6, of any park which is managed for bushy asparagus and where Auckland Council has undertaken initial destruction of bushy asparagus on that land, must undertake follow up destruction of all bushy asparagus on that land.

Rule 7.5.2.3.1 is a good neighbour rule.

The purpose of rule 7.5.2.3.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section.
Education and advice	Provide information and advice on pest plant identification, impacts and control.  Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers to destroy plants when instructed.

#### 7.5.2.4 Climbing asparagus (*Asparagus scandens*)

Climbing asparagus is a scrambling or climbing perennial, with tuberous fleshy roots, thin scale-like leaves, red berries and long, usually white, solitary flowers. It smothers forest floor and understorey up to 4m, causing reductions in native plant abundance and species richness, and promoting further invasion by other pest plant species via raised light levels. In the long-term there is the potential for increased erosion through catastrophic loss of canopy and an overall transformative loss of forest ecosystems throughout the region.



**Objective:** over the duration of the plan Auckland Council will manage climbing asparagus (*Asparagus scandens*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

**Rules:**

- 7.5.2.4.1 All occupiers of any land that is located within the buffer area, as defined in Map 6, of a park which is managed for climbing asparagus and where Auckland Council has undertaken initial destruction of climbing asparagus on that land, must undertake follow up destruction of all climbing asparagus on that land.

Rule 7.5.2.4.1 is a good neighbour rule.

The purpose of rule 7.5.2.4.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of rule is an offence under s154N(19) of the Biosecurity Act.



**Principal measures of achievement:**

Service delivery (control)	Manage the pest plant with Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section.
Education and advice	Provide information and advice on pest plant identification, impacts and control.  Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers to destroy plants when instructed.

### 7.5.2.5 Coast banksia (*Banksia integrifolia*)

Also known as: Coastal banksia

Coast banksia is a large shrub or tree up to 15m high with rough bark, narrowly elliptical leaves, cylindrical inflorescences bearing numerous pale yellow to green flowers and woody fruiting cones. It grows in coastal and lowland sites, often on sand dunes, along roadsides, forest margins, and other open habitats; shading out existing vegetation and transforming the habitat.



**Objective:** over the duration of the plan Auckland Council will manage coast banksia (*Banksia integrifolia*) to protect values in place to prevent adverse effects on the sustainability and recreational values of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control. Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.

### 7.5.2.6 English ivy (*Hedera helix* subsp. *helix*)

English ivy is an evergreen perennial root-climbing plant with lobed leaves, numerous yellow-green flowered umbels from August to December and deep purple or black berries. It forms dense monocultural groundcover, substantially lowering ground-level light availability and preventing regeneration of other vegetation in roadsides, native forest and riparian ecosystems. Dense mats combined with rapidly decomposing litter have potential to alter decomposition dynamics and nutrient cycling within invaded ecosystems. Contact with the plant can cause contact dermatitis.



**Objective:** over the duration of the plan Auckland Council will manage English ivy (*Hedera helix* subsp. *helix*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

### 7.5.2.7 Formosa lily (*Lilium formosanum*)

Formosa lily is a perennial herb with erect unbranched stems up to 1m tall and large, white tinged with purple, trumpet-like flowers, mainly borne January-March but sometimes year round. It is most invasive in disturbed or open coastal ecosystems including sand dunes, cliff faces and forest canopy gaps where it forms dense stands. Coastal species potentially at risk from competition may include culturally significant species such harakeke.



**Objective:** over the duration of the plan Auckland Council will manage Formosa lily (*Lilium formosanum*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

**Rules:**

7.5.2.7.1 All occupiers of any transport corridor land that is located within the buffer area, as defined in Map 6, of a park which is managed for Formosa lily, must destroy all Formosa lily on that land prior to seed set.

Rule 7.5.2.7.1 is a good neighbour rule.

The purpose of rule 7.5.2.7.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on Parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section. Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control. Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers of transport corridor land to destroy plants when instructed.

### 7.5.2.8 Giant reed (*Arundo donax*)

Also known as: bamboo reed, donax cane, arundo grass, cow cane, river cane, reed grass.

Giant reed is a sturdy perennial grass with large, spreading clumps of thick culms up to 6m tall, maize-like leaves and large fluffy purplish to silver inflorescences standing above the foliage. It invades riparian areas, wetlands and saltmarshes, altering hydrology by blocking water flow and displacing native plants by creating vast monocultures. Dense stands can impede drainage and exacerbate flooding in agricultural systems.



**Objective:** over the duration of the plan Auckland Council will manage giant reed (*Arundo donax*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.



### 7.5.2.9 Gorse (*Ulex* spp.)

Gorse is a spiny perennial shrub up to 4m tall with yellow pea-like flowers produced from May to November and explosive seed pods. It is a serious pest of the primary production industry where it will readily invade forestry plantations and pasture, reducing food for livestock. It also forms dense stands and out-competes native vegetation in shrubland, forest margins and coastal habitats. Native forest succession through gorse can result in a different vegetation composition and lower diversity than succession through native early succession plants. Its nitrogen-fixing capacity can increase soil nitrogen in invaded areas, to the detriment of specialised plants including herbs and orchids. Dense prickly stands can impede access to recreational and culturally important sites.



**Objective:** over the duration of the plan Auckland Council will manage gorse (*Ulex* spp.) to protect values in place to prevent adverse effects on the sustainability of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

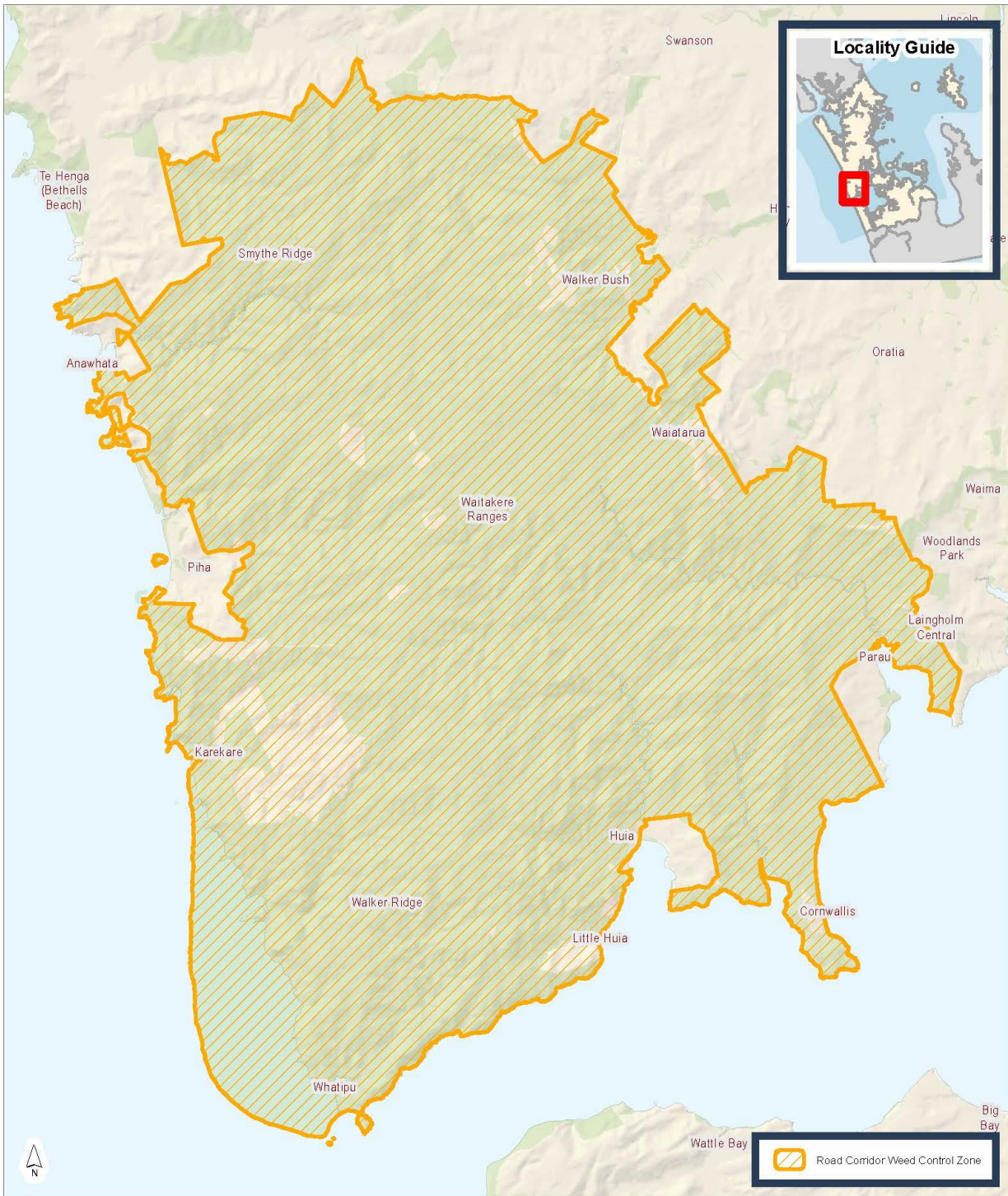
**Rules:**

7.5.2.9.1 All occupiers of any transport corridor land that is located within the Waitākere Ranges road corridor weed control zone, as defined in Map 7, must destroy all gorse on that transport corridor land.

The purpose of rule 7.5.2.9.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

### Principal measures of achievement:

Service delivery (control)	Manage gorse in priority low stature ecosystems such as dunes and wetlands, and where gorse may pose a significant fire risk to the ecology of the site, within the Waitākere Ranges and other Significant Ecological Areas on parkland, to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section. Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control. Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers of transport corridor land to destroy plants when instructed.



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## Waitākere Ranges Road Corridor Weed Control Zone

0 0.5 1 1.5  
 Kilometers  
**Scale @ A4**  
 = 1:93,246  
**Date Printed:**  
 5/18/2020



Map 7 Gorse and pampas rules apply to transport corridor land within the mapped area of Waitākere Ranges regional parkland.



### 7.5.2.10 Japanese honeysuckle (*Lonicera japonica*)

Japanese honeysuckle is an evergreen climber with dark green leaves and paired fragrant white flowers with yellow corollas. The vine can grow up to 15m/year and will quickly form dense monospecific mats which smother and suppress native vegetation, harbour mice and facilitate other invasive plants in disturbed sites, river banks, bare ground, scrubland, forest margins, fragments or gaps. In orchards it is a host of several pathogens, and in forestry plantations it will overgrow young plants and chemically inhibit plant growth of some pine species.



**Objective:** over the duration of the plan Auckland Council will manage Japanese honeysuckle (*Lonicera japonica*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

### 7.5.2.11 Jasmine (*Jasminum polyanthum*)

Also known as: pink jasmine, white jasmine

Jasmine is a wiry evergreen climber up to 12m tall which produces an abundance of reddish-pink flower buds in late winter and early spring, followed by fragrant star-like white flowers. It is a rapid and vigorous climber, able to invade dense forest and smother all vegetation in the subcanopy. It is also capable of forming dense groundcover, preventing native seedling establishment in forest and disturbed ecosystems.



**Objective:** over the duration of the plan Auckland Council will manage jasmine (*Jasminum polyanthum*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

**7.5.2.12 Madeira vine (*Anredera cordifolia*)**

Also known as: Madeira, mignonette vine, potato vine, lamb’s tail.

Madeira vine is a perennial climbing vine up to 40m long with heart-shaped or oval fleshy leaves and drooping inflorescences of small fragrant cream flowers from January to April. It can rapidly invade disturbed forest and margins, plantations, gullies, scrublands, coastline, dunes and riparian margins by smothering and sometimes crushing understorey plants.



**Objective:** over the duration of the plan Auckland Council will manage Madeira vine (*Anredera cordifolia*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

**Principal measures of achievement:**

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.  Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.



### 7.5.2.13 Moth plant (*Araujia hortorum*)

Moth plant is a perennial climber with scrambling stems, glossy leaves, white or pale pink flowers borne in clusters or singly, and fleshy pear-shaped fruit. It smothers and kills plants up to medium-high canopy, preventing recruitment in forest, coastline, cliffs, shrublands, mānawa/mangroves, inshore and offshore islands, orchards and disturbed habitats. Based on its life-form, there can be long-term potential for catastrophic impacts on forest structure. Milky latex in stems, leaves and roots are poisonous and cause dermatitis.



**Objective:** over the duration of the plan Auckland Council will manage moth plant (*Araujia hortorum*) to protect values in places to prevent adverse effects on the sustainability of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Rules:

7.5.2.13.1 All occupiers of any land that is located within the buffer area, as defined in Map 6, of a park which is managed for moth plant, must destroy all moth plant on that land.

Rule 7.5.2.13.1 is a good neighbour rule.

The purpose of rule 7.5.2.13.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Manage the pest plant within Significant Ecological Areas on parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section, to enhance ecosystem function and resilience, and protect the values of nearby parkland. Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control. Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers to destroy plants when instructed.

### 7.5.2.14 Pampas grass (*Cortaderia jubata* and *C.selloana*)

Pampas grass is a clump-forming grass up to 4m tall, with sharp leaves, erect dense fluffy white to purple flower heads that fade to dirty white or brown in cooler months. It readily colonises burnt or disturbed sites and quickly becomes very dense, replacing native plants in coastal ecosystems and other open or disturbed habitats. It also provides habitat for possums, rats, and mustelids. In forestry plantations it can quickly become very dense, smothering young trees and being a nuisance during harvesting. Build-up of dead leaves, leaf bases and flowering stalks can create a significant fire hazard in invaded areas.



**Objective:** over the duration of the plan Auckland Council will manage pampas (*Cortaderia jubata* and *C. selloana*) to protect values in place to prevent adverse effects on the sustainability and recreational values of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

**Rules:**

7.5.2.14.1 All occupiers of any transport corridor land that is located within the Waitākere Ranges road corridor weed control zone, as defined in Map 7, must destroy all pampas on that transport corridor land.

The purpose of rule 7.5.2.14.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

### Principal measures of achievement:

Service delivery (control)	Manage pampas in priority coastal and wetland ecosystems and where pampas may pose a fire risk to the ecology of the site, within the Waitākere Ranges and other Significant Ecological Areas on parkland, to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	<p>Enforce occupier responsibility to control the pest plant pursuant to the rules in this section.</p> <p>Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.</p>
Education and advice	<p>Provide information and advice on pest plant identification, impacts and control.</p> <p>Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.</p>
Requirement to act	Land occupiers of transport corridor land to destroy plants when instructed.

### 7.5.2.15 Periwinkle (*Vinca major*)

Also known as: bigleaf periwinkle, large periwinkle, greater periwinkle and blue periwinkle.

Periwinkle is a scrambling perennial herbaceous groundcover plant or vine with solitary blue-violet flowers. It is a vector of Pierce's disease which infects grapes and would greatly impact vineyards. It smothers the ground, especially on stream banks, preventing native seedling regeneration and altering erosion and flow regimes.



**Objective:** over the duration of the plan Auckland Council will manage periwinkle (*Vinca major*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland and in surrounding buffer land to levels that enhance ecosystem function and resilience and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

### 7.5.2.16 Rhamnus (*Rhamnus alaternus*)

Also known as: evergreen buckthorn

Rhamnus is an evergreen shrub up to about 5m high with glossy serrated leaves, small green flowers and dark glossy red or black fruit. It forms dense stands, preventing the recruitment of native plants in scrublands, forest margins and plantations. It will also act as low scrub on coastal cliffs, inshore and offshore islands and rocky outcrops.



**Objective:** over the duration of the plan Auckland Council will manage rhamnus (*Rhamnus alaternus*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on Parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

**Rules:**

7.5.2.16.1 All occupiers of any land that is located within the buffer area, as defined in Map 6, of a park which is managed for rhamnus, must destroy all rhamnus on that land.

Rule 7.5.2.16.1 is a good neighbour rule.

The purpose of rule 7.5.2.16.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.



**Principal measures of achievement:**

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section.
Education and advice	Provide information and advice on pest plant identification, impacts and control.  Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers to destroy plants when instructed.

### 7.5.2.17 Wild ginger (*Hedychium gardnerianum* and *H. flavescens*)

Also known as: kahili ginger (*H. gardnerianum*), yellow ginger (*H. flavescens*)

Both wild ginger species are herbaceous perennial plants that can grow up to 3m tall with large green leaves and orange berries. Kahili ginger has yellow flowers with red stamens and yellow ginger has creamy flowers. They form dense stands preventing recruitment and suppressing up to 90% of native vegetation in forest ecosystems, potentially resulting in long-term impacts on forest composition. Invasion may alter decomposition and nutrient cycling patterns, and increase erosion in the long-term through loss of canopy.



**Objective:** over the duration of the plan Auckland Council will manage wild ginger (*Hedychium gardnerianum* and *H. flavescens*) to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

**Rules:**

7.5.2.17.1 All occupiers of any land that is located within the buffer area, as defined in Map 6, of a park which is managed for wild ginger, must destroy all wild ginger on that land.

Rule 7.5.2.17.1 is a good neighbour rule.

The purpose of rule 7.5.2.17.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section.
Education and advice	Provide information and advice on pest plant identification, impacts and control.  Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers to destroy plants when instructed.

### 7.5.2.18 Woolly nightshade (*Solanum mauritianum*)

Woolly nightshade is a perennial shrub or small tree, up to 4m high with grey-green furry leaves, violet flowers and dull yellow berries. It forms dense stands in disturbed scrub or forest, roadsides, pasture margins, urban areas and riparian margins, inhibiting the regeneration of native plant species in invaded sites. It can displace pasture grasses and clover, reducing food availability for stock, and will colonise clear-felled areas in forestry plantations. Direct or indirect contact with the plant may cause skin irritation and respiratory problems.



**Objective:** over the duration of the plan Auckland Council will manage woolly nightshade (*Solanum mauritianum*) to protect values in places to prevent adverse effects on the sustainability of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within and around that parkland to an extent that protects the values of that parkland.

**Rules:**

7.5.2.18.1 All occupiers of any land that is located within the buffer area, as defined in Map 6, of a park which is managed for woolly nightshade, must destroy all woolly nightshade on that land.

Rule 7.5.2.18.1 is a good neighbour rule.

The purpose of rule 7.5.2.18.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Manage the pest plant within Significant Ecological Areas on parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section, to enhance ecosystem function and resilience, and protect the values of nearby parkland.
Education and advice	Provide information and advice on pest plant identification, impacts and control. Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.
Requirement to act	Land occupiers to destroy plants when instructed.

### 7.5.3 Wāhi whai tupu orotā / Site-led pest plants managed on-park only

The pest plants in the following section are all capable of damaging native ecosystems, in some cases having the potential to lead to wide-scale loss of native biodiversity in our region's parkland if not adequately managed. The pest plants in the following section are subject to management programmes on parkland but unlike the species in the preceding section, the following programmes do not provide for management in buffer areas around parkland. These species have been included in recognition of their particularly problematic nature across the park network, but this Regional Pest Management Plan programme does not preclude Council undertaking control of other plant species, or on parkland not included within this statutory programme, under Council's general role as a land manager.

**Objective:** over the duration of the plan Auckland Council will manage the pest plants specified below to protect values in places to prevent adverse effects on the sustainability of natural ecosystems on public parkland, and the ecological processes and biological diversity therein.

**Intermediate outcome:** "protecting values in places" which means that the subject, that is capable of causing damage to Significant Ecological Areas on parkland, is controlled within that parkland to an extent that protects the values of that parkland.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant on Significant Ecological Areas on parkland to levels that enhance ecosystem function and resilience, and protect the values of the parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Education and advice	Provide information and advice on pest plant identification, impacts and control. Provide advice and support to community groups undertaking pest plant control, with priority given to activity in or around biodiversity focus areas.



### **Aristea (*Aristea ecklonii*)**

Aristea is an evergreen perennial, with woody rhizomes, leaves up to 40cm long and numerous blue flowers in 5 to 7-flowered clusters. It is prevalent on roadsides but forest, scrubland, coastlines, herbfields, rocky and bare lands are also suitable habitats. It forms dense, long-lived stands in open sites and moderate shade, preventing seedlings of native species from establishing. In forest ecosystems, it may open canopy, leading to succession by introduced shrubs, vines and grasses.



### **Alligator weed (*Alternanthera philoxeroides*)**

Alligator weed is a perennial emergent aquatic bottom-rooted herb forming extensive floating mats on water's surface but can also grow terrestrially, preferring damp ground. The dense mats can alter aquatic habitat structure (e.g. water flow, light penetration), alter invertebrate community composition and reduce native plant cover and diversity in wetlands and margins of water bodies.



It will also displace valuable pasture species and block drainage channels, exacerbating flooding on farmland.

### **Bangalow palm (*Archontophoenix cunninghamiana*)**

Bangalow palm is a tall palm, with an undivided trunk, pinnate leaves, hanging inflorescences and globose scarlet fruit, growing up to 14m in Tāmaki Makaurau / Auckland (25m in native range). It seeds prolifically and can be very long-lived; some Aotearoa / New Zealand specimens known to have been planted prior to 1840s. It is highly invasive in South America, dominating forests and out-competing native South American palms. In Aotearoa / New Zealand it has the potential to displace native species, especially culturally significant nikau palms which occupy similar niches but have been shown to be poorer competitors under controlled conditions. Because it is shade tolerant and bird dispersed, it has potential to invade intact native forest, especially through seedling bank exploitation of light gaps.



### Boneseed (*Chrysanthemoides monilifera*)

Boneseed is an evergreen shrub or small tree up to 3m in height with leathery irregularly serrated leaves, bright yellow flowers produced from September to February and hard oval green fruit which ripen to black. It is likely to crowd out native plants in open coastal areas or disturbed habitats, including freshly cleared forestry plantations. It may also alter plant community composition through allelopathy and competition, alter patterns of nutrient cycling, and facilitate other weeds. The plant is highly flammable and therefore a fire risk in invaded ecosystems.



### Boxthorn (*Lycium ferocissimum*)

Boxthorn is a densely branched and spiny evergreen shrub up to 6m tall with creamy purple flowers and fleshy red fruit. It is a pest plant in coastal habitats; inhibiting the regeneration of native plants, invading coastal pastures, ensnaring seabirds and impeding access to nesting sites. Spines can become imbedded in bone or soft tissue, resulting in infection and pseudo-tumours.



### Brush wattle (*Paraserianthes lophantha*)

Brush wattle is a small tree or shrub with frond like leaves and green-yellow flowers, grouped in cylindrical inflorescences borne May-August, followed by flat seed pods up to 15cm long. It is a pest plant in open disturbed sites including riverbanks, sand dunes and other coastal habitats, out-competing native plants and potentially facilitating other exotic pest plants via nitrogen fixation.





### Chinese fan palm (*Trachycarpus fortunei*)

Also known as: Chinese windmill palm, Chusan palm  
 Chinese fan palm is a 4-12m tall palm with an unbranched trunk, fan shaped leaves and sharp marginal teeth on the petioles. Fruit are yellow but turn blue-black with age. The large leaves cast deep shade, reducing native seedling recruitment and growth. Urban reserves are most at risk of invasion due to human cultivation of the plant in surrounding areas. Intact forests in remote areas are also at risk long-term due to bird-mediated seed dispersal and shade tolerance, potentially resulting in dominance of the forest understorey. Invasion may also result in the modification of soil biota communities and nutrient cycling impacts in these ecosystems. There is the potential for direct competition with taonga species such as nikau.



### Chinese privet (*Ligustrum sinense*)

Chinese privet is an evergreen or semi-deciduous shrub to small tree up to 5m tall with white, fragrant flowers borne in clusters during spring-summer and purple-black fruit. It displaces native shrubs and trees and can form dense stands which dominate the canopy layer and prevent recruitment of native species, thereby altering vegetation structure and diversity in forest and shrubland ecosystems. Root intrusions can damage archaeological features on maunga and other significant wāhi. Some people may have a reaction to privet, often as a cross-reactivity to their main allergens.



### Monkey apple (*Syzygium smithii* syn. *Acmena smithii*)

Also known as: lilly pilly

Monkey apple is a tree up to 15m tall with glossy leaves, creamy coloured flowers borne October-January and white or pale pink/mauve fleshy fruit. It colonises native forest, especially exposed ridges, edges and regenerating secondary scrub. It is also capable of recruiting below closed canopy due to high shade tolerance, therefore intact forests are at risk of invasion. In the long-term, invasion may lead to transformative change to forest composition and structure.



### Norfolk Island hibiscus (*Lagunaria patersonii*)

Norfolk Island hibiscus is a long-lived evergreen tree up to 15m tall with white to pink flowers borne predominantly between September-April. It is tolerant to harsh conditions and has the potential to compete with co-occurring native plants. Coastal ecosystems currently appear to be most at risk from invasion, but wetlands are probably also at risk due to occupancy of swamps in native range.



### Pampas grass (*Cortaderia jubata* and *C. selloana*)

Pampas grass is a clump-forming grass up to 4m tall, with sharp leaves, erect dense fluffy white to purple flower heads that fade to dirty white or brown in cooler months. It readily colonises burnt or disturbed sites and quickly becomes very dense, replacing native plants in coastal ecosystems and other open or disturbed habitats. It also provides habitat for possums, rats, and mustelids. In forestry plantations it can quickly become very dense, smothering young trees and being a nuisance during harvesting. Build-up of dead leaves, leaf bases and flowering stalks can create a significant fire hazard in invaded areas.



### Phoenix palm (*Phoenix canariensis*)

Phoenix palm is a stocky palm tree with a trunk reaching up to 6m tall, large segmented leaves and orange-yellow berries. Sharp spines on the leaves are capable of causing severe injury requiring hospitalisation, with children especially at risk. It competitively excludes native vegetation due to its large size and spines, which are unpalatable to grazers. Numerous threatened species are potentially at risk in coastal ecosystems including dunes, saline wetlands, cliffs and coastal forest. It also has the potential to facilitate other invasive plants as epiphytes (e.g. climbing asparagus, ladder fern and Morton Bay fig) and provides habitat for a variety of invasive exotic birds.





### Tree privet (*Ligustrum lucidum*)

Tree privet is a medium sized evergreen tree growing up to 10m tall with white, fragrant flowers borne in clusters during spring-summer and poisonous purple-black berries. It displaces native shrubs and trees and can form dense stands which dominate the canopy layer and prevent recruitment of native species, thereby altering vegetation structure and diversity in forest and shrubland ecosystems. Root intrusions can damage archaeological features on maunga and other significant wāhi. Some people may have a reaction to privet, often as a cross-reactivity to their main allergens.



### Royal fern (*Osmunda regalis*)

Royal fern is a tall deciduous perennial fern with fronds up to 3m long. It forms dense stands in wetlands and freshwater ecosystems, which are likely to impact on native fauna and flora through mechanisms such as competition or habitat restructuring. It has the potential for obstructing access and reducing enjoyment of the natural freshwater environment, and may impact on the mauri of wai māori.



### Salt water paspalum (*Paspalum vaginatum*)

Salt water paspalum is a perennial grass with long creeping stolons and leathery, grey-green leaf blades, up to 8cm long. It can dominate high priority ecosystems including tidal flat margins and coastal habitats, forming near monocultures which exclude native plants and alter plant community composition. Burrowing fauna such as crabs may be excluded in invaded habitats, and invertebrate communities shifted towards more terrestrial assemblages. Monocultures can also alter foraging habitat and food availability for shore birds, leading to avoidance of invaded areas by some bird species overseas, and can alter spawning and feeding grounds of culturally important fish such as pātiki / flounder.



**Sharp rush (*Juncus acutus*)**

Sharp rush is a perennial spiny rush up to 1m tall with sharp tips and clumped green to brown flower heads borne in summer followed by red, orange or brown fruit. It forms dense stands which can displace native salt marsh vegetation, impair plant recruitment, reduce native plant richness and alter invertebrate communities.

**Tasmanian ngaio (*Myoporum insulare* incl. hybrids)**

Tasmanian ngaio is a large shrub to small tree with oval leaves, white flowers with purple dots borne between September and June and long, purple fruit. It competes with native coastal plants and hybridises readily with closely related and culturally important native ngaio (*M. laetum*), potentially affecting the gene pool of the native species. It is toxic to humans and livestock.





### 7.5.4 Te noho wātea o te kitakita orotā / Exclusion pest pathogens: kauri dieback disease (*Phytophthora agathidicida*)

At the time of writing<sup>48</sup>, kauri dieback is not known from Kohukohunui / Hunua. There is no known cure for kauri dieback disease, and once present in a catchment it is difficult to contain spread of the disease. For these reasons, keeping kauri dieback out of this large tract of high value kauri forest, much of which is council parkland, is a top regional priority. See also Tīkapa Moana / Hauraki Gulf section for Tīkapa Moana o Hauraki / Hauraki Gulf exclusion zone (section 7.1.3.1) and Sustained Control programme for the remainder of the region (section 7.7.5.2).

Symptomatic kauri trees infected with kauri dieback disease exhibit root and collar rot, resin-exuding lesions, yellowing of leaf tissue, canopy thinning and mortality. Human-mediated movement of contaminated soil is the main cause of jump-dispersal between kauri forests but it can be spread locally by feral pigs. The disease can be incurably fatal to kauri trees of all ages and, in the absence of effective treatment, has mid- to long-term potential to cause functional extinction of kauri as a canopy species. Kauri are ecosystem engineers, with profound effects on soil chemistry, and associated plant and animal communities. Consequently there is a potential for catastrophic loss of associated unique ecosystems.



**Objective:** over the duration of the plan Auckland Council will exclude kauri dieback (*Phytophthora agathidicida*) from establishing within kauri dieback exclusion zones (as identified in Map 8) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of kauri dieback within kauri dieback exclusion zones.

#### Rules:

- 7.5.4.1.1 No person shall distribute, move or release kauri dieback disease in Auckland.
- 7.5.4.1.2 No person shall move soil, or plants, or animals contaminated with soil, or goods contaminated with soil, into the Hunua kauri dieback exclusion zone

<sup>48</sup> 9 October 2017

(as identified in Map 8), unless sourced from an Auckland Council approved supplier<sup>49</sup>.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.5.4.1.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

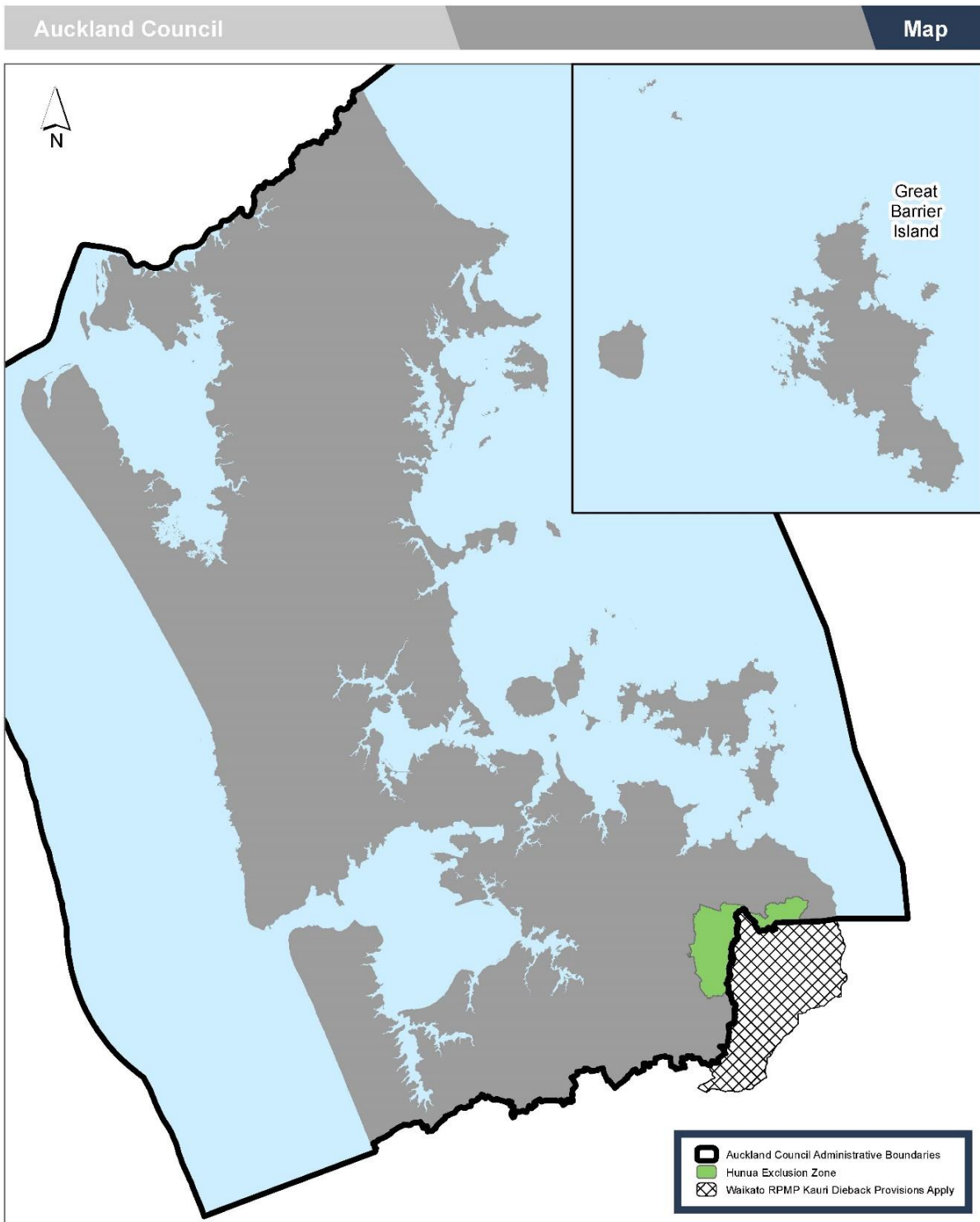
The purpose of rule 7.5.4.1.2 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

Rule 7.5.4.1.2 comes into force on 1 April 2020.

### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out management of this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance, to determine the presence of new incursions and status of existing or historical sites. Specifically, improve understanding of disease absence (or presence) in non-symptomatic areas.  Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across kauri lands.
Enforcement	Enforce restrictions on the movement of the pest and risk goods.
Education and advice	Provide information and advice on identification and impacts of kauri dieback, and how to avoid spreading the pest.
Requirement to act	All persons to take practicable steps to avoid transport and distribution of kauri dieback e.g. ensure all footwear and other equipment are free of soil when exiting areas known to be infected with kauri dieback disease.  Persons moving goods into Kohukohunui / Hunua Regional Park kauri dieback exclusion zone to ensure all goods are free of soil. All persons in possession of risk goods to comply with inspections and hygiene measures when directed by Auckland Council.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, and ecological impacts of kauri dieback disease on kauri and its ecosystem.

<sup>49</sup> An approved supplier is any supplier certified under the New Zealand Plant Production Biosecurity Scheme core standard and kauri dieback schedule <https://nzppi.co.nz/advocacy/107-696/protecting-our-nurseries-and-industry-from-biosecurity-hazards>



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**Kauri Dieback**  
**Hunua Exclusion Zone**

0 2.5 5 7.5  
 Kilometers  
 Scale @ A4  
 = 1:600,000  
 Date Printed:  
 1/16/2020



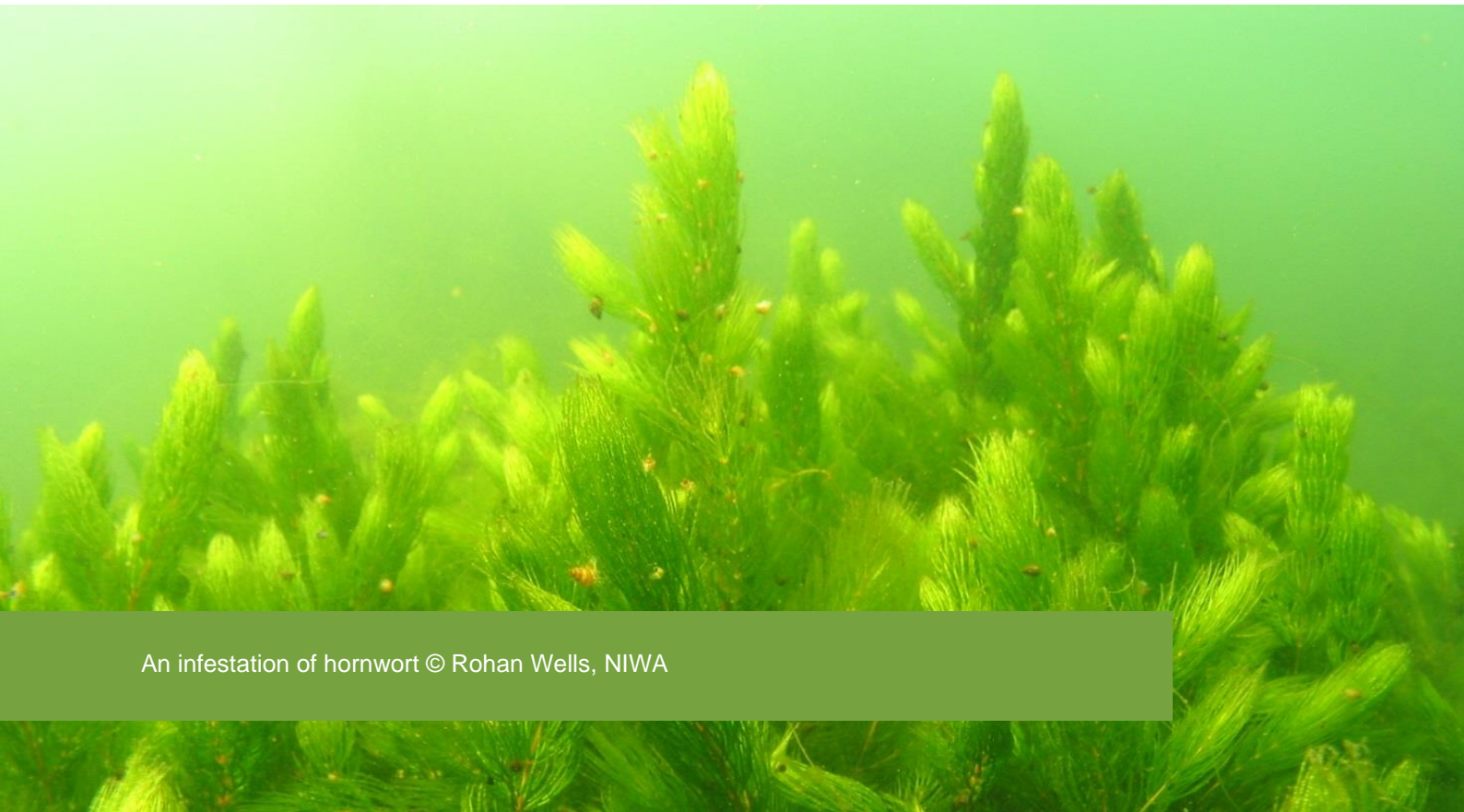
**Map 8. Kohukohunui / Hunua Ranges Regional Park kauri dieback exclusion zone<sup>50</sup>.**

<sup>50</sup> Note: the Hunua exclusion area can also be viewed at higher resolution online at <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html>

## 7.6 Ngā roto aronga matua / Priority lakes Rototoa and Tomarata

Kua heke kē te pai o ngā wai māori o Tāmaki Makaurau, kua uru kē atu ētahi momo orotā. Ahakoa he orotā kei Tomarata me Rototoa, kei runga e mau tonu ana ki ōnā wai māori, ōna uara kanorau-koiora. Engari, e tūpono hinga ēnei pūnaha hauropi nā ngā āhua orotā me ētahi atu pēhitanga, e ngaro ai pea ētahi o ngā māra tupu whāngai ora ki te pūnaha hauropi o te wai, tae atu hoki ki te ngaro o te waikaka - he ika wai māori. Ko ngā wāhanga e whai ake nei e hāngai ana ki te aro, ki te whāinga i te wāhi motuhake e taea ai ngā tipu me ngā koiora orotā te aukati i ēnei roto matua e rua, hei tiaki me te whakaora ake anō i ēnei pūnaha hauropi.

Most wai māori / freshwater bodies in mainland Tāmaki Makaurau / Auckland are degraded, with some pest species already present. While Tomarata and Rototoa do have some pests present, they retain relatively high freshwater biodiversity values. However, these ecosystems are at imminent risk of collapse due to pests and other pressures, leading to the likely loss of charophyte meadow ecosystems from the region, and loss of important populations of at-risk native species such as waikaka / black mudfish. The following sections encompass a site-led approach to manage a suite of pest plants and animals at these two top priority lakes to protect and restore these ecosystems. Other pest species may also be managed at these sites if required over the lifetime of the plan. These programmes will take an adaptive management approach, informed by research and monitoring of progress towards outcomes (biodiversity and water quality) (see also 4.2.8).



An infestation of hornwort © Rohan Wells, NIWA

### 7.6.1 Wāhi whai tupu orotā / Site-led pest plants

**Objective:** over the duration of the plan Auckland Council will manage the pest plants specified below to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems of priority lakes, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to lakes Tomarata and Rototoa, is controlled within the lakes to an extent that protects the values of the lakes.

#### Principal measures of achievement:

Service delivery (control)	Manage the pest plant in lakes Tomarata and Rototoa to levels that enhance ecosystem function and resilience, and protect the values of the lakes, as part of an integrated multi-species programme.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites. Monitor progress towards outcomes sought at sites (biodiversity and water quality) to inform management approaches.
Education and advice	Provide information and advice on pest plant identification, impacts and control. Provide support and advice to community groups undertaking pest management in and around priority lakes.
Research and development	Collaborate with research agencies to improve tools and understanding of freshwater invasive species management.



### ***Egeria (Egeria densa)***

*Egeria* is a bottom-rooted submerged perennial aquatic herb with long stems (3m and over) and white flowers borne at the water's surface between November and January. It forms dense stands displacing native aquatic plants and altering the habitat structure of macroinvertebrates and fish. Resultant impacts can include lowered dissolved oxygen levels, increased sedimentation, changes to primary production and nutrient cycling capacity of the invaded water body.



### ***Hornwort (Ceratophyllum demersum)***

Hornwort is a perennial submerged aquatic plant up to 7m tall which can be anchored to sediment by stems, or form free-floating mats. Leaves are 10-40mm long, narrow, branched and whorled forming complex architecture. Hornwort forms dense monospecific stands which can displace all native submerged vegetation down to 15m depth. The dense stands alter water flow, increase flooding risk and impede recreational access of waterbodies. Because it can grow to greater depths than other aquatic weeds, it is the species likely to have greatest impacts on deep-water charophyte meadows. Kōura are also likely to be especially impacted due to requirement for open habitat.



Rohan Wells, NIWA

## 7.6.2 Wāhi whai kararehe orotā / Site-led pest animals

**Objective:** over the duration of the plan Auckland Council will manage the pest animals specified below to protect values in place to prevent adverse effects on the sustainability and recreational enjoyment of natural ecosystems of priority lakes, and the ecological processes and biological diversity therein.

**Intermediate outcome:** “protecting values in places” which means that the subject, that is capable of causing damage to lakes Tomarata and Rototoa, is controlled within the lakes to an extent that protects the values of the lakes.

### Principal measures of achievement:

Service delivery (control)	Manage the pest animal in lakes Tomarata and Rototoa to levels that enhance ecosystem function and resilience, and protect the values of the lakes, as part of an integrated multi-species programme.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites. Monitor progress towards outcomes sought at sites (biodiversity and water quality) to inform management approaches.
Education and advice	Provide information and advice on pest animal identification, impacts and control. Provide support and advice to community groups undertaking pest management in and around priority lakes.
Research and development	Collaborate with research agencies to improve tools and understanding of freshwater invasive species management.

**Brown bullhead catfish (*Ameiurus nebulosus* syn. *Ictalurus nebulosus*)**

Brown bullhead catfish are scale-less dark brown to olive green fish which are most easily distinguished by eight whiskery barbels around the mouth. Adults can grow up to 250-500mm long. They are opportunistic generalist feeders, which have been documented eating common bullies as well as a wide range of invertebrates including kōura. Their presence in freshwater bodies can contribute to poor water clarity by extensive consumption of zooplankton, thereby exacerbating algal blooms. Bottom-feeding can also cause the re-suspension of sediment and up-rooting of submerged aquatic plants. These impacts can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton.



Stephen Moore

**Koi carp (*Cyprinus carpio*)**

Koi carp are an ornamental strain of common carp measuring up to 700mm long which are variable in colour but can be distinguished by the presence of a pair of barbels. Koi carp can negatively impact submerged aquatic plant communities via plant uprooting and reduced light penetration, and alter invertebrate communities via predation and habitat modification. Waterfowl, native fish and kōura are also at risk from increased water turbidity, due to koi carp stirring sediment when feeding, and resource competition. Invasion may contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton.



Stephen Moore

### Perch (*Perca fluviatilis*)

Perch are olive green-grey fish (< 1kg) with six or more dark vertical bands across their sides. They can contribute to poor water clarity via the consumption of zooplankton, thereby exacerbating algal blooms. Feeding habits can also cause the re-suspension of sediment and up-rooting of submerged aquatic plants. Combined effects of zooplankton feeding and bottom feeding habits can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton. Perch presence has shown to reduce the abundance of common bullies, and impacts are likely on other native fish such as tuna (eels), īnanga, galaxiids and paraki/smelt through predation, aggressive attacks and competition for prey.



### Rudd (*Scardinius erythrophthalmus*)

Rudd are fish with bright red fins, usually 200-250mm as adults, but can be larger. Extensive herbivory can negatively affect aquatic plant growth, survival and community composition, sometimes leading to aquatic plant collapse in lakes. Some high impact aquatic weeds, including hornwort, are selectively avoided by rudd and may thus be further competitively advantaged. They may compete with native fish such as paraki/smelt and common bullies for invertebrate prey. Facilitation of nutrient and sediment suspension in the water column and predation of zooplankton by rudd can contribute to regime shifting of lakes from clear to turbid states.



Stephen Moore

### Tench (*Tinca tinca*)

Tench are olive green-bronze fish (30-70cm), distinguished by red eyes, two barbels, large soft-rayed fins and copious mucous. They can contribute to poor water clarity via the consumption of zooplankton, thereby exacerbating algal blooms. Bottom-feeding also causes the re-suspension of sediment and up-rooting of submerged macrophytes. These combined effects can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton. Indirect effects to native fish species diversity via transmission of parasites, reduced water clarity, and/or competition for invertebrate prey are also likely.





## 7.7 Rohe katoa / Whole Region

Ahakoia he rahi ngā hōtaka o tēnei RPMP e aro ana ki te ārai matawhenua me ngā wāhi he rahi ngā kanorau-koiora, ko ētahi hōtaka ka āhei te whakamau puta noa, tata rānei ki te katoa o te rohe. He rerekē tonu ngā hua ka puta i ēnei hōtaka tae atu ki ōna āhua whakamahi, ka whakamāramatia i ngā wāhanga te whai ake nei.

While many of the programmes in this RPMP are targeted to defendable geography and sites of highest biodiversity, some programmes are applied across all, or almost all, of the region. These programmes vary widely in their outcomes and associated delivery mechanisms, as described in the following sections.



Tāmaki Makaurau Auckland CBD and beyond.



### 7.7.1 Te noho wātea o te kararehe orotā / Exclusion pest animals

The following pest animal species are not known to be established either in the Tāmaki Makaurau / Auckland region (rooks) or part of the region (wallabies; absent from the region with the exception of Kawau). If either of these pests were to become widely established, their impacts could be severe. Therefore early intervention to prevent establishment would be a cost effective approach in the event of an incursion.

#### 7.7.1.1 Rook (*Corvus frugilegus*)

Rooks are large black birds with a violet-blue glossy sheen, between 20 and 30cm long. Rooks feed on invertebrates and plant material. They cause extensive damage to maize, peas, squash, green feed and cereal crops and uproot pasture searching for grass grubs in pasture. They are also urban nuisance pests and can aggressively attack people.



**Objective:** over the duration of the plan Auckland Council will exclude rooks (*Corvus frugilegus*) from establishing in the region to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of rooks in the Tāmaki Makaurau / Auckland region.

#### Rules:

- 7.7.1.1.1 No person shall cause to breed any rook within the Auckland region.
- 7.7.1.1.2 No person shall distribute or release (or cause to be released or distributed), any rook within the Auckland region.
- 7.7.1.1.3 No person shall sell or offer for sale any rook within the Auckland region.

The purpose of these rules is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on pest animal identification, impacts and control.

### 7.7.1.2 Wallaby (*Macropus*, *Petrogale* and *Wallabia* spp.)

Wallabies are medium-sized, semi-nocturnal marsupial mammals. They compete directly with livestock for pasture and have a substantial diet overlap with sheep resulting in large production losses in the sheep and beef industry. They also damage newly planted radiata pine plantations, browse native forest seedlings and destroy understorey, favouring kāmahi and māhoe.



**Objective:** over the duration of the plan Auckland Council will eradicate wallabies (*Macropus*, *Petrogale* and *Wallabia* spp.) from within the Tāmaki Makaurau / Auckland region to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of wallabies in the Tāmaki Makaurau / Auckland region, other than the existing population on Kawau Island.

**Rules:**

- 7.7.1.2.1 No person shall cause to breed any wallaby within the Auckland region.
- 7.7.1.2.2 No person shall distribute or release (or cause to be released or distributed), any wallaby within the Auckland region.
- 7.7.1.2.3 No person shall sell or offer for sale any wallaby within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of these rules is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Service delivery (control)	Incursion responses to all sightings of wallabies within the region outside of Kawau Island. Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on pest animal identification, impacts and control.

See also section 7.3 for Kawau eradication.

## 7.7.2 Aukati haere noa i te kararehe / Progressive Containment animals

These progressive containment pest animals are present in Tāmaki Makaurau / Auckland at sufficient numbers or distributions that eradication may not be possible in the short term. Nonetheless, all are species that could be suppressed to much lower levels than they are currently at, thereby substantially and cost effectively reducing future impacts. While taking a regional approach in the long-term, containment strategies for these species will also focus on prioritising significant sites first, notably Te Wao Nui a Tiriwa / the Waitākere Ranges and Kohukohunui / Hunua Ranges.

### 7.7.2.1 Feral deer (*Cervus*, *Axis*, *Dama*, *Odocoileus*, *Elaphurus* spp.)

Feral deer are medium to large-sized ungulates. Red deer have reddish-brown coats and can reach 180kg. Fallow deer are much smaller and have a chestnut coloured coat. Heavy and selective deer browsing on native plants, particularly schefflera/patete, three-finger, horoeka/lancewood, and mouku/hen and chicken fern, can radically change forest structure and impact below-ground processes by altering the nature of litter inputs into the soil. Feral deer are also spill-over hosts and potential reservoirs of bovine TB.



**Objective:** over the duration of the plan Auckland Council will progressively contain feral deer<sup>51</sup> (*Cervus*, *Axis*, *Dama*, *Odocoileus*, *Elaphurus* spp. including any hybrid) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of feral deer in the Tāmaki Makaurau / Auckland region, over time.

#### Rules:

- 7.7.2.1.1 No person shall release from containment any deer in any part of the Auckland region.
- 7.7.2.1.2 No person shall move or distribute any deer into the Hauraki Gulf Controlled Area, Hunua and Waitākere Ranges (as defined in Map 9), or onto or between any of the areas.

<sup>51</sup> A feral deer includes any deer that is not:

- a) being kept or farmed in accordance with the Wild Animal Control Act 1977; and
- b) identified in accordance with the National Animal Identification and Tracing Act 2012.



The purpose of rules 7.7.2.1.1 and 7.7.2.1.2 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	<p>Provide support to the Department of Conservation as the lead agency in managing deer in the region.</p> <p>Enter any property within the specified geographic area of the programme and carry out control work on this species, prioritising control operations by their relative contribution to 1) preventing establishment of new deer species in the region (e.g. Sika), 2) excluding deer from Kohukohunui / Hunua and Te Wao Nui a Tiriwa / Waitākere, 3) protecting other biodiversity focus areas and 4) protecting the deer-free status of Northland.</p>
Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new incursions and status of existing or historical sites.</p>
Education and advice	<p>Provide information and advice on responsible domestic ownership and containment as well as identification and impacts of the pest animal.</p> <p>Encourage reporting of sightings of feral deer.</p> <p>Provide advice and support to community groups undertaking pest animal control.</p>
Enforcement	<p>Enforce prohibition on release.</p> <p>Enforce prohibition on possession and movement of deer within Kohukohunui / Hunua Ranges and Te Wao Nui a Tiriwa / Waitākere Ranges.</p>

See also section 7.1.1 for Hauraki Gulf Controlled Area Exclusion programme.

### 7.7.2.2 Feral goat (*Capra hircus*)

Feral goats are even-toed hoofed, monochromatic or mixture of black, white and brown ungulates. Males weigh c.45-55kg, females c.25-35kg. Browsing causes reductions in vegetation cover and density, loss of plant species richness, prevents regeneration and alters plant community composition in favour of unpalatable species. Feral populations can act as disease reservoirs for farmed goats and cause damage to farm fences resulting in livestock escapes.



**Objective:** over the duration of the plan Auckland Council will progressively contain feral goats<sup>52</sup> (*Capra hircus*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of feral goats in the Tāmaki Makaurau / Auckland region, over time.

**Rules:**

- 7.7.2.2.1 No person shall release from containment any goat in any part of the Auckland region.
- 7.7.2.2.2 No person shall move or distribute any goat into the Hauraki Gulf Controlled Area or the Hunua and Waitākere Ranges (as defined in Map 9), or onto or between any of the areas, unless the goat is a British alpine, toggenburg, nubian, saanen, or sable dairy goat.
- 7.7.2.2.3 No person shall farm or keep any goat on any island within the Hauraki Gulf Controlled Area or in the Hunua and Waitākere Ranges (as defined in Map 9), except in relation to the British alpine, toggenburg, nubian, saanen, or sable dairy goat.
- 7.7.2.2.4 Any person farming or keeping a goat in accordance with rule 7.7.2.2.3 must:
- a) meet the minimum goat fencing requirement; or
  - b) tether any goat not contained within fencing that meets the minimum fencing requirement.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

<sup>52</sup> A feral goat includes any goat that is not:

- a) held behind effective fences or otherwise constrained; and
- b) identified in accordance with an animal identification device approved under the National Animal Identification and Tracing Act 2012.

The purpose of rules 7.7.2.2.1 and 7.7.2.2.2 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rules 7.7.2.2.3 and 7.7.2.2.4 is to regulate activities that may affect measures taken to implement the plan.

**Minimum goat fencing requirement means:**

1. In relation to an existing fence with conventional post, wire and batten, a fence that is:
  - a. a minimum overall fence height of 1175 mm; and
  - b. a maximum of 5 m spacing between posts; and
  - c. a minimum of 7 wires with maximum spacing of 200 mm between top wires; and
  - d. spaces between wires gradually decreasing to 100 mm between bottom two wires; and,
  - e. the bottom wire is a maximum of 100 mm above the ground; and
  - f. a minimum of 1m spacing between battens; and
  - g. all wires must be strained to a minimum 150 kgs of tension; and
  - h. all materials are structurally sound; and
  - i. swing or driven footing in all dips or hollows; and
  - j. which has been topped up with a top up netting fence that is:
    - i. minimum overall fence height 1550 mm; and
    - ii. any new wires are minimum gauge of 2.5 mm high tensile galvanised; and
    - iii. any existing, end and angle strainers must have at minimum a 2.1 m long round with minimum diameter 150 mm dug in and wired on to attach netting to; and
    - iv. a batten of dimensions 1500 x 50 x 50 mm must be installed beside any existing posts to attach netting to; and
    - v. minimum top up netting specifications of height 600 mm, stay wire width 300 mm and 5 line wires; and
    - vi. an overlap may be created onto existing fence if required.
2. In relation to a new conventional post wire and batten fence, a fence that has:
  - a. minimum overall fence height 1550 mm; and
  - b. any wires are minimum gauge of 2.5 mm high tensile galvanised; and
  - c. the bottom wire is a maximum of 70 mm above the ground along a bulldozed line or equivalent<sup>53</sup>; and
  - d. any end strainers are 3 m long rounds with minimum 200 mm diameter; and

<sup>53</sup> Note that bulldozing may carry additional risk of spreading kauri dieback disease. Equipment should be clean and environmental disturbance in fence construction should be minimized.

- e. any angle strainers are 2.7 m long rounds with minimum 200 mm diameter; and
  - f. no internal stays; and
  - g. any posts are 2.4 m long rounds with minimum diameter 120 mm; and
  - h. a maximum spacing between posts of
    - i. 5 metres on land with less than 30 degree ground slope; or
    - ii. 4 metres on land with ground slope between 30 degrees to less than 45 degrees; or
    - iii. 3 metres on land with ground slope of 45 degrees or more; and
      - i. swing or driven footing in all dips or hollows; and
  - j. is constructed alongside any water body with an appropriate setback sufficient to avoid any slumping which may cause a breach of the fencing standard; and
  - k. two electrified outriggers at 300mm and 1200mm spacing; and
  - l. a minimum of 1m spacing between battens; and
  - m. minimum batten dimensions are 1500 x 50 x 40 mm; and
  - n. 11 wires with a maximum spacing from bottom to top of 114mm, 114mm, 127mm, 139mm, 165mm, 178mm, 178mm, 178mm, 178mm, 178mm; and
  - o. all wires must be strained to a minimum 150 kilograms of tension.
3. In relation to a new netting fence, a fence that has:
- a. minimum overall fence height 1550 mm; and
  - b. been constructed of tight lock deer netting; and
  - c. no internal stays; and
  - d. any stay wires are 300mm wide; and
  - e. a minimum of 11 line wires; and
  - f. the bottom of the netting is a maximum of 70 mm above the ground; and
  - g. any end strainers are 3 m long rounds with minimum 200 mm diameter; and
  - h. any angle strainers are 2.7 m long rounds with minimum 200 mm diameter; and
  - i. swing or driven footing in all dips or hollows; and
  - j. any posts are 2.4 m long rounds with minimum diameter 120 mm; and
  - k. a maximum spacing between posts of
    - i. 5 metres on land with less than 30 degree ground slope; or
    - ii. 4 metres on land with ground slope between 30 degrees to less than 45 degrees; or
    - iii. 3 metres on land with ground slope of 45 degrees or more.

4. In relation to any gate, whether new or top-up, a gate that is:
  - a. the same height as the adjoining fence; and
  - b. the bottom of the gate is a maximum of 100 mm above the ground at all points including over any ditches or hollows; and
  - c. all components are structurally sound.
5. In relation to any fence across any water body, that fence must have a flood gate that:
  - a. is constructed of H3 treated 100mm x 50mm timber; and
  - b. is suspended from an overhead wire or rail in such a way that the spacings will allow the passage of water but will not allow stock including goats to pass through; and
  - c. swings freely; and
  - d. is panelled in partitions; and
  - e. has a cross-bar positioned in the top third of the floodgate; and
  - f. is on the downstream side of any culvert.

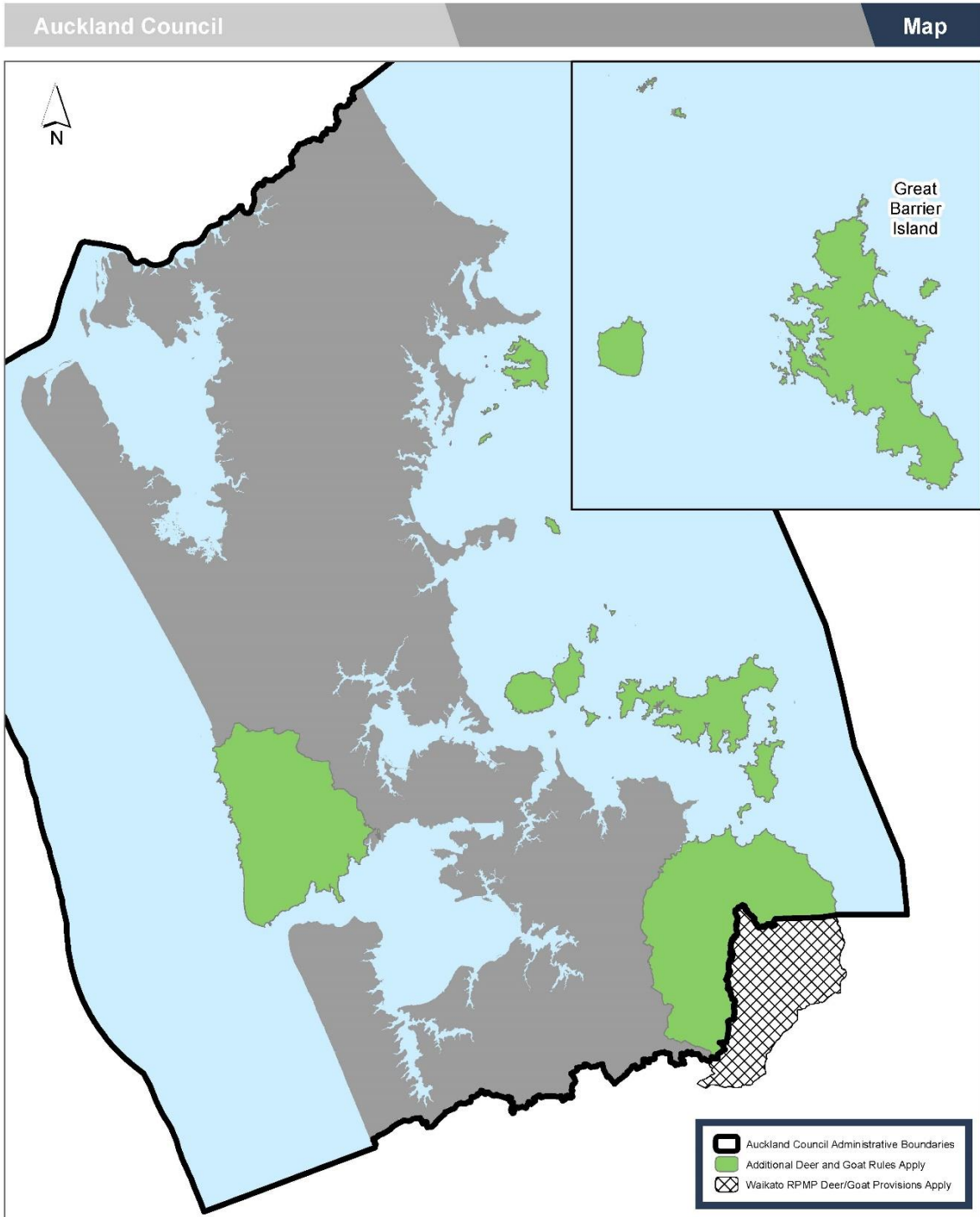
Wire netting may not be used in floodgate construction. Flood gates may not be a single solid panel.

Electric type fences do not comply, as shortages and vegetation growth may lead to non-compliance.



### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species. Over the lifetime of the plan, progressively contain feral goat populations across the entire region, prioritising control operations by their relative contribution to excluding feral goats from Kohukohunui / Hunua and Te Wao Nui a Tiriwa / Waitākere, and secondarily by protecting other biodiversity focus areas.
Education and advice	<p>Provide information and advice on pest animal identification, impacts and control.</p> <p>Provide information and advice on conditions relating to keeping of goats.</p> <p>Provide advice and support to community groups undertaking pest animal control, with priority given to activity in or around biodiversity focus areas, or in defendable or strategic geographic locations such as peninsulas, islands and corridors.</p>
Enforcement	<p>Enforce conditions on goat farms within the Hauraki Gulf Controlled Area and the Hunua or Waitākere Ranges buffer zones.</p> <p>Enforce conditions on movement of goats to or within the Hauraki Gulf Controlled Area.</p> <p>Enforce Sections 52 and 53 of the Biosecurity Act, preventing the breeding, exhibition, sale and distribution of the pest.</p>



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**Regional Pest Management Plan  
Areas with Additional  
Deer and Goat Rules**

0 2.5 5 7.5  
Kilometers  
Scale @ A4  
= 1:600,000  
Date Printed:  
1/16/2020



**Map 9. Areas where additional rules apply as part of the feral deer (7.7.2.1) and feral goat (7.7.2.2) progressive containment programmes<sup>54</sup>.**

<sup>54</sup> Note: these areas can also be viewed at higher resolution online at <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html>

### 7.7.2.3 Possum (*Trichosurus vulpecula*)

Possums are small marsupials with thick bushy tails, weighing between 1.4-6.4kg and can be grey, brown or black in colour. Possums will prey on eggs and chicks of various threatened birds, including kōkako, and compete for nest sites with hole-nesting birds, such as kiwi and parakeets. Heavy plant browsing by possums can suppress or eliminate preferred plants by selective browsing. This can alter the vegetation composition in invaded ecosystems and ultimately lead to the collapse of palatable canopy species, such as Northern rātā. Possums are also considered serious agricultural pests. They are vectors for bovine TB in cattle and compete directly with stock for pasture.



Nga Manu Images

**Objective:** over the duration of the plan Auckland Council will progressively contain possums (*Trichosurus vulpecula*) in Tāmaki Makaurau / Auckland to reduce adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of possums, in the Tāmaki Makaurau / Auckland region, over time.

#### Rules:

7.7.2.3.1 No person shall cause to breed any possum within the Auckland region.

7.7.2.3.2 No person shall distribute or release (or cause to be released or distributed), any possum within the Auckland region.

7.7.2.3.3 No person shall sell or offer for sale any possum within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.2.3.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.2.3.2 and 7.7.2.3.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species. Control to be prioritised to rural areas of high biodiversity value, including the Waitākere Ranges, or strategic geography (e.g. peninsulas). Set up and maintain possum control in staged blocks, aiming for at or below 2-5% Residual Trap Catch, depending on the values being protected at the site, and specifically aiming for below 2% in the Waitākere Ranges. Control may also be delivered at smaller scale in high biodiversity value urban parkland.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest animal.
Education and advice	<p>Provide information and advice on pest animal identification, impacts and control.</p> <p>Provide advice and support to community groups undertaking pest animal control, with priority given to activity in or around Te Wao Nui a Tiriwa / the Waitākere Ranges and Kohukohunui / Hunua Ranges and other biodiversity focus areas, or in defendable or strategic geographic locations such as peninsulas, islands and corridors.</p>

See also section 7.1.2.9 for Hauraki Gulf Controlled Area site-led programme, and section 7.3 for Kawau eradication.

#### 7.7.2.4 Sulphur-crested cockatoo (*Cacatua galerita*)

Sulphur-crested cockatoos are large stocky white parrots with a forward-curving yellow crest. In the Tāmaki Makaurau / Auckland region farmers have reported damage to pecan nuts, walnuts, feijoas, and plum crops but the cockatoos have also been recorded damaging various cereal crops nationally. Birds will often attack kauri, rimu and other species, stripping bark, eating the growing tips, seed, flowers and fruit, and digging into the trees with their beaks. There is also a potential risk the cockatoos will spread Psittacine Beak and Feather Disease to native parrots.



**Objective:** over the duration of the plan Auckland Council will progressively contain sulphur-crested cockatoos (*Cacatua galerita*) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of sulphur-crested cockatoos in the Tāmaki Makaurau / Auckland region, over time.

**Rules:**

- 7.7.2.4.1 No person shall cause to breed any sulphur-crested cockatoo within the Auckland region.
- 7.7.2.4.2 No person shall distribute or release (or cause to be released or distributed), any sulphur-crested cockatoo within the Auckland region.
- 7.7.2.4.3 No person shall sell or offer for sale any sulphur-crested cockatoo within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.2.4.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.2.4.2 and 7.7.2.4.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

Rules 7.7.2.4.1, 7.7.2.4.2 and 7.7.2.4.3 come into force on 1 April 2021.



### Principal measures of achievement:

Service delivery	Progressively control naturalised populations of sulphur-crested cockatoos within the region, with priority given to protection of Te Wao Nui a Tiriwa / Waitākere Ranges and other biodiversity focus areas.
Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3 Te mau tonu o te patu kararehe orotā / Sustained Control pest animals

The species in the following Sustained Control programmes vary greatly in their distribution across the region; some are currently present only in containment (e.g. as pets), while others are already well established in the wild and spreading. Nonetheless, all these species have the potential for economic and/or environmental impacts, and for all of these species there is value in reducing the risk of humans assisting the establishment or further spread of pest populations. The following programmes therefore manage these pest animals through rules and accompanying education and awareness programmes designed to reduce risk of pests being spread through activities such as recreational fishing, pet ownership, movement of risk goods, and recreational use of natural areas. In some instances, Council may also undertake direct control of pest animals as well, generally aligned with biodiversity focus areas.

#### 7.7.3.1 Argentine ant (*Linepithema humile*)

Argentine ant workers are uniformly light brown insects, wingless and are roughly 2–3mm long. Queens are larger (10-12mm) and dark brown. They have a broad diet and impact on many invertebrate species through predation, competition and interference, and will also predate on hatchlings in nests. They feed extensively on honeydew produced by aphids and scale insects, and therefore protect these insects from predators. This can majorly impact on the horticulture industry and will often kill fruit trees due to an increase in scale insects. Production losses in the poultry industry can be caused by Argentine ants killing hatchlings, and to the apiculture industry due to hive robbing. Argentine ants will often bite humans and can become major nuisances in homes and gardens.



Richard Toft, Entecol

**Objective:** over the duration of the plan Auckland Council will sustainably control Argentine ants (*Linepithema humile*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of Argentine ants, to reduce their impacts and spread to other properties.

**Rules:**

- 7.7.3.1.1 No person shall cause to breed any Argentine ant within the Auckland region.
- 7.7.3.1.2 No person shall distribute or release (or cause to be released or distributed), any Argentine ant within the Auckland region.
- 7.7.3.1.3 No person shall sell or offer for sale any Argentine ant within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.1.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.1.2 and 7.7.3.1.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental spread of the pest animal to new locations.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.

See also section 7.1.2.1 for Hauraki Gulf Controlled Area site-led programme, including eradication on Aotea and Kawau.

### 7.7.3.2 Bearded dragon (*Amphibolurus barbatus* syn. *Pogona barbata*)

Also known as: coastal or eastern bearded dragon

Bearded dragons are grey-brown reptiles, between 55-58cm long and throats covered with distinctive spiny scales which can be raised to form a black "beard". As opportunistic omnivores, bearded dragons are likely to predate on native invertebrates and compete for food and resources with native lizards and birds. There is added potential for disease transmission to native reptiles (e.g. adenovirus infections, skin conditions). Bites to humans may cause prolonged swelling and bleeding with the risk of disease transmission to humans.



**Objective:** over the duration of the plan Auckland Council will sustainably control bearded dragons (*Pogona barbata*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "sustained control" which means to provide for ongoing control of bearded dragons, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.2.1 No person shall cause to breed any bearded dragon within the Auckland region.

7.7.3.2.2 No person shall distribute or release (or cause to be released or distributed), any bearded dragon within the Auckland region.

7.7.3.2.3 No person shall sell or offer for sale any bearded dragon within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.2.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.2.2 and 7.7.3.2.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

Rules 7.7.3.2.1, 7.7.3.2.2 and 7.7.3.2.3 come into force on 1 April 2021.

**Principal measures of achievement:**

Service delivery	Council may undertake incursion responses to prevent population establishment outside of captivity.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade. Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations outside of containment and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.



### 7.7.3.3 Blue tongued skink: common (*Tiliqua scincoides*) and blotched (*T. nigrolutea*)

Blue tongued skinks are lizards up to 40-70cm long with distinctive blue tongues. They can either have dark bands around the body (common) or are mostly black with varying amounts of light brown, grey, yellow or orange blotches (blotched). They are likely to prey on native invertebrates, smaller lizards, birds and their eggs, and may compete with native species for food and other resources. There is further potential for disease and parasite transmission to other reptiles.



JJ Harrison

**Objective:** over the duration of the plan Auckland Council will sustainably control blotched blue tongued skinks (*Tiliqua nigrolutea*) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of blotched blue tongued skinks, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.3.3.1 No person shall cause to breed any blue tongued skink within the Auckland region.
- 7.7.3.3.2 No person shall distribute or release (or cause to be released or distributed), any blue tongued skink within the Auckland region.
- 7.7.3.3.3 No person shall sell or offer for sale any blue tongued skink within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.3.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.3.2 and 7.7.3.3.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

### Principal measures of achievement:

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade. Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations outside of containment and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.4 Brown bullhead catfish (*Ameiurus nebulosus*)

Brown bullhead catfish are scaleless dark brown to olive green fish which are most easily distinguished by eight whiskery barbels around the mouth. Adults can grow up to 250-500mm long. They are opportunistic generalist feeders, which have been documented eating common bullies as well as a wide range of invertebrates including kōura. Their presence in wai māori / freshwater bodies can contribute to poor water clarity by extensive consumption of zooplankton, thereby exacerbating algal blooms. Bottom-feeding can also cause the re-suspension of sediment and up-rooting of submerged aquatic plants. These impacts can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton.



Stephen Moore

**Objective:** over the duration of the plan Auckland Council will sustainably control brown bullhead catfish (*Ameiurus nebulosus*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of brown bullhead catfish, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.3.4.1 No person shall distribute or release (or cause to be released or distributed) any brown bullhead catfish in any part of the Auckland region.
- 7.7.3.4.2 No person may fish for brown bullhead catfish in High Conservation Value water bodies or their catchments (see Appendix 3), or anywhere in the Hauraki Gulf Controlled Area.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.4.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.7.3.4.2 is to regulate activities that may affect measures taken to implement the plan.

### Principal measures of achievement:

Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.</p> <p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new incursions and status of existing or historical sites.</p>
Enforcement	<p>Enforce restrictions on the sale, breeding, distribution and exhibition of the pest, its release from containment, and fishing in High Conservation Value water bodies.</p>
Education and advice	<p>Provide information and advice on responsible fishing. Provide information and advice on identification, impacts and control of the pest animal.</p>

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme and section 7.6.2 for priority lakes site-led programme.

### 7.7.3.5 Canadian goose (*Branta canadensis*)

Canadian geese are large (4.5-5.5kg) light brown birds with black heads and white chinstraps. They can be very aggressive towards other wildlife; potential impacts on co-occurring bird species can include displacement from territories and mortality. Goose grazing on pastures can be at levels of appreciable economic impact but tend to be concentrated heavily on farms with the most suitable habitat. Canadian geese pose a high risk of bird strike at airports due to their substantial body size. Faecal contamination of water bodies, pasture and crops with pathogens such as *Salmonella* and *Escherichia coli*, including antibiotic-resistant strains, may pose a risk to human health.



**Objective:** over the duration of the plan Auckland Council will sustainably control Canadian geese (*Branta canadensis*) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of Canadian geese, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.3.5.1 No person shall cause to breed any Canadian goose within the Auckland region.
- 7.7.3.5.2 No person shall distribute or release (or cause to be released or distributed), any Canadian goose within the Auckland region.
- 7.7.3.5.3 No person shall sell or offer for sale any Canadian goose within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.5.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.5.2 and 7.7.3.5.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

#### Principal measures of achievement:

Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest animal.
Education and advice	Provide information and advice on identification, impacts and control of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.6 Darwin's ant (*Doleromyrma darwiniana*)

Darwin's ants are small omnivorous insects (2-5mm) with dark brown heads and light brown bodies, which give off a strong odour when crushed. Impacts are expected to be similar to Argentine ants. Their preference for sweet foods may lead to the invasion of vineyards and orchards, and facilitate high densities of scale insects and aphids by tending them for honeydew, further impacting plant health. They are also likely to compete strongly with other native species that feed on honeydew or nectar. Predation by Darwin's ants has been implicated as a factor in the failure of the boneseed leaf roller moth biocontrol agent, thereby indirectly facilitating the spread of the pest plant.



Richard Toft, Entocol

**Objective:** over the duration of the plan Auckland Council will sustainably control Darwin's ants (*Doleromyrma darwiniana*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "sustained control" which means to provide for ongoing control of Darwin's ants, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.3.6.1 No person shall cause to breed any Darwin's ant within the Auckland region.
- 7.7.3.6.2 No person shall distribute or release (or cause to be released or distributed), any Darwin's ant within the Auckland region.
- 7.7.3.6.3 No person shall sell or offer for sale any Darwin's ant within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.6.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.6.2 and 7.7.3.6.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.



**Principal measures of achievement:**

Education and advice	Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidentally spread the pest animal to new locations.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.

See also section 7.1.2.3 for Hauraki Gulf Controlled Area site-led programme.

### 7.7.3.7 Eastern rosella (*Platycercus eximius*)

Eastern rosella are brightly coloured parakeets approximately 30cm long and 90-120g in weight, with red heads, white cheeks and mostly yellow/green bodies. They are seed predators, consuming seeds from a range of native plants including harakeke, tōtara and pōhutukawa, and nectar from pūriri and other native plants. They are also implicated as a reservoir for transmission of Beak and Feather Disease Virus to native parrot species. This is likely to be the most important ecological impact, and is likely to pose a higher risk as rosellas increase in range and population density.



**Objective:** over the duration of the plan Auckland Council will sustainably control eastern rosella (*Platycercus eximius*) outside of containment to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of eastern rosella, to reduce their impacts and spread to other properties.

**Rules:**

- 7.7.3.7.1 No person shall cause to breed any eastern rosella within the Auckland region.
- 7.7.3.7.2 No person shall distribute or release (or cause to be released or distributed), any eastern rosella within the Auckland region.
- 7.7.3.7.3 No person shall sell or offer for sale any eastern rosella within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.7.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.7.2 and 7.7.3.7.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.8 Eastern water dragon (*Intellagama lesueurii* syn. *Physignathus lesueurii lesueurii*)

Eastern water dragons are large lizards with brownish-grey bodies and black stripes along the ridge of the back, tail and limbs. Males are up to 1kg in weight and 80-90cm long. Females are shorter and lighter. They are likely to prey on a wide range of small terrestrial, freshwater and inter-tidal fauna, including insects, crabs, molluscs and crustaceans, and may impact upon native plants via herbivory. There is further potential to spread diseases such as Salmonella to native reptiles.



Margaret Stanley

**Objective:** over the duration of the plan Auckland Council will sustainably control eastern water dragons (*Intellagama lesueurii*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of eastern water dragons, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.3.8.1 No person shall cause to breed any eastern water dragon within the Auckland region.
- 7.7.3.8.2 No person shall distribute or release (or cause to be released or distributed), any eastern water dragon within the Auckland region.
- 7.7.3.8.3 No person shall sell or offer for sale any eastern water dragon within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.8.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.8.2 and 7.7.3.8.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

Rules 7.7.3.8.1, 7.7.3.8.2 and 7.7.3.8.3 come into force on 1 April 2021.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade. Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations outside of containment and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.9 Feral pig (*Sus scrofa*)

Feral pigs are large (sometimes over 300kg), black to brown, stoutly built mammals with large heads and well-developed canine teeth. They actively scavenge during the day and will overturn large areas of soil to consume soil invertebrates, especially earthworms. In invaded ecosystems, they prey on and compete with native species, alter nutrient cycles, damage vegetation and soil, and facilitate the spread of weeds and plant diseases, including kauri dieback disease. They are of high risk to the primary production industry as vectors of bovine tuberculosis. International trading options may be reduced if the Aotearoa / New Zealand feral pig population became a reservoir for swine fever or foot and mouth disease. Feral pig attacks on humans are rare but could be potentially fatal.



Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will sustainably control feral pigs<sup>55</sup> (*Sus scrofa*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of feral pigs, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.9.1 No person shall distribute or release (or cause to be released or distributed), any feral pig within the Auckland region.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.9.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

<sup>55</sup> A feral pig includes any pig that is not:

- a) held behind effective fences or otherwise constrained; and
- b) identified by ear tag



**Principal measures of achievement:**

Education and advice	Provide information and advice on pest animal identification, impacts and control, as well as responsible hunting practices and containment of domestic pigs.
Enforcement	Enforce prohibition on release.
Service delivery	Discretion to undertake feral pig control anywhere in region if required to protect biodiversity focus areas.

See also section 7.1.2.4 for Hauraki Gulf Controlled Area site-led programme.

### 7.7.3.10 Galah (*Eolophus roseicapillus*)

Galahs are colourful parrots weighing up to 325g, with white crowns, grey wings and pink chests. They are ground feeding granivores, but will also eat buds, flowers, berries and insect larvae. They may compete with native hole-nesting birds for nest cavities and act as reservoirs or vectors of wildlife diseases and human pathogens. Galahs are a major pest of grain crops in Australia. The impact on grain crops is likely to worsen if galah populations increased in Tāmaki Makaurau / Auckland.



**Objective:** over the duration of the plan Auckland Council will sustainably control galahs (*Eolophus roseicapillus*) outside of containment to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of galahs, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.10.1 No person shall cause to breed any galah within the Auckland region.

7.7.3.10.2 No person shall distribute or release (or cause to be released or distributed), any galah within the Auckland region.

7.7.3.10.3 No person shall sell or offer for sale any galah within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.10.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.10.2 and 7.7.3.10.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

Rules 7.7.3.10.1, 7.7.3.10.2 and 7.7.3.10.3 come into force on 1 April 2021.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.11 *Gambusia* (*Gambusia affinis*)

*Gambusia* are small (3.5-6cm), silver fish which occupy shallow margins of still or slow moving water bodies including lakes, wetlands, ponds and streams. *Gambusia* prey on zooplankton, eggs and larvae of fish, and a diverse range of aquatic and terrestrial macroinvertebrates. This can induce avoidance behaviours such as changes in habitat use in a range of native fish and crustaceans. Their presence in wai māori / freshwater bodies can contribute to poor water clarity by altering patterns of nutrient cycling via the consumption of zooplankton, subsequently exacerbating algal blooms.



Stephen Moore

**Objective:** over the duration of the plan Auckland Council will sustainably control *Gambusia affinis* to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of *Gambusia*, to reduce their impacts and spread to other properties.

**Rules:**

- 7.7.3.11.1 No person shall distribute or release (or cause to be released or distributed) any *Gambusia* in any part of the Auckland region.
- 7.7.3.11.2 No person may fish for *Gambusia* in High Conservation Value water bodies or their catchments (see Appendix 3), or anywhere in the Hauraki Gulf Controlled Area.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.11.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.7.3.11.2 is to regulate activities that may affect measures taken to implement the plan.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade. Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new incursions and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest, its release from containment, and fishing.
Education and advice	Provide information and advice on responsible fishing. Provide information and advice on identification, impacts and control of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme and section 7.6.2 for priority lakes site-led programme.

### 7.7.3.12 Pest goldfish (*Carassius auratus*)

Pest goldfish are small-medium sized (100-400g) fish which may vary in colour, from red-gold, bronze-black through to olive-green. Pest goldfish are generalist feeders consuming aquatic plants, algae, insects, crustaceans, small fish and fish eggs; potentially competing with native fish for resources. The predation of zooplankton, uprooting of aquatic plants and re-suspension of nutrients and sediments into the water column may contribute to reduced water clarity and algal blooms in invaded freshwater ecosystems.



**Objective:** over the duration of the plan Auckland Council will sustainably control pest goldfish<sup>56</sup> (*Carassius auratus*) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of goldfish, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.12.1 No person shall release from containment (or cause to be released) any goldfish within the Auckland region.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.12.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.
Enforcement	Enforce prohibition of release from secure containment.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

<sup>56</sup> A pest goldfish means any goldfish that is not:  
 a) held in effective containment on private land; or  
 b) otherwise constrained in an enclosed water body on private land.



### 7.7.3.13 Hedgehog (*Erinaceus europaeus*)

Hedgehogs are small brown to grey, insectivorous mammals with spiny coats. They are voracious nocturnal predators, consuming invertebrates, ground nesting birds' eggs and small reptiles. They also vector a wide variety of human, bird, pet and agricultural diseases, including bovine TB.



Department of Conservation

**Objective:** over the duration of the plan Auckland Council will sustainably control hedgehogs (*Erinaceus europaeus*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of hedgehogs, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.13.1 No person shall cause to breed any hedgehog within the Auckland region.

7.7.3.13.2 No person shall distribute or release (or cause to be released or distributed), any hedgehog within the Auckland region.

7.7.3.13.3 No person shall sell or offer for sale any hedgehog within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.13.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.13.2 and 7.7.3.13.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	Provide information and advice on pest animal identification, impacts and control. Provide advice and support to community groups undertaking pest animal control, with priority given to activity in or around biodiversity focus areas, or in defendable or strategic geographic locations such as peninsulas, islands and corridors.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.

See also section 7.1.2.5 for Hauraki Gulf Controlled Area site-led programme.

### 7.7.3.14 Indian ring-necked parakeet (*Psittacula krameri*)

Indian ring-necked parakeets are green parrots (38-42cm long) with a red band (males) or an indistinct emerald band (females) encircling their necks. They are highly aggressive to other species, including native birds and small mammals such as bats, and have the potential to competitively exclude other cavity-nesting species through eviction, early occupancy and successful defence of cavities. They pose further risk to native parrots as potential vectors of disease, including Beak and Feather Disease Virus. Overseas, Indian ring-necked parakeets are considered primary production pests and can cause economically significant damage to grain crops such as maize and may also attack fruit in orchards such as citrus, guava and grapes.



**Objective:** over the duration of the plan Auckland Council will sustainably control Indian ring-necked parakeets (*Psittacula krameri*) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of Indian ring-necked parakeets, to reduce their impacts and spread to other properties.

#### **Rules:**

- 7.7.3.14.1 No person shall cause to breed any Indian ring-necked parakeet within the Auckland region.
- 7.7.3.14.2 No person shall distribute or release (or cause to be released or distributed), any Indian ring-necked parakeet within the Auckland region.
- 7.7.3.14.3 No person shall sell or offer for sale any Indian ring-necked parakeet within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.14.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.14.2 and 7.7.3.14.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

Rules 7.7.3.14.1, 7.7.3.14.2 and 7.7.3.14.3 come into force on 1 April 2021.

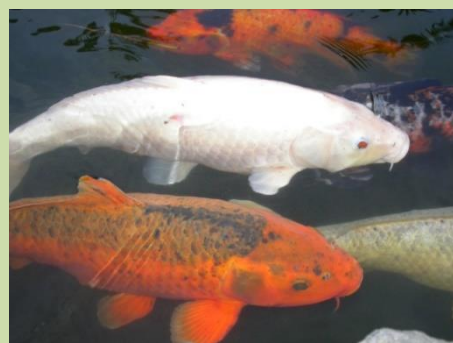
**Principal measures of achievement:**

Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.15 Koi carp (*Cyprinus carpio*)

Koi carp are an ornamental strain of common carp measuring up to 700mm long which are variable in colour but can be distinguished by the presence of a pair of barbels. Koi carp can negatively impact submerged aquatic plant communities via plant uprooting and reduced light penetration, and alter invertebrate communities via predation and habitat modification. Waterfowl, native fish and kōura are also at risk from increased water turbidity, due to koi carp stirring sediment when feeding, and resource competition. Invasion may contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton.



Stephen Moore

**Objective:** over the duration of the plan Auckland Council will sustainably control koi carp (*Cyprinus carpio*) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "sustained control" which means to provide for ongoing control of koi carp, to reduce their impacts and spread to other properties.

#### Rules:

7.7.3.15.1 No person shall distribute or release (or cause to be released or distributed) any koi carp in any part of the Auckland region.

7.7.3.15.2 No person may fish koi carp in High Conservation Value water bodies or their catchments (see Appendix 3), or anywhere in the Hauraki Gulf Controlled Area.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.15.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.7.3.15.2 is to regulate activities that may affect measures taken to implement the plan.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade. Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new incursions and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest, its release from containment, and fishing in High Conservation Value water bodies.
Education and advice	Provide information and advice on responsible fishing. Provide information and advice on identification, impacts and control of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme and section 7.6.2 for priority lakes site-led programme.

### 7.7.3.16 Magpie (*Gymnorhina* sp.)

Magpies are black and white piebald birds of medium size (up to 350g) with red eyes. They compete aggressively for territory in groups, restricting the movement of native birds in rural landscapes. They prey upon threatened species such as lizards and may vector diseases to native birds. Aggressive swooping attacks can cause road strike and will sometimes wound pedestrians and pets in parkland and other open spaces during breeding season.



**Objective:** over the duration of the plan Auckland Council will sustainably control magpies (*Gymnorhina* sp.) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of magpies, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.16.1 No person shall cause to breed any magpie within the Auckland region.

7.7.3.16.2 No person shall distribute or release (or cause to be released or distributed), any magpie within the Auckland region.

7.7.3.16.3 No person shall sell or offer for sale any magpie within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.16.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.16.2 and 7.7.3.16.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	Provide information and advice on pest animal identification, impacts and control.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.



### 7.7.3.17 Monk parakeet (*Myiopsitta monachus*)

Also known as: Quaker parrots

Monk parakeets are medium sized greenish-grey parrots weighing between 90-120g. They will feed on vegetables, orchard fruit, and grain crops (e.g. maize and sunflower seeds) resulting in substantial crop losses and control efforts overseas. Native birds may be at risk via competition for food and disease transmission, and native vegetation may be impacted via feeding damage and herbivory. Monk parakeets will build chambered nests that may exceed 1000kg; nesting on power line poles, satellite dishes and other utility structures resulting in power outages, fires, and considerable time and money spent removing nests and repairing damage.



Murray Foubister

**Objective:** over the duration of the plan Auckland Council will sustainably control monk parakeets (*Myiopsitta monachus*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of monk parakeets, to reduce their impacts and spread to other properties.

**Rules:**

- 7.7.3.17.1 No person shall cause to breed any monk parakeet within the Auckland region.
- 7.7.3.17.2 No person shall distribute or release (or cause to be released or distributed), any monk parakeet within the Auckland region.
- 7.7.3.17.3 No person shall sell or offer for sale any monk parakeet within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.17.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.17.2 and 7.7.3.17.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

Rules 7.7.3.17.1, 7.7.3.17.2 and 7.7.3.17.3 come into force on 1 April 2021.

**Principal measures of achievement:**

Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.18 Mouse (*Mus musculus*)

Mice are small grey-brown or black rodent omnivores which can be found in almost every habitat type. They directly impact native reptile and invertebrate populations through predation but also indirectly, as a food source facilitating other invasive predators. Excessive consumption of seeds by mice can greatly reduce native seedling recruitment and potentially modify plant communities in invaded ecosystems. Mice are also particularly damaging to cereal production and the food services industry, attacking and contaminating stored produce at all stages.



Ngā Manu Images

**Objective:** over the duration of the plan Auckland Council will sustainably control mice (*Mus musculus*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of mice, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.18.1 No person shall release (or cause to be released), any mouse within the Auckland region.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.18.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	<p>Provide information and advice on pest animal identification, impacts and control.</p> <p>Provide advice and support to community groups undertaking pest animal control, with priority given to activity in or around biodiversity focus areas, or in defendable or strategic geographic locations such as peninsulas, islands and corridors.</p>
Enforcement	Enforce restrictions on release of the pest.

See also section 7.1.2.6 for Hauraki Gulf Controlled Area site-led programme.

### 7.7.3.19 Mustelid: ferrets (*Mustela furo*), stoats (*Mustela erminea*), and weasels (*Mustela nivalis*)

Ferrets, stoats and weasels belong to a group of animals known as mustelids. Ferrets are the largest of the mustelids (600-1,300g) and can be distinguished by a dark 'mask' across their eyes. Stoats are smaller (200–350g) with orange-brown coats and a black tip at end of the tail. Weasels are the smallest (60–120g), with orange-brown coats and a uniformly brown tail.

Mustelids are bold generalist predators and can have devastating impacts on native birds, amphibians, reptiles, molluscs, and insects. Ferrets mostly threaten ground nesting birds while stoats and weasels have contributed to the decline and extinction of many forest birds, particularly cavity nesting species. Mustelids are also a vector of a wide range of agricultural diseases including canine distemper and bovine tuberculosis (TB).



Stoat, Department of Conservation

**Objective:** over the duration of the plan Auckland Council will sustainably control mustelids (*Mustela furo*, *Mustela erminea*, *Mustela nivalis*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of mustelids, to reduce their impacts and spread to other properties.

#### Rules:

7.7.3.19.1 No person shall cause to breed any mustelid within the Auckland region.

7.7.3.19.2 No person shall distribute or release (or cause to be released or distributed), any mustelid within the Auckland region.

7.7.3.19.3 No person shall sell or offer for sale any mustelid within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.19.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.19.2 and 7.7.3.19.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	Provide information and advice on pest animal identification, impacts and control. Provide advice and support to community groups undertaking pest animal control, with priority given to activity in or around biodiversity focus areas, or in defensible or strategic geographic locations such as peninsulas, islands and corridors.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.
Service delivery (control)	Discretion to undertake control anywhere in region if required to protect biodiversity focus areas.

See also section 7.1.2.7 for Hauraki Gulf Controlled Area site-led programme, and sections 7.3 and 7.4 for eradications on Kawau and Waiheke.

### 7.7.3.20 Myna (*Acridotheres tristis*)

Myna are small (100-140g) brown, black and white birds with a yellow patch behind the eye. They out-compete native birds for food, territory and nests; potentially affecting native cavity nesting species such as native parrots. Sometimes they will even attack other bird's nests, destroying eggs and young. Feeding can damage native fruit without dispersing seed and predation can threaten vulnerable insects. Birds carry mites, lice, flies, worms and microbial diseases which may be transmitted to humans and other animals.



**Objective:** over the duration of the plan Auckland Council will sustainably control mynas (*Acridotheres tristis*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of mynas, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.20.1 No person shall cause to breed any myna within the Auckland region.

7.7.3.20.2 No person shall distribute or release (or cause to be released or distributed), any myna within the Auckland region.

7.7.3.20.3 No person shall sell or offer for sale any myna within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.20.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.20.2 and 7.7.3.20.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	Provide information and advice on pest animal identification, impacts and control.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.



### 7.7.3.21 Perch (*Perca fluviatilis*)

Perch are olive green-grey fish (< 1kg) with six or more dark vertical bands across their sides. They can contribute to poor water clarity via the consumption of zooplankton, thereby exacerbating algal blooms. Feeding habits can also cause the re-suspension of sediment and up-rooting of submerged aquatic plants. Combined effects of zooplankton feeding and bottom-feeding habits can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton. Perch presence has shown to reduce the abundance of common bullies, and impacts are likely on other native fish such as tuna (eels), īnanga, galaxiids and paraki/smelt through predation, aggressive attacks and competition for prey.



**Objective:** over the duration of the plan Auckland Council will sustainably control perch (*Perca fluviatilis*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "sustained control" which means to provide for ongoing control of perch, to reduce their impacts and spread to other properties.

**Rules:**

- 7.7.3.21.1 No person shall distribute or release (or cause to be released or distributed) any perch in any part of the Auckland region.
- 7.7.3.21.2 No person may fish for perch in any High Conservation Value water body or their catchments (see Appendix 3) in the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.21.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.7.3.21.2 is to regulate activities that may affect measures taken to implement the plan.

### Principal measures of achievement:

Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.</p> <p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new incursions and status of existing or historical sites.</p>
Enforcement	<p>Enforce restrictions on the sale, breeding, distribution and exhibition of the pest, its release from containment, and fishing in High Conservation Value water bodies.</p>
Education and advice	<p>Provide information and advice on responsible fishing. Provide information and advice on identification, impacts and control of the pest animal.</p>

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme and section 7.6.2 for priority lakes site-led programme.

### 7.7.3.22 Plague skink (*Lampropholis delicata*)

Also known as: rainbow skinks

Plague skinks are small brown lizards with an iridescent rainbow sheen to their scales visible under bright light. The skinks are generalist predators of a wide variety of invertebrates and are prevalent in suburban gardens, parks, disturbed sites, urban areas, open rocky land, farmland and scrub. They have higher reproductive rates and reach maturation faster than native skinks, reaching densities of 300-400 per 100m<sup>2</sup>. Such high population densities can result in plague skinks out-competing native reptiles, particularly native mokomoko kapa/ copper skinks.



**Objective:** over the duration of the plan Auckland Council will sustainably control plague skinks (*Lampropholis delicata*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of plague skinks, to reduce their impacts and spread to other properties.

**Rules:**

- 7.7.3.22.1 No person shall cause to breed any plague skink within the Auckland region.
- 7.7.3.22.2 No person shall distribute or release (or cause to be released or distributed), any plague skink within the Auckland region.
- 7.7.3.22.3 No person shall sell or offer for sale any plague skink within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.22.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.22.2 and 7.7.3.22.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

### Principal measures of achievement:

Education and advice	Provide information and advice on identification, impacts and control of the pest animal, and how to reduce risk of accidental spread of the pest animal to new locations.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.

See also section 7.1.2.8 for Hauraki Gulf Controlled Area site-led programme.

### 7.7.3.23 Rabbits and hares (*Oryctolagus cuniculus*, *Lepus europaeus*)

Rabbits and hares are small terrestrial herbivorous mammals. Rabbits are about the size of a small domestic cat, often grey-brown in colour. Hares are larger than rabbits and have black tipped ears. They will heavily browse native seedlings and low-growing native plants in open habitats, such as sand dunes and grasslands; suppressing threatened species and altering vegetation composition. As prey species, they indirectly contribute to increased predation pressure on native species by supporting populations of introduced predators, including unowned cats and mustelids. In agricultural systems, excessive browsing can cause major damage to pastures, with 7-10 rabbits estimated to eat as much as one sheep.



Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will sustainably manage pest rabbits<sup>57</sup> and hares (*Oryctolagus cuniculus*, *Lepus europaeus*) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing management of pest rabbits and hares, to reduce their impacts and spread to other properties.

**Rules:**

7.7.3.23.1 No person shall abandon, or cause to be abandoned, any rabbit or hare within the Auckland region.

The purpose of rule 7.7.3.23.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

<sup>57</sup> Pest rabbit means any rabbit within the Auckland region that is not: One of the following breeds: New Zealand white, angora, Flemish giant, rex, chinchilla, Californian, Netherland dwarf, Dutch, tan, and silver fox.

### Principal measures of achievement:

Service delivery (control)	Facilitate rabbit calicivirus biocontrol within the region. Undertake site-led control to protect biodiversity focus areas.
Education and advice	<p>Provide information and advice on identification, impacts and control of the pest animal.</p> <p>Provide advice and support to community groups undertaking pest animal control or revegetation planting, with priority given to activity in or around biodiversity focus areas, or in defendable or strategic geographic locations such as peninsulas, islands and corridors.</p> <p>Provide information and advice on responsible pet ownership (including identity of breeds exempt from pest status).</p>
Enforcement	Enforce restriction on the sale, breeding, distribution and exhibition of the pest and prohibition on release from containment.

See also section 7.1.2.10 for Hauraki Gulf Controlled Area site-led programme.



### 7.7.3.24 Rainbow lorikeet (*Trichoglossus haematodus*)

Rainbow lorikeets are brightly coloured long-tailed parrots (75-157g) with blue heads, green wings and orange-yellow breasts. They are potential reservoirs for transmission of parrot-specific diseases to native parrots. Beak and Feather Disease Virus has been recorded in captive rainbow lorikeets in Aotearoa / New Zealand. They aggressively out-compete native nectar feeding avifauna including tūī, kōmako-bellbird and hihi. These combined effects make them a threat to Tīkapa Moana / Hauraki Gulf islands habitats such as Hauturu / Little Barrier Island and Tiritiri Matangi Island. Unwanted Organism managed by the Department of Conservation and Ministry of Primary Industries as a National Interest Pest Response.



**Objective:** over the duration of the plan Auckland Council will sustainably control rainbow lorikeet (*Trichoglossus haematodus*) outside of containment to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of rainbow lorikeets, to reduce their impacts and spread to other properties.

**Rules:**

- 7.7.3.24.1 No person shall cause to breed any rainbow lorikeet within the Auckland region.
- 7.7.3.24.2 No person shall distribute or release (or cause to be released or distributed), any rainbow lorikeet within the Auckland region.
- 7.7.3.24.3 No person shall sell or offer for sale any rainbow lorikeet within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.24.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.24.2 and 7.7.3.24.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.25 Rats: ship rats (*Rattus rattus*), Norway rats (*Rattus norvegicus*), kiore<sup>58</sup> (*R. exulans*)

Rats are small black, grey or brown mammals with naked tails. Rats occupy a wide range of terrestrial habitats throughout Aotearoa / New Zealand. Rats are generalist omnivores, their diet includes seed predation, and preying on small animals such as invertebrates, reptiles, amphibians and juvenile birds. They compete with native birds for nests and burrows, and have been implicated in the decline of a number of threatened birds, particularly seabirds. Excessive consumption of seeds by rats can greatly reduce native seedling recruitment and ultimately modify plant communities in invaded ecosystems. Rats are particularly damaging to cereal production, stored products and the food services industry, and are a potential disease vector to humans.



Ship rat, Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will sustainably manage pest rats<sup>59</sup> (*Rattus rattus*, *R. norvegicus*, *R. exulans*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of pest rats, to reduce their impacts and spread to other properties.

#### Rules:

7.7.3.25.1 No person shall release from containment (or cause to be released), any rat within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.25.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

<sup>58</sup> Council acknowledges that kiore are culturally significant for mana whenua and the need for operational engagement with mana whenua where relevant.

<sup>59</sup> A pest rat includes:

- a) any *Rattus rattus* or *Rattus exulans*; and
- b) any *Rattus norvegicus* that is not held in effective containment

### Principal measures of achievement:

Education and advice	<p>Provide information and advice on pest animal identification, impacts and control.</p> <p>Provide advice and support to community groups undertaking pest animal control, with priority given to activity in or around biodiversity focus areas, or in defendable or strategic geographic locations such as peninsulas, islands and corridors.</p> <p>Provide information and advice on responsible pet ownership.</p>
Enforcement	<p>Enforce prohibition on the breeding, exhibition, sale and distribution of the pest.</p>
Service delivery	<p>Discretion to undertake control anywhere in region if required to protect biodiversity focus areas.</p>

See also section 7.1.2.11 for Hauraki Gulf Controlled Area site-led programme, and sections 7.3 and 7.4 for eradications on Kawau and Waiheke.

### 7.7.3.26 Red-eared slider (*Trachemys scripta elegans*, *T. scripta scripta*, *T. scripta troostii*)

Red-eared sliders are turtles with olive to brown carapaces patterned with yellow spots or stripes, and a distinctive red stripe behind each eye. They inhabit a wide variety of still or slow-moving water bodies including ponds, lakes, wetlands, rivers and drainage ditches. As opportunistic omnivores, potential impacts via herbivory and the predation of zooplankton, molluscs, fish, frogs, crustaceans, insects, gastropods, birds and small reptiles are likely. There are further risks to native reptiles and amphibians via disease transmission. Wetland bird reproductive success may be impacted through the displacement of parent birds from nests to use as basking sites. Feeding habits and associated activities are likely to result in food-web and ecosystem process impacts, and reduced water quality in invaded habitats.



© Rod Morris, Department of Conservation

**Objective:** over the duration of the plan Auckland Council will sustainably control red-eared sliders and related sub-species (*Trachemys scripta elegans*, *T. scripta scripta*, *T. scripta troostii*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of red-eared sliders, to reduce their impacts and spread to other properties.

#### Rules:

7.7.3.26.1 No person shall cause to breed any red-eared slider or other sub-species of *Trachemys scripta* within the Auckland region.

7.7.3.26.2 No person shall distribute or release (or cause to be released or distributed), any red-eared slider or other sub-species of *Trachemys scripta* within the Auckland region.

7.7.3.26.3 No person shall sell or offer for sale any red-eared slider or other sub-species of *Trachemys scripta* within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.26.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.26.2 and 7.7.3.26.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

Rules 7.7.3.26.1, 7.7.3.26.2 and 7.7.3.26.3 come into force on 1 April 2021.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade. Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations outside of containment and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.
Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.



### 7.7.3.27 Rudd (*Scardinius erythrophthalmus*)

Rudd are fish with bright red fins, usually 200-250mm as adults, but can be larger. Extensive herbivory can negatively affect aquatic plant growth, survival and community composition, sometimes leading to aquatic plant collapse in lakes. Some high impact aquatic weeds, including hornwort, are selectively avoided by rudd and may thus be further competitively advantaged. They may compete with native fish such as paraki/smelt and common bullies for invertebrate prey. Facilitation of nutrient and sediment suspension in the water column and predation of zooplankton by rudd can contribute to regime shifting of lakes from clear to turbid states.



Stephen Moore

**Objective:** over the duration of the plan Auckland Council will sustainably control rudd (*Scardinius erythrophthalmus*) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of rudd, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.3.27.1 No person shall distribute or release (or cause to be released or distributed) any rudd in any part of the Auckland region.
- 7.7.3.27.2 No person may fish for rudd in any High Conservation Value water body or their catchments (see Appendix 3) in the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.27.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.7.3.27.2 is to regulate activities that may affect measures taken to implement the plan.

### Principal measures of achievement:

Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.</p> <p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new incursions and status of existing or historical sites.</p>
Enforcement	<p>Enforce restrictions on the sale, breeding, distribution and exhibition of the pest, its release from containment, and fishing.</p>
Education and advice	<p>Provide information and advice on responsible fishing. Provide information and advice on identification, impacts and control of the pest animal.</p>

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme and section 7.6.2 for priority lakes site-led programme.

### 7.7.3.28 Shingleback lizard (*Tiliqua rugosa*)

Shingleback lizards are reptiles up to 40cm long with large heads, short blunt tails and dark blue tongues. They are slow-moving; therefore predation impacts are likely to be confined mainly to some native invertebrates. The potential for disease transmission to other reptiles may be the most important risk.

Pest outside of cure co



Margaret Stanley

**Objective:** over the duration of the plan Auckland Council will sustainably control pest shingleback lizards (*Tiliqua rugosa*<sup>60</sup>) to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of shingleback lizards, to reduce their impacts and spread to other properties.

#### Rules:

7.7.3.28.1 No person shall release (or cause to be released), any shingleback lizard within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.28.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

#### Principal measures of achievement:

Enforcement	Enforce restrictions on the release of individuals from secure containment. Sale and distribution is still allowed within the region, provided animals are maintained in secure containment.
Education and advice	Provide information and advice on responsible pet ownership as well as identification and impacts of the pest animal.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations outside of containment and status of existing or historical sites.

<sup>60</sup> A pest shingleback lizard is one that is not effectively held in secure containment.

### 7.7.3.29 Snake-neck turtle (*Chelodina longicollis*)

Snake-neck turtles are medium-sized turtles with characteristically long necks (approximately 60% of the shell length). They are likely to predate on a range of zooplankton, aquatic and terrestrial invertebrates, amphibians, carrion, fish and crustaceans. Snake-neck turtles can dig nesting burrows in the ground which may disturb gardens, golf courses, gravel roads and other recreational land. They are carriers of *Salmonella* and risk transmitting the disease to native reptiles and humans.



**Objective:** over the duration of the plan Auckland Council will sustainably control snake-neck turtles (*Chelodina longicollis*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of snake-neck turtles, to reduce their impacts and spread to other properties.

**Rules:**

- 7.7.3.29.1 No person shall cause to breed any snake-neck turtle within the Auckland region.
- 7.7.3.29.2 No person shall distribute or release (or cause to be released or distributed), any snake-neck turtle within the Auckland region.
- 7.7.3.29.3 No person shall sell or offer for sale any snake-neck turtle within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.29.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.29.2 and 7.7.3.29.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

Rules 7.7.3.29.1, 7.7.3.29.2 and 7.7.3.29.3 come into force on 1 April 2021.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade. Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations outside of containment and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest.
Education and advice	Provide information and advice on responsible pet ownership as well as identification, impacts and control of the pest animal.

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme.

### 7.7.3.30 Tench (*Tinca tinca*)

Tench are olive green-bronze fish (30-70cm), distinguished by red eyes, two barbels, large soft-rayed fins and copious mucous. They can contribute to poor water clarity via the consumption of zooplankton, thereby exacerbating algal blooms. Bottom-feeding also causes the re-suspension of sediment and up-rooting of submerged macrophytes. These combined effects can contribute to lakes 'flipping' to an alternative stable state devoid of vegetation, with turbid water dominated by phytoplankton. Indirect effects to native fish species diversity via transmission of parasites, reduced water clarity, and/or competition for invertebrate prey are also likely.



**Objective:** over the duration of the plan Auckland Council will sustainably control tench (*Tinca tinca*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** "sustained control" which means to provide for ongoing control of tench, to reduce their impacts and spread to other properties.

#### Rules:

7.7.3.30.1 No person shall distribute or release (or cause to be released or distributed) any tench in any part of the Auckland region.

7.7.3.30.2 No person may fish for tench in any High Conservation Value water body or their catchments (see Appendix 3) in the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.30.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.7.3.30.2 is to regulate activities that may affect measures taken to implement the plan.



**Principal measures of achievement:**

Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of pet shops, markets and online pet trade.</p> <p>Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new incursions and status of existing or historical sites.</p>
Enforcement	<p>Enforce restrictions on the sale, breeding, distribution and exhibition of the pest, its release from containment, and fishing.</p>
Education and advice	<p>Provide information and advice on responsible fishing. Provide information and advice on identification, impacts and control of the pest animal.</p>

See also section 7.2.1 for Aotea / Great Barrier Exclusion programme and section 7.6.2 for priority lakes site-led programme.

### 7.7.3.31 Wasp: German (*Vespula germanica*), common (*V. vulgaris*), Asian paper (*Polistes chinensis*), Australian paper (*P. humilis*)

*Vespula* and paper wasps are social insects that build intricate nests out of fiber. Paper wasps have thinner abdomens than *Vespula* wasps and can be distinguished by their habit of flying with legs hanging down. Both demonstrate aggressive behaviour and pose a risk to human health; stings can require medical attention and sometimes cause death from anaphylactic shock in extreme cases. They are serious primary production pests; attacking grazing livestock and workers, causing forestry operations to stop, and robbing beehives of honey in the apiculture industry. In natural ecosystems, wasps compete with native birds and invertebrates that also consume honeydew, changing the behaviour of native honeydew feeders. They prey on a range of invertebrates, including native species. Predation of many invertebrate species can be so high that the probability of individuals surviving a season can be close to zero.



Asian paper wasp

**Objective:** over the duration of the plan Auckland Council will sustainably control wasps (*Vespula vulgaris*, *V. germanica*, *Polistes chinensis*, *P. humilis*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of wasps, to reduce their impacts and spread to other properties.

#### Rules:

7.7.3.31.1 No person shall cause to breed any wasp within the Auckland region.

7.7.3.31.2 No person shall distribute or release (or cause to be released or distributed), any wasp within the Auckland region.

7.7.3.31.3 No person shall sell or offer for sale any wasp within the Auckland region.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.3.31.1 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.3.31.2 and 7.7.3.31.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Education and advice	<p>Provide information and advice on pest animal identification, impacts and control.</p> <p>Provide advice and support to community groups undertaking pest animal control, with priority given to activity in or around biodiversity focus areas.</p>
Research and development	Collaborate with other parties to facilitate research and development of improved control tools.
Enforcement	Enforce prohibition on the breeding, exhibition, sale and distribution of the pest.

## 7.7.4 Wāhi whai kararehe orotā / Site-led animals

### 7.7.4.1 Unowned cat

Cats are small-bodied carnivorous mammals (2-7kg as adults) with variable coat colours. Adults are active both day and night, switching activity patterns in response to opportunity, favouring small terrestrial mammals (rodents and rabbits) but prey-switching to take a wide variety of other taxa (birds, bats, reptiles, amphibians, invertebrates) according to their availability. Cat predation is one of the main threats to tūturiwhatu / New Zealand dotterels, and juvenile kiwi and burrowing seabirds such as tāiko / black petrel and tītī / Cook's petrels are also at risk. Cats can also facilitate disease and parasite transmission to native species, particularly *Toxoplasma gondii*, which is dependent on cats to complete its lifecycle. Fatal toxoplasmosis has been reported in tutumairekurai / Hector's and Maui's dolphins, terehu / bottle nose dolphins, kēkeno / NZ fur seals, kiwi, kererū/kukupā and kākā. However, cats are also Aotearoa / New Zealand's most popular companion animal, and Auckland Council recognises the need to balance wildlife protection with protection of companion animal values.



Manaaki Whenua Landcare Research

**Objective:** over the duration of the plan Auckland Council will manage cats to protect values in places to reduce adverse effects on the environment, enjoyment of the natural environment, and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “protecting values in places” which means that cats, that are capable of causing damage to threatened species areas, are controlled within sites containing threatened species populations to an extent that protects the threatened species values of those places.

#### Rules:

- 7.7.4.1.1 No person shall abandon, or cause to be abandoned, any cat within the Auckland region.
- 7.7.4.1.2 No person shall feed any cat on any park within the Auckland region that contains a resident or breeding or roosting population of any threatened native bird, reptile or amphibian.

7.7.4.1.3 Any owner of a cat must ensure their cat does not enter an intensively managed site as defined in Map 11.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.4.1.1 is to specify the circumstances in which the subject may be communicated, released, or otherwise spread.

The purpose of rules 7.7.4.1.2 and 7.7.4.1.3 is to regulate activities that may affect measures taken to implement the plan.

#### Principal measures of achievement:

Service delivery (control)	<p>Provide subsidised de-sexing and microchipping for owned cats living near threatened species populations.</p> <p>Council may undertake control of unowned<sup>61</sup> cats as part of integrated management of other pest threats to protect threatened species. Accordingly, Council may consider unowned cat control at sites meeting the follow criteria:</p> <ul style="list-style-type: none"> <li>a. the site contains a resident or breeding or roosting population of any threatened native bird, reptile or amphibian species; and</li> <li>b. the site is within a rural area; and</li> <li>c. where that site is:             <ul style="list-style-type: none"> <li>i. public land; or</li> <li>ii. private land with consent of the private land occupier.</li> </ul> </li> </ul> <p>Map 10 indicatively shows the extent of sites meeting these threatened species criteria based on current knowledge as at January 2019.</p> <p>Sites shown in Map 11 are intensively managed and of particular value to threatened species programmes. At these sites, Council may manage any cat as a pest in accordance with the Biosecurity Act 1993, to prevent recovery programmes being undermined.</p>
Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance of unowned cat populations in and around sites containing threatened species.</p>

<sup>61</sup> Unowned cat means:

- a) any cat which is not:
  - i. Microchipped, or otherwise identified with owner's name and address; and
  - ii. Registered on the New Zealand Companion Animal Register <https://www.animalregister.co.nz/>; and
- b) which is within any site that contains a resident or breeding or roosting population of any regionally or nationally threatened bird, reptile or amphibian, and is in a rural area.

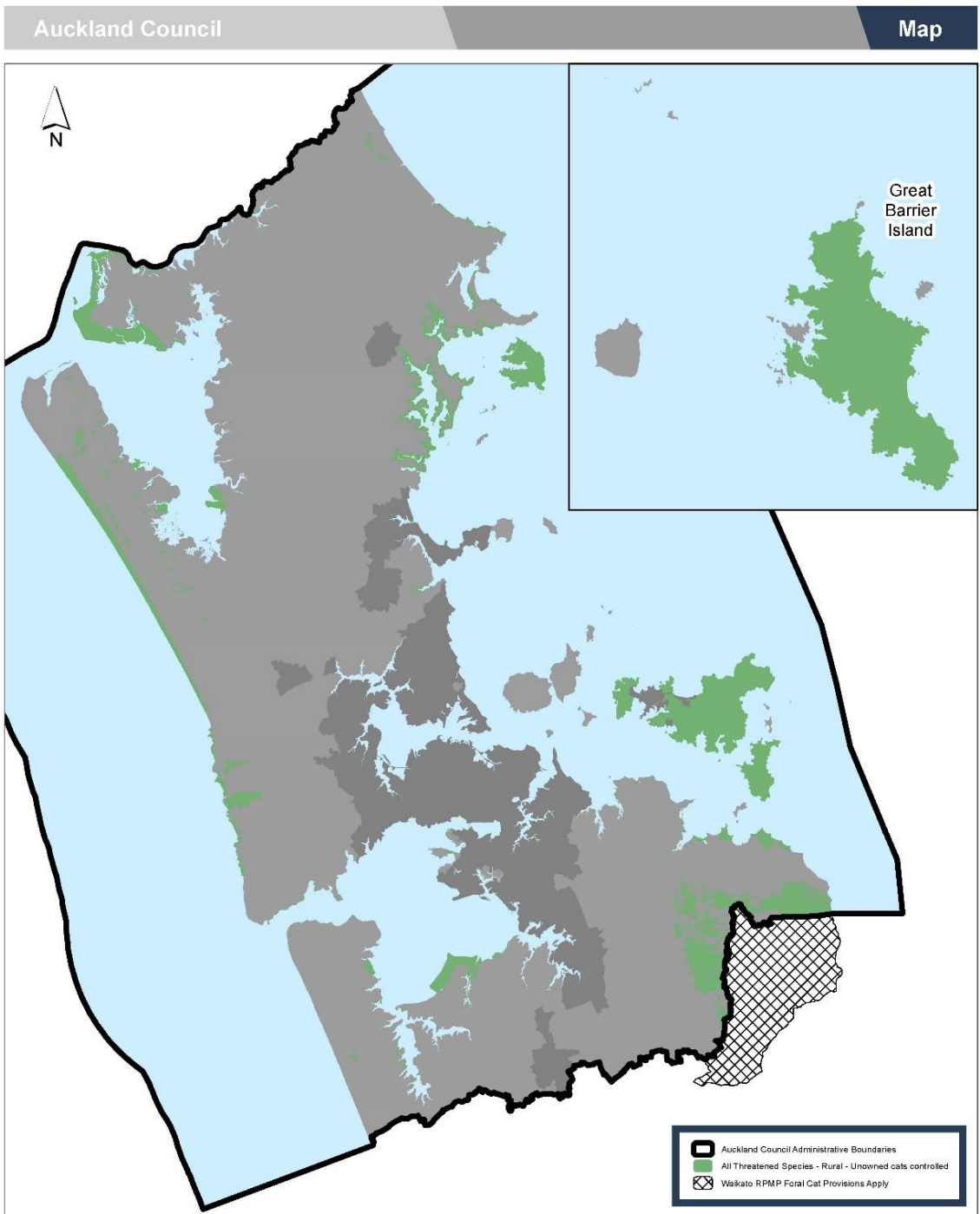
Note: based on current knowledge of species distributions at time of writing, sites that meet these criteria are shown in Map 10. Note also cat control will only be undertaken on public land or on private land with consent of land occupier (see principle measures of achievement overleaf).

Note: this programme does not prevent the continuing sale and distribution of cats within the region.

Education and advice	<p>Provide information and advice on responsible pet ownership (particularly de-sexing, microchipping, registration on the Companion Animal Register, home range size and containment options) as well as impacts and management of cats. Advice will be prioritised to communities near threatened species populations or biodiversity focus areas to assist cat owners in these areas to minimise the impacts of their companion animals on nearby wildlife.</p> <p>Notify communities near intended cat management at least 4 weeks prior to control of unowned cats.</p> <p>Provide advice and support to community groups undertaking cat management, with priority given to activity in or around biodiversity focus areas and threatened species populations.</p>
Enforcement	<p>Enforce prohibition on feeding cats or cat colonies on parkland that is home to threatened species. Enforce prohibition of abandonment.</p>

See also section 7.1.2.2 for Hauraki Gulf Controlled Area site-led programme.





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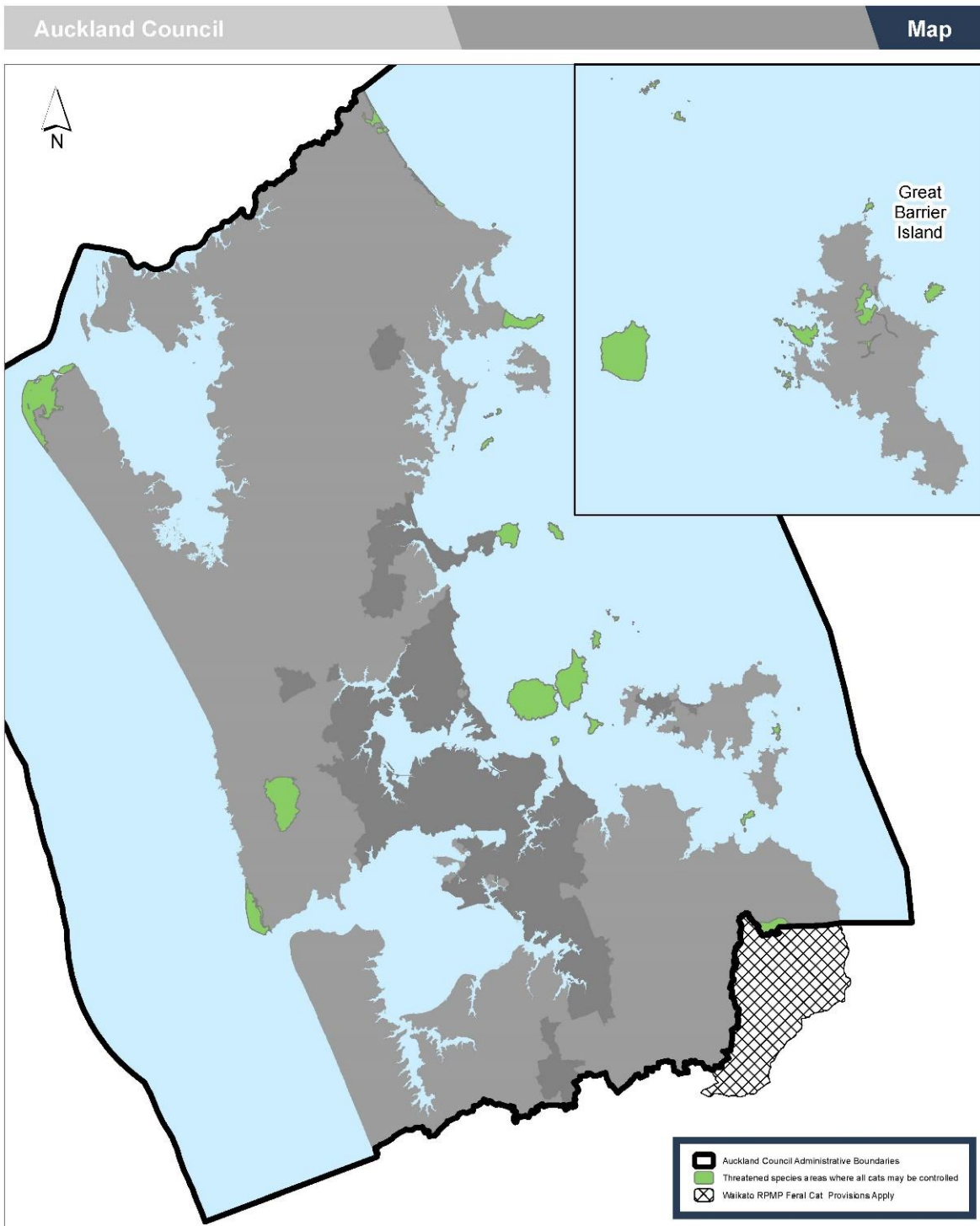
**Threatened Species Areas Where Unowned Cats may be Controlled on Council Land or Private Land with Land Occupier Consent as at 2019**

0 2.5 5 7.5  
 Kilometres  
 Scale @ A4 = 1:600,000  
 Date Printed: 1/20/2020



**Map 10. Indicative distribution of threatened species populations in rural areas, based on current knowledge of species' distributions as of 2019. Unowned cats may be controlled in rural areas to protect threatened species on Council land or on private land with land occupier consent<sup>62</sup>.**

<sup>62</sup> Any sites where unowned cat control is actually planned to be carried out can be viewed at higher resolution online at <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html>



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**Intensively Managed Threatened  
 Species Areas**

0 2.5 5 7.5  
 Kilometers  
 Scale @ A4  
 = 1:600,000  
 Date Printed:  
 1/16/2020



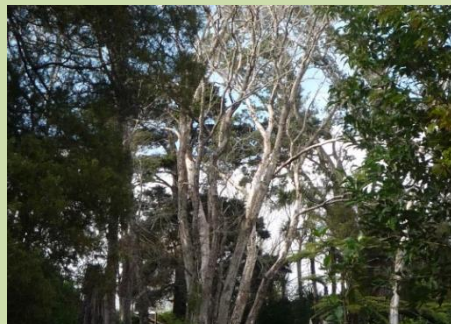
**Map 11. Intensively managed sites for threatened species protection<sup>63</sup>. Any cat may be controlled at these sites.**

<sup>63</sup> Any sites where cat control is actually planned to be carried out can be viewed at higher resolution online at <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html>

## 7.7.5 Te mau tonu o te patu kitakita urutā / Sustained Control pest pathogens

### 7.7.5.1 Dutch elm disease (*Ophiostoma novo-ulmi*)

Dutch elm disease is a fungal pathogen, infecting elm trees (*Ulmus* spp. and *Zelkova* spp.) spread predominantly by elm bark beetles (*Scolytus multistriatus*) but also through human-mediated spread of elm wood. The fungus causes mortality of infected trees, sometimes as rapidly as within a few days. Tāmaki Makaurau / Auckland is estimated to have approximately 30,000 elm trees with a potential for impacts on iconic trees in parks, as well as elms in private gardens.



**Objective:** over the duration of the plan Auckland Council will sustainably control Dutch elm disease (*Ophiostoma novo-ulmi*) to prevent adverse effects on economic well-being, the environment, human health and enjoyment of the natural environment.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of Dutch elm disease, to reduce its impacts and spread to other properties.

#### Rules:

- 7.7.5.1.1 No person shall distribute, move or release Dutch elm disease in Auckland.
- 7.7.5.1.2 No person shall move any untreated Dutch elm plant material within the Auckland region.
- 7.7.5.1.3 All occupiers of land in the Auckland region must destroy all elm plants on that land that have been identified as being infected with Dutch elm disease, when instructed by an authorised person.
- 7.7.5.1.4 Where Auckland Council has instructed an occupier of land to destroy Dutch elm plants under rule 3, the occupier must mulch the Dutch elm material and the Dutch elm material must not be moved further than 500m from the site of the parent tree for at least three months after mulching
- 7.7.5.1.5 Any vehicle, machinery or other equipment used in connection with untreated Dutch elm plant material must be cleaned with any of the following or equivalent disinfectants, Sterigene, 5% bleach, or 80% ethanol or methylated spirits, prior to removal from the site.
- 7.7.5.1.6 No person shall store elm wood for firewood or any other purpose within the Auckland region.

The purpose of rule 7.7.5.1.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.7.5.1.2 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

The purpose of rule 7.7.5.1.3 is to require the destruction of goods if the goods may contain or harbour the pest or otherwise pose a risk of spreading the pest.

The purpose of rules 7.7.5.1.4 and 7.7.5.1.6 is to regulate the use or disposal of organic material.

The purpose of rule 7.7.5.1.5 is to regulate activities that may affect measures taken to implement the plan.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

#### Principal measures of achievement:

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of known sites, to determine the presence of new incursions and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest pathogen. Enforce land occupier obligation to remove infected trees and associated hygiene measures. Enforce restriction on elm firewood.
Education and advice	Provide information and advice on identification and impacts of the pest pathogen, and how to avoid spreading the pest.
Requirement to act	Land occupiers to destroy plants when instructed, and comply with hygiene requirements.

### 7.7.5.2 Kauri dieback disease (*Phytophthora agathidicida*)

Symptomatic kauri trees infected with kauri dieback disease exhibit root and collar rot, resin-exuding lesions, yellowing of leaf tissue, canopy thinning and mortality. Human-mediated movement of contaminated soil is the main cause of jump-dispersal between kauri forests but it can be spread locally by feral pigs. The disease can be incurably fatal to kauri trees of all ages and, in the absence of effective treatment, has mid to long-term potential to cause functional extinction of kauri as a canopy species. Kauri are ecosystem engineers, with profound effects on soil chemistry, and associated plant and animal communities. Consequently there is a potential for catastrophic loss of associated unique ecosystems.



**Objective:** over the duration of the plan Auckland Council will sustainably control kauri dieback (*Phytophthora agathidicida*) to prevent adverse effects on economic well-being, the environment, the enjoyment of natural environments and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of kauri dieback, to reduce its impacts and spread to other locations.

**Rules:**

- 7.7.5.2.1 No person shall distribute, move or release kauri dieback disease in Auckland.
- 7.7.5.2.2 No person shall move any untreated kauri plant material, soil, or goods contaminated with soil, into or out of an area within three times the drip line of any New Zealand kauri tree, unless the purpose of the movement is to dispose of the material at an Auckland Council approved containment landfill<sup>64</sup>.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.5.2.1 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

<sup>64</sup> Approved at time of writing:

- 1) Ridge Road Quarries, Ridge Road, Bombay (accepts soil only)
- 2) EnviroWaste Hampton Downs Landfill, 136 Hampton Downs Road, RD2, Te Kauwhata (accepts soil and organic material).

Waste Management’s Redvale Landfill, Landfill Access Road, Dairy Flat (the use of a bin liner is required at this landfill) – accepts soil and organic matter. Other facilities may be approved over the lifetime of the plan. Updates, if any, to the list of approved landfills may be obtained on enquiry to Auckland Council.



The purpose of rule 7.7.5.2.2 is to regulate the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.

### Principal measures of achievement:

Service delivery	<p>Installation and maintenance of phytosanitary stations at key exit and entry points on parkland, to minimise human-mediated spread of disease.</p> <p>Upgrade and maintain walking tracks on parkland, to minimise human-mediated spread of disease.</p> <p>Manage known vectors, including feral pigs.</p> <p>Priority to be given to Te Wao Nui a Tiriwa / the Waitākere Ranges.</p>
Monitoring and surveillance	<p>Undertake inspections, monitoring and surveillance to determine the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across kauri lands.</p>
Enforcement	<p>Enforce restrictions on the sale, propagation, distribution and exhibition of the pest pathogen.</p> <p>Enforce restrictions on movement of kauri material, soil and contaminated goods into and out of drip line zones around kauri trees.</p>
Education and advice	<p>Provide information and advice on identification, impacts and how to prevent spread of the pest pathogen, including mitigating impacts of earthworks and treeworks. Encourage nursery industry accreditation to the New Zealand Plant Production Biosecurity Scheme core standard and kauri dieback schedule<sup>65</sup></p>
Requirement to act	<p>All persons to take practicable steps to avoid movement and distribution of kauri dieback e.g. ensure all footwear and other equipment are free of soil when exiting areas known to be infected with kauri dieback disease.</p> <p>All persons moving untreated kauri plant material, soil, or goods contaminated with soil, into or out of an area within three times the drip line of any New Zealand kauri tree must ensure that material is moved directly to an Auckland Council approved containment landfill.</p>
Research and development	<p>Contribute to multi-agency facilitation of research and development in detection and control tools, understanding pathways of spread, and ecology of kauri and kauri dieback disease and other kauri pathogens such as <i>P. multivora</i>.</p>

<sup>65</sup> <https://nzppi.co.nz/advocacy/107-696/protecting-our-nurseries-and-industry-from-biosecurity-hazards>



## 7.7.6 Te noho wātea o te tupu orotā ā-takiwā whānui / Region-wide exclusion pest plant

Giant hogweed is not currently known to be present in the Tāmaki Makaurau / Auckland region. Early intervention in response to an incursion is likely to be a cost effective approach to prevent extensive spread and impact. Furthermore, Auckland Council is appropriately placed to undertake such management given the personal protective equipment and technical knowledge required to safely manage this plant to avoid severe chemical burns.

### 7.7.6.1 Giant hogweed (*Heracleum mantegazzianum*)

Also known as: cow parsnip, giant carrot.

Giant hogweed is a perennial herb which can grow up to 5m tall, has large serrated leaves and produces large clusters of green or white flowers. It is capable of forming dense infestations along riparian and forest margins, suppressing native vegetation and exposing banks to erosion during periods of seasonal dieback. Contact with the plant can cause photodermatitis in humans often resulting in severe reactions, including blistering and lesions requiring medical treatment.



Elaine Iddon

**Objective:** over the duration of the plan Auckland Council will exclude giant hogweed (*Heracleum mantegazzianum*) from establishing in the region to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “exclusion” which means to prevent the establishment of giant hogweed in the Tāmaki Makaurau / Auckland region.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on identification and impacts of the pest plant.

### 7.7.7 Te murunga o te tupu orotā ā-takiwā whānui / Region-wide eradication pest plants

These eradication pest plants are present in low numbers or have a limited distribution within Tāmaki Makaurau / Auckland. These pests have the potential to establish widely in the region, and are capable of causing adverse effects to the environmental, economic, human health, social or cultural values of the region. Early intervention to eradicate these species to prevent them becoming widespread within the region is likely to be a cost effective management approach.

**Objective:** over the duration of the plan Auckland Council will eradicate the pest plants specified below from the Tāmaki Makaurau / Auckland region to prevent adverse effects on economic well-being, the environment, human health, the enjoyment of natural environments and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “eradication” which means to reduce the infestation level of the subject to zero levels in an area in the short to medium term.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.  Undertake inspections, monitoring and surveillance of nurseries, markets and online plant trade.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

**African feather grass (*Cenchrus macrourus* syn. *Pennisetum macrourum*)**

Also known as: veld grass

African feather grass is a perennial clump forming grass which can grow up to 2m tall. Flower heads are long, white to purple, with barbed bristles. It is an aggressive invader, which particularly threatens native species in grassland, scrubland, wetland and sand-dune habitats. Dense clumps may restrict access to natural areas.



***Akebia trifoliata***

Also known as: three leaf Akebia

*Akebia trifoliata* is a climbing semi-deciduous vine with trifoliate leaves and cup shaped purple flowers. It can be spread deliberately as a traditional medicinal herb. It is shade tolerant and therefore likely to invade native forest by smothering vegetation.



**Asparagus species (*Asparagus drepanophyllus* and *A. umbellatus*)**

Also known as: asparagus fern

*Asparagus drepanophyllus* and *A. umbellatus* are perennial, fleshy herbs. Both species have the potential to be very invasive on cliffs, rocky outcrops, shrubland, woodland and in coastal ecosystems, based on the highly invasive nature of related *Asparagus* species.



*Asparagus umbellatus*

**Balloon vine and small balloon vine (*Cardiospermum grandiflorum* and *C. halicacabum*)**

Also known as: love in a puff

Balloon vine and small balloon vine are woody perennial vines with coarsely toothed leaves, fragrant clusters of white/yellow flowers and inflated, papery seed pods. The vines aggressively smother native vegetation in wetlands, forest and riparian margins, either at ground level or in canopies up to 10m tall, sometimes eventuating in canopy collapse.





### Broomsedge (*Andropogon virginicus*)

Also known as: bluestem, whiskey grass

Broomsedge is a perennial grass with narrow clumps of green stems and leaves up to 1m high, turning purplish to straw coloured as it ages. It is highly competitive in a range of open habitats, including pasture, wetlands and clear-felled forestry areas, often smothering existing vegetation and altering soil composition via the release of biochemicals.



### Chilean needle grass (*Nassella neesiana*)

Chilean needle grass is a tufted perennial grass with large drooping purplish flowerheads which grows up to 1m tall. The grass is highly invasive in pasture and has sharp seeds which can penetrate pelts and cause blindness in livestock.



### Devil's fig (*Solanum torvum*)

Also known as: Turkey berry

Devil's fig is a perennial shrub with white star shaped flowers and yellow stamens. It can grow up to 4m tall in a range of disturbed ecosystems including plantations, pasture and native forest margins. In pasture, it suppresses forage and can create impassable thickets. In native ecosystems, it can provide habitat, fruit and seeds for pest mammals.



Forest and Kim Starr

### Great reedmace (*Typha latifolia*)

Also known as: broadleaf cattail, common cattail, giant reedmace

Great reedmace is a perennial aquatic reed with dark brown sausage-shaped inflorescences borne in early summer. It can quickly invade and monopolise wetlands and other shallow freshwater habitats, suppressing native vegetation and altering flow regimes. It has the potential to directly compete or hybridise with threatened taonga species raupō.



Paul Champion

### Green cestrum (*Cestrum parqui*)

Also known as: green poison berry, ink berry, Chilean cestrum, willow-leaved jessamine

Green cestrum is a deciduous woody shrub, up to 3m tall with clusters of yellow to green tubular flowers and small black berries. It has the potential to outcompete native plants in forest, scrub and riparian habitats and is highly poisonous when consumed.



### Marshwort (*Nymphoides montana*)

Marshwort is a perennial water lily with floating heart shaped leaves and fringed yellow flowers present during summer. It forms thick mats which smother vegetation, impede drainage, interfere with recreational activities on waterways and potentially impact upon the mauri of wai māori.



### Mexican feather grass (*Nassella tenuissima*)

Mexican feather grass is a densely tufted perennial tussock grass up to 70cm tall with feathery flower heads borne in spring. It is unpalatable to livestock and can displace valuable pasture species through selective grazing. It has the potential to out-compete native plants in coastal habitats and affect native fauna by altering the habitat structure.



### Nassella tussock (*Nassella trichotoma*)

Nassella tussock is a perennial tussock grass up to 1m tall with fine, wiry leaves and drooping purplish seed heads. It can be invasive in open habitats, including pasture, coastal areas and rocky scrublands. It is unpalatable to livestock, particularly sheep, and therefore can displace valuable pasture species through selective grazing.



Weedbusters



### *Phragmites karka*

*Phragmites karka* is a perennial reed up to 4m tall with golden brown, feathery seed heads. It can dominate plant communities in fresh and brackish wetlands, estuaries and wet grasslands, often forming dense monocultures and outcompeting threatened plants. It has the potential to interfere with recreational activities on waterways and may impact upon the mauri of wai māori and whanga / harbours.



### Scrambling lily (*Geitonoplesium cymosum*)

Scrambling lily is an evergreen perennial climber which vigorously climbs and strangles host plants up to 12m tall. It bears white to purplish-green flowers with bright yellow anthers in small clusters during spring and summer. It can form dense infestations in native forest, woodlands and potentially stream banks.



### Water poppy (*Hydrocleys nymphoides*)

Water poppy is a perennial aquatic herb with thick glossy floating leaves attached to rubbery creeping stems that form dense mats on a water surface. Flowers are yellow with a purple centre. It can aggressively colonise freshwater habitats; shading out submerged vegetation and restructuring aquatic plant and invertebrate communities.



### White-edged nightshade (*Solanum marginatum*)

White-edged nightshade is a perennial shrub with prickly stems and berry like fruit. Leaves are also prickly and are chalky white on the underside. It has the potential to invade a range of open native habitats including sand dunes, scrub and forest margins. Dense thickets can impact upon production in pasture and forestry plantations and can ultimately decrease land value. All parts of the plant are poisonous and sharp spines can cause minor injuries.





## 7.7.8 Aukati haere noa i te tupu orotā me ngā ture here ā-kaipupuri whenua / Progressive Containment pest plants with land occupier rules

These progressive containment pest plants are present in moderately low numbers or have a limited distribution within the Tāmaki Makaurau / Auckland region, yet have the potential to be highly damaging pests if they were to become widespread. Eradication may not be feasible, nonetheless progressively containing these species is a cost effective approach to prevent their more extensive spread and impact within the region. Land occupiers are required to undertake control of the species in the following section.

### 7.7.8.1 Lantana (*Lantana camara*)

Lantana is an aromatic, prickly shrub growing up to 3m tall with small pink to yellow flowers borne in inflorescences and clusters of blue-black fruit. It readily invades pasture, reducing productivity, and is toxic to livestock. It also has the potential to alter vegetation structure in coastal scrubland, dunes and other open or low-stature plant communities.



**Objective:** over the duration of the plan Auckland Council will progressively contain lantana (*Lantana camara*) to reduce adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of lantana to an area over time.

#### Rules:

7.7.8.1.1 All occupiers of land in rural Auckland must destroy all lantana on that land.

The purpose of rule 7.7.8.1.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance of nurseries, markets and online plant trade.
Enforcement	<p>Enforce occupier responsibility to control the pest plant pursuant to the rules in this section, upon complaint by immediately affected neighbours.</p> <p>Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.</p>
Education and advice	Provide information and advice on pest plant identification, impacts and control.
Requirement to act	Land occupiers to destroy plants when instructed.

### 7.7.8.2 Wild kiwifruit (*Actinidia* spp. (wild varieties only))

Also known as: Chinese gooseberry

Wild kiwifruit is a vigorous perennial vine with large leaves and densely hairy edible fruit. It can rapidly form dense blankets of tangled stems which smother and overtop vegetation in native and plantation forest, gullies, shelterbelts and scrubland. It is host of *Pseudomonas syringae* pv. *Actinidiae* (PSA), a serious pathogen of commercial kiwifruit which imposes significant costs on the kiwifruit industry.



**Objective:** over the duration of the plan Auckland Council will progressively contain wild kiwifruit (*Actinidia* spp.) to reduce adverse effects on economic well-being, the environment, the enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of wild kiwifruit to an area over time.

**Rules:**

7.7.8.2.1 All occupiers of land in the Auckland region that includes abandoned or former kiwifruit orchards must control all wild kiwifruit on that land.

7.7.8.2.2 No person shall dispose of kiwifruit in such a manner as to promote the establishment of wild kiwifruit populations.

The purpose of rule 7.7.8.2.1 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

The purpose of rule 7.7.8.2.2 is to regulate the use or disposal of organic material.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

**Principal measures of achievement:**

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species, with priority given to sites in proximity of biodiversity focus areas.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites.
Enforcement	Enforce occupier responsibility to control the pest plant pursuant to the rules in this section.
Education and advice	Provide information and advice relating to the problems caused by wild kiwifruit. Provide information on alternative means of fruit disposal and methods of controlling infestations. Provide information and advice on the National Psa-V Pest Management Plan.
Requirement to act	Land occupiers to destroy plants when instructed.

### 7.7.9 Aukati haere noa i te tupu orotā ki ngā hōtaka ārai e horahia ana e te Kaunihera o Tāmaki Makaurau / Progressive Containment Pest Plants with Auckland Council delivered control programmes

These progressive containment pest plants are present in low numbers or have a limited distribution within the Tāmaki Makaurau / Auckland region, yet have the potential to be highly damaging pests if they were to become widespread. Eradication may not be feasible. Nonetheless, progressively containing these species is a cost effective approach to prevent their more extensive spread and impact within the region. Auckland Council will undertake management of the species in the following section at all sites where they are known to occur in the region.

**Objective:** over the duration of the plan Auckland Council will progressively contain the pest plants specified below to reduce adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “progressive containment” which means to contain or reduce the geographic distribution of the pest plant, to an area over time.

#### Principal measures of achievement:

Service delivery (control)	Enter any property within the specified geographic area of the programme and carry out control work on this species.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of key risk areas to determine the presence of new infestations and status of existing or historical sites. Undertake inspections, monitoring and surveillance of nurseries, markets and online plant trade.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.
Education and advice	Provide information and advice on pest plant identification, impacts and control.

**Asiatic knotweed (*Fallopia japonica*, *F. multiflora* and *F. sachalinensis*)**

Also known as: Japanese knotweed, he shou wu, fo-ti

Asiatic knotweed is a perennial herb with branched reddish stems and drooping racemes of white flowers, which is often used as a traditional medicine. It can form dense, long-lived thickets which exclude other species and prevent native seedling recruitment in riparian and forest margins.



Weedbusters

**Cathedral bells (*Cobaea scandens*)**

Cathedral bells is vigorous perennial climber with large, round bell shaped flowers which are green and fragrant when young in early summer and turn deep purple late summer to autumn. It can smother all plants up to medium height canopy and prevent the recruitment of native seedlings in scrub, forest, riparian and coastal ecosystems.



**Climbing spindle berry (*Celastrus orbiculatus*)**

Climbing spindle berry is a deciduous climber with spined stem, serrated leaves, yellow to orange berries and clusters of small pale green flowers in spring. It is capable of achieving 90% cover in forest ecosystems, smothering plants beneath, leading to canopy collapse and suppressing native seedling recruitment. Densely layered thickets have the potential to overtop plantation trees and impede recreational access to natural areas.



**Houttuynia (*Houttuynia cordata*)**

Also known as: chameleon plant, yu xing cao

Houttuynia is a deciduous ground cover herb with creeping stems up to 1m tall, heart shaped leaves and small white flowers borne in summer. Based on its life form and rapid ability to overtake gardens, it has the potential to impact forest and wetland ecosystems by suppressing native seedling recruitment and altering canopy composition.





### Needle grass (*Austrostipa rudis*)

Needle grass is an erect, wiry perennial tussock grass up to 1.3m tall with large drooping purplish seed heads. It is able to crowd out native coastal plants and desirable pasture species and will also invade native grasslands, bush margins and open woodland.



### Noogoora bur (*Xanthium strumarium* syn. *occidentale*)

Also known as: common cockle bur

Noogoora bur is an erect, annual herb with blotchy purple stems and small yellow flowers. It is poisonous to livestock and produces hooked burs which cause sores in livestock mouths and hooves. It is a nuisance pest of pasture and crops, especially maize.



Trevor James, Agresearch

### Old man's beard (*Clematis vitalba*)

Old man's beard is a deciduous climber reaching up to 20m with creamy white flowers from December to May followed by grey, hairy seeds with distinctive white plumes borne in clusters. It attaches to its host with tendrils and invades forests and riparian margins by smothering canopy, often resulting in canopy collapse.



### Sagittaria species (*Sagittaria* spp. (excl. *S. teres*))

Also known as: arrowhead

*Sagittaria* species are a group of emergent perennial aquatic herbs ranging from 1-2m tall. Many of the species produce inflorescences of pale-coloured flowers in summer. It is capable of forming dense infestations which can trap sediment resulting in channel infilling, blocked drainage ditches, impeded recreational activities, displaced native aquatic vegetation and potentially impacting upon mauri of wai māori.



NIWA

### Senegal tea (*Gymnocoronis spilanthoides*)

Senegal tea is an emergent aquatic perennial herb up to 1.5m tall bearing white clover like flowers between December and May. It often forms floating mats that block streams and drainage tunnels, altering water flow dynamics and exacerbating flooding. It has the potential to replace many short-stature herbaceous wetland plant communities and may impact upon the mauri of wai māori.



### Spartina (*Spartina alterniflora*, *S. anglica* and *S. x townsendii*)

Spartina is an erect perennial grass growing up to 1m tall with fleshy rhizomes enabling plants to spread to form dense clumps or swards. It can reduce large estuaries and shallow harbours to thin drains surrounded by rough pastures and will trap sediment, raising levels above the high tide mark. It destroys intertidal zonation and habitat, and smothers tauranga mātaītai shellfish beds thereby preventing kaimoana harvesting. Adventive grasses often succeed spartina, creating dry meadows, and leading to immense biodiversity loss.



Spartina progressive containment programme applies only to the area defined in Map 12.

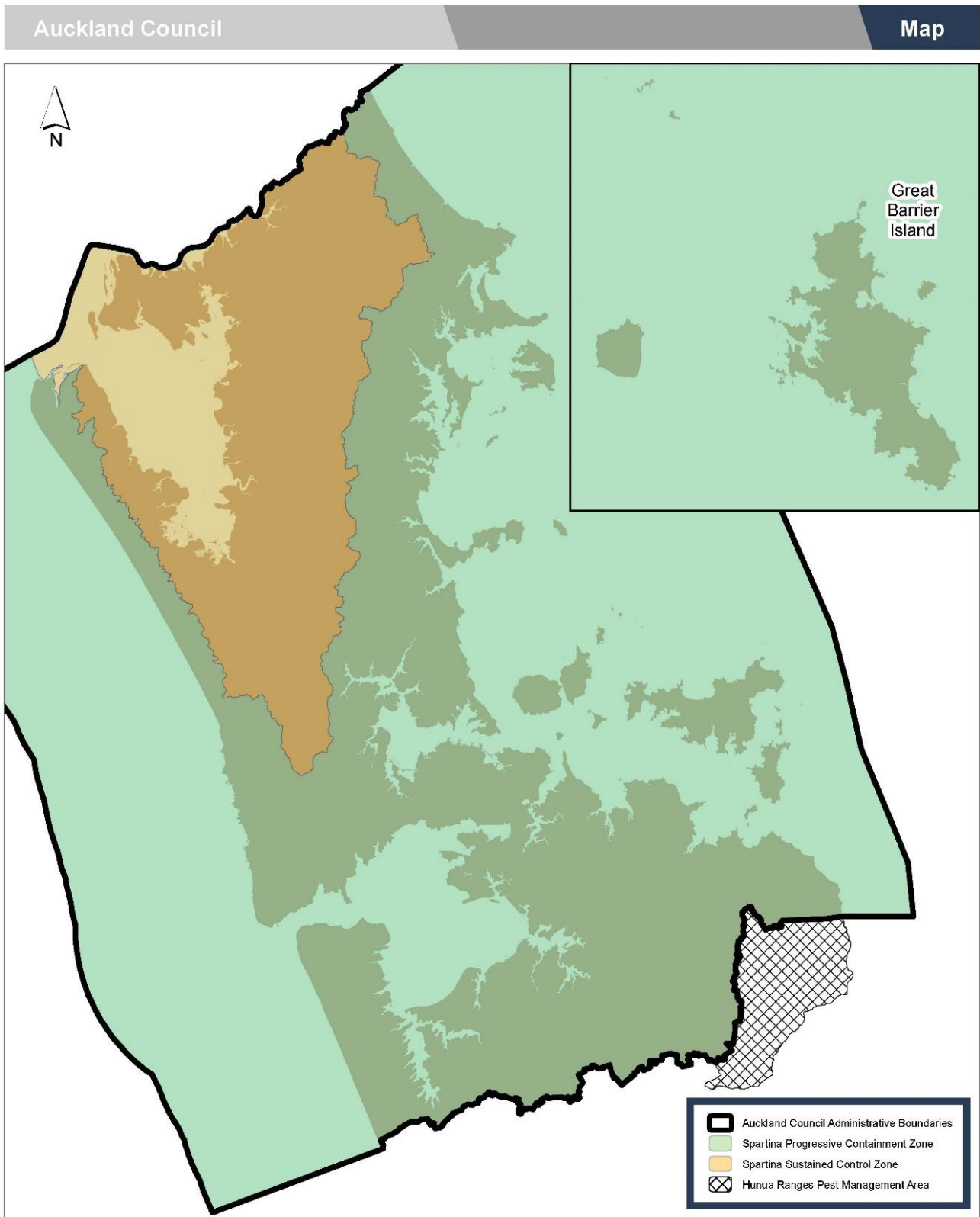
See also Sustained Control programme for Kaipara harbour (section 7.7.10).

### Wild broom (*Cytisus scoparius* (excl. cultivated varieties))

Wild broom is a dense perennial shrub up to 2m tall with small, hairy leaves, pea-like yellow flowers and dark flattened seedpods produced in spring-summer. It invades pasture and forestry plantations, forming thick stands and greatly reducing productivity. It also competes with native plants in shrubland, grasslands, montane, open forest and riparian habitats, and can alter soil chemistry via nitrogen fixing.



Wild broom Council service delivery applies only to rural Auckland.



**Regional Pest Management Plan**  
**Spartina Control Zones**



**Map 12. Areas where spartina management programmes apply.**



### 7.7.10 Te mau tonu o te patu tupu orotā / Sustained Control pest plants

The species in the following Sustained Control programmes vary greatly in their distribution across the region; some are not currently known to be established in the region, while others are already widespread pest plants. Nonetheless, all these species have the potential for economic and/or environmental impacts, and for all of these species there is value in reducing the risk of humans assisting the establishment or further spread of pest populations. The following programmes therefore manage these pest plants through rules and accompanying education and awareness programmes designed to reduce risk of pests being spread through gardening and other activities, and also to encourage land occupiers to undertake pest management on their own properties.

**Objective:** over the duration of the plan Auckland Council will sustainably control the pest plants specified below to prevent adverse effects on economic well-being, the environment, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of the pest plants specified below, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.10.1.1 No person shall cause to breed any Sustained Control Pest Plant within the Auckland region.
- 7.7.10.1.2 No person shall distribute or release (or cause to be released or distributed), any Sustained Control Pest Plant within the Auckland region.
- 7.7.10.1.3 No person shall sell or offer for sale any Sustained Control Pest Plant within the Auckland region.
- 7.7.10.1.4 No person may plant or allow to be planted any Sustained Control Pest Plant (specified below) on or in any land within the Auckland region.
- 7.7.10.1.5 Despite rule 7.7.10.1.4, a person may transfer or allow to be transferred an existing Sustained Control Pest Plant planted on their land from one location to another location within the boundaries of the same property. This exception does not apply to the following freshwater pest plants: alligator weed, bladderwort, Chilean rhubarb, eel grass, egeria, hornwort, giant reed, lagarosiphon, parrot’s feather, reed sweet grass, water primrose.
- 7.7.10.1.6 All occupiers of land in the Auckland region must destroy any Sustained Control Pest Plant that has been planted on their land in breach of the RPMP, if directed to do so by an authorised person.

The purpose of rules 7.7.10.1.1, 7.7.10.1.2, 7.7.10.1.3, 7.7.10.1.4 and 7.7.10.1.5 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

The purpose of rule 7.7.10.1.6 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for the following species: bamboo species, berry heath, black wattle, Brazilian rattlebox, Californian thistle, *Carex scoparia*, century plant, Chinese holly grape, dally pine, divided sedge, giant rhubarb, guava, hakea, holly-leaved senecio, *Hydrocotyle umbellata*, loquat, marram grass, Mexican devil, prickly-leaved wattle, red dragon, red valerian, salt water paspalum, *Selaginella* spp., sharp rush, Spanish broom, Sydney golden wattle, tree lupin.

Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2021 for the following species: alder, bangalow palm, Canary Island ivy, Chinese fan palm, creeping fig, fatsia, furcraea, Japanese cherry, Morton Bay fig, Queensland umbrella tree, soap aloe, yellow guava.

#### Principal measures of achievement:

Service delivery	Facilitate the development and release of biocontrol for targeted species, which may include (but not limited to) African club moss, alligator weed, blue morning glory, boneseed, boxthorn, Californian thistle, climbing asparagus, giant reed, gorse, grey willow, hornwort, Japanese honeysuckle, jasmine, moth plant, Mexican daisy, pampas grass, privet (tree and Chinese), ragwort, rhamnus, royal fern, salt water paspalum, tradescantia, tutsan, wild ginger and woolly nightshade.
Monitoring and surveillance	Undertake inspections, monitoring and surveillance of nurseries, markets and online plant trade. Undertake monitoring and surveillance of biocontrol agent dispersal and impacts. Undertake surveillance to understand emerging trends in pest plant naturalisations and impacts.
Enforcement	Enforce restrictions on the sale, propagation, distribution and exhibition of the pest plant.

Education and advice	<p>Provide information and advice on pest plant identification, impacts and control.</p> <p>Provide information and advice on responsible gardening practices including safe disposal of organic refuse, and alternative planting choices.</p> <p>Support nursery industry initiatives, including breeding of low fertility forms, aimed at reducing biosecurity risk of nursery stock.</p> <p>Provide advice and support to community groups undertaking pest plant control, with priority given firstly to activity in or around biodiversity focus areas and secondly to work in or around SEAs. Facilitate community biocontrol activity for moth plant, tradescantia and other ecologically damaging pest plants of high priority to the community. Facilitate coordination within the region and inter-regionally to improve pest management outcomes through aligned action, including data sharing.</p>
Research and development	<p>Facilitate research on pest plant impacts and management tools, including but not limited to biocontrol and emerging technology such as drones that may improve ability to deliver effective pest plant control in remote or difficult to access areas.</p>
Requirement to act	<p>Land occupiers to destroy plants when instructed.</p>

#### African club moss (*Selaginella kraussiana*)

African club moss is a mat-forming fern ally with irregular branched stems, small leaves (2-4mm) arranged in rows and rounded cones. It grows rapidly and forms dense mats that can cover forest floors thereby excluding native ground cover plant species, preventing the establishment of seedlings and altering habitat structure for native invertebrates. Suppression of native understorey by African club moss may increase light levels in forests, enabling other pest plant species to establish.



#### African pig's ear (*Cotyledon orbiculata*)

Also known as: pig's ear, round-leafed navel-wort, elk horn

African pig's ear is a succulent up to 1m tall with grey-green leaves and bell-shaped orange, red or pink flowers borne on stems up to 50cm high. It is capable of forming dense clumps in coastal ecosystems and displaces native coastal vegetation.





### Agapanthus<sup>66</sup>

Agapanthus is a perennial evergreen herb with leathery leaves and erect stems that terminate in many white, blue or purple flowered umbels. Plant height ranges from 100-500mm for dwarf forms and up to 1.2m for tall forms. It forms almost monocultural infestations which exclude native vegetation, especially in coastal areas including cliffs and rocky outcrops. It ranks in the top ten plants resulting in calls to the National Poisons Centre. Rhizomes and other plant parts are toxic if ingested, resulting in vomiting and diarrhoea. Contact allergens are capable of causing rashes, burning sensations and mouth ulcerations, especially in children.



### Alder (*Alnus glutinosa*)

Also known as: common alder

Alder is a deciduous tree up to 15m tall with fissured bark, toothed leaves and distinctive catkins late winter to spring. It dominates and simplifies riparian and wetland ecosystems, restructuring plant communities from low-stature to tree-dominated habitats. It has the ability to fix nitrogen thereby altering nutrient cycling regimes in invaded habitats. Pulses of rapidly decomposing litter into waterways can reduce dissolved oxygen levels, increase nitrogen levels and alter stream invertebrate communities. Dense stands may restrict access to waterways and contact with pollen may cause allergies.



Note: Rules in this section come into force for alder on 1 April 2021.

<sup>66</sup> For the purpose of this plan, agapanthus means:

- a) Prior to 1 April 2022, all *Agapanthus praecox* tall form cultivars (those exceeding 600mm height); and
- b) From 1 April 2022, all *Agapanthus praecox* cultivars, except for any low fertility cultivar which is determined by Auckland Council to produce less than 2% viable seeds compared to high fertility cultivars that were evaluated under the same conditions and location. Cultivars already meeting this test will be listed on the Auckland Botanic Gardens website <http://www.aucklandbotanicgardens.co.nz/>

### Alligator weed (*Alternanthera philoxeroides*)

Alligator weed is a perennial emergent aquatic bottom-rooted herb forming extensive floating mats on water's surface but can also grow terrestrially, preferring damp ground. The dense mats can alter aquatic habitat structure (e.g. water flow, light penetration), alter invertebrate community composition and reduce native plant cover and diversity in wetlands and margins of water bodies.

It will also displace valuable pasture species and block drainage channels, exacerbating flooding on farmland.



### Aristea (*Aristea ecklonii*)

Aristea is an evergreen perennial, with woody rhizomes, leaves up to 40cm long and numerous blue flowers in 5 to 7-flowered clusters. It is prevalent on roadsides but forest, scrubland, coastlines, herbfields, rocky and bare lands are also suitable habitats. It forms dense, long-lived stands in open sites and moderate shade, preventing seedlings of native species from establishing. In forest ecosystems, it may open canopy, leading to succession by introduced shrubs, vines and grasses.



### Artillery plant (*Lamium galeobdolon*)

Also known as: aluminium plant

Artillery plant is a perennial herb with pointed, coarsely toothed leaves which are mostly green but feature distinctive large silver-grey patches on the upper surface. It forms large, dense, single-species clumps or mats, smothering native vegetation and preventing its regeneration in disturbed bush, scrubland, fernland and forest margins.



### Arum lily (*Zantedeschia aethiopica*)

Also known as: calla lily

Arum lily is a clump-forming perennial herb to 1.5m tall bearing white flowers with yellow spikes from late winter to late summer and dark leathery arrowhead-shaped leaves. It is capable of forming dense mono-cultures that exclude other plant species in wetlands, riparian margins and damp forest gullies. It displaces valuable pasture species, especially in damp sites and is toxic to livestock.



### Australian sedge (*Carex longebrachiata*)

Also known as: drooping sedge

Australian sedge is a perennial deep-rooted tussock up to 90cm tall with long drooping leaves and very small flowers, borne on drooping inflorescences up to 90cm long. It is predominantly a pest of poor or overgrazed pasture, forming dense swards which are unpalatable to livestock, reducing productivity where present. It may also suppress the growth of native grasses or other short stature plants in grassland or scrub ecosystems.



### Baccharis (*Baccharis halimifolia*)

Also known as: cotton-seed tree; groundsel bush; groundsel tree

Baccharis is an evergreen glabrous, multi-branched shrub up to 4m tall with toothed oblong leaves, cotton-like seed heads and small cream flowers borne February to May. Baccharis is primarily a threat to pastoral grazing; reducing the movement of livestock and pasture productivity. It has further potential to suppress native species in rocky outcrops, wetlands and other habitats.





**Bamboo (*Phyllostachys aurea*, *Phyllostachys nigra*, *Pleioblastus auricomus*, *Pleioblastus hindsii*, *Pseudosasa japonica*, *Chimonobambusa quadrangularis*)**

This group of perennial running-type bamboo species can form dense thickets up to 6-7m tall, with vigorous spreading rhizomes. Impacts are likely to be localised, with neighbouring properties, urban bush fragments, riparian areas and wetlands most at risk from urban plantings or dumping of garden waste. They are able to form dense mono-specific stands which exclude other plant species, likely leading to reductions in plant diversity, simplified stand structure and altered faunal assemblages. These impenetrable stands have the potential to impede access to natural areas.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for bamboo species.



**Banana passionfruit (*Passiflora tripartita* var. *mollissima*, *P. mixta* and *P. tarminiana*)**

Also known as: wild blue-crown, wild passion vine

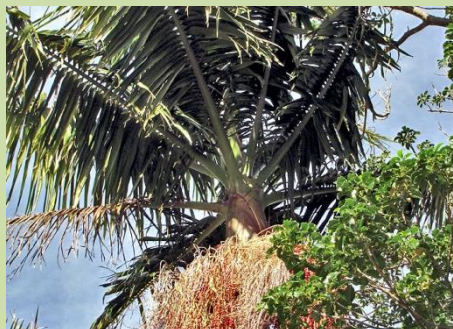
Banana passionfruit is a perennial high climbing vine (8-10m) with three-lobed leaves, pink flowers and green ripening to orange-yellow fruit containing edible pulp with small black seeds. It is fast growing, potentially smothering native vegetation and preventing the establishment of new seedlings. It may also facilitate exotic birds and mammals, particularly feral pigs, through provision of food resource. It is a host of *Passiflora* latent virus (PLV), to which economically important species *P. edulis* and *P. ligularis* are susceptible, and therefore poses a risk to the horticultural industry.



### Bangalow palm (*Archontophoenix cunninghamiana*)

Bangalow palm is a tall palm, with an undivided trunk, pinnate leaves, hanging inflorescences, globose scarlet fruit, growing up to 14m in Tāmaki Makaurau / Auckland (25m in native range). It seeds prolifically and can be very long-lived; some New Zealand specimens known to have been planted prior to 1840s. It is highly invasive in South America, dominating forests and out-competing native South American palms. In Aotearoa / New Zealand it has the potential to displace native species, especially culturally significant nikau palms which occupy similar niches but have been shown to be poorer competitors under controlled conditions. Because it is shade tolerant and bird dispersed, it has potential to invade intact native forest, especially through seedling bank exploitation of light gaps.

Note: Rules in this section come into force for bangalow palm on 1 April 2021.



### Barberry (*Berberis glaucocarpa*)

Barberry is an evergreen or semi-deciduous spiny shrub up to 4-7m tall with toothed leathery leaves, yellow flowers borne in clusters from October to November and reddish black berries. Barberry replaces desirable pasture species, reducing grazing area and impeding livestock movement. Can displace native species in open habitats including scrubland, coastal areas and disturbed forest.



### Bartlettina (*Bartlettina sordida*)

Bartlettina is an erect evergreen perennial shrub (1-2m tall) with densely hairy, large leaves and fluffy clusters of pink-purple flowers produced from November to January. It occurs mainly in disturbed areas and scrub margins, and is shade tolerant, fast growing and capable of forming dense stands that could potentially exclude native plants.



### Bathurst bur (*Xanthium spinosum*)

Bathurst bur is an erect, spiny summer annual plant up to 1m tall with inconspicuous flowers and fruit (burs) bearing hooked spines. It is predominantly a pest of production ecosystems. Burs adhere to sheep wool, contaminating and reducing the value of the yield. Spines prevent stock from grazing and can damage stock feet or hinder stock movement. It can displace desirable pasture plants and is weedy in maize and other summer crops, potentially reducing crop yield.



#### Rules:

7.7.10.1.7 All occupiers of any land that is located within rural Auckland must destroy all Bathurst bur plants on that land.

The purpose of rule 7.7.10.1.7 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

### Berry heath (*Erica baccans*)

Berry heath is a shrub up to 2m tall with pink/red, small flowers, borne in bunches from August to December. Impacts are likely to be restricted to a relatively narrow range of terrestrial ecosystems including gumlands, coastal cliffs and mānuka shrublands, but within these may have moderate impact. It competes with native early successional species such as mānuka and is advantaged by fire; therefore it is likely to increase in dominance at frequently disturbed sites.



Mike Wilcox

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for berry heath.



### Blackberry (wild aggregates) (*Rubus fruticosus* agg.)

Also known as: bramble, cut leaf blackberry

Wild blackberry is a prickly perennial scrambling, woody shrub up to 2m tall with thorned stems, white to pink flowers and red fruit eventually ripening to black. It invades pasture, reducing pasture production and stock-carrying capacity, and injuring stock. It can dominate forestry plantations, impeding access for manual operations and reducing overall yield. In natural ecosystems, it displaces closely related native species and smothers low growing native vegetation in a range of habitat types. It is also a host for blackberry rust *Phragmidium violaceum*, which has been found infecting endemic tātarāmoa / bush lawyer *R. cissoides*.



### Black wattle (*Acacia mearnsii*)

Black wattle is a tree best distinguished by its dark green leaves, subdivided into leaflets, and cream flower heads borne in racemes from July-September. It is capable of forming dense stands, competing with other plant species in scrubland, coastal areas and riparian margins. As a nitrogen fixer with rapid decomposition rates, it can modify soil chemistry, moisture content and microbial function in invaded habitats, indirectly impacting vegetation and invertebrate communities.



Forest and Bird

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for black wattle.

### Bladderwort (*Utricularia arenaria*, *U. gibba*, *U. livida* and *U. sandersonii*)

Bladderwort is a group of carnivorous perennial aquatic herbs with small globose traps that suck invertebrate prey inwards when triggered by external hairs. They form dense sprawling mats which float at or just below the water's surface with the aid of tiny round bladders. Bladderworts spread aggressively and are potentially a serious threat to small turf-forming species and native *Utricularia* species in freshwater ecosystems. Impacts to submerged vegetation are possible due to shading; this may result in reduced oxygen levels within sediment, and consequent changes in sediment chemistry.



### Blue morning glory (*Ipomoea indica*)

Blue morning glory is a high-climbing, perennial plant with twining stems, three lobed hairy leaves and blue to purple tubular flowers borne in clusters from January to December. It can completely smother and suppress other plant species on the ground or in the canopy, in forest and scrub margins, around gardens and plantations.



### Blue passion flower (*Passiflora caerulea*)

Blue passion flower is a perennial high climbing vine with spiralling tendrils, blue-purple and white flowers borne during summer-autumn and fruit which ripens from green to yellow. It is fast growing, potentially smothering native vegetation and preventing the establishment of new seedlings in forest, riparian and coastal ecosystems. It may also facilitate exotic birds and mammals through the provision of food resources.



### Blue spur flower (*Plectranthus ecklonii* and *P. grandis*)

Blue spur flower is a group of soft-wooded shrubs up to 2m tall with irregularly serrated leaves and erect flower heads made up of small tubular violet flowers produced from December to May. It has the potential to outcompete native plants due to clonal spread and the ability to form dense smothering clumps. Bush margins and disturbed forest may be most at risk from invasion.



### Bolivian fuchsia (*Fuchsia boliviana*)

Bolivian fuchsia is an evergreen shrub up to 3m tall with densely hairy leaves and pink/red flowers, borne in drooping racemes. It is fast growing, and will potentially out-compete native *Fuchsia* spp. and other native plants in forest, shrub and riparian ecosystems. Hybridisation between *Fuchsia* spp. populations is well documented and may result in the loss of genetic diversity where Bolivian fuchsia co-occurs with populations of native kōhutuhutu *Fuchsia* spp.





### Bomarea (*Bomarea caldasii* and *B. multiflora*)

Also known as: climbing alstroemeria, Bomaria

Bomarea is a perennial vine with thin, elongated leaves, red, orange or gold tubular flowers hanging in clusters from summer to winter and bright orange fruit from May to August. It is known to outcompete, strangle and smother native forest and riparian species, shading out seedlings and altering successional recruitment. Interactions with the plant are likely to cause dermatitis or allergic reactions.



Weedbusters

### Boneseed (*Chrysanthemoides monilifera*)

Boneseed is an evergreen shrub or small tree up to 3m in height with leathery irregularly serrated leaves, bright yellow flowers produced from September to February and hard oval green fruit which ripen to black. It is likely to crowd out native plants in open coastal areas or disturbed habitats, including freshly cleared forestry plantations. It may also alter plant community composition through allelopathy and competition, alter patterns of nutrient cycling, and facilitate other weeds. The plant is highly flammable and therefore a fire risk in invaded ecosystems.



### Boxthorn (*Lycium ferocissimum*)

Boxthorn is a densely branched and spiny evergreen shrub up to 6m tall with creamy purple flowers and fleshy red fruit. It is a pest plant in coastal habitats; inhibiting the regeneration of native plants, invading coastal pastures, ensnaring seabirds and impeding access to nesting sites. Spines can become imbedded in bone or soft tissue, resulting in infection and pseudo-tumours.



### Brazilian pepper tree (*Schinus terebinthifolius*)

Also known as: Christmas berry

Brazilian pepper tree is a large shrub or small tree up to 3m tall with pinnate leaves, small, white flowers borne in late summer/autumn and red fleshy fruit. It is fast growing, displacing native vegetation in a range of ecosystems including mānawa/mangroves, salt marshes, grasslands and other terrestrial habitats. It is also capable of chemically inhibiting the growth and abundance of co-occurring native plants via the release of biochemicals into the soil.



### Brazilian rattlebox (*Sesbania punicea*)

Brazilian rattlebox is a deciduous shrub or small tree with red-orange flowers in showy inflorescences late spring-autumn and long winged seed pods. It will form dense almost monospecific stands, competitively excluding native plant species in perennial wetlands and watercourses, pasture, forest and scrub ecosystems. Dense growth in watercourses impedes water flow, exacerbates flooding, bank destabilisation and erosion, and can impede human access to watercourses. As a nitrogen fixing plant, it also has the potential to alter nutrient cycling regimes in invaded habitats.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for Brazilian rattlebox.



Eric Hunt

### Brush wattle (*Paraserianthes lophantha*)

Brush wattle is a small tree or shrub with frond like leaves and green-yellow flowers, grouped in cylindrical inflorescences borne May-August, followed by flat seed pods up to 15cm long. It is a pest plant in open disturbed sites including riverbanks, sand dunes and other coastal habitats, out-competing native plants and potentially facilitating other exotic pest plants via nitrogen fixation.





### Buddleia (*Buddleja davidii*)

Also known as: buddleja, butterfly bush

Buddleia is a semi-deciduous shrub up to 3m tall with small purple/pink/white flowers borne in conical clusters between December and April. It is a strong competitor capable of displacing co-occurring species in early-rotation plantation forests and a variety of disturbed habitats, forming dense thickets and altering vegetation composition trajectories.



### Bur daisy (*Calotis lappulacea*)

Bur daisy is a small, many-branched perennial herb with small yellow, spherical flowers year-round that dry into tough brown spheres with hooks. It displaces desirable pasture plants, especially on poor pasture, and is a serious contaminant of wool. Similar native plants in dry rocky outcrops or open disturbed ecosystems may be at risk from competition.



Trevor James, Agresearch

### Burdock (*Arctium minus*)

Burdock is a bushy thistle-like forb up to 1.5m tall with flowers borne between January and April as spiky green spheres with pink, purple or lavender centres, and bracts becoming hooked when dry. It infests pasture; tainting milk if foraged in large quantities, contaminating sheep wool with burs and injuring livestock. It is also a reservoir for a range of fungal diseases that may impact plants in the horticulture industry. Interaction with the plant may cause contact dermatitis and toxic seed hairs may be irritating to pets and humans.



### Bushy asparagus (*Asparagus aethiopicus* syn. *A. densiflorus*)

Bushy asparagus is a scrambling perennial herb with a thick mat of tuberous roots, white flowers borne between October and March and red berries. Stems are hairy and bear 10mm long spines. Dense infestations are capable of excluding native vegetation particularly in coastal and forest ecosystems, and may impede recreational access to natural areas. Other impacts may be similar to climbing asparagus.



### Buttercup bush (*Senna septemtrionalis*)

Buttercup bush is a shrub up to 2m tall with yellow flowers borne December to June and seed pods up to 10cm long. Copious seed production, rapid growth and persistent seed bank allow buttercup bush to persistently dominate open, disturbed sites such as riparian margins, forest edges and scrub, excluding co-occurring native vegetation.



### Californian bulrush (*Schoenoplectus californicus*)

Californian bulrush is a dense clumping rush, up to 4m tall with triangular stems, drooping inflorescence of small brown flowers borne November-April followed by small cream-grey nuts. It forms tall dense stands in brackish river margins and estuaries, excluding co-occurring native sedge species. There is further potential to alter soil conditions in invaded habitats by stabilising sand bars and river margins.



### Californian thistle (*Cirsium arvense*)

Californian thistle is a perennial herb with long spiny leaves, red/pink/purple flowers borne on shoots between December-February and fluffy white tufts of hairs (female flowers). It is a major primary production pest; infesting pasture and subsequently reducing milk and animal yields due to herbivore avoidance. Spines injure farm animals' mouths, promoting 'scabby mouth disease' and seed heads contaminate wool. Pasture management to mitigate impacts can involve considerable costs to farmers, including cost of herbicide use and additional fertiliser use.



Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for Californian thistle.



### Canary Island ivy (*Hedera helix* subsp. *canariensis*)

Canary Island ivy is an evergreen perennial root-climbing plant with three-lobed irregularly patterned leaves, yellow-green flowers borne in umbels in August-December and deep purple-black berries. Impacts are likely to be similar to closely related subspecies English ivy. It forms dense groundcover mats, thereby preventing the regeneration of native species, impacting ground-active invertebrate communities and providing favoured habitat for rodents in native bush. Contact with the plant can cause red, itchy, burning contact dermatitis.



Bernd Sauerwein

### Cape honey flower (*Melianthus major*)

Cape honey flower is an evergreen shrub (up to 2m) with frond-like leaves, foul smelling, red-brown flowers produced between July and April and papery seed capsules. It is capable of forming dense stands which can shade out native plants, particularly in dune systems and disturbed ecosystems. It is highly poisonous; deaths from consumption recorded in both humans and livestock.



### Cape ivy (*Senecio angulatus*)

Cape ivy is a perennial scrambling herb up to c.2m tall with toothed, arrow-shaped leaves and yellow flowers borne March-August. Open coastal ecosystems and regenerating forest may be most at risk from invasion, with native species being out-competed or smothered by scrambling thickets. Thickets may locally obstruct access to recreational areas.



### Cape sundew (*Drosera capensis*)

Cape sundew is a carnivorous perennial low growing herb with bright green, linear leaves bearing coloured (usually red) tentacle-like hairs tipped with a sticky sap that attracts and captures small insects. It displaces small native plants in wetland ecosystems, including native sundews and may capture native insects, thereby altering local invertebrate communities.



### Carex (*Carex divulsa*)

Also known as: meadow sedge, grey sedge, divided sedge

Carex is a long-lived perennial tussock-forming sedge with long flower spikes made up of interrupted small brown or green flowers. It displaces pasture species, invades apple orchards and is a potential reservoir for rust fungi which could impact horticultural plants. In natural ecosystems, it can colonise forest margins and grasslands and will compete with native grass species such as patiti.



### Carex scoparia

*Carex scoparia* is a dense, green grass-like perennial sedge up to 90cm tall. Inflorescences have brown/green oblong spikes and are borne late spring to early summer. It invades wetlands and lake margins potentially out-competing native wetland plants, and altering habitat for native fauna (e.g. impeded fish access to spawning sites). Closely related species are invasive, capable of forming almost monocultural swards, excluding native plant species and dramatically reducing plant diversity.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for *Carex scoparia*.



### Castor oil plant (*Ricinus communis*)

Castor oil plant is a perennial shrub or small tree (up to 4m tall) with a highly variable form but generally bearing large, sharply serrated glossy leaves which are green, red, purple or brown. It may outcompete and shade out other plant species in disturbed habitats, pasture and cleared forestry plantations. It is extremely poisonous and poses a risk to humans, livestock, native herbivorous and frugivorous animals, and pets. Seeds can kill adult humans if ingested. It is also strongly allergenic and contact with sap can cause rashes.





### Cat's claw creeper (*Macfadyena unguis-cati*)

Cat's claw creeper is a perennial woody vine with yellow trumpet flowers borne in spring and seed capsules up to 95cm long. It is capable of smothering trees, causing canopy collapse, or growing as a dense groundcover mat, suppressing the regeneration of vegetation in riparian and forest ecosystems. It has been recorded strangling trees in plantation forests, often resulting in tree mortality.



Weedbusters

### *Cenchrus* spp. (*Cenchrus* spp. syn. *Pennisetum* spp. excl. kikuyu and pearl barley; *C. clandestinus* and *C. americanus*)

*Cenchrus* species are a group of perennial-annual tufted, rhizomatous or straggling grasses. They out-compete and inhibit the growth of native plants in coastal ecosystems. They are consequently associated with reductions in native plant species richness and changes in vegetation structure. Overseas, *Cenchrus* spp. are invasive on scoria lava, therefore Rangitoto may be vulnerable to invasion.



### Century plant (*Agave americana*)

Century plant is a perennial succulent with sharp teeth on the margins of its large, fleshy leaves. A 7-10m tall flower head is produced when the plant is about 10 years old. Invades sand dunes, cliffs and other coastal ecosystems. Can form dense monocultures that suppress native plants. Often spread in dumped garden waste.



Weedbusters

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for century plant.

### Chilean flame creeper (*Tropaeolum speciosum*)

Chilean flame creeper is a perennial climber capable of reaching at least 10m into canopy with five-fingered leaves, tubular red/pink flowers borne November-April and blue-black berries. It suppresses native plants via smothering and shading in forest and scrub ecosystems. Bird dispersal has the potential to facilitate spread to inaccessible areas.



Department of Conservation

### Chilean glory creeper (*Eccremocarpus scaber*)

Chilean glory creeper is a perennial climbing sub-shrub up to 6m with tubular orange/red flowers borne in inflorescences September-May. It suppresses co-occurring vegetation via smothering habitat. Scrub, forest edges and riparian margins are most at risk from invasion.



Weedbusters

### Chilean rhubarb (*Gunnera tinctoria*)

Chilean rhubarb is a clump-forming, herbaceous perennial up to 2.5m tall by 4m wide, with very large prickly leaves and minute flowers occurring in early summer. It most commonly naturalises in coastal and riparian areas; forming dense colonies that shade-out or suppress native plants and reduce the seed rain from adjacent species. It is a potential threat to culturally important plants including harakeke and watercress.



### Chinese fan palm (*Trachycarpus fortunei*)

Also known as: Chinese windmill palm, chusan palm

Chinese fan palm is a 4-12m tall palm with an unbranched trunk, fan shaped leaves and sharp marginal teeth on the petioles. Fruit are yellow but turn blue-black with age. The large leaves cast deep shade, reducing native seedling recruitment and growth. Urban reserves are most at risk of invasion due to human cultivation of the plant in surrounding areas. Intact forests in remote areas are also at risk long-term due to bird-mediated seed dispersal and shade tolerance, potentially resulting in dominance of the forest understorey. Invasion may also result in the modification of soil biota communities and nutrient cycling impacts in these ecosystems. There is the potential for direct competition with taonga species such as nikau.



Note: Rules in this section come into force for Chinese fan palm on 1 April 2021.



### Chinese holly grape (*Mahonia lomariifolia*)

Chinese holly grape is a perennial evergreen shrub up to 4-5m tall with spiky leaves, yellow flowers borne in upright, terminal racemes during winter and oval green berries ripening to purple. It is shade tolerant, and known to invade closed canopy vegetation in forest ecosystems, forming thickets which exclude other understorey plants.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for Chinese holly grape.



Rebecca Stanley

### Chocolate vine (*Akebia quinata*)

Chocolate vine is a deciduous or evergreen (climate dependent) climbing plant up to 20m with palmate leaves and brown-purple flowers, borne in spring.

It is a vigorous climber capable of smothering native vegetation and preventing recruitment. It is partially shade tolerant, capable of invading margins or light gaps of intact native forest. Shrublands and re-vegetated or regenerating plant communities are most at risk.



Weedbusters

### *Clematis flammula*

*Clematis flammula* is a deciduous perennial woody climber, reaching up to 5-6m with white flowers between January and March and hairy plumed seeds. It has a smothering climbing habit and moderate shade tolerance therefore scrub and bush margins are most at risk of invasion, including in coastal areas. Uncertain to what extent intact forest is at risk. Closely related plants are highly invasive.





### Climbing asparagus (*Asparagus scandens*)

Climbing asparagus is a scrambling or climbing perennial, with tuberous fleshy roots, thin scale-like leaves, red berries and long, usually white, solitary flowers. It smothers forest floor and understorey up to 4m, causing reductions in native plant abundance and species richness, and promoting further invasion by other pest plant species via raised light levels. In the long-term there is the potential for increased erosion through catastrophic loss of canopy and an overall transformative loss of forest ecosystems throughout the region.



### Climbing dock (*Rumex sagittatus*)

Also known as: creeping dock, rambling dock

Climbing dock is a scrambling perennial vine trailing to 4m long with heart-shaped yellow or pink-red fruit, arrow-shaped leaves and small, green to pink flowers. It is a fast grower, scrambling over plants up to 3m tall, replacing low canopy plants and preventing the establishment of native seedlings in disturbed forest, scrub, coastal and riparian ecosystems.



### Climbing gloxinia (*Lophospermum erubescens*)

Climbing gloxinia is a climbing perennial herb with triangular leaves and red, pink or white trumpet-shaped flowers borne January to March. Moderate impacts may be expected based on its smothering habit and history of invasiveness. It is capable of invading very harsh dry environments. Threatened species may be at risk in a wide range of habitats including in rocky outcrops, grasslands and forests.



### Coast banksia (*Banksia integrifolia*)

Coast banksia is a large shrub or tree up to 15m high with rough bark, narrowly elliptical leaves, cylindrical inflorescences bearing numerous pale yellow to green flowers and woody fruiting cones. It grows in coastal and lowland sites, often on sand dunes, along roadsides, forest margins, and other open habitats; shading out existing vegetation and transforming the habitat.



### Coltsfoot (*Tussilago farfara*)

Coltsfoot is a perennial herb with deeply lobed, toothed leaves and yellow flowers in spring. It is mat-forming and an aggressive grower therefore may out-compete other plant species in moist habitats including riparian margins and wetlands. It is reported as competitive against pasture grasses and contains alkaloids which can be toxic to livestock and humans. It may also compete strongly with crop plants.



Weedbusters

### Cotoneaster (*Cotoneaster glaucophyllus* and *C. franchetii*)

Cotoneaster are evergreen shrubs up to 3m tall with small white flowers borne in clusters and poisonous red berries. They are capable of forming dense thickets which prevent the regeneration of other plant species in coastal scrubland and grasslands, including on ngā tūpuna maunga.



### Crack willow (*Salix fragilis*)

Also known as: brittle willow

Crack willow is a shrub or tree to 25m high with green to brown stems that make an audible crack when bent and long catkins. It can affect native plant species in wetlands and riparian sites through competition, shading and altered hydrology. It causes blockages, flooding and structural changes in waterways and may alter soil decomposition cycles.



Weedbusters

### Creeping fig (*Ficus pumila*)

Creeping fig is a perennial climber up to 10m+ with purple to pink fruit. It is a vigorous climber, shade tolerant and capable of smothering co-occurring vegetation on rock walls and scoria faces. Based on other fig species, there is a high risk of the obligate pollinating wasp establishing in Aotearoa / New Zealand in the future, increasing the chances of creeping fig naturalising. High value sites such as Rangitoto and Maungawhau / Mt Eden rock forest may be at risk.



Colin Ogle



### Dally pine (*Psoralea pinnata*)

Dally pine is a perennial evergreen shrub or small tree up to 5m tall with long thin leaflets and pea-shaped white-blue flowers borne November to January. It has the potential to dominate short-stature plant communities such as gumlands and herbfields through competition and nitrogen-fixation. It may replace mānuka in early successional ecosystems, potentially impacting upon the mānuka honey industry.



Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for dally pine.

### Darwin's barberry (*Berberis darwinii*)

Darwin's barberry is an evergreen shrub able to reach 10m in forest with needle-sharp spines, serrated leaves and golden flowers hanging in clusters from July to February, followed by purplish-black berries. It a serious forestry pest, likely to infest understorey in thinned stands, and may impact the horticultural industry as a carrier of various plant pathogens. It outgrows and out-competes native plants in disturbed forest and scrubland, altering forest understorey and light regimes.



### Devil's tail (*Persicaria perfoliata*)

Also known as: mile-a-minute weed, tearthumb.

Devil's tail is a sprawling vine up to 6m long with downward pointing hooks on the stems and undersides of the leaves, small white flowers and metallic blue fruit. It is a pest of nurseries and forestry plantations, impairing juvenile tree growth. It is likely to outcompete and smother native plants in forest gaps, riparian areas and other open, disturbed habitats. Barbs may injure children and pets.



### Divided sedge (*Carex divisa*)

Divided sedge is a tufted perennial sedge growing up to 80cm with green maturing to pale brown inflorescences, consisting of overlapping spikes. It is capable of forming almost monocultural swards, excluding native species and sometimes resulting in loss of plant zonation across brackish coastal habitats. It has further potential to impact on the mauri and customary uses of a range of wetland ecosystems.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for divided sedge.



John Smith-Dodsworth

### Drooping prickly pear (*Opuntia monacantha* and other spp.)

Drooping prickly pear is a group of large cacti with oval or circular stem segments and thick cylindrical trunks that have a drooping habit on larger specimens. It has the potential to decrease native plant cover in coastal ecosystems due to competitive exclusion and may out-compete native plants for pollinators, resulting in potential impacts on native plants' seed-set and/or invertebrate pollinator communities. Stem-succulent species are not characteristic of the native flora, and invasion by such species represents a substantial structural change to the ecosystem. Invasion may impede access to coastal areas due to sharp spines.



### Dusky coral pea (*Kennedia rubicunda*)

Dusky coral pea is a scrambling perennial leguminous vine with clusters of dark red-pink-purplish pea-shaped flowers held in inflorescences between August and December. It has a rapid growth rate and smothers shrubs and trees, particularly in open or forest edge habitats.



### Eel grass (*Vallisneria australis*)

Eel grass is a bottom-rooted freshwater aquatic plant with strap-like leaves up to 5.5m long. Male flowers consist of large pollen-filled sacs produced at the base of mature plants. Female flowers are small and green and produced on the end of a very long, spirally coiled stalk that can extend to the water's surface. It is capable of forming dense stands which may displace other submerged plant species in suitable wai māori / freshwater habitats. These stands have the potential to impede drainage, exacerbating flooding, and impede recreational water uses. Entanglement in the weed can lead to drowning.



### Egeria (*Egeria densa*)

Egeria is a bottom-rooted submerged perennial aquatic herb with long stems (3m and over) and white flowers borne at the water's surface between November and January. It forms dense stands displacing native aquatic plants and altering the habitat structure of macroinvertebrates and fish. Resultant impacts can include lowered dissolved oxygen levels, increased sedimentation, changes to primary production and nutrient cycling capacity of the invaded water body.



### Elaeagnus (*Elaeagnus x reflexa*)

Elaeagnus is a dense evergreen scrambling perennial shrub with stems up to 20m, leaves with irregular wavy margins, small pale white or brown flowers borne in clusters in autumn and red/orange fruit. It smothers co-occurring vegetation, especially in regenerating bush, forest margins and canopy gaps. It is also capable of forming dense thickets that may impede recreational access to natural areas.





**Elephant's ear (*Alocasia macrorrhiza* syn. *A. brisbanensis*)**

Also known as: spoon lily

Elephant's ear is a perennial herb up to c.2m tall with large arrow-shaped leaves and numerous small cream flowers produced in summer and autumn. It is capable of forming dense stands which may displace native plants in wetlands and other damp habitats. It is poisonous and can invade damp pasture, therefore may be avoided by livestock. Contact with the plant can lead to skin and eye irritation.



**Elodea<sup>67</sup> (*Elodea canadensis*)**

Elodea is a submerged, bottom-rooting freshwater aquatic plant up to 5m tall, with small white and purple flowers borne at the surface of the water from November to January. It can reduce flow velocity and impede gas exchange in freshwater ecosystems resulting in lowered dissolved oxygen levels and increased sedimentation. It may also impede water flow in drains, exacerbating flooding.



**English ivy (*Hedera helix* subsp. *helix*)**

English ivy is an evergreen perennial root-climbing plant with lobed leaves, numerous yellow-green flowered umbels from August to December and deep purple or black berries. It forms dense monocultural groundcover, substantially lowering ground-level light availability and preventing regeneration of other vegetation in roadsides, native forest and riparian ecosystems. Dense mats combined with rapidly decomposing litter have potential to alter decomposition dynamics and nutrient cycling within invaded ecosystems. Contact with the plant can cause contact dermatitis.



<sup>67</sup> Pest outside of secure containment only.

### False tamarisk (*Myricaria germanica*)

False tamarisk is an evergreen shrub up to 2m tall with small, pink flowers borne in summer. It is capable of colonising riparian margins and braided river beds. It can reduce available habitat for nesting birds in braided riverbeds, while also providing cover for predators.



Trevor James, Agresearch

### Fatsia (*Fatsia japonica*)

Fatsia is a shrub or small tree up to 6m tall with large glossy leaves, black fruit and white flowers borne in umbels between March and May. It is shade tolerant and bird dispersed and therefore capable of invading intact native bush. It is capable of forming multi-stemmed thickets which, with its very large leaves, cast deep shade preventing native species regeneration below. It is poisonous if ingested and the leaves are allergenic, causing contact dermatitis in some people.



Colin Ogle

Note: Rules in this section come into force for fatsia on 1 April 2021.

### Ferny asparagus (*Asparagus plumosus*)

Ferny asparagus is a scrambling perennial plant with widely branched stems, purple to black berries and small, white flowers borne November and December. Based on closely related invasive species, ferny asparagus has the potential to smother native vegetation, reducing regeneration leading to canopy collapse, and may be associated with altered invertebrate communities. Native forest and coastal habitats are most at risk from invasion.



### Firethorn (*Pyracantha angustifolia*)

Firethorn is an evergreen spiny shrub growing over 2.5m tall with densely hairy stems, white flowers borne in clusters between December-January and yellow to orange fruit. Firethorn is capable of restructuring woody plant communities, including acting as a nurse plant for privet, in semi-open or disturbed sites.



### Formosa lily (*Lilium formosanum*)

Formosa lily is a perennial herb with erect unbranched stems up to 1m tall and large, white tinged with purple, trumpet-like flowers, mainly borne January-March but sometimes year round. It is most invasive in disturbed or open coastal ecosystems including sand dunes, cliff faces and forest canopy gaps where it forms dense stands. Coastal species potentially at risk from competition may include culturally significant species such as harakeke.



### Furcraea (*Furcraea foetida*, *F. parmentieri* and *F. selloa*)

Furcraea are perennials up to 3m wide with fleshy or leathery leaves held in rosettes, and conspicuous spines or minute teeth along the leaf margins. It forms monocultures in coastal and other open ecosystem potentially excluding native plant species and altering habitat structure for native animals. Ecosystem impacts are probable due to the lack of functionally equivalent native species.

Note: Rules in this section come into force for furcraea on 1 April 2021.



### German ivy (*Senecio mikanioides*)

Also known as: water ivy, parlor ivy

German ivy is a perennial scrambling vine up to 5m bearing lobed bright green leaves and yellow button-like flowers. It aggressively smothers the understorey in coastal areas, riparian and forest margins and clearfelled forestry plantations, suppressing seedling regeneration and facilitating other invasive vines. It is toxic to aquatic animals and terrestrial invertebrates.



Weedbusters



### Giant reed (*Arundo donax*)

Also known as: bamboo reed, donax cane, arundo grass, cow cane, river cane, reed grass.

Giant reed is a sturdy perennial grass with large, spreading clumps of thick culms up to 6m tall, maize-like leaves and large fluffy purplish to silver inflorescences standing above the foliage. It invades riparian areas, wetlands and saltmarshes, altering hydrology by blocking water flow and displacing native plants by creating vast monocultures. Dense stands can impede drainage and exacerbate flooding in agricultural systems.



### Giant rhubarb (*Gunnera manicata*)

Giant rhubarb is a clump-forming, herbaceous perennial up to 2.5m tall by 4m wide, with very large prickly leaves. It competes with native plant species, reducing native biodiversity in riparian margins, wetlands, coastal areas and cliffs. The large leaves can also prevent native seedlings from growing underneath them.



Dinkum

### Goat's rue (*Galega officinalis*)

Goat's rue is a perennial clumping herb up to 1m tall with purple or white pea-like flowers borne in spikes. It invades pastures and if consumed can be toxic to livestock. Potential mechanisms for impacts in riparian margins and riverbeds include nitrogen fixation and competition with native plant species.



### Gorse (*Ulex* spp.)

Gorse is a spiny perennial shrub up to 4m tall with yellow pea-like flowers produced from May to November and explosive seed pods. It is a serious pest of the primary production industry where it will readily invade forestry plantations and pasture, reducing food for livestock. It also forms dense stands and out-competes native vegetation in shrubland, forest margins and coastal habitats. Native forest succession through gorse can result in a different vegetation composition and lower diversity than succession through native early succession plants. Its nitrogen-fixing capacity can increase soil nitrogen in invaded areas, to the detriment of specialised plants including herbs and orchids. Dense prickly stands can impede access to recreational and culturally important sites.



#### Rules:

7.7.10.1.8 All occupiers of any land that is located within rural Auckland (Occupier A) must destroy all gorse plants on that land within 10m<sup>68</sup> of any property boundary that is adjacent to land being used for commercial primary production (Occupier B) and where that land occupier (Occupier B) is destroying all gorse on that land.

This rule is a Good Neighbour Rule.

The purpose of rule 7.7.10.1.8 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

<sup>68</sup> On steeply sloping land this will be interpreted as 10m horizontally out from the boundary.



### Grey willow (*Salix cinerea*)

Also known as: pussy willow, shrub willow, grey sallow

Grey willow is a deciduous shrub or small tree up to 7m high with greenish grey to dark purple stems, oval leaves and 1.5–3.5cm long catkins appearing before the leaves. It forms vast dense stands and thickets causing blockages, flooding and structural changes in waterways. It can affect native plant species in wetlands and riparian ecosystems, through competition, shading and altered hydrology.



### Guava (*Psidium cattleianum*)

Guava is a large perennial shrub or small tree up to 6m tall with smooth, oval leaves, white flowers borne from January to March and green ripening to dark purple-red fruit. It is highly shade tolerant, and therefore capable of invading intact native forest vegetation. It has the potential to form monocultures in a wide variety of ecosystems and is associated with reduced recruitment of native species beneath dense guava stands. Guava can re-structure the vegetation profile of forests, reducing the density of the understorey and overstorey while increasing canopy volume in the midstorey. There is also potential to exacerbate impacts from animal pests such as possums and feral pigs by creating an important food source.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for guava.



### Guinea grass (*Megathyrsus maximus*)

Also known as: green panic grass, elephant grass, buffelgrass

Guinea grass is a perennial bunchgrass with erect stems reaching up to 3.5m height and reddish spikelets. It has the potential to be problematic in the horticultural industry as an aggressive invader of crops, orchards and vineyards and as an alternative host for insect pests and diseases of cereal crops. It is a strong competitor and invader of open habitats, including grasslands and riparian ecosystems, and is a potential fire hazard, capable of increasing fire severity and spread.



### Gypsywort (*Lycopus europaeus*)

Gypsywort is an emergent aquatic perennial herb up to 1m tall with toothed leaves and small, white to pale pink flowers borne summer-autumn. It is particularly invasive in wetlands and riparian margins, spreading rapidly via water movement once in a catchment, followed by localised vegetative spread. It is fast growing and has the potential to displace native vegetation in invaded ecosystems.



### Hakea (*Hakea* spp.)

Also known as: prickly hakea, willow-leaved hakea

Hakea are large shrubs or small trees with spiny or soft leaves and white and yellow flowers. It is a dominant competitor in open sites with low fertility soil including low forest, scrub, coastal and gumland habitats. It alters moisture regimes, adds to fire risk, alters vegetation succession and contributes to the local extinction of rare native fern, orchid and shrub species.



Trevor James, Agresearch

### Hawkweed (*Pilosella* spp. syn. *Hieracium* spp.)

Hawkweeds are perennial broadleaf herbs 15-40cm in height with narrow leaves and yellow to orange flower heads produced during spring and summer. Hawkweed infestations can reduce feed plant cover and the productivity of pasture, in some cases farmland has been abandoned as a result of lost productivity. They prefer cooler climates but have broad environmental tolerances and may invade grasslands, scrubland or riparian margins, potentially excluding native plant species.



Weedbusters

### Hawthorn (*Crataegus monogyna*)

Hawthorn is a deciduous shrub or small tree (5-14m high) with thorny stems, coarsely toothed leaves and small white flowers produced in spring followed by dark red fruit. Dense hawthorn thickets can exclude native plants in grasslands, scrublands and disturbed native forest. It can also facilitate exotic birds and mammals via the provision of a food resource. Root intrusion on tūpuna maunga affects threatened plants and archaeological features.





### Heather (*Calluna vulgaris* excl. double flowered cultivars)

Heather is a bushy evergreen perennial shrub up to 50cm tall with woody stems, small stalkless leaves and small purple bell shaped flowers produced in spring. It can invade poor quality pasture, reducing the cover of preferred food plants and lowering productivity. Dense thickets can out-compete native plants in tussock, grasslands and herbfIELDS. It can also reduce the diversity of native invertebrates by altering the availability of resources and habitat structure.



Udo Schmidt

### Hemlock (*Conium maculatum*)

Also known as: poison hemlock

Hemlock is an annual, biennial or perennial herb, 1–2.5m tall with fernlike leaves and clusters of small, white flowers. It is pest plant of poorly drained habitat including riparian margins, swamp, forest margins and pasture. It is acutely poisonous and poses severe health risks to humans, livestock and native animals upon ingestion. Severe cases can be fatal.



### Himalayan honeysuckle (*Leycesteria formosa*)

Himalayan honeysuckle is a perennial shrub up to 2m tall with heart-shaped leaves, drooping spikes of white funnel-shaped flowers produced from December to May and dark purple berries in autumn. It is fast growing and forms dense stands that may exclude native plants in native and plantation forest, shrubland and riparian margins. It can rapidly dominate disturbed forest areas, potentially competing with native colonisers such as tutu.



### Holly-leaved senecio (*Senecio glastifolius*)

Also known as: pink ragwort

Holly leaved senecio is an erect short-lived perennial herb up to 2m tall with serrated leaves and daisy-like purple flowers borne from September to November. It is capable of shading and displacing small-stature native plant species in a range of coastal native habitats.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for holly-leaved senecio.



### Hornwort (*Ceratophyllum demersum*)

Hornwort is a perennial submerged aquatic plant up to 7m tall which can be anchored to sediment by stems, or forms free-floating mats. Leaves are 10-40mm long, narrow, branched and whorled forming complex architecture. Hornwort forms dense monospecific stands which can displace all native submerged vegetation down to 15m depth. The dense stands alter water flow, increase flooding risk and impede recreational access of waterbodies. Because it can grow to greater depths than other aquatic weeds, it is the species likely to have greatest impacts on deep-water charophyte meadows. Kōura are also likely to be especially impacted due to requirement for open habitat.



Rohan Wells, NIWA

### Horsetail (*Equisetum* spp.)

Horsetails are erect perennial fern-allies, rush-like in appearance, with erect jointed stems and spore cones borne in spring. They are capable of invading croplands and pasture, and are toxic to livestock. In wetland and riparian margins they are highly competitive, frequently excluding other vegetation and altering nutrient cycles.



### *Hydrocotyle umbellata*

*Hydrocotyle umbellata* is a semi-aquatic perennial, herb with tiny, white, star shaped flowers occurring in umbels of 10-60 flowers. It is a terrestrial plant in wet soils or aquatic in freshwater up to 1.5m deep. Appearance and growth form is variable depending on the invaded habitat type, either floating, creeping or mat forming. It forms dense monocultures that can exclude native plants and has the potential to hybridise with native *Hydrocotyle* spp. In agricultural systems, it may impact irrigation and drainage.



Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for *Hydrocotyle umbellata*.

### Iceplant (*Carpobrotus edulis* and hybrids)

Iceplant is a perennial succulent herb with stems up to 6m long and red, pink or yellow flowers borne from October to February. It invades coastal habitats, directly impacting on native plant species through smothering, competition for space and other resources, and indirectly via soil chemistry modification. Impacts include reduced germination and survival of native plants, resulting in reductions in native species' richness at invaded sites. It will also hybridise readily with related native species, impacting on the genetic diversity of the native species.



### Italian arum (*Arum italicum*)

Italian arum is a perennial herb, up to 60cm tall with arrow-shaped leaves with cream veins and floral inflorescences comprised of a yellow spike surrounded by a pale green or cream bract. It is poisonous and avoided by livestock when invasive in pasture. It forms dense ground-cover, shading out small native plants and preventing native seedling recruitment in disturbed forest and scrublands.



### Italian jasmine (*Jasminum humile*)

Italian jasmine is an evergreen shrub up to 2.5m tall with yellow, tubular flowers borne year round and glossy black fruit. It can form monospecific patches, excluding native species and preventing native seedling recruitment in a diverse range of habitats, including forest, scrubland and coastal habitats.



Weedbusters



### Japanese cherry (*Prunus serrulata*)

Japanese cherry is a deciduous tree up to 12m tall with toothed leaves, pink or white flowers borne in spring and red-black fruit. It is capable of invading native forest, competing with and displacing native plants. Closely related species are highly invasive overseas and are known to reduce plant functional diversity in invaded forests. Japanese cherry has the potential to substantially increase in abundance in forest ecosystems due to bird-dispersed seed.

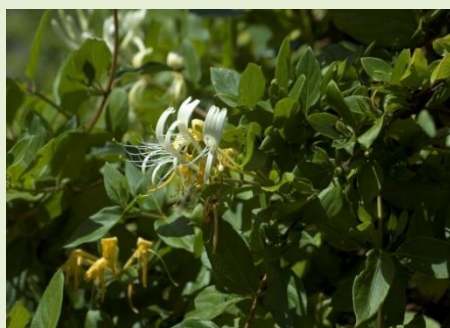


Jeremy Rolfe

Note: Rules in this section come into force for Japanese cherry on 1 April 2021.

### Japanese honeysuckle (*Lonicera japonica*)

Japanese honeysuckle is an evergreen climber with dark green leaves and paired fragrant white flowers with yellow corollas. The vine can grow up to 15m/year and will quickly form dense monospecific mats which smother and suppress native vegetation, harbour mice and facilitate other invasive plants in disturbed sites, river banks, bare ground, scrubland, forest margins, fragments or gaps. In orchards it is a host of several pathogens, and in forestry plantations it will overgrow young plants and chemically inhibit plant growth of some pine species



### Japanese spindle tree (*Euonymus japonicas*)

Also known as: winged euonymus, Japanese laurel

Japanese spindle tree is an evergreen shrub or small tree up to 7m height with glossy leaves, fleshy pink seed capsules and clusters of small and greenish flowers. It forms dense stands, assumed to crowd out native plants and prevent seedling recruitment, in disturbed bush, forest margins, scrubland and coastal ecosystems.



### Japanese walnut (*Juglans ailantifolia*)

Japanese walnut is a deciduous wide-spreading tree up to 15m tall with red, pink or purple flowers borne October to November. It is capable of forming dense stands and chemically inhibiting the growth of other plants, excluding native plant species in riparian and wetland habitats.



Weedbusters

### Jasmine (*Jasminum polyanthum*)

Also known as: pink jasmine, white jasmine.

Jasmine is a wiry evergreen climber up to 12m tall which produces an abundance of reddish-pink flower buds in late winter and early spring, followed by fragrant star-like white flowers. It is a rapid and vigorous climber, able to invade dense forest and smother all vegetation in the subcanopy. It is also capable of forming dense groundcover, preventing native seedling establishment in forest and disturbed ecosystems.



### Kangaroo acacia (*Acacia paradoxa*)

Kangaroo acacia is a perennial shrub up to 3m with 10mm long spines, inflorescences of many yellow flowers and leaves reduced to winged leaf stalks. It can form extremely dense stands potentially excluding native vegetation in open or disturbed sites including coastal areas, scrubland and forest margins. It is a nitrogen-fixing plant, potentially altering soil fertility, nutrient cycling dynamics and plant community compositions in invaded ecosystems.



### Khasia berry (*Cotoneaster simonsii*)

Khasia berry is a deciduous or semi-evergreen erect shrub up to 4m tall with small white or pink flowers borne November to December and orange-red berries. It is capable of forming dense stands which exclude native plant species in semi-open to open habitats, including pasture, open shrubland, forest margins, plantation forests and coastal habitats.





### Kudzu vine (*Pueraria montana* syn. *P. lobata*)

Kudzu vine is a herbaceous to semi-woody, scrambling, trailing or climbing vine up to 30m long with large lobed leaves and spikes of reddish-purple, pea-like flowers. It is a very aggressive competitor in native forest, shrubland and riparian margins; altering forest disturbance regimes, out-shading and girdling small trees and chemically inhibiting the growth of co-occurring plants.



Forest and Kim Starr

### Lagarosiphon/oxygen weed (*Lagarosiphon major*)

Oxygen weed is a bottom-rooted submerged perennial aquatic herb with downward curving leaves, arranged in spirals on the stem. It is capable of forming dense stands; displacing native aquatic herb species, altering habitat availability for fish and invertebrates, and affecting dissolved oxygen levels by reducing gas exchange. The stands can also impede recreational water access to water bodies.



Rohan Wells, NIWA

### Lizard's tail (*Saururus cernuus*)

Also known as: swamp lily, mouse's ear

Lizard's tail is a perennial emergent freshwater aquatic herb with branches bearing spikes of white inflorescences that resemble a lizard's tail. It is able to dominate the herb layer in wetlands, marshes, swamps, streams and, lake edges, potentially shading out submerged species.



### Lodgepole pine (*Pinus contorta*)

Lodgepole pine is a shrub to medium-sized tree that can live over 350 years, with cones that persist on the tree and winged seeds. It is capable of forming monocultural stands in open mid-high elevation areas. Invasion is associated with reductions in species richness and a shift towards non-native dominance of soil fungal communities. Impacts are likely to be mainly on light-demanding short-stature plant species following vegetation structure alteration from open habitat to forest.



Jeremy Rolfe

### Loquat (*Eriobotrya japonica*)

Loquat is an evergreen tree up to 8m tall with thick, leathery and wrinkled leaves, white flowers borne in many-flowered inflorescences from April to November and yellow fruit. It is shade tolerant and can be dispersed into forest via kereru/kukupā, allowing it able to invade intact canopy native vegetation and potentially dominate the mid-tier canopy. It is likely to be advantaged by warmer temperatures under climate change.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for loquat.



### Madeira vine (*Anredera cordifolia*)

Also known as: Madeira, mignonette vine, potato vine, lamb's tail.

Madeira vine is a perennial climbing vine up to 40m long with heart-shaped or oval fleshy leaves and drooping inflorescences of small fragrant cream flowers from January to April. It can rapidly invade disturbed forest and margins, plantations, gullies, scrublands, coastline, dunes and riparian margins by smothering and sometimes crushing understorey plants.



### Male fern (*Dryopteris filix-mas*)

Male fern is a perennial fern with round sori produced through autumn and winter. It is shade tolerant, therefore intact forest is at risk of invasion, especially riparian margins, though disturbed forest may be at higher risk. It occupies a similar niche to native forest-dwelling ferns therefore may competitively displace natives in invaded ecosystems.



Jeremy Rolfe



### Marram grass (*Ammophila arenaria*)

Marram grass is a densely tufted perennial grass up to 1m tall with white-golden flower heads borne November to March. It is capable of forming extensive areas of almost monospecific cover in sand dune habitats. It traps sand, leading to substantial changes in sand dune morphology, creating dunes that are taller, steeper, more regular and more stable. It displaces native dune species such as pīngao, via rapid sand accumulation and associated burial of competing plants. It can also reduce shore bird nesting habitat through altered dune architecture.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for marram grass.



### Mexican daisy (*Erigeron karvinskianus*)

Mexican daisy is a perennial herbaceous daisy up to 40cm tall with pink, purple or white flowers borne September to May. It forms dense groundcover mats which are observed to suppress co-occurring short-stature plants and recruitment in ecosystems that contain many at risk plant species (e.g. coastal herbfields, gumlands and off-shore islands). Based on its life-form, it may have the potential to alter functional composition of ground invertebrate communities in invaded areas.



### Mexican devil (*Ageratina adenophora*)

Mexican devil is a herb to sub-shrub approximately 1-2m tall with diamond-shaped leaves and white flowers borne in dense clusters from August to March. It invades pasture and is poisonous to horses, potentially fatal. It is capable of displacing native plants in wetland and riparian habitats, through direct competition for resources, and potentially also via chemical inhibition and altered soil microbial activity.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for Mexican devil.





### Mexican water lily (*Nymphaea mexicana*)

Mexican water lily is a perennial bottom-rooted aquatic herb with floating heart-shaped leaves and yellow flowers borne above the water surface from October to December. It forms dense mats which can reduce dissolved oxygen levels in the water column by preventing gas exchange between water and air, and may suppress submerged aquatic plants by shading. Impacts on fish, zooplankton and other species resulting from low dissolved oxygen are probable.



Rohan Wells, NIWA

### Mickey Mouse plant (*Ochna serrulata*)

Mickey Mouse plant is a shrub up to 3m tall with serrated leaves and yellow flowers borne September to March. The fruit resemble the face of Mickey Mouse (black fruit attached to red sepals), and are produced in autumn. It is shade tolerant and bird dispersed, therefore has the potential to invade intact forest ecosystems. It is known to dominate scrub layers where invasive overseas, therefore impacts on native plants via competition and suppressing recruitment are likely.



### Mile-a-minute (*Dipogon lignosus*)

Mile-a-minute is an evergreen perennial climbing vine, with pea-like, white, pink or red flowers borne from July to January. It invades scrubland, forest margins, stream banks, wetlands, coastal areas including banks and open coastal forest; smothering trees and destroying forest structure. It is capable of nitrogen fixing and has the potential to alter nutrient cycling patterns, possibly favouring other exotic plants.



### Mist flower (*Ageratina riparia*)

Also known as: mistweed, river eupatorium.

Mist flower is a many-stemmed, erect or scrambling herb 0.5-1.5m tall with long coarsely serrated leaves and clusters of small white flowers produced from August to January. It forms dense colonies in wetlands, scrub and other damp habitats, smothering native plants, including *Hebe* spp. and preventing their regeneration. It is very likely to infest riparian margins where it causes sediment buildup, altering flow regimes and potentially causing flooding.



Weedbusters

### Monkey apple (*Syzygium smithii* syn. *Acmena smithii*)

Also known as: lilly pilly

Monkey apple is a tree up to 15m tall with glossy leaves, creamy coloured flowers borne October-January and white or pale pink/mauve fleshy fruit. It colonises native forest, especially exposed ridges, edges and regenerating secondary scrub. It is also capable of recruiting below closed canopy due to high shade tolerance, therefore intact forests are at risk of invasion. In the long-term, invasion may lead to transformative change to forest composition and structure.



### Montbretia (*Crocasmia x crocosmiiflora*)

Montbretia is a clump-forming perennial herb with sword-shaped leaves, up to 90cm tall and orange flower heads overtopping the foliage January-February. Dense stands have been observed to exclude native vegetation. Open grasslands and riparian habitats are most at risk from invasion.



Weedbusters

### Montpellier broom (*Genista monspessulana*)

Montpellier broom is an evergreen perennial shrub up to 3m high with clusters of pea-like yellow flowers produced during May-November. It can form dense thickets in pasture, reducing grazing capacity and impeding movement of stock. Seeds and leaves are poisonous to stock. It competes with tree seedlings in plantations, reducing productivity. In native forest and scrubland ecosystems it out-competes vegetation and increases soil nitrogen, altering native species composition and facilitating invasion by other weed species. Thickets can provide shelter for invasive animals (e.g. rabbits).



### Morton Bay fig (*Ficus macrophylla*)

Morton Bay fig seedlings often begin as epiphytes, growing on other trees, but eventually become large free-standing buttressed trees (up to 30m tall), often killing the host tree in the process. It has the potential to impact on native plants through competition, shading of understorey and by strangling host plants. It is bird-dispersed and therefore capable of colonising remote intact forest. There is further potential to restructure frugivore communities; including supporting elevated populations of vertebrate pests such as possums, feral pigs and birds through copious year-round fruit production.



Note: Rules in this section come into force for Morton Bay fig on 1 April 2021.

### Moth plant (*Araujia hortorum*)

Moth plant is a perennial climber with scrambling stems, glossy leaves, white or pale pink flowers borne in clusters or singly, and fleshy pear-shaped fruit. It smothers and kills plants up to medium-high canopy, preventing recruitment in forest, coastline, cliffs, shrublands, mānawa/mangroves, inshore and offshore islands, orchards and disturbed habitats. Based on its life-form, there can be long-term potential for catastrophic impacts on forest structure. Milky latex in stems, leaves and roots are poisonous and cause dermatitis.





### Nardoo (*Marsilea mutica*)

Also known as: smooth nardoo, Australian water clover, clover fern

Nardoo is a perennial aquatic fern with clover-like leaves floating flat on the water surface or held up on leaf stalks from damp ground. It reportedly shades out native, bottom-rooted aquatic plants, and competes with small native plants in wetlands and around lake edges. Impacts are likely to be moderately severe based on lifeform.



Trevor James, Agresearch

### Nodding thistle (*Carduus nutans*)

Also known as: musk thistle

Nodding thistle is an annual or biennial thistle with spiny leaves and erect flower stems bearing drooping purple flowers during spring-summer. It suppresses valued pasture plants through shading and chemical inhibition, and impedes livestock access to forage due to spines. It is most problematic in over-grazed or drought-stressed pasture.



#### Rules:

7.7.10.1.9 All occupiers of land in the Auckland region must destroy all nodding thistle plants on that land.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.10.1.9 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

### Norfolk Island hibiscus (*Lagunaria patersonii*)

Norfolk Island hibiscus is a long-lived evergreen tree up to 15m tall with white to pink flowers borne predominantly between September-April. It is tolerant to harsh conditions and has the potential to compete with co-occurring native plants. Coastal ecosystems currently appear to be most at risk from invasion, but wetlands are probably also at risk due to occupancy of swamps in native range.



### Nutgrass (*Cyperus rotundus*)

Also known as: purple nut sedge

Nutgrass is an erect perennial rush up to 35cm tall with simple umbels of rayed inflorescences during summer. It invades a wide range of crops including maize, asparagus, root vegetables, vineyards and orchards, reducing crop yields. There is the potential for nutgrass to out-compete native species in wetlands, riparian margins and coastal areas. There is also potential for hybridisation with the closely related *C. ustulatus*.



### Oxylobium (*Callistachys lanceolata*)

Oxylobium is a tall evergreen shrub (3-8m high) with dense racemes of yellow/orange pea-like flowers borne in spring. It has the potential to impact native species in a variety of short-stature plant communities including in coastal, grassland and scrubland ecosystems, through competition and altered nutrient cycling. Elevated nitrogen levels may have the potential to facilitate invasion by other exotic plants.



### Palm grass (*Setaria palmifolia*)

Palm grass is a large dense perennial grass up to 1.5m tall with large, elongate leaf blades and small white flowers borne on spikelets in summer. Palm grass is capable of forming dense stands in a range of native ecosystem types including urban bushland, forest margins and riparian margins. It may displace native plant species and prevent recruitment. Leaf litter breaks down rapidly which may speed up nutrient cycling rates and potentially facilitate the invasion of other weeds.





### Pampas grass (*Cortaderia jubata* and *C. selloana*)

Pampas grass is a tall clump-forming grass up to 4m, with sharp leaves, erect dense fluffy flower heads which are white-pinkish/purple but fade to dirty white-yellow/brown in cooler months. It will readily colonise burnt or disturbed sites and quickly becomes very dense, replacing native ground covers, shrubs, and ferns in coastal ecosystems and other open, disturbed habitats. It will also provide habitat for possums, rats, and mustelids. In forestry plantations it will quickly become very dense, smothering young trees and being a nuisance during harvesting. Build-up of dead leaves, leaf bases and flowering stalks creates a significant fire hazard in primary production and recreational areas.



### Paperbark poplar (*Melaleuca quinquenervia*)

Paperbark poplar is an evergreen tree up to 20-30m tall that sheds bark in pale, papery layers and produces white flowers with pronounced stamens. It is capable of displacing native plants in freshwater and saline wetlands and open terrestrial ecosystems. It forms dense monocultural forests with sparse understorey, thus altering vegetation structure and reducing plant species' diversity. Probable impacts on macrofauna resulting from altered vegetation structure. High concentrations of essential oils make the foliage highly flammable, burning at very high temperatures. Damage to infrastructure and other economic losses from large fires can be substantial.



### Parrot's feather (*Myriophyllum aquaticum*)

Parrot's feather is a submerged, bottom-rooted perennial aquatic herb of which the top 10cm of foliage can be emergent. Sprawling foliage is pale grey-green and leaves are finely divided, feathery and arranged in whorls of 4 to 6. It is ranked as one of Aotearoa / New Zealand's worst aquatic pest plants, and is especially problematic in shallow, sheltered, nutrient rich lakes and wetlands. It can displace other plant species through rapid growth, shading and the release of biochemicals, thereby decreasing native plant species richness. An increase in cover of parrot's feather is also associated with a decrease in invertebrate abundance and diversity in invaded water-bodies.



### Perennial nettle (*Urtica dioica*)

Perennial nettle is a herbaceous plant (1-2m high in summer but dies down in winter) with hairy stinging stems and leaves, and white to greenish flowers during summer months. It has the potential to form dense clumps, outcompeting native plants in a range of disturbed or moist native habitats. Stinging leaves can cause pain and swelling and stands may impede access to natural areas, particularly in riparian zones.



### Periwinkle (*Vinca major*)

Also known as: bigleaf periwinkle, large periwinkle, greater periwinkle and blue periwinkle.

Periwinkle is a scrambling perennial herbaceous groundcover plant or vine with solitary blue-violet flowers. It is a vector of Pierce's disease which infects grapes and would greatly impact vineyards. It smothers the ground, especially on stream banks, preventing native seedling regeneration and altering erosion and flow regimes.



### Phoenix palm (*Phoenix canariensis*)

Phoenix palm is a stocky palm tree with a trunk reaching up to 6m tall, large segmented leaves and orange-yellow berries. Sharp spines on the leaves are capable of causing severe injury requiring hospitalisation, with children especially at risk. It competitively excludes native vegetation due to its large size and spines, which are unpalatable to grazers. Numerous threatened species are potentially at risk in coastal ecosystems including dunes, saline wetlands, cliffs and coastal forest. It also has the potential to facilitate other invasive plants as epiphytes (e.g. climbing asparagus, ladder fern and Morton Bay fig) and provides habitat for a variety of invasive exotic birds.





### Pitted crassula (*Crassula multicava*)

Also known as: fairy crassula

Pitted crassula is a perennial succulent herb with creeping stems and pink-red flowers produced during spring and summer months. It is capable of forming dense mats which prevent the regeneration of other plant species. Coastal, island and volcanic cone ecosystems are most at risk from invasion, including under partial tree canopy. Hybridisation has been recorded with closely related species meaning there is potential for hybridisation with native *Crassula* spp.



### Plectranthus (*Plectranthus ciliatus*)

Also known as: speckled spur flower, blue spur flower

Plectranthus is a trailing or straggling herb or shrub, with serrated leaves which are purple underneath, and clusters of white and purple flowers. It forms dense mats and suppresses native seedling regeneration in a wide range of ecosystems including coastal, forest and shrubland habitats.



### Plumeless thistle (*Carduus acanthoides*)

Also known as: bastard nodding thistle, Tapapa thistle, welted thistle

Plumeless thistle is a biennial or annual thistle with with spiny, sometimes woolly stems and foliage and purple inflorescences. It aggressively infests pastures, reducing forage quality and accessibility to stock. Spines can cause injuries to humans and livestock.



### Port Jackson fig (*Ficus rubiginosa*)

Port Jackson fig is an evergreen multi-stemmed tree up to c.15m tall with large leathery leaves and small green flowers which develop into yellow-red fruit. Ecosystems with harsh rocky substrates and pōhutukawa (*Metrosideros* spp.) forests are likely to be most at risk from invasion, including volcanic cones and coastal cliffs. Invaded *Metrosideros* forests have reduced above-ground biomass and altered vegetation structure. Potential impacts on frugivore communities could include acting as a resource for possums, feral pigs and rodents.



### Prickly-leaved wattle (*Acacia verticillata*)

Also known as: prickly moses

Prickly-leaved wattle is a short-lived shrub or small tree with reduced spikey leaves, pale yellow flowers grouped on inflorescences that extend beyond the leaves during September-November. It is rated as having extremely high invasiveness potential based on its history of weediness overseas. It prefers disturbed habitats; coastal dune ecosystems and wetlands may be especially vulnerable due to frequent disturbance, suitable habitat and a lack of structurally equivalent native vegetation. Mass recruitment following fire or soil disturbance can lead to almost impenetrable stands with little understorey.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for prickly-leaved wattle.



Jeremy Rolfe

### Privet: tree (*Ligustrum lucidum*) and Chinese (*L. sinense*)

Tree privet is a medium sized evergreen tree growing up to 10m tall. Chinese privet is an evergreen or semi-deciduous shrub to small tree up to 5m tall. Both plants have white, fragrant flowers borne in clusters during spring-summer and purple-black fruit. Privet displaces native shrubs and trees and can form dense stands which dominate the canopy layer and prevent recruitment of native species, thereby altering vegetation structure and diversity in forest and shrubland ecosystems. Root intrusions can damage archaeological features on tūpuna maunga and other significant wāhi. Some people may have a reaction to privet, often as a cross-reactivity to their main allergens.



Tree privet

### Queen of the night (*Cestrum nocturnum*)

Queen of the night is a perennial shrub up to 2.5m tall with greenish-white tubular flowers borne in November-March and glossy white berries. Formation of dense stands can prevent recruitment of native plant species in forest margins, stream banks, slips and other light gaps. It is poisonous and may cause hay-fever symptoms, reducing the enjoyment of the natural environment.



Weedbusters



### Queensland poplar (*Homalanthus populifolius*)

Queensland poplar is a shrub or small tree up to 5m tall with heart-shaped leaves turning red during cooler months, and inconspicuous flowers, borne in racemes up to 17cm long. It has the potential to displace native plant species in scrubland, regenerating bush, pine forest and coastal ecosystems, and may become a notable pest plant of roadsides and gardens.



Weedbusters

### Queensland umbrella tree (*Schefflera actinophylla*)

Queensland umbrella tree is a multi-stemmed tree up to 10m tall with large glossy compound leaves and red or pink flowers borne in large, branched clusters near the top of the tree. It is bird-dispersed, shade-tolerant and fast growing therefore competitive exclusion and replacement of intact native vegetation could be expected, particularly in association with warming climatic conditions. The closely related taonga species patete (*S. digitata*) may directly be impacted through competition or other mechanisms.



Note: Rules in this section come into force for Queensland umbrella tree on 1 April 2021.

### Ragwort (*Jacobaea vulgaris* syn. *Senecio jacobaea*)

Also known as: tansy ragwort, St James' wort

Ragwort is an erect biennial or perennial herb, usually growing to 60cm with bright yellow flowers clustered at the end of the branches. It forms dense stands in pasture, potentially reducing pasture production, and is toxic to livestock. Ragwort can also invade open scrubland and may be associated with an altered abundance of some invertebrate species. Extensive handling of the plant can cause skin irritation and allergies.





### Red dragon (*Persicaria microcephala*)

Red dragon is a perennial herbaceous vine which can be distinguished by foliage turning red in spring and small white to pink flowers borne in autumn. It is capable of forming dense mats up to 1m tall, or taller, scrambling over other plants or structures. It has the potential to invade a wide variety of ecosystems including riparian and forest margins. Impacts are likely to be similar, although to a lesser extent, to the highly invasive closely related species Chinese knotweed *P. chinensis*.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for red dragon.



© Acabashi

### Red valerian (*Centranthus ruber*)

Red valerian is a perennial herb up to 80cm tall with bluish green leaves and pink, red or white flowers borne from November-June. It is invasive overseas, displacing native vegetation, and is likely to be most problematic in dry, rocky coastal ecosystems in Tāmaki Makaurau / Auckland, including Rangitoto. Threatened short stature species may be especially vulnerable to shading and competition for other resources.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for red valerian.



Colin Ogle

### Reed sweet grass (*Glyceria maxima*)

Reed sweet grass is an erect clumping perennial grass, reaching almost 2m, with long, branched yellow-green to purple tinged flower heads. It produces creeping rhizomes which can form dense mats that are attached at the bank but are floating in deeper water in still or slow moving water bodies. These dense mats can trap sediment and accumulate masses of decomposing vegetation; altering stream morphology, dissolved oxygen levels and other biophysical properties of invaded freshwater ecosystems.



### **Rhamnus (*Rhamnus alaternus*)**

Also known as: evergreen buckthorn

Rhamnus is an evergreen shrub up to about 5m high with glossy serrated leaves, small green flowers and dark glossy red or black fruit. It forms dense stands, preventing the recruitment of native plants in scrublands, forest margins and plantations. It will also act as low scrub on coastal cliffs, inshore and offshore islands and rocky outcrops.



### **Rhaphiolepis / sexton's bride (*Rhaphiolepis umbellata*)**

Rhaphiolepis / sexton's bride is a perennial shrub up to 3m tall with white and pink flowers borne in inflorescences between July and December, and purple-black fruit ripening between March and April. It invades coastal areas, particularly coastal cliffs, displacing native vegetation.



### **Rhus tree (*Toxicodendron succedaneum*)**

Rhus tree is a deciduous tree up to 8m tall with pinnate leaves that turn red in autumn and yellow-green flowers borne in inflorescences up to 200mm long. It invades urban and coastal habitats, wastelands and bush margins and poses a high risk to human health. Contact with sap can cause severe contact dermatitis characterised by itchy, burning red welts and swelling. Rhus tree is also rated as the most allergenic plant in Aotearoa / New Zealand. Naturalisation can therefore substantially reduce the ability to enjoy the outdoor environment.



### Rough tree fern (*Cyathea cooperi*)

Also known as: Australian tree fern

Rough tree fern is a sporophyte up to 8-12m tall that predominantly invades disturbed rainforest and forest edges, but has the potential to also invade relatively undisturbed forest and mānuka-kānuka gumlands. It is a highly efficient competitor, displacing co-occurring native ferns in its invasive range overseas. Its strategy of rapid growth and rapid decomposition alters nutrient cycling in its invasive range overseas compared with co-occurring native ferns.



Peter de Lange

### Royal fern (*Osmunda regalis*)

Royal fern is a tall deciduous perennial fern with fronds up to 3m long. It forms dense stands in wetlands and freshwater ecosystems, which are likely to impact on native fauna and flora through mechanisms such as competition or habitat restructuring. It has the potential for obstructing access and reducing enjoyment of the natural freshwater environment, and may impact on the mauri of wai māori.



### Rum cherry (*Prunus serotina*)

Rum cherry is a medium-sized deciduous tree 15 -20m in height with glossy, toothed leaves, white flowers borne in clusters late spring and drupes of green to purple-black fruit. Bird dispersed seeds combined with efficient gap utilisation may enable rum cherry to invade forest as well as shrubland and grassland. Thickets can reduce plant species- and functional-diversity in invaded ecosystems. Fruit could provide a food resource for exotic mammals (e.g. possums and rats).



John Smith-Dodsworth



### Saffron thistle (*Carthamus lanatus*)

Also known as: woolly distaff thistle, downy safflower

Saffron thistle is a winter annual or biennial herb with glossy spined leaves and yellow flowers bearing a bract of prickles below. It is an unpalatable pasture pest competitive with desirable pasture species. Infestations can impede stock movement and sharp spines cause injuries to the eyes and mouths of grazing animals. It can compete with crops, and impede harvesting equipment with tough stems. It is also likely to be a reservoir of crop viruses and bacteria.



Trevor James, Agresearch

### Salt water paspalum (*Paspalum vaginatum*)

Salt water paspalum is a perennial grass with long creeping stolons and leathery, grey-green leaf blades, up to 8cm long. It can dominate high priority ecosystems including tidal flat margins and coastal habitats, forming near monocultures which exclude native plants and alter plant community composition. Burrowing fauna such as crabs may be excluded in invaded habitats, and invertebrate communities shifted towards more terrestrial assemblages. Monocultures can also alter foraging habitat and food availability for shore birds, leading to avoidance of invaded areas by some bird species overseas, and can alter spawning and feeding grounds of culturally important fish such as pātiki / flounder.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for salt water paspalum.



### *Selaginella* spp. (*Selaginella martensii*, *S. moellendorffii*, *S. uncinata*)

*Selaginella* spp. are creeping perennial fern allies with irregular, branched stems and glossy, green scale-like 'leaves' (microphylls). They grow rapidly and can form dense mats in damp habitats including disturbed and intact forest and riparian margins. They have the potential to exclude native ground cover plants and prevent establishment of seedlings in invaded ecosystems. Closely related African club moss *S. kraussiana* is invasive in Aotearoa / New Zealand.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for *Selaginella* spp.



### Sharp rush (*Juncus acutus*)

Sharp rush is a perennial spiny rush up to 1m tall with sharp tips and clumped green to brown flower heads borne in summer followed by red, orange or brown fruit. It forms dense stands which can displace native salt marsh vegetation, impair plant recruitment, reduce native plant richness and alter invertebrate communities.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for sharp rush.



### Sheep's bur (*Acaena agnipila*)

Sheep's bur is a clump-forming perennial herb with toothed leaflets, spiny purple flowers anthered on narrow flower spikes and fruit covered in numerous, red barbed spines. It is predominantly a pest of the sheep and beef industry, contaminating wool when burrs become tangled in sheep wool.



Harry Rose

### Skeleton weed (*Chondrilla juncea*)

Skeleton weed is a biennial or perennial herb with yellow flowers borne in December-March. It is primarily a pest of disturbed or production ecosystems and has the potential to invade over-grazed pastures, vineyards and cereal crops.



Leo Michels

### Smilax (*Asparagus asparagoides*)

Smilax is a scrambling perennial plant with branched green stems up to 3m and greenish-white flowers appearing between July and August, followed by red berries. It forms dense patches and smothers low growing plants and seedlings, usually in low canopy forests or coastal habitats. These dense stands can also obstruct access to recreational areas and smother garden plants.





### Snow poppy (*Eomecon chionantha*)

Also known as: Chinese woodland poppy, Chinese bloodroot, dawn poppy

Snow poppy is a low growing perennial herb with small leathery scallop-shaped leaves, white and yellow flowers and stems that ooze orange sap if crushed. It can form dense monospecific mats, smothering native plants and preventing native seedling establishment in moist sites, including the understorey of bush ecosystems.



Weedbusters

### Soap aloe (*Aloe maculata*)

Soap aloe is a perennial succulent with thick grey-blue frosted leaves bearing toothed margins and racemes of yellow, orange, pink or red flowers, erect at first then drooping. It has a history of naturalisation overseas, with a documented ability to form extensive localised infestations covering hundreds of square meters in which it is presumed to displace native plant species. Coastal and island ecosystems are most at risk of invasion by soap aloe. Impacts on fauna are also probable due to altered habitat structure and resource availability.

Note: Rules in this section come into force for soap aloe on 1 April 2021.



Stan Shebs

### Spanish broom (*Spartium junceum*)

Spanish broom is a deciduous shrub up to 3m tall with yellow pea-like flowers borne in loose racemes during summer and autumn. It is invasive in disturbed sites, often on hill country but also including poor or retired pasture, cliffs, transport corridors and riparian margins. Spanish broom is capable of forming dense monospecific stands which can reduce the cover of native plants in invaded habitats. As a nitrogen fixer, it has the potential to alter plant community compositions, including facilitating other exotic plant invasions, through elevated soil nutrient levels.

Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for Spanish broom.



### Spanish heath (*Erica lusitanica*)

Spanish heath is a perennial shrub growing up to 2m tall with leaves in whorls of 3-4 and small, red, pink or white flowers borne in racemes during March-December. It can be a serious problem in infertile hill country pasture, especially in areas of high rainfall, being unpalatable to stock. Short-stature native plant communities such as herbfields, dune slacks, fernland and scrubland are most at risk from invasion and potential displacement by Spanish heath.



Weedbusters

### Spartina (*Spartina alterniflora*, *S. anglica* and *S. x townsendii*)

Spartina is an erect perennial grass growing up to 0.5-1m tall with fleshy rhizomes enabling plants to spread to form dense clumps or swards. It can reduce large estuaries and shallow harbours to thin drains surrounded by rough pastures and will trap sediment, raising levels above the high tide mark. It destroys intertidal zonation and habitat, and smothers tauranga mātaimai shellfish beds thereby preventing kaimoana harvesting. Adventive grasses often succeed spartina, creating dry meadows, and leading to immense biodiversity loss.



Spartina Sustained Control programme applies only to Kaipara harbour as defined in Map 12.

See also Progressive Containment programme for remainder of region (section 7.7.9).

### Spiny broom (*Calicotome spinosa*)

Spiny broom is a many-branched perennial shrub up to 3m tall with spines up to 40mm long, solitary, yellow flowers borne spring-summer and flattened seed pods. It forms dense stands that may reduce the grazing potential of pasture and out-compete tree seedlings in plantation forest. Thickets can shade out native plant species and compete for resources. It is a nitrogen fixer and can increase soil nitrogen to the detriment of low nutrient specialist native species, potentially facilitating other exotic species.



Trevor James, Agresearch

### Strangling fig (*Ficus microcarpa*)

Strangling fig is an evergreen tree when mature with thick, leathery leaves and tiny flowers, hidden within the fig-like reddish fruit. The pollinator wasp has recently arrived in Tāmaki Makaurau / Auckland, therefore the reproductive potential is high. It is likely to compete with and strangle native plants, and shade out seedlings and understory species as it has done overseas. Vegetation communities on volcanic cones, including Rangitoto, could be at risk as other introduced *Ficus* species have been found in these habitats. Pōhutukawa, mānawa/mangrove and other forest types may also be at risk, particularly in coastal areas. Fruit may facilitate introduced birds and mammals through provision of food source.



Forest and Bird

### Sweet briar (*Rosa rubiginosa*)

Sweet briar is a dense, perennial, deciduous shrub (2-3m high) with stems bearing thorns and clusters of pink flowers produced in spring-summer. It can invade unimproved pasture, reducing the cover of desirable pasture species and thereby pasture productivity. Thickets can also impede the movement of stock and farm vehicles. It is an aggressive coloniser of disturbed native vegetation including open shrubland, disturbed forest and riparian edges, often excluding native plant species.



### Sweet pea shrub (*Polygala myrtifolia* excl. cv. 'Grandiflora')

Sweet pea shrub is a perennial evergreen legume-like shrub less than 2m tall with three-petalled purple and green flowers borne January to December. It forms dense stands which vigorously displace native coastal shrub species, but can also invade forest margins, scrubland, cliffs, open land, islands and tussock land.





### Sweet pittosporum (*Pittosporum undulatum*)

Sweet pittosporum is a shrub or small tree varying in height with wavy, prominently margined leaves, white bell shaped flowers and orange globular fruit. It is an invader of pasture, roadsides, coastal bluffs cliffs and open scrubland but is also able to exploit gaps and edges to invade mature forest. Invasion is associated with reductions in native plant species richness and cover. It has the potential to hybridise with New Zealand *Pittosporum* spp. with impacts on genetic diversity possible.



### Sydney golden wattle (*Acacia longifolia*)

Sydney golden wattle is a shrub or small tree up to 10m tall with cylindrical spikes of pale creamy-yellow flowers produced in July-August. It is capable of forming dense monospecific stands in open or disturbed habitats, out-competing other plant species by casting shade and altering other soil characteristics. Dune systems and other priority ecosystems including gumlands and islands are most at risk. It accumulates dense layers of nitrogen-enriched but slowly decomposing leaf litter which can alter soil organic matter content, soil microbial communities, soil moisture and nutrient cycling. It also has the potential to facilitate invasion of other exotic plant species through elevated soil nutrient levels.



Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for Sydney golden wattle.

### Taiwan cherry (*Prunus campanulata*)<sup>69</sup>

Taiwan cherry is a deciduous tree up to 8m with red bell-shaped flowers July-September followed by glossy red cherry fruit. It invades native forest and is likely to displace native plants. Closely related species are highly invasive overseas, and known to reduce plant functional diversity in invaded forests. It has the potential to substantially increase in abundance and distribution in natural ecosystems throughout Tāmaki Makaurau / Auckland due to bird-dispersed introduction pressure.



<sup>69</sup> Excludes sterile cultivars 'Mimosa' and 'Pink clouds'. Auckland Council may consider other applications for exemptions over the life time of the plan where cultivars can be shown to be sterile.

### Tasmanian ngaio (*Myoporum insulare* incl. hybrids)

Tasmanian ngaio is a large shrub to small tree with oval leaves, white flowers with purple dots borne between September and June and long, purple fruit. It competes with native coastal plants and hybridises readily with closely related and culturally important native ngaio (*M. laetum*), potentially affecting the gene pool of the native species. It is toxic to humans and livestock.



### Tradescantia (*Tradescantia fluminensis*)

Tradescantia is a monocotyledonous perennial herb with shining leaves and white flowers borne December-January. It rapidly forms dense ground cover layers up to 60cm tall, inhibiting regeneration of native species by preventing seeds from reaching the ground and by smothering seedlings. Native forest seedling species' richness and abundance decrease exponentially with increasing tradescantia biomass. In the long-term this has the potential to lead to non-replacement of the forest canopy, and transformative impacts on forest structure, composition and function.



### Tree lupin (*Lupinus arboreus*)

Tree lupin is a perennial shrub up to 3m tall yellow pea-like flowers borne in inflorescences up to 30cm long during October-May. It mostly invades coastal ecosystems and is associated with changes to dune plant community composition and the declines of some native plant species. It is a nitrogen-fixer and accumulates leaf litter, which may alter nutrient cycling and facilitate the invasion of other exotic plants through increased nutrient availability. The flowers provide attractive floral resources for honey bees and other pollinators, and are known to increase the seed set of other pest plant species occurring nearby.



Note: Rules 7.7.10.1.1 to 7.7.10.1.6 come into force on 1 April 2020 for tree lupin.



### Tree of heaven (*Ailanthus altissima*)

Tree of heaven is a deciduous tree, up to 25m tall with a strong unpleasant odour, pale green-white flowers borne in spring, and seeds encapsulated by twisted papery sheaths in autumn. It is a coloniser of disturbed open habitats, capable of forming dense stands which suppress other plant species through chemical inhibition. The leaf litter is high in nitrogen and decomposes rapidly, altering nutrient cycling regimes in some ecosystems, and facilitating the invasion of other weed species. Root intrusion can damage culturally important archaeological sites.



### Tuber ladder fern (*Nephrolepis cordifolia*)

Also known as: tuber sword fern

Tuber ladder fern is a tuft-forming fern with hairy potato-like tubers and upright evergreen fronds (30-120cm tall). It is able to form dense stands which suppress the regeneration of native plant species in forest habitats, rocky outcrops, coastal scrublands, wetland and riparian margins.



### Tutsan (*Hypericum androsaemum*)

Tutsan is a semi-evergreen perennial shrub up to 1.5m high bearing yellow flowers with large green sepals from November to February and berries ripening from green to black. Invasion of forestry plantations and pasture can result in a loss of productivity, and cause photosensitisation and dermatitis in livestock. It is a fast growing coloniser in native forest, riparian areas and scrub, forming dense stands that crowd out native plants and suppress seedling recruitment. Large stands have the potential to affect habitat availability and food resources for native and pest animals.



### Variegated thistle (*Silybum marianum*)

Also known as: milk thistle

Variegated thistle is a large annual or biennial prickly thistle up to 2.5m tall with variegated leaves and purple flowers borne late spring-summer. It competes with valued pasture plants and may be toxic to livestock, causing drowsiness, staggering and diarrhoea. It is most competitive in poor pasture; advantaged by drought, disturbance and high fertility soils.



#### Rules:

7.7.10.1.10 All occupiers of land in the Auckland region must destroy all variegated thistle plants on their land.

A breach of this rule is an offence under s154N(19) of the Biosecurity Act.

The purpose of rule 7.7.10.1.10 is to require the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place.

### Velvet groundsel (*Roldana petasitis* syn. *Senecio petasitis*)

Velvet groundsel is a perennial shrub up to 2m tall with large lobed leaves and composite yellow flowers borne in large bunches during winter-spring. Its dense growth can shade out and exclude other plant species, potentially altering the composition and structure of invaded plant communities. Coastal ecosystems and forest edges may be most at risk from invasion. It is poisonous if ingested and may cause skin irritation when handled.



### Water primrose (*Ludwigia peploides* subsp. *montevidensis*)

Water primrose is a perennial emergent aquatic plant with creeping or floating stems and yellow flowers borne from November-February. It invades damp pasture around margins of invaded water bodies, displacing valuable forage species. It forms dense mats in freshwater and damp habitats; displacing other vegetation, clogging waterways, impeding water flow and reducing dissolved oxygen levels. It may also adversely affect fish, invertebrates and other fauna through habitat alteration.



### Wild ginger (*Hedychium gardnerianum* and *H. flavescens*)

Also known as: kahili ginger (*H. gardnerianum*), yellow ginger (*H. flavescens*)

Both wild ginger species are herbaceous perennial plants that can grow up to 3m tall with large green leaves and orange berries. Kahili ginger has yellow flowers with red stamens and yellow ginger has creamy flowers. They form dense stands preventing recruitment and suppressing up to 90% of native vegetation in forest ecosystems, potentially resulting in long-term impacts on forest composition. Invasion may alter decomposition and nutrient cycling patterns, and increase erosion in the long-term through loss of canopy.



### Woolly nightshade (*Solanum mauritianum*)

Woolly nightshade is a perennial shrub or small tree, up to 4m high with grey-green furry leaves, violet flowers and dull yellow berries. It forms dense stands in disturbed scrub or forest, roadsides, pasture margins, urban areas and riparian margins, inhibiting the regeneration of native plant species in invaded sites. It can displace pasture grasses and clover, reducing food availability for stock, and will colonise clear-felled areas in forestry plantations. Direct or indirect contact with the plant may cause skin irritation and respiratory problems.



### Yellow bristle grass (*Setaria pumila*)

Yellow bristle grass is an annual grass 25-35cm tall, with green or yellow-green leaves, often red-purplish near base and a cylindrical seed head consisting of numerous spikelets. It is a major pasture pest; some farms may have up to 40% yellow bristle grass cover. It is palatable to stock during its vegetative stage, but of poor nutritional value and may be associated with mouth ulcers and lesions in cattle. Stock will avoid the grass following seed head emergence (January-May). It can reduce feed production by up to 20%, resulting in reduced milk production and costs associated with supplementary feed and pasture renovation.



Stefan Iefnaer



### Yellow flag iris (*Iris pseudacorus*)

Yellow flag iris is a perennial herb up to 1.5m tall with sword-shaped leaves and yellow flowers borne from September-December on erect stalks. It can invade waterlogged pasture where it can impede drainage and is poisonous to livestock. In wetlands and freshwater ecosystems it can form monocultures which displace other plant species. Dense rhizome mats can impede or alter stream flow and morphology through increased sediment accumulation.



### Yellow guava (*Psidium guajava*)

Yellow guava is a shrub or small tree up to 3m tall with white or yellow flowers borne July-March and yellow fruit. Fast growing invasive species likely to be advantaged by climate change. Fruit have the potential to exacerbate impacts from animal pests including feral pigs and possums by providing a food source.



### Yellow passionfruit (*Passiflora ligularis*)

Yellow passionfruit is a vigorous perennial liane with showy white, purple and pink flowers produced in summer and edible fruit in autumn-winter. Where invasive overseas this climber covers the tree canopy, suppressing growth of other species. Closely related taxa invade native vegetation in Aotearoa / New Zealand, competing with native plants and potentially facilitating exotic mammal invasions through the provision of food resource. It is likely to be advantaged by climate change and impacts may be moderately high if extensive invasion occurs.



Dick Culbert

### Yellow water lily (*Nuphar lutea*)

Also known as: brandy bottle

Yellow water lily is a perennial aquatic plant with both floating oval leaves and submerged very thin leaves. Flowers are yellow and held above the water surface in spring-summer. Dense mats may suppress submerged aquatic plants by shading and can have indirect impacts on plankton by providing refuges from fish predation. Invasion can alter patterns of nutrient storage in sediment and may reduce dissolved oxygen levels in the water column.



Rohan Wells, NIWA



### 7.7.11 Te mau tonu o te patu orotā ā-Moana / Sustained Control marine pests

Marine pest organisms can cause adverse effects to the environmental, economic, social or cultural values of the region. Once marine pests are established, control options are often limited. Therefore pathway management to prevent spread to new areas is the top priority. Most of the following pest species are already present in the Tāmaki Makaurau / Auckland, but the following programmes aim to slow their further spread, and therefore impact, within the region.

Many marine pest organisms attach themselves to hard surfaces, which means they can be spread by human movement of vessels and other craft, aquaculture equipment, and other equipment and goods including scuba and fishing gear. They can also be captured in bilge, ballast or holding tank waters and spread to other areas when such waters are discharged from a vessel.

Tāmaki Makaurau / Auckland is highly connected to other regions of Aotearoa / New Zealand through the movement of both commercial and recreational vessels, and it is likely that new species will continue to be introduced and spread. However, effective management systems would reduce the rate of spread and prevent some new species from establishing. The rules in the following section are largely aligned with a number of regional and territorial authorities, to assist in reducing the human-mediated spread of pests between regions, as well as within Tāmaki Makaurau / Auckland itself. Aligned rules will also make compliance easier for vessels moving between regions. In particular, the level of allowable biofouling is based on the Level of Fouling Protocol, providing for consistency with other regions and the Craft Risk Management Standard: Biofouling on Vessels Arriving to New Zealand.



View of Te Tīkapa Moana / the Hauraki Gulf from Buckleton Bay

### 7.7.11.1 Asian paddle crab (*Charybdis japonica*)

The Asian paddle crab is a relatively large swimming crab with paddle-like hind legs. The shell can reach 12 cm across. Adults have six distinct spines or spikes on each side of the shell below the eyes, and five prominent spines on the upper surface of each claw. The crab ranges in colour from pale-green or olive green to a deep chestnut brown with purplish markings on the shell. It is typically found in estuaries where there is firm sand, muddy fine sand, or muddy-shelly fine sand. The crab is very aggressive, displacing native crabs (pāpaka) and preying on a variety of native and aquaculture species including shellfish, fish, other crustaceans and polychaete worms. It is also a carrier of diseases that may greatly impact other crustaceans.



**Objective:** over the duration of the plan Auckland Council will sustainably control Asian paddle crabs (*Charybdis japonica*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of Asian paddle crabs, to reduce their impacts and spread to other locations.

#### Rules:

7.7.11.1.1 No person shall cause to breed any Asian paddle crab within the Auckland region.

7.7.11.1.2 No person shall distribute or release (or cause to be released or distributed), any live Asian paddle crab<sup>70</sup> within the Auckland region.

7.7.11.1.3 No person shall sell or offer for sale any live Asian paddle crab within the Auckland region.

7.7.11.1.4 All persons who, intentionally or accidentally, catch any Asian paddle crab within the Auckland region must destroy<sup>71</sup> any such crabs immediately.

7.7.11.1.5 All owners or person in charge of any craft in the Auckland region must ensure that the level of fouling on the hull and in niches of the craft does not exceed ‘light fouling’.

<sup>70</sup> Includes eggs and larvae.

<sup>71</sup> For the purposes of the rules in this plan, ‘destroy’ means to kill or dispose of in a manner that will not allow the pest to reinfest an area. Dead individuals may be transported and eaten, provided that doing so does not distribute viable eggs.

7.7.11.1.6 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.1.1, 7.7.11.1.4, 7.7.11.1.5 and 7.7.11.1.6 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.11.1.2 and 7.7.11.1.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

### Principal measures of achievement:

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with biofouling standards and other rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread on hulls, in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land. Enforce hull biofouling standard to ensure no more than a slime layer and/or goose barnacles are present.
Requirement to act	All persons in charge of a craft to undertake such hygiene measures as required to ensure biofouling is never more than a slime layer and/or goose barnacles, and to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land. Any person in possession of any live Asian paddle crab to destroy any such crab.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.



### 7.7.11.2 Australian droplet tunicate (*Eudistoma elongatum*)

Also known as: Eudistoma sea squirt

The Australian droplet tunicate is a type of sea squirt that is firm and gelatinous to the touch. It forms large colonies that attach to hard surfaces and look like clusters of white or cream coloured cylindrical tubes. Colonies are generally 5-30 cm long, but can sometimes reach 1.5 m long. The tunicate can inhabit a wide range of habitats and but is generally found in soft-bottomed tidal habitats and on hard surfaces such as wharf piles, aquaculture equipment and mangrove roots. It is most commonly spread as fouling on marine farming equipment and occasionally on boat hulls. It grows rapidly and will often reach high abundances in summer months; altering tidal habitats and competing with native species for space and food.



H. Blomfield

**Objective:** over the duration of the plan Auckland Council will sustainably control Australian droplet tunicate (*Eudistoma elongatum*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of Australian droplet tunicate, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.11.2.1 No person shall cause to breed any Australian droplet tunicate within the Auckland region.
- 7.7.11.2.2 No person shall distribute or release (or cause to be released or distributed), any Australian droplet tunicate within the Auckland region.
- 7.7.11.2.3 No person shall sell or offer for sale any Australian droplet tunicate within the Auckland region.
- 7.7.11.2.4 All owners or person in charge of any craft in the Auckland region must ensure that the level of fouling on the hull and in niches of the craft does not exceed ‘light fouling’.
- 7.7.11.2.5 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.2.1, 7.7.11.2.4 and 7.7.11.2.5 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.11.2.2 and 7.7.11.2.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

### Principal measures of achievement:

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with biofouling standards and other rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread on marine farming equipment, hulls, in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land. Enforce hull biofouling standard to ensure no more than a slime layer and/or goose barnacles are present.
Requirement to act	All persons in charge of a craft to undertake such hygiene measures as required to ensure biofouling is never more than a slime layer and/or goose barnacles, and to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.



### 7.7.11.3 *Clavelina oblonga*

*Clavelina oblonga* is a tunicate that forms large colonies on hard surfaces such as marinas and rocky sub-tidal and inter-tidal habitats. The tunicate is most commonly spread as fouling on boat hulls. This species is relatively newly documented as an invasive species, so its potential impacts are still uncertain. However, given its ability to form large colonies, it is likely to be able to outcompete native species and may impact upon the mauri of the moana.



Samantha Happy

**Objective:** over the duration of the plan Auckland Council will sustainably control *Clavelina oblonga* to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of *Clavelina oblonga*, to reduce their impacts and spread to other properties.

#### Rules:

7.7.11.3.1 No person shall cause to breed any *Clavelina oblonga* within the Auckland region.

7.7.11.3.2 No person shall distribute or release (or cause to be released or distributed), any *Clavelina oblonga* within the Auckland region.

7.7.11.3.3 No person shall sell or offer for sale any *Clavelina oblonga* within the Auckland region.

7.7.11.3.4 All owners or person in charge of any craft in the Auckland region must ensure that the level of fouling on the hull and in niches of the craft does not exceed ‘light fouling’.

7.7.11.3.5 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.3.1, 7.7.11.3.4 and 7.7.11.3.5 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.11.3.2 and 7.7.11.3.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with biofouling standards and other rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread on marine farming equipment, hulls, in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land. Enforce hull biofouling standard to ensure no more than a slime layer and/or goose barnacles are present.
Requirement to act	All persons in charge of a craft to undertake such hygiene measures as required to ensure biofouling is never more than a slime layer and/or goose barnacles, and to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.

#### 7.7.11.4 Japanese mantis shrimp (*Oratosquilla oratoria*)

The Japanese mantis shrimp is a large light grey mantis shrimp that can grow up to 185 millimetres long. It has two long spiny claws that it uses to capture food. The Japanese mantis shrimp has maroon ridges running down the mid-length of its body and a tail fan with a blue and yellow outer surface (grey and yellow in native species). Japanese mantis shrimp live in burrows in soft sediments, sand and mud in sheltered bays and estuaries. The Japanese mantis shrimp preys on a wide variety of important kaimoana species including native shrimps (kōurara / tarawera), crabs and juvenile fish and competes for resources with other crustaceans; thereby altering benthic communities.



Dr. S.

**Objective:** over the duration of the plan Auckland Council will sustainably control Japanese mantis shrimp (*Oratosquilla oratoria*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of Japanese mantis shrimp, to reduce their impacts and spread to other properties.

#### Rules:

- 7.7.11.4.1 No person shall cause to breed any Japanese mantis shrimp within the Auckland region.
- 7.7.11.4.2 No person shall distribute or release (or cause to be released or distributed), any live Japanese mantis shrimp<sup>72</sup> within the Auckland region.
- 7.7.11.4.3 No person shall sell or offer for sale any live Japanese mantis shrimp within the Auckland region.
- 7.7.11.4.4 All persons who, intentionally or accidentally, catch any Japanese mantis shrimp within the Auckland region must destroy<sup>73</sup> any such shrimps immediately.
- 7.7.11.4.5 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

<sup>72</sup> Includes eggs and larvae.

<sup>73</sup> For the purposes of the rules in this plan, ‘destroy’ means to kill or dispose of in a manner that will not allow the pest to reinfest an area. Dead individuals may be transported and eaten, provided that doing so does not distribute viable eggs.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.4.1, 7.7.11.4.4, and 7.7.11.4.5 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.11.4.2 and 7.7.11.4.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

### Principal measures of achievement:

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land.
Requirement to act	All persons in charge of a craft to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land. Any person in possession of any live Japanese mantis shrimp to destroy any such shrimp.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.

### 7.7.11.5 Lightbulb ascidian (*Clavelina lepadiformis*)

The lightbulb tunicate forms colonies of transparent tubes about 5cm long, with white, yellow or pink bands that make it appear to glow like a light bulb. It can form large colonies on hard surfaces such as marinas and rocky sub-tidal and inter-tidal habitats. The lightbulb tunicate is most commonly spread as fouling on boat hulls. This species is relatively newly documented as an invasive species, so its potential impacts are still uncertain. However, given its ability to form large colonies, it is likely to be able to outcompete native species and may impact upon the mauri of the moana.



Samantha Happy

**Objective:** over the duration of the plan Auckland Council will sustainably control lightbulb ascidian (*Clavelina lepadiformis*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of lightbulb ascidian, to reduce their impacts and spread to other properties.

#### Rules:

7.7.11.5.1 No person shall cause to breed any lightbulb ascidian within the Auckland region.

7.7.11.5.2 No person shall distribute or release (or cause to be released or distributed), any lightbulb ascidian within the Auckland region.

7.7.11.5.3 No person shall sell or offer for sale any lightbulb ascidian within the Auckland region.

7.7.11.5.4 All owners or person in charge of any craft in the Auckland region must ensure that the level of fouling on the hull and in niches of the craft does not exceed ‘light fouling’.

7.7.11.5.5 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.5.1, 7.7.11.5.4 and 7.7.11.5.5 is to regulate activities that may affect measures taken to implement the plan.



The purpose of rules 7.7.11.5.2 and 7.7.11.5.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with biofouling standards and other rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread on marine farming equipment, hulls, in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land. Enforce hull biofouling standard to ensure no more than a slime layer and/or goose barnacles are present.
Requirement to act	All persons in charge of a craft to undertake such hygiene measures as required to ensure biofouling is never more than a slime layer and/or goose barnacles, and to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.

### 7.7.11.6 Mediterranean fanworm (*Sabella spallanzanii*)

Mediterranean fanworm is a large tube-dwelling bristle worm typically found in estuaries and sheltered sites up to depths of around 30 metres. It has a flexible, leathery tube, up to 80 centimetres tall, topped with a single, spiral fan of feeding tentacles, often banded orange, purple or white. It attaches to a wide variety of hard surfaces including rocks, wood, steel, concrete, shellfish and artificial materials, and is most commonly spread as fouling species on moored vessels. Mediterranean fanworm can form dense beds that are likely to out-compete other species, clog fishing gear and dredges, and interfere with biological processes. It has the potential to compete with native filter-feeding organisms for food and space which can impact upon the mauri of the moana. In high densities, Mediterranean fanworm is likely to also impact commercially on important kaimoana species including mussels (kuku / kūtai), oysters (tio), and scallops (tipa / tupa).



Geoff Read

**Objective:** over the duration of the plan Auckland Council will sustainably control Mediterranean fanworm (*Sabella spallanzanii*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of Mediterranean fanworm, to reduce their impacts and spread to other properties.

#### Rules:

7.7.11.6.1 No person shall cause to breed any Mediterranean fanworm within the Auckland region.

7.7.11.6.2 No person shall distribute or release (or cause to be released or distributed), any Mediterranean fanworm within the Auckland region.

7.7.11.6.3 No person shall sell or offer for sale any Mediterranean fanworm within the Auckland region.

7.7.11.6.4 All owners or person in charge of any craft in the Auckland region must ensure that the level of fouling on the hull and in niches of the craft does not exceed ‘light fouling’.

7.7.11.6.5 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.6.1, 7.7.11.6.4 and 7.7.11.6.5 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.11.6.2 and 7.7.11.6.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

### Principal measures of achievement:

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with biofouling standards and other rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread on marine farming equipment, hulls, in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land. Enforce hull biofouling standard to ensure no more than a slime layer and/or goose barnacles are present.
Requirement to act	All persons in charge of a craft to undertake such hygiene measures as required to ensure biofouling is never more than a slime layer and/or goose barnacles, and to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.

### 7.7.11.7 *Pyura* sea squirts (*Pyura praepetualis*<sup>74</sup> and *P. doppelgangera*)

The pyura sea-squirt has a sack-like body with a brown, or reddish-brown, leathery skin often coated with sand. Each sea squirt has two mounds representing siphons or holes for inhaling and exhaling sea water. Adults grow up to 15 centimetres or more in height and around 3-5 centimetres in diameter. The only visible difference between the two species of pyura sea-squirt is that *Pyura praepetualis* generally grows to a larger size. They generally inhabit the low to mid-intertidal, zone as well as shallow subtidal areas less than 12m deep. They primarily colonise rocky platforms and outcrops, rock pools and the underside of rock overhangs, but are also found on artificial structures such as oyster farms and wharf piles. The pyura sea squirts are aggressive competitors for space and have the potential to significantly alter the structure and composition of native intertidal communities; displacing important kaimoana species such as the green lipped mussel (kuku / pōrohe).



**Objective:** over the duration of the plan Auckland Council will sustainably control *Pyura* sea squirts (*Pyura praepetualis* and *P. doppelgangera*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of *Pyura* sea squirts, to reduce their impacts and spread to other properties.

#### Rules:

7.7.11.7.1 No person shall cause to breed any *Pyura* sea squirts within the Auckland region.

7.7.11.7.2 No person shall distribute or release (or cause to be released or distributed), any *Pyura* sea squirts within the Auckland region.

7.7.11.7.3 No person shall sell or offer for sale any *Pyura* sea squirts within the Auckland region.

7.7.11.7.4 All owners or person in charge of any craft in the Auckland region must ensure that the level of fouling on the hull and in niches of the craft does not exceed ‘light fouling’.

<sup>74</sup> Previously known as *Pyura stolonifera praepetualis*

7.7.11.7.5 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.7.1, 7.7.11.7.4 and 7.7.11.7.5 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.11.7.2 and 7.7.11.7.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

### Principal measures of achievement:

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with biofouling standards and other rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread on marine farming equipment, hulls, in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land. Enforce hull biofouling standard to ensure no more than a slime layer and/or goose barnacles are present.
Requirement to act	All persons in charge of a craft to undertake such hygiene measures as required to ensure biofouling is never more than a slime layer and/or goose barnacles, and to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.



### 7.7.11.8 *Styela* sea squirt (*Styela clava*)

Also known as: Clubbed tunicate, leathery sea squirt. *Styela* sea squirt is a large, brown, solitary sea squirt with a leathery appearance and wart-like projections. It has a long, club-shaped body and uses a short, tough stalk to attach to hard artificial or natural surfaces. It is most commonly found at depths of less than 25m but has been observed at 40m deep. It is frequently transported as biofouling on vessels and other mobile marine structures. The *Styela* sea squirt can multiply rapidly and form dense colonies, competing with native and important filter feeders for space and food. This can disrupt native ecosystems and may impact upon the mauri of the moana. The *Styela* sea squirt can also add significant maintenance costs to marine structures and vessels through its fouling behaviour.



Matthieu Sontag

**Objective:** over the duration of the plan Auckland Council will sustainably control *Styela* (*Styela clava*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of *Styela*, to reduce their impacts and spread to other properties.

#### Rules:

7.7.11.8.1 No person shall cause to breed any *Styela* within the Auckland region.

7.7.11.8.2 No person shall distribute or release (or cause to be released or distributed), any *Styela* within the Auckland region.

7.7.11.8.3 No person shall sell or offer for sale any *Styela* within the Auckland region.

7.7.11.8.4 All owners or person in charge of any craft in the Auckland region must ensure that the level of fouling on the hull and in niches of the craft does not exceed ‘light fouling’.

7.7.11.8.5 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.8.1, 7.7.11.8.4 and 7.7.11.8.5 is to regulate activities that may affect measures taken to implement the plan.

The purpose of rules 7.7.11.8.2 and 7.7.11.8.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with biofouling standards and other rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread on marine farming equipment, hulls, in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land. Enforce hull biofouling standard to ensure no more than a slime layer and/or goose barnacles are present.
Requirement to act	All persons in charge of a craft to undertake such hygiene measures as required to ensure biofouling is never more than a slime layer and/or goose barnacles, and to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.

### 7.7.11.9 *Undaria* (*Undaria pinnatifida*)

Also known as: wakame, Japanese kelp, Asian seaweed

*Undaria* is a large seaweed that grows to 1-2 metres long. Mature plants are golden brown to green-brown in colour, crinkly in appearance and have a distinct midrib. *Undaria* can tolerate a broad range of temperatures and light levels and grow on a variety of surfaces. It can produce millions of spores and is also frequently transported as biofouling on vessels. These characteristics allow it to spread rapidly and form dense underwater forests; outcompeting native canopy-forming algal species, altering habitats and impacting associated marine faunal communities.



K.Neill & S.Miller, NIWA

**Objective:** over the duration of the plan Auckland Council will sustainably control *Undaria* (*Undaria pinnatifida*) to prevent adverse effects on economic well-being, the environment, human health, enjoyment of the natural environment and the relationship between Māori, their culture, their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

**Intermediate outcome:** “sustained control” which means to provide for ongoing control of *Undaria*, to reduce their impacts and spread to other properties.

#### Rules:

7.7.11.9.1 No person shall cause to breed any *Undaria* within the Auckland region.

7.7.11.9.2 No person shall distribute or release (or cause to be released or distributed), any *Undaria* within the Auckland region.

7.7.11.9.3 No person shall sell or offer for sale any *Undaria* within the Auckland region.<sup>75</sup>

7.7.11.9.4 All owners or person in charge of any craft in the Auckland region must ensure that the level of fouling on the hull and in niches of the craft does not exceed ‘light fouling’.

7.7.11.9.5 Any craft entering any marine water body in the Auckland region from the land must be free of all ballast water, bilge water, holding tank water or sea water held in any other container.

A breach of these rules is an offence under s154N(19) of the Biosecurity Act.

The purpose of rules 7.7.11.9.1, 7.7.11.9.4 and 7.7.11.9.5 is to regulate activities that may affect measures taken to implement the plan.

<sup>75</sup> Note this applies only to live propagules. Processed food products may still be sold.

The purpose of rules 7.7.11.9.2 and 7.7.11.9.3 is to specify the circumstances in which the pest may be communicated, released, or otherwise spread.

**Principal measures of achievement:**

Monitoring and surveillance	Undertake inspections, monitoring and surveillance to determine compliance with biofouling standards and other rules, the presence of new incursions and status of existing or historical sites. Collaborate with other agencies in design of data collection and storage to ensure effective, integrated monitoring and surveillance across Tāmaki Makaurau / Auckland and other regions.
Education and advice	Provide information and advice on how to prevent spread of the marine pest, including effective hygiene procedures to reduce the risk of accidental spread on marine farming equipment, hulls, in bilge, ballast or holding tank water or by other human activity. Implement voluntary behaviour change interventions to address high risk pathways.
Enforcement	Enforce restrictions on the sale, breeding, distribution and exhibition of the pest in its live state. Enforce restrictions on movement of ballast, bilge and holding tank water in relation to craft entering any marine waterbody from land. Enforce hull biofouling standard to ensure no more than a slime layer and/or goose barnacles are present.
Requirement to act	All persons in charge of a craft to undertake such hygiene measures as required to ensure biofouling is never more than a slime layer and/or goose barnacles, and to ensure craft are free of all ballast water, bilge water and holding tank water when entering any marine waterbody from land.
Research and development	Contribute to multi-agency facilitation of research, including mātauranga Māori, and development in detection and control tools, understanding pathways of spread, pest species' adaptations and interactions within the marine environment, and ecological impacts of the marine pest on at-risk habitats and ecosystems.



## 8 Whakaaturanga āhua orotā / Monitoring





Costs associated with surveillance and monitoring have been built into cost-benefit analyses for all programmes in this RPMP.

Surveillance is particularly important for programmes aiming to exclude or eradicate pests from parts of the region, including protection of past island eradications. In the Te Tīkapa Moana / Hauraki Gulf in particular, Auckland Council, in conjunction with the Department of Conservation, maintains an extensive network of traps and detection devices along with other surveillance methods such as the use of scent detection dogs to detect and respond to incursions on pest-free islands. Similarly, on-going island-wide pest plant survey work on Aotea / Great Barrier island group is critical to identifying pest plant incursions early and therefore increasing the chances of successful management. Other site-led programmes such as pest plant management on parkland require follow-up operational and outcome monitoring to assess the efficacy of the management programmes.

The Council will look to improve the robustness of its monitoring regimes over the lifetime of this plan, particularly by improving data management systems. Another aspect of monitoring that the Council will look to improve over the lifetime of the plan will be in assessing the efficacy of behaviour-change initiatives, to ensure programmes that seek to manage pests by influencing human behaviour (e.g. kauri dieback, Treasure Islands, freshwater pathway management) are successfully utilising best-practice social science to influence environmental outcomes.



Capturing, tagging and releasing tench to estimate the population size at Lake Tomarata.

**Table 6 Monitoring objectives**

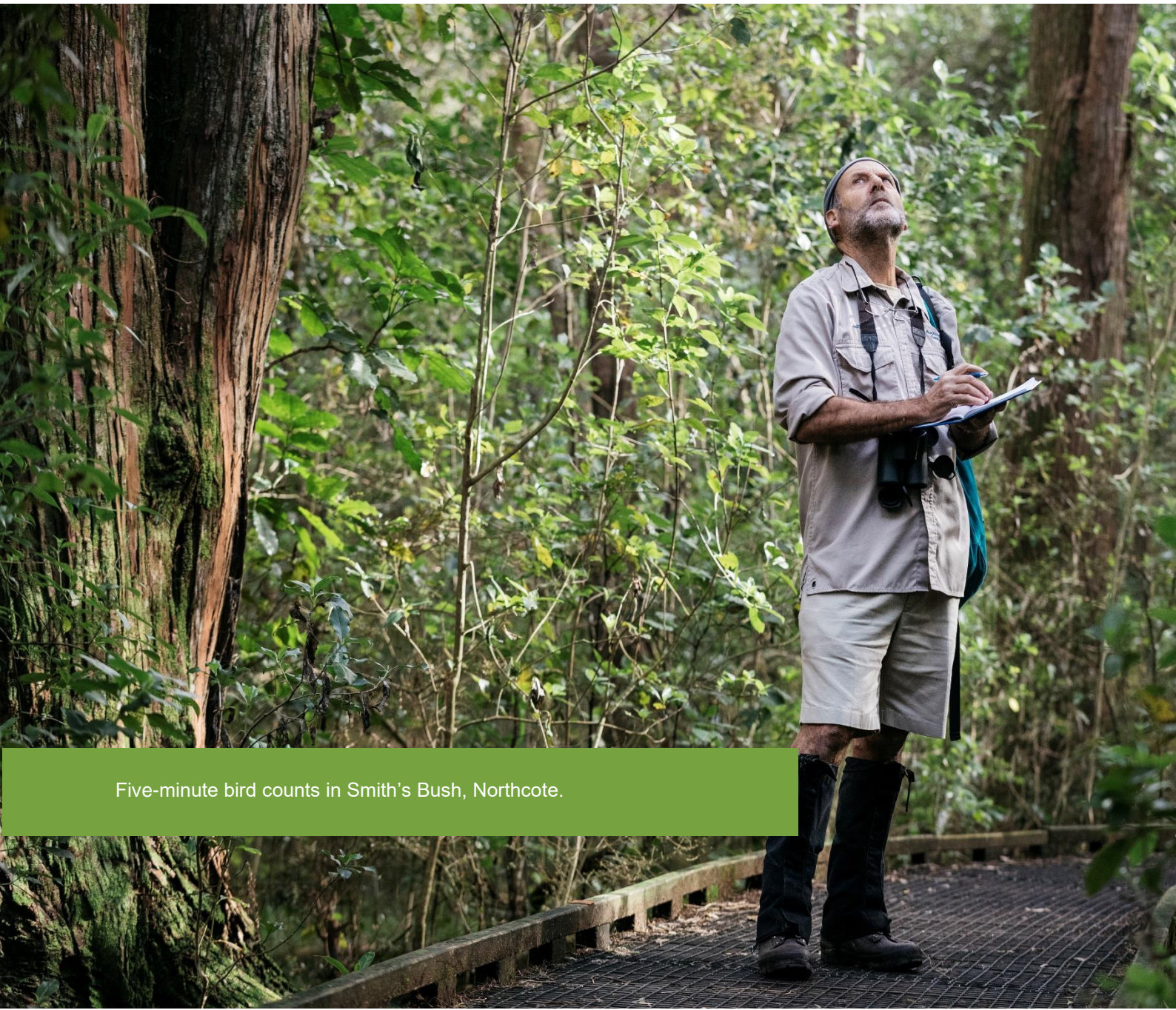
Anticipated result	Indicator	Method of monitoring	Frequency of monitoring	Frequency of reporting
Exclusion	Presence/absence	Active and passive field surveys when undertaking other service delivery, public reports	As reports are received and while undertaking other field activities.	Annually and as required
Eradication	Presence/absence, distribution and extent, life cycle status	Field surveys, public reports	Frequency determined by species' time to sexual maturity to prevent reproduction, or as reports are received	Annually and as required
Progressive containment	Presence/absence, distribution and extent, life cycle status	Field surveys and public reports	Frequency determined by species' time to sexual maturity to prevent reproduction, or as reports are received	Annually and as required
Sustained control	Output and outcome based, pest trend monitoring	Species-led national inspection protocols (e.g. NPPA, NPPBA), public reports.	Ongoing and in accordance with operational plans	Annually and as required
Site-led	Output and outcome based, including trends in pests being controlled and site values being protected (e.g. native vegetation recruitment).	Field surveys, public reports.	Ongoing and in accordance with operational plans, and outcome values being monitored. Frequency may be determined by pest species' time to sexual maturity	Annually and as required



## 8.1 Te aroturuki i ngā mahi a te tari whakahaere / Monitoring the management agency's performance

Auckland Council is the management agency. As the management agency responsible for implementing the plan, the Council will:

- prepare an operational plan within three months of the plan being approved
- review the operational plan annually, and amend it if needed
- report on the operational plan each year, within five months after the end of each financial year
- implement the plan in line with the operational plans
- maintain up-to-date databases of complaints, pest levels and densities, and responses from land occupiers.



Five-minute bird counts in Smith's Bush, Northcote.



## 8.2 Te aroturuki i te whaihua o te mahere / Monitoring plan effectiveness

Monitoring the effects of the plan will ensure that it continues to achieve its purpose. It will also check that relevant circumstances have not changed to such an extent that the plan requires review. A review may be needed if:

- the Biosecurity Act is changed, and a review is needed to ensure that the plan is not inconsistent with the Act
- other harmful organisms create, or have the potential to create, problems that can be resolved by including those organisms in the plan
- monitoring shows the problems from pests or other organisms to be controlled (as covered by the plan) have changed significantly
- circumstances change so significantly that the Council believes a review is appropriate.

If the plan does need to be reviewed under such circumstances, it will be reviewed in line with s100D of the Biosecurity Act. Such a review may extend, amend or revoke the plan, or leave it unchanged.

The procedures to review the plan will include officers of Auckland Council:

- assessing the efficiency and effectiveness of the principal measures (specified for each pest and other organism (or pest group or organisms) to be controlled to achieve the objectives of the plan
- assessing the impact the pest or organism (covered by the plan) has on the region and any other harmful organisms that should be considered for inclusion in the plan
- liaising with other agencies and key interest groups on the effectiveness of the plan.

A review is initiated by a proposal made by Auckland Council giving reasons for the proposal and setting out:

- any proposed amendments; or
- any proposed replacement parts of the plan.

The review must follow s68-78, including consultation requirements, to the extent that these sections are relevant to the proposed changes.