



ECOLOGICAL VALUES OF  
THE POIKE WETLAND,  
TAURANGA CITY



2717a



*Providing outstanding ecological services  
to sustain and improve our environments*



# Ecological Values of the Poike Wetland, Tauranga City

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Contract Report No. 2717a

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## 1. INTRODUCTION

The Poike Wetland is located at the head of the Waimapu Estuary, in the south-eastern quadrant of Tauranga Harbour. The wetland has been bisected by State Highway 29 (SH29), and it is now in two parts, located on the northern and southern sides of the State Highway. The wetland is identified as a ‘Special Ecological Area’ (SEA) in the proposed Tauranga City Plan, where it has the site name “Poike” (SEA 5), and part of this site is under appeal within that Plan. It was also identified as a “Special Ecological Site” in the 2009 update of the State of the Environment report (2008) on the indigenous biodiversity of Tauranga City which was used to identify the values of SEA’s for inclusion in the proposed Tauranga City Plan (Wildland Consultants 2009). The part of the proposed SEA which lies to the north of SH29 comprises estuarine wetland on the southern shore of the Waimapu Estuary. South of SH29 the SEA comprises a freshwater wetland in a valley floor. The physical address for a large part of this latter area is 33 Sapphire Drive, Tauranga.

Tauranga City Council commissioned Wildland Consultants to undertake this study to more accurately define the boundaries of the southern (i.e. freshwater) portion of SEA 5, to describe the vegetation and habitats present, undertake an avifauna survey, and assess the relative ecological significance of the wetland, in accordance with the Objectives and Policies of the proposed Tauranga City Plan and the Operative Regional Policy Statement.

## 2. PROJECT SCOPE

The objective of this study was to undertake an ecological survey and assessment of the southern (freshwater) portion of Poike Wetland, to confirm its ecological values and accurately define the proposed SEA’s boundary. Key components of the project were to:

- Compile existing information about the site;
- Undertake a site visit to:
  - Check the site boundary and make any changes required; and
  - Identify key ecological features (e.g. threatened or uncommon plant species or avifauna present).
- Assess the ecological significance of the wetland and confirm or update the category ranking.

## 3. ECOLOGICAL CONTEXT

Poike Wetland is located in the Tauranga Ecological District, which encompasses Tauranga Harbour and its margins and islands (including Matakana Island), Maketu Estuary, Little Waihi Estuary, coastal dunes between Waihi and Otamarakau, coastal plains, and the low, rounded hills of the Western Bay of Plenty lowlands. Relatively little indigenous vegetation remains in Tauranga Ecological District away from the margins of the harbour and estuaries.

New Zealand has been divided into 'land environments' on the basis of climate, landform, and soil variables that drive variation in biological patterns (Landcare Research and MfE 2003). Classification of these land environments has been used on a national basis by territorial local authorities and, on a national basis, by the Department of Conservation (MfE and DOC 2007a, 2007b) to identify habitats which are rare or uncommon in an ecological region and/or ecological district. The analysis identifies six threat classifications: 'acutely threatened', 'chronically threatened', 'at risk', 'critically underprotected', 'underprotected', and 'better protected and less reduced'. Poike Wetland is located within an 'acutely threatened' land environment.

#### 4. EXISTING INFORMATION

##### Vegetation

The proposed SEA has been previously assessed and described by Wildland Consultants (2008 and 2009). The proposed SEA boundaries were revised by Wildland Consultants in 2010 as part of an 'off-site' assessment (being the assessment of the site from key vantage points surrounding the area) as part of the hearing of submissions on the proposed Tauranga City Plan - Chapter 5: Natural Environment hearing.

##### Avifauna

To the north of SH29, where estuarine vegetation prevails, three threatened wetland bird species have been recorded adjacent to the lower reaches of the wetland (Owen 1993): North Island fernbird (*Bowdleria punctata vealeae*) (classed as 'At Risk-Declining' by Miskelly *et al.* 2009), spotless crane (*Porzana tabuensis*, 'At Risk-Relict'), and banded rail (*Gallirallus philippensis*, 'At Risk-Naturally Uncommon') (Miskelly *et al.* 2008). Fernbird was also present in 2005 (Wildland Consultants 2008).

#### 5. METHODS

A field inspection was undertaken on 17 May 2011 by Paul Cashmore, Keith Owen, and Chris Staite (Department of Conservation) and Sarah Beadel (Wildland Consultants Ltd). A second brief field inspection of the interior of the wetland was undertaken during a site meeting on 19 December 2011 by Sarah Beadel. Selected photographs taken during the May site visit are included in Appendix 1. During the May site visit, vegetation and habitats were mapped onto hard copy digital aerial photographs, at a scale of 1:3,000, and a list of vascular plant species was compiled (refer to Appendix 2). Structural classes for vegetation and habitat types were classified following Atkinson (1985) and described. Site boundaries were checked and refined, and GPS coordinates were recorded for site boundaries and selected plant species.

All species of birds that were seen or heard were recorded, and the habitat values of the site for avifauna were assessed. In an effort to locate more cryptic bird species,



recorded calls of fernbird, marsh crake (*Porzana pusilla affinis*), and spotless crake were played in potentially suitable habitats within and on the margins of the wetland. A report on the avifauna survey is included in Appendix 3.

## 6. FINDINGS

### 6.1 Proposed SEA boundaries

The proposed SEA boundary mapped in 2010 from surrounding vantage points was generally very accurate, but a few minor refinements were made, and the causeway was removed from the site. The revised boundary was drawn in consultation with Department of Conservation staff and is supported by them (P. Cashmore and K. Owen pers. comm. 20 May 2011). The updated proposed SEA boundary is shown in Figure 1. A further figure, Figure 2, shows the 2010 boundary and the boundary delineated in Figure 1 overlaid with property boundaries to illustrate where changes have been made to the boundary.

### 6.2 Vegetation and habitats

Four vegetation and habitat types were identified, as described below and mapped in Figure 3. The most extensive vegetation type is grey willow forest (Vegetation Type 2), which has a variable understorey generally dominated by indigenous species, but with naturalised exotic species present locally.

#### 1. (Grey willow)/manuka/*Baumea rubiginosa* shrubland

Manuka (c.4.5 m) forms the dominant cover, in association with scattered *Coprosma tenuicaulis* and occasional emergent grey willow. The understorey comprises a dense cover of *Baumea rubiginosa* with scattered swamp millet (*Isachne globosa*), and local swamp umbrella fern (*Gleichenia microphylla*) and *Tetraria capillaris*. Three species of *Pterostylis* were observed in this type in December 2011 (see Flora section below).

#### 2. Grey willow forest

Grey willow forms the canopy over much of the wetland. The understorey is variable, and includes both indigenous and naturalised exotic species.

Grey willow, 6-8 m tall, forms the canopy, with a few ti kouka present locally. There is a sparse subcanopy of *Coprosma propinqua* × *C. robusta*, local hukihuki (swamp coprosma; *Coprosma tenuicaulis*), and Japanese honeysuckle (*Lonicera japonica*), with the latter scrambling throughout. The shrub tier comprises hukihuki, *Coprosma propinqua*, *Coprosma propinqua* × *C. robusta* hybrids, and local wheki (*Dicksonia squarrosa*) and karamu (*Coprosma robusta*). There is a dense groundcover of sedges with *Baumea tenax*, *Tetraria capillaris*, and *Baumea rubiginosa* being locally dominant. Swamp umbrella fern is common. There is local swamp millet, *Carex virgata*, and *Carex maorica*. In places, there is a low-growing groundcover of panakenake

(*Lobelia angulata*), *Nertera scapanioides*, *Schoenus maschalinus*, and *Hydrocotyle pterocarpa*.

Downstream of the causeway, the understorey is variable. In places it is dominated by *Baumea rubiginosa* in association with hukihuki, swamp millet, wheki, Japanese honeysuckle, kiokio (*Blechnum novae-zelandiae*), *Juncus prismatocarpus*, *Carex maorica*, and *Baumea tenax*. *Coprosma propinqua* × *C. robusta* occurs in the subcanopy. Elsewhere, in addition to the indigenous species, naturalised exotic species become more common, such as Japanese honeysuckle and Chinese privet (*Ligustrum sinense*). There is a small patch of green goddess (*Zantedeschia aethiopica* “Green Goddess”), and two seedlings of climbing asparagus (*Asparagus scandens*) were seen, with a low number of pampas (*Cortaderia selloana*) and one Japanese walnut (*Juglans ailantifolia*).

*Isolepis prolifer* is locally common in surface water 0-2 cm deep, in association with scattered *Carex virgata*, *Baumea tenax*, hukihuki, and a few pampas.

Adjacent to the top of the north-eastern tongue of the wetland, reed sweetgrass (*Glyceria maxima*) is locally common in the understorey. Other species in the understorey in this area are swamp millet, maru (burr reed; *Sparganium subglobosum*), panakenake, hukihuki, kiokio *Baumea tenax*, and karamu with scattered harakeke (*Phormium tenax*), and Japanese honeysuckle. Also in this area, and extending along the northern boundary, swamp millet is locally dominant around the margins. Maru occurs locally amongst the swamp millet, along with species such as panakenake, *Eleocharis gracilis*, *Schoenus maschalinus*, *Centella unifolia*, paspalum (*Paspalum dilatatum*), and swamp kiokio (*Blechnum minus*). A brief inspection of one corner of this type near the south-western corner found scattered plants of three *Pterostylois* species (*P. paludosa*, *P. aff. graminea*, and *P. graminea*). These species may also occur locally elsewhere in the wetland.

Outside of the wetland, along the top of the north-western boundary, there is an area dominated by reed sweetgrass with scattered grey willow shrubs, gorse (*Ulex europaeus*), and pampas, with one small patch of *Baumea rubiginosa*.

*Carex geminata* is locally common along the margins of the wetland, with local water purslane (*Ludwigia palustris*), Mercer grass (*Paspalum distichum*), *Isolepis prolifer*, and swamp millet.

In places along the northern boundary there is a narrow band c.1-2 m wide of Chinese privet-gorse-Japanese honeysuckle-blackberry (*Rubus fruticosus* agg.) shrubland, although this type has generally been excluded from the site boundaries.

Figure 1

Figure 2

Figure 3

### 3. Grey willow forest and treeland

Grey willow forms a sparse canopy in this area. There are a few wheki, karamu, Japanese honeysuckle, and Chinese privet in the subcanopy. Hukihuki and *Carex geminata* are locally common in the understorey, with occasional wheki and local swamp millet, *Isolepis prolifer*, and *Baumea juncea*, and scattered *Carex virgata* and Chinese privet. Japanese honeysuckle is occasional throughout. Other species present include hangehange (*Geniostoma ligustrifolium*), creeping buttercup (*Ranunculus repens*), and hound's tongue fern (*Microsorium pustulatum*).

### 4. Ponga treefernland

Ponga (silver fern; *Cyathea dealbata*) c.6 m tall forms a small grove with occasional mahoe (*Melicytus ramiflorus*). The understorey comprises ponga and hangehange.

## 6.3 Flora

Sixty-six indigenous species and 56 exotic species of vascular plants were recorded within the southern (freshwater) portion of the wetland. Three nationally 'Threatened' or 'At Risk' species (as per de Lange *et al.* 2009) are present, as well as three 'Regionally Uncommon' species. *Dianella haemata* and *Pterostylis paludosa* are both classed as 'At Risk-Declining' (de Lange *et al.* 2009) and *Pterostylis* aff. *graminea* "Sphagnum" is classed as Taxonomically Indeterminate - At Risk-Naturally Uncommon. These two *Pterostylis* species, and *P. graminea*, which is also present, are not known to occur anywhere else in the ecological district. Maru (burr reed; *Sparganium subglobosum*), *Tetraria capillaris*, and *Nertera scapanioides* are all classed as 'Regionally Uncommon' in the Bay of Plenty (Beadel 2009). Maru is only known from two other sites in the Ecological District (only one other in Tauranga City) and its distribution within the proposed SEA was recorded (refer to Table 1 and Figure 2). Other species present include *Hydrocotyle pterocarpa*, *Baumea juncea*, *Baumea tenax*, and *Eleocharis gracilis*.

Three orchid species (including two At Risk species, see above) were found in the wetland during a brief site inspection in December 2011, and other orchid species may be present. Orchid species are only able to be observed during spring and/or summer, so were not visible at the time of the initial more detailed field survey in May.

## 6.4 Avifauna

A full record of the avifauna survey is presented in Appendix 3 (Owen 2011). Conditions for surveying were difficult, with strong winds, scattered rain, and continuous heavy traffic noise from the adjacent highway.

Seven indigenous bird species were recorded during the site visit. Most of these are common species but the Australasian bittern (matuku; *Botaurus poiciloptilus*) has a conservation status of 'Threatened-Nationally Endangered' (Miskelly *et al.* 2008). A feather from a bittern was found on the edge of the wetland, at the south-eastern end.

This confirms that bittern do visit the wetland from time-to-time. Bittern occur near Tauranga Harbour, within the bounds of Tauranga City, in low numbers, largely associated with saltmarsh areas in Tauranga Harbour (Owen 1993).

Played calls of spotless crake, marsh crake, banded rail, and North Island fernbird failed to illicit any responses. However this was not completely unexpected given the poor weather conditions and traffic noise prevailing at the time. Although the wetland itself is surprisingly intact under the grey willow canopy, the type of wetland vegetation present and its structure do not appear to be prime habitat for some of these species.

Seven introduced species were also recorded, and mallard ducks (*Anas platyrhynchos*) have been observed in the past.

## 7. ECOLOGICAL EVALUATION

### 7.1 Summary of ecological values

The southern portion of the proposed SEA identified in the proposed Tauranga City Plan as 'Poike' (SEA5) comprises a freshwater wetland, a habitat type that has been greatly reduced in extent in the Tauranga Ecological District, the Bay of Plenty Region, and nationally. The canopy is dominated by grey willow, an exotic species, but the understorey is often dominated by indigenous species, including three At Risk species and three species that are regarded as uncommon in the Bay of Plenty Region. There is also a small area of manuka-dominant shrubland. The Poike Wetland provides habitat for a suite of indigenous bird species, including one threatened species: Australasian bittern. A further bird survey, in more favourable survey conditions, may detect additional species. A further more detailed orchid survey in November may also detect additional orchid species.

### 7.2 National priorities for protection of biodiversity on private land

National priorities for the protection of biodiversity on private land identify the importance of natural areas in land environments where 20% or less of indigenous cover remains (MfE and DOC 2007). Land environments recognised as 'Acutely Threatened' (a land environment in which less than 10% of indigenous habitat remains) are National Priority 1. The Poike Wetland lies wholly within an 'Acutely Threatened' land environment. The proposed SEA also meets National Priority 2, relating to the protection of indigenous vegetation associated with sand dunes and wetlands.

### 7.3 Proposed National Policy Statement on Biodiversity

Whilst it is only a Proposed National Policy Statement (and currently the subject of submission), the following is important in considering the identification of biodiversity in determine the proposed SEA's significance. Policy 2 of the Proposed National Policy Statement on Biodiversity (MfE 2011) states that:

“...local authorities shall..... regard the following as significant indigenous vegetation or significant habitat of indigenous fauna:

- a. the naturally uncommon ecosystem types listed in Schedule One
- b. indigenous vegetation or habitats associated with sand dunes
- c. indigenous vegetation or habitats associated with wetlands
- d. land environments, defined by Land Environments of New Zealand at Level IV (2003), that have 20 per cent or less remaining in indigenous vegetation cover.
- e. habitats of threatened and at risk species.

The proposed SEA is a wetland with a cover of indigenous species in the understorey and is consistent with this policy and can, therefore, be considered to be ecologically significant. It satisfies Criterion ‘c’ of the proposed policy because it is a wetland, and Criterion ‘d’ because it is located on an acutely threatened land environment (i.e. a land environment in which less than 10% of indigenous habitat remains). It also meets Criterion ‘e’ because Australasian bittern, which is classified as ‘Threatened-Nationally Endangered’ visit the wetland and it may provide habitat for other threatened bird species, and an At Risk plant species. Three regionally uncommon plant species are present.

#### 7.4 Tauranga City Plan

‘Special Ecological Areas’<sup>1</sup> (SEAs) in Tauranga City (through the proposed Tauranga City Plan) were identified by assessing them against a suite of criteria, as set out in Table 2 below:

Table 2: Assessment of the southern (freshwater) portion of Poike Wetland in relation to proposed Tauranga City Plan criteria for the assessment of ecological significance.

Criteria		H	M	L	
(i)	<i>Representativeness: The diversity of ecological and physical features, and the patterns that exist within an area under consideration (the extent to which an area is characteristic or representative of natural diversity).</i>		✓		Wetlands are under-represented in Tauranga Ecological District. This is a good example of the remaining freshwater wetland vegetation of the ecological district. There is a small area of manuka-dominant shrubland. Whilst the canopy is generally dominated by a naturalised exotic species (grey willow), indigenous species are generally dominant in the understorey.
(ii)	<i>Diversity and pattern: The diversity of ecological and physical features, and the patterns that exist within an area under consideration (The diversity of species and community types).</i>		✓		Good diversity of indigenous freshwater wetland species adjacent to a diverse representative example of estuarine vegetation (separated from this site by a main road).
(iii)	<i>Size and Shape: Relatively large areas (for example, compared to the mean size of remaining areas of</i>		✓		The site is of moderate size and is slightly elongated, which reflects the topography and its status as a

<sup>1</sup> Sites were referred to as Special Ecological Sites (SES) in an earlier report on indigenous biodiversity of the Tauranga City (Wildland Consultants 2009), however Tauranga City has updated the title of these sites and they are now Special Ecological Areas (SEAs).



Criteria		H	M	L	
	<i>indigenous vegetation in an Ecological District) are preferred as small areas can be affected strongly by edge effects. A compact single area is generally preferable to long narrow areas or small separate remnants (Larger areas with a compact shape are more likely to be ecologically viable).</i>				valley floor wetland. It is part of a relatively large natural area which includes estuarine wetland vegetation.
(iv)	<i>Viability (being Ecological viability and sustainability): The likelihood of an area remaining ecologically viable over time. Larger areas are generally more likely to remain viable with lower levels of management input (The likelihood of an area remaining ecologically viable and the management and input necessary for long term sustainability).</i>	✓			The site is viable. The indigenous understorey is relatively intact and the area of manuka-dominant shrubland has maintained a similar extent over recent years. However, willow control would benefit the site. Control of other weed species would also be beneficial.
(v)	<i>Naturalness: Degree to which the vegetation and habitats reflect likely natural character (Degree of modification as compared with likely original unmodified character).</i>		✓		Indigenous species dominate the understorey and form the dominant canopy in one part of the wetland. Naturalised plants have an impact on the site.
(vi)	<i>Rarity and special features: The relative rarity of physical landscape features, vegetation, habitats and species within an ecological region or district or on a national basis (Presence of rare community types, species or other rare features).</i>	✓			The site provides habitat for three At Risk plant species and three regionally uncommon plant species, and one nationally 'Threatened' bird species visits the site. It may provide habitat for other threatened species of orchids and/or avifauna.
(vii)	<i>Buffering and connectivity : The degree to which a natural area is protected or buffered by the surrounding landscape, or provides a buffer to other areas. An area may play an important role by connecting other areas of indigenous flora and fauna or providing a riparian buffer</i>		✓		The site was connected to Poike saltmarsh on the northern side of SH29 prior to the site being dissected by the State Highway, and provides an important role in providing additional habitat for species such as bittern, which require large areas of suitable habitat. The site provides a riparian buffer to the stream flowing through the wetland.

The southern freshwater portion of the Poike Wetland is ecologically significant and it is therefore appropriate to include it in the proposed Tauranga City Plan as a 'Special Ecological Area' (SEA). This is because it has been assessed against the criteria outlined in the proposed Tauranga City Plan (5A.3.1.1 Policy - Identifying Special Ecological Areas). Further, this criteria is not inconsistent with the criteria listed in the Operative Regional Policy Statement (Appendix F).

The proposed Tauranga City Plan identifies SEAs as being either Category 1 or Category 2 areas. Category 1 areas include "the best quality or only remaining representative examples of indigenous flora and/or habitat of indigenous fauna within the City. This Category also includes intact altitudinal or geographic sequences across the City, or diverse assemblages of landform units, vegetation, and bioclimatic character. It is of prime importance that the factors, values and associations of these areas are protected." Poike Wetland, together with the estuarine wetlands in Poike Estuary, is one of the best quality examples of indigenous

vegetation and wildlife habitats in the Tauranga City. It meets the threshold for a Category 1 SEA.

## 8. CONCLUSIONS

The boundary of the southern (freshwater) portion of Poike Wetland, as it was mapped in 2010, is generally appropriate, with only a few minor changes recommended from this field survey. The canopy is generally dominated by grey willow but the understorey includes abundant indigenous species, three of which are regarded as regionally uncommon. The canopy in a small part of the wetland is dominated by manuka. Three At Risk plant species, as well as three regionally uncommon plant species, are present. A feather from an Australasian bittern, a 'nationally threatened' species, was found at the site.

Poike Wetland is ecologically significant because it is a relatively good quality of freshwater wetland and it provides habitat for one nationally threatened species and several regionally uncommon species. It meets the criteria as outlined in *5A.3.1.1 Policy - Identifying Special Ecological Areas* of the proposed Tauranga City Plan for inclusion as a Category 1 'Special Ecological Area' and is one of the best quality remaining examples of complexes of estuarine and freshwater wetlands in Tauranga City. Further, the proposed SEA (as mapped) meets National Priorities 1 and 2 for protection of biodiversity on private land, and also meets Policy 2 of the Proposed National Policy Statement on Biodiversity, however this interim policy is still under development (at the consideration of submission phase).

It is therefore concluded that:

- The proposed SEA (as delineated in this report) is an area of ecological significance that meets the assessment criteria as listed in *5A.3.1.1 Policy - Identifying Special Ecological Areas* of the proposed Tauranga City Plan;
- The listing for significance is that of a Category 1 - SEA;
- The proposed Tauranga City Plan should be updated to reflect the outcomes of this Report.

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SITE PHOTOGRAPHS



Plate 1: Causeway.



Plate 2: (Grey willow)/manuka/*Baumea rubiginosa* shrubland (Vegetation Type 2).



Plate 3: Burr reed (*Sparganium subglobosum*) near the south-eastern of the site, in grey willow forest.



Plate 4: View of the wetland from the southern end. Grey willow forest.



Plate 5: Interior of wetland beneath willow forest, northern extent.



Plate 6: Grazed margin of wetland on eastern side, habitat for burr reed.



Plate 7: Interior of grey willow forest, *Baumea rubiginosa*, and *Gleichenia microphylla*.



Plate 8: Margin of wetland. Gorse, privet, and blackberry are common.





Plate 9: Interior of grey willow forest. The understorey is dominated by indigenous species.

## VASCULAR PLANTS RECORDED AT POIKE WETLAND

**INDIGENOUS SPECIES**

## Monocot. trees and shrubs

*Cordyline australis* ti kouka, cabbage tree

## Dicot. trees and shrubs

*Coprosma* × *cunninghamii* mingimingi  
*Coprosma propinqua* var. *propinqua* karamu  
*Coprosma robusta* hukihuki, swamp coprosma  
*Coprosma tenuicaulis* hangehange  
*Geniostoma ligustrifolium* var. *ligustrifolium* koromiko  
*Hebe stricta* var. *stricta* manuka  
*Leptospermum scoparium* agg. mingimingi  
*Leucopogon fasciculatus* mahoe  
*Melicytus ramiflorus* subsp. *ramiflorus* kohuhu  
*Pittosporum tenuifolium* whauwhaupaku, five finger  
*Pseudopanax arboreus*

## Dicot. lianes

*Muehlenbeckia australis* puka

## Lycopods and psilopsids

*Tmesipteris elongata*  
*Tmesipteris tannensis*

## Ferns

*Asplenium flaccidum* makawe  
*Asplenium oblongifolium* huruhuruwhenua  
*Asplenium polyodon* petako  
*Blechnum filiforme* panako  
*Blechnum minus* swamp kiokio  
*Blechnum novae-zelandiae* kiokio  
*Blechnum minus* × *B. novae-zelandiae*  
*Cyathea dealbata* ponga, silver fern  
*Cyathea medullaris* mamaku  
*Deparia petersenii* subsp. *congrua*  
*Dicksonia squarrosa* wheki  
*Diplazium australe*  
*Doodia australis* pukupuku

<i>Gleichenia microphylla</i>	waewaekaka, swamp umbrella fern
<i>Hymenophyllum sanguinolentum</i>	piripiri, filmy fern
<i>Microsorium pustulatum</i>	kowaowao, hound's tongue fern
<i>Pneumatopteris pennigera</i>	pakau
<i>Pteridium esculentum</i>	rarahū, bracken
<i>Pyrrhosia eleagnifolia</i>	leather-leaf fern

## Orchids

<i>Earina mucronata</i>	peka-a-waka
<i>Pterostylis</i> aff. <i>graminea</i> "Sphagnum"	
<i>Pterostylis graminea</i>	
<i>Pterostylis paludosa</i>	

## Grasses

<i>Isachne globosa</i>	swamp millet
<i>Microlaena stipoides</i>	patiti, meadow rice grass

## Sedges

<i>Baumea juncea</i>	
<i>Baumea rubiginosa</i>	
<i>Baumea tenax</i>	
<i>Carex dipsacea</i>	
<i>Carex geminata</i> agg.	rautahi
<i>Carex maorica</i>	
<i>Carex secta</i>	purei
<i>Carex virgata</i>	purei
<i>Carex</i> sp.	
<i>Cyperus ustulatus</i> f. <i>ustulatus</i>	toetoe, upokotangata
<i>Eleocharis acuta</i>	spike sedge
<i>Eleocharis gracilis</i>	
<i>Isolepis habra</i>	
<i>Isolepis prolifera</i>	
<i>Isolepis reticularis</i>	
<i>Schoenus maschalinus</i>	
<i>Tetraria capillaris</i>	

## Rushes

<i>Juncus edgariae</i>	wi
<i>Juncus planifolius</i>	
<i>Juncus prismatocarpus</i>	
<i>Juncus sarophorus</i>	wi

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

<i>Dianella haemata</i>	
<i>Lemna minor</i>	karearea
<i>Phormium tenax</i>	harakeke, flax
<i>Sparganium subglobosum</i>	maru, burr reed
<i>Typha orientalis</i>	raupo

Dicot. herbs (other than composites)

<i>Cardamine debilis</i> agg.	panapana
<i>Centella uniflora</i>	
<i>Gonocarpus micranthus</i>	piripiri
<i>Hydrocotyle pterocarpa</i>	
<i>Lobelia angulata</i>	panakenake
<i>Nertera scapanioides</i>	
<i>Persicaria decipiens</i>	tutunawai

**NATURALISED AND EXOTIC SPECIES**

Monocot. trees and shrubs

<i>Alocasia brisbanensis</i>	elephants ears
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Dicot. trees and shrubs

<i>Acacia mearnsii</i>	black wattle
<i>Berberis glaucocarpa</i>	barberry
<i>Fatsia japonica</i>	fatsia
<i>Juglans ailantifolia</i>	Japanese walnut
<i>Leycesteria formosa</i>	Himalayan honeysuckle
<i>Ligustrum lucidum</i>	tree privet
<i>Ligustrum sinense</i>	Chinese privet
<i>Prunus campanulata</i>	Taiwan cherry
<i>Rubus phoenicolasius</i>	Japanese wineberry
<i>Rubus</i> sp. ( <i>R. fruticosus</i> agg.)	blackberry
<i>Salix cinerea</i>	grey willow
<i>Solanum mauritianum</i>	woolly nightshade
<i>Ulex europaeus</i>	gorse

Monocot. lianes

<i>Asparagus scandens</i>	climbing asparagus
<i>Monstera deliciosa</i>	fruit salad plant

Dicot. lianes

<i>Lonicera japonica</i>	Japanese honeysuckle
<i>Rumex sagittatus</i>	climbing dock

## Grasses

<i>Agrostis stolonifera</i>	creeping bent
<i>Axonopus fissifolius</i>	narrow-leaved carpet grass
<i>Bromus willdenowii</i>	prairie grass
<i>Cortaderia selloana</i>	pampas
<i>Dactylis glomerata</i>	cocksfoot
<i>Glyceria maxima</i>	reed sweetgrass
<i>Holcus lanatus</i>	Yorkshire fog
<i>Paspalum dilatatum</i>	paspalum
<i>Paspalum distichum</i>	Mercer grass
<i>Schedonorus arundinaceus</i>	tall fescue
<i>Setaria</i> sp.	

## Sedges

<i>Carex lurida</i>	sallow sedge
<i>Cyperus brevifolius</i>	globe sedge

## Rushes

<i>Juncus acuminatus</i>	sharp-fruited rush
<i>Juncus articulatus</i>	jointed rush
<i>Juncus effusus</i> var. <i>effusus</i>	soft rush, leafless rush

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

<i>Hedychium gardnerianum</i>	kahili ginger, wild ginger
<i>Zantedeschia aethiopica</i> “Green Goddess”	arum lily, green goddess

## Composite herbs

<i>Aster subulatus</i>	sea aster
<i>Conyza sumatrensis</i>	broad-leaved fleabane
<i>Jacobaea vulgaris</i>	ragwort
<i>Leontodon taraxacoides</i>	hawkbit
<i>Leucanthemum vulgare</i>	oxeye daisy
<i>Sonchus oleraceus</i>	puha, sow thistle

## Dicot. herbs (other than composites)

<i>Digitalis purpurea</i>	foxglove
<i>Foeniculum vulgare</i>	fennel
<i>Fragaria vesca</i>	wild strawberry
<i>Galium palustre</i>	marsh bedstraw
<i>Lotus pedunculatus</i>	lotus
<i>Ludwigia palustris</i>	water purslane
<i>Phytolacca americana</i>	pokeweed
<i>Plantago australis</i>	swamp plantain

*Prunella vulgaris*  
*Ranunculus flammula*  
*Ranunculus repens*  
*Solanum nigrum*  
*Verbena bonariensis*

selfheal  
spearwort  
creeping buttercup  
black nightshade  
purple-top

## BIRDS OF POIKE WETLAND SEA 5, TAURANGA CITY

(Notes compiled by Keith Owen, Department of Conservation, Rotorua)

17 May 2011

### INTRODUCTION

Wildlands' Report No. 2300 (Wildland Consultants 2009) identifies and describes SEA 5 at the south side of the Waimapu Estuary at Poike, Tauranga City. SEA 5 comprises of a grey willow and manuka dominated freshwater wetland on private land that lies in a gentle gully on the south side of State Highway No. 29. The freshwater wetland is connected to the estuary wetland via a drain under the highway that flows into the estuary.

This freshwater wetland is one of a small number of freshwater wetlands within Tauranga City that are in relatively unmodified condition, dominated by grey willow forest and manuka scrub. Wildlands assessed this wetland as regionally significant, given the rarity of this ecosystem type in the City and the wider Bay of Plenty.

On the harbour side, which estuarine vegetation prevails, three threatened wetland bird species have been recorded adjacent to the lower reaches of the wetland (Owen 1993). They are North Island fernbird (*Bowdleria punctata vealeae*) (classed as At Risk-Declining), spotless crake (*Porzana tabuensis*) (classed as At Risk-Relict) and banded rail (*Gallirallus philippensis*) (classed as At Risk-Naturally Uncommon) (Miskelly *et al.* 2008). Wildlands have reconfirmed the presence of fernbird in 2005 (Wildlands Consultants 2008).

It is therefore possible that spotless crake, banded rail and North Island fernbird could be present in the Poike freshwater wetland, upstream of the saltmarsh area, given that both species are recorded on the estuary side of the wetland. As this matter is before the Environment Court and further information was needed to ascertain the nature conservation values of the wetland a detailed inspection of the wetlands flora and fauna including a survey for these species was appropriate.

### BIRD SURVEY

An inspection of the wetland took place on 17 May 2011 between 11.00 a.m. and 4.40 p.m. along with Paul Cashmore and Chris Staite of Department of Conservation and Sarah Beadel of Wildlands Consultants Ltd. The purpose of the visit was to more closely determine the accurate boundaries of the wetland and determine its importance for native flora and fauna especially any threatened species. The weather conditions during the visit were poor with strong winds and scattered rain prevailing. Throughout the visit we had to contend with continuous heavy traffic noise from the adjacent highway that made conditions very difficult for surveying for cryptic, secretive wetland bird species. Tape recordings of spotless crake, marsh crake, banded rail, and North Island fernbird were played at a number of points throughout the wetland, both in the interior and along the margins.

## **RESULTS**

A list of bird species recorded during the visit is attached as Appendix One. Most of these are common species except for the Australasian bittern (*Botaurus poiciloptilus*) which is a threatened species with a conservation status of nationally endangered (Miskelly *et al.* 2008). A feather from a bittern was found at the edge of the wetland at the south-eastern end. It confirms that bittern do visit the wetland from time to time. Bittern can be found around the Tauranga District in very low numbers largely associated with the saltmarsh areas of the adjoining Tauranga Harbour (Owen 1993). In addition to the species listed below, I have observed numerous mallard ducks (*Anas platyrhynchos platyrhynchos*) at the wetland. Mallards are likely to be regularly found there.

The search for the four secretive wetland dwelling bird species (spotless crake, marsh crake, banded rail and North Island fernbird) was disappointing with none of these species detected. However this was not completely unexpected given the weather conditions and traffic noise prevailing at the time. My conclusions were that although the wetland itself is surprisingly intact under the grey willow canopy, the type of wetland vegetation present and its structure did not appear prime habitat for some of these species.

For example, spotless crake prefer dense stands of raupo, a plant species that was largely absent from the wetland except for very small areas at the southern end. In the case of fernbird, a species that inhabits and prefers dense, compact wetland emergent vegetation, the vegetation structure in the wetland was too open. The wetland had a high water table at the time of our visit and this along with the vegetation structure suggests sub-optimum habitat for this species, compared to the downstream saltmarsh habitat on the seaward side of the highway, where fernbird are present (Owen 1993). Banded rail are also found in this saltmarsh area (Owen 1993) and may be a visitor to the Poike wetland from time to time, but were not recorded during the survey. In the case of marsh crake, this species is a very rare inhabitant of Tauranga District (Owen 1993), so its absence is not surprising.

## **CONCLUSIONS**

In conclusion the current identified boundaries of SEA 5 appear accurate with little need for any adjustment. The naturalness of the wetland was a notable, unexpected feature of the wetland. This is surprising, given that the wetland lies within the city boundary and is close to suburban housing, human visitation, along with surrounding development pressures. The presence of common native and introduced wetland and forest bird species and the threatened Australasian bittern enhances the nature conservation values of the wetland. With more favourable weather conditions a further survey might have revealed the presence of some of the cryptic, secretive wetland bird species that were searched for and they should not be discounted. Protection of this notable freshwater wetland through the District Planning process is endorsed.

## **REFERENCES**

Miskelly C.M.; Dowding J.E.; Elliott G.P.; Hitchmough R.A.; Powlesland R.G.; Robertson H.A.; Sagar P.M.; Scofield R.P.; Taylor G.A. 2008: Conservation Status of New Zealand birds. *Notornis* 55 (3): 117-135.



Owen K.L. 1993: Protection and restoration of marshbird habitat in Tauranga Harbour. Volumes I and II. *Technical Report Series No.17*. Department of Conservation, Rotorua. 207 pp plus maps.

Wildland Consultants 2008: Natural areas in Tauranga Ecological Area. *Wildland Consultants Ltd Contract Report No. 1914*. Prepared for Environment Bay of Plenty. Wildlands Consultants Limited, Rotorua. 681 pp.

Wildlands Consultants 2009: Appendix 12- SES site descriptions and assessments (sourced from Tauranga Ecological District Natural Areas Report Wildlands Consultants Limited. 2008). *Wildland Consultants Ltd Contract Report No. 2300*. Prepared for Tauranga City Council. 109-188 pp.

### **Birds Recorded at Poike Wetland May 2011**

#### Native

Australasian bittern (*Botaurus poiciloptilus*) (feather found)  
Grey warbler (*Gerygone igata*)  
NZ kingfisher (*Halcyon sancta vegans*)  
North Island fantail (*Rhipidura fuliginosa placabilis*)  
Pukeko (*Porphyrio porphyrio melanotus*)  
Silvereye (*Zosterops lateralis lateralis*)  
Tui (*Prothemaderia novaeseelandiae novaeseelandiae*)

#### Introduced

Blackbird (*Turdus merula*)  
Californian quail (*Callipepla californica brunnescens*)  
Common myna (*Acridotheres tristis*)  
Common pheasant (*Phasianus colchicus*)  
European goldfinch (*Carduelis carduelis*)  
European greenfinch (*Carduelis carduelis britannica*)  
House sparrow (*Passer domesticus*)  
Mallard duck (*Anas platyrhynchos platyrhynchos*) (recorded previously)

## CRITERIA FOR THE SELECTION OF SPECIAL ECOLOGICAL AREAS (from Wildland Consultants 2000a)

An assessment of the relative significance of natural areas was undertaken following the completion of baseline information documentation. The following criteria were used for the selection of Significant Ecological Sites (SES):

1. **Representativeness.** The primary criterion, based on a comparison of present vegetation cover vs past extent, diversity and pattern, naturalness, and size.
2. **Diversity and pattern.** The diversity of ecological and physical features, and the patterns that exist within an area under consideration.
3. **Naturalness.** The degree to which the vegetation and habitats reflect likely natural character. Most mainland ecosystems are modified but the degree of naturalness is an important consideration.
4. **Size and shape.** Areas which are relatively large (i.e. compared to the mean size of remaining areas of indigenous vegetation in an Ecological District) are preferred to small areas. Small areas can be affected strongly by edge effects. A compact single area is generally preferable to long narrow areas or small separate remnants.
5. **Rarity and special features.** The relative rarity of physical landscape features, vegetation, habitats and species within an ecological region or district or on a national basis.
6. **Buffering and connectivity.** The degree to which a natural area is protected or buffered by the surrounding landscape, or provides a buffer to other areas. A site may play an important role by connecting other areas of indigenous vegetation or habitat, or providing a riparian buffer.
7. **Viability.** The likelihood of an area remaining ecologically viable over time. Larger areas are generally more likely to remain viable with lower levels of management input.

Each Significant Ecological Sites (SES) was assigned to a significance category. These are defined below. The highest ranking category is Category 1.

### *Category 1 SES*

These sites are the best quality or only remaining unprotected representative examples of indigenous vegetation or wildlife habitats on particular landform units within the coastal or semi-coastal bioclimatic zone in the Tauranga District<sup>1</sup>. This category also includes intact altitudinal or geographic sequences across the Tauranga District, or diverse assemblages of landform unit, vegetation, and bioclimatic character.

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<sup>1</sup> The criteria were prepared when the local government area currently known as “Tauranga City” was known as Tauranga District.

### *Category 2 SES*

These sites are also good quality representative examples of vegetation and/or wildlife habitat which complement Category 1 areas, and existing protected areas. They include:

- (a) relatively small sites with vegetation types or plant taxa under-represented or not represented in protected natural areas;
- (b) relatively large areas with features which are represented in protected areas or Category 1 but which are nevertheless worthy of protection;
- (c) sites containing vegetation types which would once have been more common in the ecological district and are under-represented in protected natural areas or Category 1, but which have been degraded by weed invasion, animal damage, or other similar agents.
- (d) relatively small sites which still retain their indigenous character or support indigenous fauna populations.



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