



Plate 1: A relatively large area of wetland, with the most abundant species being raupō is present though much of the northern part of the site, east of the stopbank. Note the estuarine channels amongst the raupō.



Plate 2: View from the stopbank at the northern end of the site showing the scale of wetland habitats present east of the stopbank. Dominated by raupō, but with extensive areas of searush, and smaller areas dominated by oioi, kukuraho, and *Isolepis cernua*.



Plate 3: View from the stopbank of the southern end of the wetland. Note the area of searush at the southern end. The area of pampas tussockland can be seen in the background.



Plate 4: Northern part of raupō wetland with a few māhaka (marsh ribbonwood) shrubs. Drier areas between wetland are dominated by rank exotic grassland.



Plate 5: Outlet of the southern channel in the survey area. Note the steep banks on river side dominated by exotic grasses, mostly tall fescue and kikuyu.



Plate 6: Typical banks alongside the lower part of the southern channel, east of the stopbank.



Plate 7: A few small patches of *Isolepis cernua* are present on channel margins, these areas were too small to map out separately.



Plate 8: Abundant crab holes are present in the estuarine channels.



Plate 9: Dry parts of the site east of the stopbank are dominated by tall exotic grassland species, mostly kikuyu, tall fescue and a few areas of saltwater paspalum and cocksfoot.



Plate 10: A small unit of searush and a few tall fescue is present near the south end of the wetland. The cover of tall fescue increases towards the south of this type. This area is mapped and described as vegetation and habitat Type 2.



Plate 11: A small area of searush and tall fescue is present at the southern end of the wetland.



Plate 12: An area of pampas tussockland, with abundant rank grasses between pampas tussocks is present near the southeastern side of the wetland.



Plate 13: Flows in the channel are quite swift when the tide is receding.



Plate 14: Whakatāne River edge has a steep scarp (often c.2 metres tall) above the tidal river edge.



Plate 15: A few small patches of kukuraho (*Bolboschoenus fluviatilis*) are present on the scarp edge alongside the Whakatāne River.



Plate 16: Scarp margin alongside the Whakatāne River, at the northern end of the survey area.



Plate 17: A raised embankment between the canal and wetland habitat at the northern end of the site, covered with kikuyu.



Plate 18: Vegetation and habitat Type 4 is a mixture of woolly nightshade, blackberry, occasional buddleia, and over local rank exotic grasses.



Plate 19: A few small patches of willow forest (mostly crack willow but also some grey willow) are present.



Plate 20: Grassland in the south-eastern part of the survey area was cocksfoot with abundant creeping buttercup.



Plate 21: Scattered woolly nightshade and a few patches of Chinese mugwort were present in grassland habitats.



Plate 22: Rank grassland between the fence and the Landing Road Bridge has a dense cover of tall fescue.



Plate 23: Stopbank, with recently planted grassland on northern side. A stand of poplars is present on the river side of the stopbank.



Plate 24: West of the stopbank at the northern end of the site. Works related to remediation of Kopeopeo Canal are being undertaken adjacent to the survey area.



Plate 25: Recently-planted paddocks of exotic grasses are present in two paddocks to the west of the stopbank.



Plate 26: Channel between the two paddocks.



Plate 27: Channel between the two paddocks.



Plate 28: Outlet of the channel between the two paddocks,
on the Keepa Road side of the stopbank.



Plate 29: Stopbank, paddock, and shelter belt at southern end of project area, to the west of the stopbank.



Plate 30: Shelter belt alongside State Highway 30 near junction with Keepa Road.



Plate 31: Shelterbelt alongside Keepa Road.



Plate 32: Channel outlet along the northern boundary of the project area.



Plate 33: View towards Whakatāne River down the channel at the northern end of the site.



Plate 34: Estuarine channel at the northern end of the survey area.

VASCULAR PLANT SPECIES RECORDED IN THE SURVEY AREA

Key

1. Wetland
2. Rank grassland and stopbank
3. Cultivated paddock
4. Shelterbelts

INDIGENOUS SPECIES

Gymnosperms

<i>Dacrycarpus dacrydioides</i> (4, planted)	kahikatea
<i>Podocarpus totara</i> var. <i>totara</i> (4, planted)	tōtara

Monocot. trees and shrubs

<i>Cordyline australis</i> (1, 2, 4)	tī kōuka, cabbage tree
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Dicot. trees and shrubs

<i>Coprosma repens</i> (2, 4)	taupata
<i>Entelea arborescens</i> (4, planted)	whau
<i>Hebe parviflora</i> (4, planted)	koromiko tāranga, kōkōmuka tāranga
<i>Kunzea</i> sp. (2, 4)	kānuka
<i>Melicytus ramiflorus</i> subsp. <i>ramiflorus</i> (4, planted)	māhoe
<i>Myoporum laetum</i> (2, 4)	ngaio
<i>Piper excelsum</i> subsp. <i>excelsum</i> (2, 4)	kawakawa
<i>Pittosporum colensoi</i> (4, planted)	rautāwhiri, rautāhiri
<i>Pittosporum crassifolium</i> (4, planted)	karo
<i>Pittosporum tenuifolium</i> (4, planted)	kōhūhū, rautāhiri, rautāwhiri
<i>Plagianthus divaricatus</i> (1, 2)	marsh ribbonwood mākaka
<i>Pseudopanax lessonii</i> (4, planted)	houpara
<i>Vitex lucens</i> (4, planted)	pūriri

Dicot. lianes

<i>Calystegia sepium</i> subsp. <i>roseate</i> (2)	pōhue
<i>Muehlenbeckia complexa</i> (2, 4)	pōhuehue

Sedges

<i>Bolboschoenus fluviatilis</i> (1, 2)	pūrua grass, kukuraho
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Isolepis cernua (1, 2)

Rushes

Apodasmia similis (1)

oioi

Juncus kraussii var. *australiensis* (1, 2)

wi, wīwī sea rush

Monocot. herbs (other than orchids, grasses, sedges, and rushes)

Phormium cookianum subsp. *hookeri* (1, 2, 4)

wharariki, mountain flax

Phormium tenax (1, 2)

harakeke, flax

Typha orientalis (1)

raupō

Dicot. herbs (other than composites)

Haloragis erecta subsp. *erecta* (2)

toatoa

NATURALISED AND EXOTIC SPECIES

Gymnosperms

Cedrus sp. (2, planted ×1)

cedar

Monocot. trees and shrubs

Phoenix canariensis (2, 4)

Phoenix palm

Dicot. trees and shrubs

Allocasuarina littoralis (4, planted)

she-oak

Buddleja davidii (2)

buddleia

Ligustrum lucidum (4)

tree privet

Ligustrum sinense (2, 4)

Chinese privet

Paraserianthes lophantha (4)

brush wattle

Populus sp. (2)

poplar

Rubus sp. (*R. fruticosus* agg.) (2)

blackberry

Salix cinerea (1, 2, 4)

grey willow

Salix ×fragilis (1, 2)

crack willow

Solanum mauritianum (2)

woolly nightshade

Ulex europaeus (2, 4)

gorse

Dicot. lianes

Lonicera japonica (1, 2, 4)

Japanese honeysuckle

Grasses

Avena sp. (4, recently planted, probably an ??)

oat

Bromus diandrus (2)

ripgut brome



<i>Cenchrus clandestinus</i> (1, 2, 4)	kikuyu grass
<i>Cortaderia selloana</i> (1, 2, 4)	pampas
<i>Dactylis glomerata</i> (1, 2)	cocksfoot
<i>Lolium arundinaceum</i> subsp. <i>arundinaceum</i> (1, 2)	tall fescue
<i>Paspalum dilatatum</i> (2)	paspalum
<i>Paspalum vaginatum</i> (1, 2)	saltwater paspalum

Monocot. Herbs (other than orchids, grasses, sedges and rushes)

<i>Zantedeschia aethiopica</i> (2)	arum lily
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Composite herbs

<i>Achillea millefolium</i> (2)	yarrow
<i>Artemisia verlotiorum</i> (1, 2)	Chinese mugwort
<i>Cirsium arvense</i> (2, 4)	Californian thistle
<i>Sonchus asper</i> (2)	prickly puha
<i>Sonchus oleraceus</i> (2, 4)	puha, sow thistle

Dicot. herbs (other than composites)

<i>Daucus carota</i> (2)	wild carrot
<i>Erodium cicutarium</i> (4)	storksbill
<i>Euphorbia peplus</i> (4)	milkweed
<i>Galium aparine</i> (1, 2, 4)	cleavers
<i>Geranium molle</i> (2, 4)	dovesfoot cranesbill
<i>Lotus pedunculatus</i> (2, 4)	lotus
<i>Pastinaca sativa</i> (2)	wild parsnip
<i>Phytolacca octandra</i> (2)	inkweed
<i>Plantago lanceolata</i> (1, 2, 3, 4)	narrow-leaved plantain
<i>Ranunculus repens</i> (1, 2, 3, 4)	creeping buttercup
<i>Rumex obtusifolius</i> (1, 2, 4)	broad-leaved dock
<i>Solanum nigrum</i> (1, 2, 4)	black nightshade
<i>Stachys sylvatica</i> (2)	hedge woundwort
<i>Trifolium repens</i> (2)	white clover
<i>Verbena bonariensis</i> (2)	purple-top



FAUNA SPECIES RECORDED DURING THE FIELD SURVEY 20 JUNE 2019

Table A4.1: Species recorded during a field inspection of survey area between Keepa Road and Whakatāne River 20 June 2019. Estimated number and comments on habitats used, by each species.

Species	Estimated Number	Habitats Used
Mallard	40	Recorded on river and estuarine margins.
Kawaupaka/little shag	1	Recorded flying over river. Likely to utilise river and estuarine margins.
Little black shag	1	Recorded flying over river. Likely to utilise river and estuarine margins.
Karuhiruhi/pied shag	1	Recorded flying over river. Likely to utilise river and estuarine margins.
White-faced heron	1	One recorded flying over river. Likely to utilise estuarine margins and wetland habitats.
Kotuku-ngutupapa/royal spoonbill	1	Recorded flying over multiple times. Likely to utilise estuarine habitats on Whakatāne River margins.
Kāhu/swamp harrier	1-2	A bird was seen flying over the site regularly. May utilise all habitats present.
Pūkeko	c.20	Multiple birds utilising habitats throughout the area, particularly wetland and rank exotic grassland.
Taranui/Caspian tern	1	One bird seen several times flying over the Whakatāne River. Unlikely to utilise other habitats present.
Karoro/southern black-backed gull	c.20	Flying over site and river.
Tarapunga/red-billed gull	c.10	Mostly flying over river.
Spur-winged plover	c.10	Utilising most terrestrial and estuarine habitats.
Matatā/North Island fernbird	c.10	Present in wetland habitats, particularly areas dominated by raupō.
Kotare, NZ kingfisher	c.2	Regularly seen throughout.
Warou/welcome swallow	c.10	Regularly seen throughout.
Piwakawaka/fantail	c.10	Abundant in terrestrial habitats.
Korimako/bellbird	c.2	Heard in distance. Not utilising habitats during survey.
Other exotic passerines, including house sparrow, Eurasian blackbird, song thrush, chaffinch, starling, and myna	N/A	Abundant in terrestrial habitats throughout.



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