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ASSESSMENT OF ECOLOGICAL SITE SIGNIFICANCE IN PORIRUA CITY - METHODOLOGY



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1. INTRODUCTION

Porirua City Council (PCC) has previously undertaken several projects to identify ecologically significant sites and determine their relative significance. The first project in 2000-2001 included a desktop assessment backed by field work and resulted in a database of potentially significant sites (Boffa Miskell 2001). This spanned the whole of Porirua City, both urban and rural. The basis for defining Ecological Sites for that project was *"an area that is either occupied by indigenous vegetation or which forms a habitat for indigenous fauna."* The main focus was on sites with indigenous vegetation, but the database also included information on wetlands, wildlife, riparian areas, and coastal and estuarine foreshore areas. This assessment resulted in some 170 Ecological Sites being identified and assessed for relative significance. The 2000-2001 survey also identified threats to the health and viability of the Ecological Sites, and tools for statutory and non-statutory management and protection of the sites.

Urban Ecological Sites were resurveyed and reassessed in 2010-2011 (Blaschke *et al.* 2011a, b), in part due to changes in the Resource Management Act regarding the protection of urban trees. This project also looked at sites not previously assessed. Blaschke *et al.* undertook an assessment of both the amenity and ecological values of sites, and sites could be significant for either or both the amenity and ecological criteria. In some instances, an area was considered primarily significant for amenity values with some ecological values. In these instances ecological values were scored as significant but of secondary importance. Ecological Sites could also be primarily important for ecological values, with amenity values of secondary importance. The ecological significance assessment used the criteria in the Proposed Regional Policy Statement (RPS; Greater Wellington Regional Council 2009).

These RPS policies and criteria were later revised by GWRC before being published as the operative RPS in April 2013 (Greater Wellington Regional Council 2013).

Blaschke (2015) also undertook the identification and assessment of rural sites within Porirua City District, and prepared a draft shapefile and database for these sites.

2. METHODOLOGY

This report briefly summarises the procedures undertaken and any variations from the methods described in the Wildland Consultants and Kessels Ecology (2015) 'Assessment of Ecological Site Significance in Kapiti District-Methodology' Report.

2.1 Review of existing information

Draft databases were received from Porirua City Council for both rural and urban environments, which contained 115 urban Ecological Sites and 116 rural Ecological Sites respectively. The data in these draft databases was reviewed and reformatted as per Section 2.4.

Relevant background information was reviewed which identified 15 new Ecological Sites and ensured the descriptions for all Ecological Sites included all the available information. Information sources included:

- Covenants (PCC, DOC, QEII, and Ngā Whenua Rāhui).
- Potential Ecological Sites with a Queen Elizabeth II Trust (QEII) or a Department of Conservation covenant will have previously been assessed for ecological significance, whilst PCC Covenants are likely to be the result of development consents and protect areas seen as significant - although not always for ecological reasons. There are no Ngā Whenua Rāhui areas in Porirua City. All available information pertaining to covenants was recorded in the site descriptions, and where appropriate, the Ecological Site boundaries were modified to better match the covenant boundaries.
- The Greater Wellington Regional Council (GWRC) Proposed Natural Resources Plan. This plan indicates areas which are considered significant for a variety of reasons, including:
 - Areas with outstanding water bodies (Schedule A), including both arms and the mouth of the Porirua Harbour
 - Areas significant for biological reasons (Schedule F), including inanga spawning habitat, lakes with significant aquatic plants, indigenous bird habitat and indigenous biodiversity coastal.
 - Areas with significant geological features in the coastal marine area (Schedule J)
 - Areas with significant historical heritage values (Schedule E)
 - Areas with significant tangata whenua reasons (Schedules B and C)
- Whilst historical or tangata whenua values were added to descriptions of existing potential ecological sites, no new areas were created solely for to capture tangata whenua values. Tangata whenua values were merely described and not further evaluated.
- The GWRC Key Native Ecosystems (KNE) programme identified areas considered to be important by GWRC for the protection and maintenance of ecological values and species in the region. Most KNE receive pest animal (and sometimes pest plant) control. Part or all of the following KNE sites occur in the Porirua City urban environment:
 - Akatarawa Forest
 - Porirua Western Forests
 - Raroa-Pukerua coast
 - Taupō Swamp complex
 - Whitieria coast
 - Karehana Bay Bush
- Some potential Ecological Sites were included because they would help protect rare geological sites and landforms as identified in Kenny & Hayward (1996).
- The Greater Wellington Regional Council Wetlands Database. There are 28 sites in Porirua City that include a wetland included in the GWRC wetland database.

- The Department of Conservation ecosite layer, which is a draft internal geographic database that roughly identifies areas that are important for biodiversity values.

2.2 Significant flora and fauna and rarity values

Threatened, At Risk and regionally rare flora and fauna records were listed for each site, to assess for rarity under RPS Policy 23b, and to determine whether a site has been improving or degrading over time. Databases that were consulted for this purpose include:

- New Zealand eBird records¹. Because birds are highly mobile, records from within 500 metres of each Ecological Site were used as a basis, however ecological knowledge of these species was applied, to determine which birds are likely to be supported by each site.
- Department of Conservation Bioweb (herpetofauna and plants), and the invertebrate database for the lower North Island (Browne 2007; held by Department of Conservation) records from within each site
- The Proposed Natural Resources Plan and records from the NIWA New Zealand Freshwater Fish Database were used to determine the fish values within streams. Fish from upstream areas were assumed to be moving through downstream sites provided that fish passage was maintained, and assumed to be using downstream sites provided habitat values were adequate.
- The Department of Conservation bat database was also accessed, but there are no recorded observations of bats within Porirua City.

Threat classifications for indigenous taxa used throughout the document are from the most recent publications, and include assessments of nationally, regionally and locally threatened and scarce, species, biological communities or physical features. The following resources were used to make these assessments:

- Sources used to determine 'Threatened', 'At Risk', and regionally uncommon species in Wellington region are listed in Appendix 1
- Regional threat classifications for plant communities are from Sawyer (2004)
- New Zealand's Naturally Uncommon Ecosystems are from Wisser *et al.* (2013).
- The rarity of vegetation types were assessed using the assessments of present day percentage area remaining of predicted Singers and Rogers (2014) ecosystem types and Leathwick *et al.* (2012) vegetation classes (Appendix 2).

¹ <http://ebird.org/content/newzealand/>

2.3 Delineation of Potential Ecological Sites

Visual assessment of recent aerial photography imagery was carried out to assess the significance of vegetation of potential ecological sites.

Potential Ecological Sites that previously were divided across the urban-rural boundary were merged into one. This was because it did not make sense to divide Ecological Sites according to District Plan boundaries; neither would it affect management of the sites. Thirty-six potential Ecological Sites are the result such mergers.

All previously identified Ecological Sites were assessed to determine whether the polygon boundaries were appropriate or whether changes were required due to increases, reductions or other changes in vegetation and habitat types. The guidelines described in Wildland Consultants and Kessels Ecology (2015) were used to assist with pragmatic decision making. In total, 108 sites required boundary adjustments. In general, adjustments involved removing roads, driveways, houses and other large non-vegetated areas from existing sites. However, some of the potential ecological sites include small patches (<0.5ha) of non-indigenous vegetation, especially on public land and these were left in because successional processes will ultimately result in indigenous dominance.

Ecological site boundaries in the GIS layer were clipped to property boundaries, mostly in urban areas, to prevent the ecological site overlapping onto neighbouring private land. Such overlaps typically comprised overhanging branches, are unlikely to have high significant ecological value, could needlessly antagonise landowners, and may cause issues from a planning perspective.

Blaschke *et al.* (2011a) refined Ecological Site boundaries, by creating four meter buffers around existing dwellings and following existing property or covenant boundaries. We deemed these rules to be appropriate. Additionally, the proposed Ecological Site boundaries were snapped back to the cadastral boundaries where the overlap was less than 30 centimetres, and checks were carried out in urban areas to remove (where ecologically appropriate) overlaps of potential Ecological Sites onto neighbouring property, where the overlap was less than five metres. Instances where these overlaps are removed include areas comprised of early succession forest or scrub, areas that contain a high proportion of gorse, or where an area does not provide a significant buffer to the remainder of the ecological site. However, the overlap was retained if it contains significant or old indigenous trees, or contained a point location for a threatened species, or to retain ecological cohesiveness and functions (such as connectivity, buffering, and corridors).

All Ecological Sites or part of these sites on land within the Transmission Gully highway designation, were removed or had boundary adjustments, regardless of the underlying vegetation status. These areas are covered by an existing highway designation and may undergo further vegetation removal. Should they not be impacted as part of the highway construction, they can be considered for inclusion in a future Ecological Sites review.

2.4 Site assessment and database

A new excel database was created by combining information from Blaschke (2015) and Blaschke *et al.* (2011). The resulting database is consistent with those produced by Wildlands for other city councils within the Wellington region. This database includes additional information for many of the sites, which makes the significance assessments more robust and provides a useful, “one-stop shop” for council officers wanting background information on any particular site. Database attributes can also be linked to GIS polygons of sites. A full description of the database fields is provided in Appendix 3.

A key addition to the database was the inclusion of ownership status (private, Crown, etc), to help identify any overlap with other agencies and any legal protection mechanisms. These different categories could affect how a site will be managed, how immediate the threats to ecological values might be, and the implications for long-term legal protection of these sites. Further, an understanding of land ownership status may alleviate private landowner concerns about neighbouring sites (e.g. those entirely on public land).

Another addition to the database was the inclusion of a reserves column. This lists the key information for reserves that overlap with the proposed ecological sites and was created to allow the Reserves Management Plan database to be updated. The data entered into this column follows the format of:

Total area (of overlap, rounded to two decimal points) ha of *Reserve name*, *Reserve Classification*, Title=*Legal title*, LegDesc=*Legal description*;

In some instance, the proposed ecological site overlaps with many different reserves (with different legal titles), and these are listed separated by semicolons. Where a cell associated with the Reserves shapefile layer contained no data (i.e. blank) then this was left unmodified, i.e. there are blank values for some of the above attributes in the reserves column. This format should enable staff to search for and find the relevant reserves.

All potential Ecological Sites from the previous work (Blaschke 2015, Blaschke *et al.* 2011a, 2011b, Boffa Miskell 2001) were re-assessed for significance, including those that were initially assessed as having primary amenity values, and secondary ecological values. For this assessment we used the procedure described in Wildland Consultants and Kessels Ecology (2015). All potential Ecological Sites with significant ecological values were combined into a single shapefile and associated attribute table.

Criteria for ranking potential management priorities were also assessed for each potential Ecological Site, based on Wildland Consultants and Kessels Ecology (2015), with each criterion ranked from 1-5 (high=5; Appendix 4). These rankings are provided without weighting, which can be applied as part of the management process, to appropriately rank potential Ecological Sites with desired features or required management actions.

2.5 Site renumbering

Sites were renumbered, starting in the north near the coast and numbered sequentially in a southerly direction along the coast, and then inland in a northerly direction. This numbering ensured that geographically similar sites are grouped together. Previous site numbers were retained in a separate column of the attribute table. In some cases sites were also given new names to maintain consistency and reflect existing place names. Any earlier names were also recorded in a separate column of the attribute table.

2.6 Porirua Harbour

The Greater Wellington Regional Policy Statement Section 4.1, Policy 6 states:

“District and regional plans with jurisdiction over all or part of the Porirua Harbour catchment area shall include policies, rules and/or methods that:

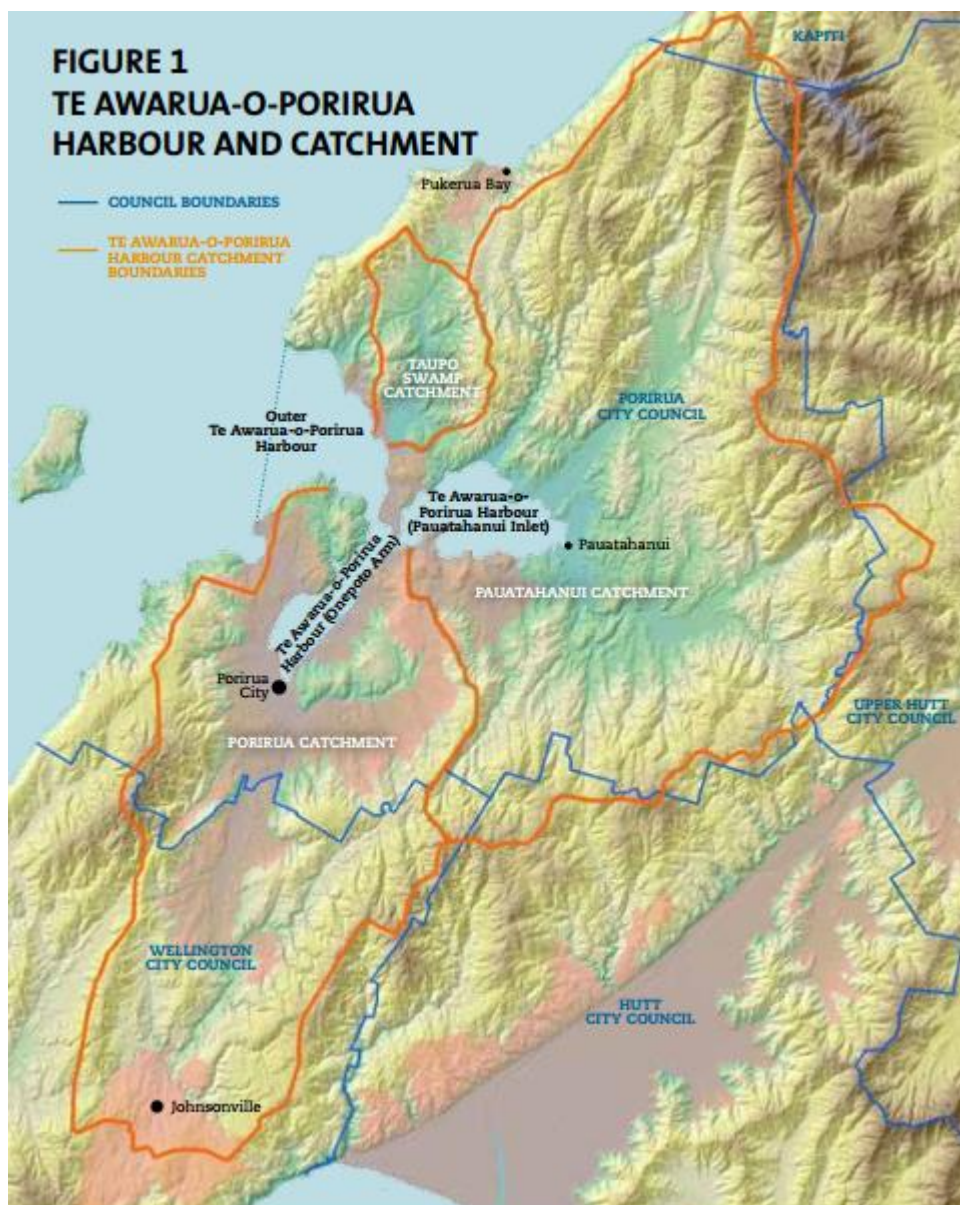
(a) recognise and acknowledge the regional significance of Porirua Harbour (including Pauatahanui Inlet and Onepoto Arm); and

(b) recognise and provide for the maintenance, protection and enhancement of the significant amenity, recreational, ecological and cultural values associated with the Porirua Harbour.”

In order to ensure that Porirua City Council (PCC) meets these obligations, policies and rules are to be included in the Porirua District Plan. These policies and rules are likely to include restrictions on works and vegetation clearance within five meters of a waterway (to maintain consistency with the Wellington City Council District Plan). These policies and rules would apply to all headwaters and tributaries of streams flowing into Porirua Harbour.

The extent of the Porirua Harbour has been defined in the Te Awarua-o-Porirua Harbour and catchment: Strategy and Action Plan (Porirua City Council 2015). Figure 1 from the Strategy and Action Plan is reproduced below and illustrates the three lobes of the harbour including the extent of the outer harbour. The outer limit of the harbour is a line between the Te Rewarewa point (on the Plimmerton headland) and the rocky shore-platforms at Te Pa-o-Kapo surrounding the northern headland of Titahi Bay on Whitireia Peninsula.

In order to help PCC to give effect to any Porirua Harbour related policies and rules, we have included, in Appendix 5, a list of stream names and GPS coordinates for where streams meet the harbour. Waterways included in this list were selected on the basis that they were within the PCC territory of Porirua Harbour catchment, (including the Harbour mouth, Pauatahanui Inlet and Onepoto Arm), and at least part of each catchment had natural, permeable surfaces. Catchments that drain into the Porirua Harbour were determined using catchment boundaries from the GWRC GIS website for the Proposed Natural Resources Plan.



Streams without currently known names were given ‘tag-names’ using topographical waterway names, topographical features, nearby roads, and place names from topographical and historic maps (Best and McLeod 1916, Department of Lands and Survey 1976). These ‘tag-names’, and in some cases potential alternative names, are provided in Appendix 5. In some instances, streams were differentiated using numbering, e.g. in a clockwise direction West Grays Road Stream 1, West Grays Road Stream 2, etc. Relevant iwi should be consulted about the appropriateness of the stream names.

Each potential ecological site within the Porirua Harbour catchment was also assessed for its ability to protect the Porirua Harbour, provided it had ninety percent or greater permanent vegetative cover, and likely provided a significant ecological contribution to:

- Increase interception and infiltration of water
- Increase capture and retention of dissolved nutrients, contaminants and sediment
- Prevent or reduce wave-driven erosion

2.7 Urban tree groups

Sites that are not significant for RPS Policy 23 were moved into a separate database. A rapid assessment of these sites was undertaken to determine their potential for inclusion as an urban tree group, using criteria developed for Upper Hutt City Council (Boffa Miskel 2015).

Forty nine of the sites assessed did not meet the significance criteria under RPS Policy 23. However, forty of these sites were assessed as having values that could make them candidates for inclusion in the PCC potential tree groups database. We were also able to add three further sites, identified during our ecological site research, to that database. A separate shapefile containing polygons and an attribute table for the potential tree groups database has been created. However, polygons were adopted without modification from previous assessments ((Blaschke 2015, Blaschke *et al.* 2011a, 2011b) , as tree groups are to be assessed at a later stage. As for the ecological sites database, no tree groups were selected from land designated to Transmission Gully.

2.8 Urban allotments

A third database was created for ecological sites that fall within urban allotments as described in Section 76 (4A.a) of the Resource Management Act, which states that:

“an urban environment allotment or allotment means an allotment within the meaning of section 218:

- *that is no greater than 4 000 m²;*
- *AND that is connected to a reticulated water supply system and a reticulated sewerage system;*
- *AND on which there is a building used for industrial or commercial purposes or as a dwellinghouse;*
- *AND that is not reserve (within the meaning of section 2(1) of the Reserves Act 1977) or subject to a conservation management plan or conservation management strategy prepared in accordance with the Conservation Act 1987 or the Reserves Act 1977.”*

We identified all allotments that are within the urban environment, are smaller than 4,000 m², and did not include a Department of Conservation reserve. These allotments may, or may not, include parts of PCC reserves, or be connected to the reticulated water/sewage system or have industrial, commercial purposes or dwelling house buildings on them. These things will need to be determined at a later stage by PCC.

3. NEXT STEPS

This project assessed potential Ecological Sites in Porirua City and created a combined database of urban and rural sites, which is consistent with those created for other city councils within the Wellington region. We expect that these potential Ecological Sites will be further refined through feedback from council officers. Public consultation, initiated by Porirua City Council, is likely to result in further modification, additions and/or exclusions to sites. It is hoped that eventually this information will be compiled and incorporated into a District Plan Schedule to assist with the management and protection of these ecological sites.

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Note: There is no further or more detailed information for these citations and the Boffa Miskell (2010) report was not available.

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FRD FFR No.90
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Table 1: Conservation status of indigenous flora and fauna of the Porirua District.

Species	Common Name	National Threat Classification	Regional Threat Status
Vascular Plants			
<i>Leptinella nana</i>	Pygmy button daisy	Threatened-Nationally Critical	
<i>Pomaderris apetala</i> subsp. <i>Maritima</i>	Tainui, New Zealand hazel	Threatened-Nationally Critical	
<i>Lepidium oleraceum</i>	Cook's scurvy grass	Threatened-Nationally Endangered	
<i>Anogramma leptophylla</i>	Jersey fern, Annual fern	Threatened-Nationally Vulnerable	
<i>Carex cirrhosa</i>	Curly sedge	Threatened-Nationally Vulnerable	
<i>Daucus glochidiatus</i>	New Zealand carrot	Threatened-Nationally Vulnerable	
<i>Libertia peregrinans</i>	New Zealand Iris	Threatened-Nationally Vulnerable	
<i>Pimelea tomentosa</i>	Coastal pimelea	Threatened-Nationally Vulnerable	
<i>Coprosma acerosa</i>	Sand coprosma	At Risk-Declining	
<i>Coprosma pedicellata</i>		At Risk-Declining	
<i>Craspedia uniflora</i>	Woollyhead	At Risk-Declining	
<i>Euphorbia glauca</i>	Shore spurge	At Risk-Declining	
<i>Ficinia spiralis</i>	Pingao	At Risk-Declining	
<i>Melicytus crassifolius</i>	Thick-leaved Mahoe	At Risk-Declining	
<i>Poa billardierei</i>	Sand tussock	At Risk-Declining	
<i>Solanum aviculare</i>	Poroporo	At Risk-Declining	
<i>Sonchus kirkii</i>	New Zealand sow thistle, shore pūhā	At Risk-Declining	
<i>Trisetum antarcticum</i>		At Risk-Declining	
<i>Urtica perconfusa</i>	Swamp Nettle	At Risk-Declining	
<i>Zostera muelleri</i>	Seagrass	At Risk-Declining	
<i>Botrychium australe</i>	Parsley fern, patōtara	At Risk-Naturally Uncommon	
<i>Drymoanthus flavus</i>	Little spotted moa	At Risk-Naturally Uncommon	
<i>Geranium microphyllum</i>		At Risk-Naturally Uncommon	
<i>Korthalsella salicornioides</i>	Dwarf mistletoe	At Risk-Naturally Uncommon	
<i>Melicytus</i> aff. <i>obovatus</i>	Coastal mahoe	At Risk-Naturally Uncommon	
<i>Tetragonia tetragonoides</i>	New Zealand spinach, Kokihi	At Risk-Naturally Uncommon	
<i>Senecio sterquilinus</i>	Guano groundsel	At Risk-Relict	
<i>Streblus banksii</i>	Large-leaved milk tree, tūrepo	At Risk-Relict	
<i>Pisonia brunoniana</i>	Parapara	At Risk-Relict	
<i>Ranunculus macropus</i>	Swamp buttercup	Data Deficient	
<i>Pimelea cryptica</i>		Not Threatened	Data Deficient
<i>Pimelea prostrata</i> subsp. <i>Seismica</i>		Not Threatened	Data Deficient
<i>Asplenium obtusatum</i>	Shore spleenwort	Not Threatened	Regionally Critical
<i>Pimelea aridula</i>		Not Threatened	Regionally Critical
<i>Rhabdothamnus solandri</i>	Taurepo, New Zealand gloxinia	Not Threatened	Regionally Critical
<i>Epilobium chionanthum</i>	Marsh willowherb	Not Threatened	Regionally Data Deficient
<i>Galium trilobum</i>	Native bedstraw	Not Threatened	Regionally Data Deficient
<i>Arthropodium cirratum</i>	Renga lily	Not Threatened	Regionally Endangered
<i>Vittadinia australis</i>	White fuzzweed	Not Threatened	Regionally Endangered
<i>Mida salicifolia</i>	Willow leaved maire	Not Threatened	Regionally Gradual Decline
<i>Raoulia hookeri</i> var. <i>hookeri</i>	scabweed	Not Threatened	Regionally Gradual Decline

Species	Common Name	National Threat Classification	Regional Threat Status
<i>Veronica elliptica</i>	kōkōmuka	Not Threatened	Regionally Range Restricted
<i>Adiantum viridescens</i>	Maidenhair fern	Not Threatened	Regionally Sparse
<i>Cyathea cunninghamii</i>	Gully tree fern	Not Threatened	Regionally Sparse
<i>Doodia australis</i>	Rasp fern	Not Threatened	Regionally Sparse
<i>Epilobium pallidiflorum</i>	Swamp willowherb	Not Threatened	Regionally Sparse
<i>Gonocarpus incanus</i>		Not Threatened	Regionally Sparse
<i>Pittosporum cornifolium</i>	Perching kōhūhū	Not Threatened	Regionally Sparse
<i>Pterostylis foliata</i>	Greenhood orchid	Not Threatened	Regionally Sparse
<i>Schoenoplectus tabernaemontani</i>		Not Threatened	Regionally Sparse
<i>Aciphylla squarrosa</i>	Spaniard	Not Threatened	Regionally Vulnerable
Birds			
<i>Anas superciliosa</i>	Grey duck	Threatened-Nationally Critical	
<i>Ardea modesta</i>	White heron	Threatened-Nationally Critical	
<i>Botaurus poiciloptilus</i>	Australasian bittern	Threatened-Nationally Critical	
<i>Larus bulleri</i>	Black-billed gull	Threatened-Nationally Critical	
<i>Thalassarche salvini</i>	Salvin's mollymawk	Threatened-Nationally Critical	
<i>Thinornis novaeseelandiae</i>	New Zealand shore plover	Threatened-Nationally Critical	
<i>Chlidonias albostrigatus</i>	Black-fronted tern	Threatened-Nationally Endangered	
<i>Egretta sacra sacra</i>	Reef heron	Threatened-Nationally Endangered	
<i>Anarhynchus frontalis</i>	Wrybill	Threatened-Nationally Vulnerable	
<i>Apteryx rowi</i>	Rowi	Threatened-Nationally Vulnerable	
<i>Calidris canutus rogersi</i>	Lesser knot	Threatened-Nationally Vulnerable	
<i>Charadrius bicinctus bicinctus</i>	Banded dotterel	Threatened-Nationally Vulnerable	
<i>Eudyptes pachyrhynchus</i>	Fiordland crested penguin	Threatened-Nationally Vulnerable	
<i>Hydroprogne caspia</i>	Caspian tern	Threatened-Nationally Vulnerable	
<i>Porphyrio hochstetteri</i>	South Island takahe	Threatened-Nationally Vulnerable	
<i>Puffinus huttoni</i>	Hutton's shearwater	Threatened-Nationally Vulnerable	
<i>Anthus novaeseelandiae novaeseelandiae</i>	New Zealand pipit	At Risk-Declining	
<i>Eudyptula minor iredalei</i>	Northern blue penguin	At Risk-Declining	
<i>Gallirallus philippensis assimilis</i>	Banded rail	At Risk-Declining	
<i>Haematopus finschi</i>	South Island pied oystercatcher	At Risk-Declining	
<i>Larus novaehollandiae scopulinus</i>	Red-billed gull	At Risk-Declining	
<i>Limosa lapponica baueri</i>	Eastern bar-tailed godwit	At Risk-Declining	
<i>Mohoua albicilla</i>	Whitehead	At Risk-Declining	
<i>Petroica longipes</i>	North Island robin	At Risk-Declining	
<i>Porzana tabuensis tabuensis</i>	Spotless crane	At Risk-Declining	
<i>Puffinus griseus</i>	Sooty shearwater	At Risk-Declining	
<i>Sterna striata striata</i>	White-fronted tern	At Risk-Declining	
<i>Eudynamys taitensis</i>	Long-tailed cuckoo	At Risk-Naturally Uncommon	
<i>Fulica atra australis</i>	Australian coot	At Risk-Naturally Uncommon	
<i>Phalacrocorax carbo novaehollandiae</i>	Black shag	At Risk-Naturally Uncommon	

Species	Common Name	National Threat Classification	Regional Threat Status
<i>Phalacrocorax sulcirostris</i>	Little black shag	At Risk-Naturally Uncommon	
<i>Platalea regia</i>	Royal spoonbill	At Risk-Naturally Uncommon	
<i>Procellaria westlandica</i>	Westland petrel	At Risk-Naturally Uncommon	
<i>Anas chlorotis</i>	Brown teal	At Risk-Recovering	
<i>Charadrius obscurus aquilonius</i>	Northern New Zealand dotterel	At Risk-Recovering	
<i>Falco novaeseelandiae ferox</i>	Bush falcon	At Risk-Recovering	
<i>Haematopus unicolor</i>	Variable oystercatcher	At Risk-Recovering	
<i>Macronectes halli</i>	Northern giant petrel	At Risk-Recovering	
<i>Nestor meridionalis septentrionalis</i>	North Island kaka	At Risk-Recovering	
<i>Phalacrocorax varius varius</i>	Pied shag	At Risk-Recovering	
<i>Poliocephalus rufopectus</i>	New Zealand dabchick	At Risk-Recovering	
<i>Cyanoramphus novaezelandiae novaezelandiae</i>	Red-crowned parakeet	At Risk-Relict	
<i>Pachyptila turtur</i>	Fairy prion	At Risk-Relict	
<i>Pelagodroma marina maoriana</i>	New Zealand white-faced storm petrel	At Risk-Relict	
<i>Pelecanoides urinatrix urinatrix</i>	Northern diving petrel	At Risk-Relict	
<i>Puffinus gavia</i>	Fluttering shearwater	At Risk-Relict	
<i>Anthornis melanura melanura</i>	Bellbird	Not Threatened	All of GWRC, localised distribution, increasing in abundance.
<i>Petroica macrocephala toitoi</i>	Pied tomtit	Not Threatened	Uncommon in urban areas or around urban fringe of extensive forests
Herpetofauna			
<i>Mokopirirakau</i> "southern North Island"	Ngahere gecko	At Risk-Declining	
<i>Naultinus punctatus</i>	Barking gecko	At Risk-Declining	
<i>Oligosoma infrapunctatum</i>	Speckled skink	At Risk-Declining	
<i>Oligosoma zelandicum</i>	Glossy brown skink	At Risk-Declining	
<i>Oligosoma alani</i>	Robust skink	At Risk-Recovering	
<i>Oligosoma macgregori</i>	McGregor's skink	At Risk-Recovering	
<i>Dactylocnemis pacificus</i>	Pacific gecko	At Risk-Relict	
<i>Hoplodactylus duvaucelii</i>	Duvaucel's gecko	At Risk-Relict	
<i>Woodworthia chrysoiretica</i>	Goldstripe gecko	At Risk-Relict	
<i>Oligosoma whitakeri</i>	Whitaker's skink	Threatened-Nationally Endangered	
<i>Oligosoma lineocellatum</i>	Canterbury spotted skink	Threatened-Nationally Vulnerable	
Invertebrates			
<i>Deinacrida rugosa</i>	Cook Strait giant weta	At Risk-Relict	

ECOSYSTEM TYPES THAT ARE NO LONGER COMMONPLACE OR ARE POORLY REPRESENTED IN EXISTING PROTECTED AREAS

The ecosystem or habitat types that meet the RPS Policy 23a criterion are highlighted in pink. The criteria for significance are <30% remaining and <20% protected.

Table 2: Singers and Rogers (2014) classification of New Zealand's terrestrial ecosystems; percentage remaining.

Ecosystem Type	% Remaining		% Protected	
	Wellington Region	Porirua City	Wellington Region	Porirua City
AH3, Gravelly/stonefield, mixed species cushionfield	100%		100%	
AL4, Mid-ribbed and broad-leaved snow tussock tussockland/shrubland	100%		95%	
BR1, Hard tussock, scabweed gravelly/stonefield	87%		15%	
CDF4, Hallōōōs totara, pahautea, kamahi forest	100%		80%	
CDF6, Olearia, Pseudopanax, Dracophyllum scrub [Subalpine scrub]	100%		95%	
CDF7, Mountain beech, silver beech, montane podocarp forest	100%		36%	
CL3, Coprosma, Muehlenbeckia shrubland/herbfield/rockland	43%	34%	33%	21%
CLF10, Red beech, silver beech forest	97%		85%	
CLF11-2, Silver beech	99%		66%	
CLF11-3, Silver beech, kamahi forest	99%		65%	
CLF4, Kahikatea, totara, matai forest	1%		0%	
CLF9, Red beech, podocarp forest	98%		73%	
DN2, Spinifex, pingao grassland/sedgeland	6%		0%	
DN2/5 Coastal Sand Dunes Mosaic	15%		33%	
DN5, Oioi, knobby clubrush sedgeland	3%		0%	
Fen mosaic	6%		0%	
MF1, Totara, titoki forest	5%		5%	
MF2, Rimu, matai, hinau forest	87%		71%	
MF2, Rimu, matai, hinau forest and MF5, Black beech forest mosaic	44%		14%	
MF20, Hard beech forest	57%		6%	
MF5, Black beech forest	59%		56%	
MF6, Kohekohe, tawa forest	19%	16%	22%	7%
MF7, Tawa, kamahi, podocarp forest	26%	25%	28%	9%
MF8, Kamahi, broadleaved, podocarp forest	88%	9%	33%	3%
Open Water	90%		94%	
Reclaimed	8%		1%	
River	84%		23%	
Rocky beach	67%		59%	
SA2, Searush, oioi, glasswort, sea primrose rushland/herbfield [Saltmarsh]	64%	85%	86%	91%
SA4, Shore bindweed, knobby clubrush gravelly/stonefield	65%		87%	
Strand	82%	0%	10%	
Swamp mosaic	47%		29%	
WF1, Titoki, ngaio forest	21%		17%	
WF2, Totara, matai, ribbonwood forest	7%	9%	7%	3%
WF3, Tawa, titoki, podocarp forest	7%		6%	
WF6, Totara, matai, broadleaved forest [Dune Forest]	4%		7%	
WF8, Kahikatea, pukatea forest	4%	7%	29%	7%
WL10, Oioi restiad rushland/reedland	17%		61%	

Ecosystem Type	% Remaining		% Protected	
	Wellington Region	Porirua City	Wellington Region	Porirua City
WL12, Manuka, tangle fern scrub/fermland	15%		0%	
WL18, Flaxland	83%	81%	50%	72%
WL19, Raupo reedland	89%	92%	26%	60%
WL20, Coprosma, twiggy tree daisy scrub	98%		100%	

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Table 3: Leathwick *et al.* (2012) Potential Vegetation of New Zealand; percentage remaining. The criteria for significance are <30% remaining.

Vegetation Type	% Remaining					
	National	Wellington Region	Porirua City	Wellington ED	Foxton ED	Tararua ED
Dunelands	26%	16%	8%	8%		
Hall's totara/broadleaf forest	34%	95%				
Hall's totara/silver-beech-kamahi-southern rata forest	98%	99%				
Hall's totara/kiwio/kamahi-southern rata broadleaf forest	99%					
Hall's totara-miro-rimu/kamahi-silver beech-southern rata forest	98%					
Hall's totara-miro-rimu/kamahi-southern rata-broadleaf forest	100%					
Kahikatea-matai/tawa-mahoe forest	15%	25%	13%	12%	73%	0%
Kahikatea-pukatea-tawa forest	6%	4%	17%	11%		
Kahikatea-totara forest	3%	43%				
Kauri/taraire-kohekohe-tawa forest	40%	13%	1%	0%		
Matai-kahikatea-totara forest	3%	7%				
Matai-totara/black/mountain beech forest	29%	53%				
Matai-totara-kahikatea-rimu/broadleaf-fuchsia forest	11%	38%				
Mountain beech forest	61%	81%				
Mountain beech-red beech forest	84%	99%				
Red beech-silver beech forest	86%	99%				
Rimu/tawa-kamahi forest	30%	23%	16%	17%	24%	8%
Rimu-matai-miro-totara/kamahi forest	36%	25%	9%			9%
Rimu-miro/kamahi-red beech-hard beech forest	80%	82%	26%	22%		36%
Rimu-miro/tawari-red beech-kamahi-tawa forest	74%	70%				
Rimu-miro-totara/kamahi forest	51%	12%				
Scrub, shrubland and tussock-grassland below treeline	43%					
Scrub, tussock-grassland and herbfield above treeline	97%	100%				
Silver beech forest	71%	100%				
Unclassified	83%	53%	56%	69%	44%	
Wetland	32%	15%	95%	64%		
Not classified	100%	10%	21%	76%	37%	

Table 4: Leathwick *et al.* (2012) Potential Vegetation of New Zealand; The criteria for significance is <20 percentage protected.

Vegetation Type	% Remaining					
	National	Wellington Region	Porirua City	Wellington ED	Foxton ED	Tararua ED
Dunelands	57%	13%	14%	14%		
Hall's totara/broadleaf forest	38%	94%				
Hall's totara/silver-beech-kamahi-southern rata forest	97%					
Hall's totara-miro/kamahi-southern rata broadleaf forest	95%					
Hall's totara-miro-rimu/kamahi-silver beech-southern rata forest	98%					
Hall's totara-miro-rimu/kamahi-southern rata-broadleaf forest	41%	57%				
Kahikatea-matai/tawa-mahoe forest	13%	11%	11%	2%	0%	
Kahikatea-pukatea-tawa forest	16%	16%	40%	0%		
Kahikatea-totara forest	41%	0%				
Kauri/taraire-kohekohe-tawa forest	41%	10%	0%	0%		
Matai-kahikatea-totara forest	19%	18%				
Matai-totara/black/mountain beech forest	28%	13%				
Matai-totara-kahikatea-rimu/broadleaf-fuchsia forest	35%	38%				
Mountain beech forest	47%	29%				
Mountain beech-red beech forest	81%	82%				
Red beech-silver beech forest	75%	90%				
Rimu/tawa-kamahi forest	43%	20%	10%	11%	13%	0%
Rimu-matai-miro-totara/kamahi forest	67%	42%	0%			0%
Rimu-miro/kamahi-red beech-hard beech forest	79%	53%	1%	1%		2%
Rimu-miro/tawari-red beech-kamahi-tawa forest	69%	76%				
Rimu-miro-totara/kamahi forest	77%	100%				
Scrub, shrubland and tussock-grassland below treeline	47%					
Scrub, tussock-grassland and herbfield above treeline	80%	97%				
Silver beech forest	86%	79%				
Unclassified	73%	24%	15%	44%	0%	
Wetland	72%	43%	79%	80%		
Not classified	23%	2%	2%	2%	0%	

EXPLANATORY NOTES
FOR ECOLOGICAL SITES
DATABASE FIELDS

Database 1: Sites significant under RPS Policy 23 Criteria - assessment spreadsheet

Data fields used for other TLA and proposed to be used for Porirua City Council

	Attribute Field	Attribute Name	Comments
Site Attributes	SITENUMB	Site Number	Unique site number (e.g. PCC001)
	SITENAME	Site Name	A suitable name, such as nearest road, reserve name, or feature, ecosystem type and unique suffix if required (e.g. Smith Road Wetland A).
	PREVNUMB	Previous site number(s)	If identified in previous surveys then include the number(s) used in that survey
	PREVNAME	Previous site name(s)	If identified in previous surveys then include the number(s) used in that survey
	AREA_HA	Area	Measured in hectares.
	NZTM_X		New Zealand Transverse Mercator horizontal coordinate
	NZTM_Y		New Zealand Transverse Mercator vertical coordinate
	ATL_RANGE	Altitudinal range of site	Altitudinal range calculated from GIS
	LOCATION	Location	Brief location description
	ECOLDIST	Ecological District	May be in more than one ecological district.
	ECODOMAIN	GWRC Ecological Domain	Ecological Domains as per Greater Wellington Regional Council (2002)
	DOMHAB	Dominant Habitats	Brief description of dominant habitat types e.g. forest, shrubland, grassland, flaxland, wetland etc
	SITESUMM	Site Summary	Description of ecological values
	TLA	Territorial local authority	May be in more than one TLA
	STATUS	Status	Private, DOC, Hutt City, GWRC, QEII, Other
	ADJACE	Adjacent land use	Adjacent land use as seen on aerial photographs
	CONDITION	Condition	Any notes about pest plants, pest animals, stock, fencing etc
	LAND_MGNT	Land management issues	Any notes about management undertaken or required
	Reserves	PCC Reserves	PCC Reserves names and legal description and area overlapped by potential Ecological Site. Reserve description separated by semicolon.
	REFS	References	Relevant references
GWRCDBID	Greater Wellington Database ID	Site number to cross reference to GWRC database (e.g. Wetland database)	
RPS Policy 23 Criteria	RPS23A	Criterion a) Representativeness	Y/N
	RPS23A_JUS	Criterion a) Justification	Justification statement
	RPS23B	Criterion b) Rarity	Y/N
	RPS23B_JUS	Criterion b) Justification	Justification statement
	RPS23C	Criterion c) Diversity	Y/N
	RPS23C_JUS	Criterion c) Justification	Justification statement
	RPS23D	Criterion d) Ecological context	Y/N
	RPS23D_JUS	Criterion d) Justification	Justification statement
	RPS23E	Criterion e) Tangata whenua	Y/N
RPS23SIG	Overall Significance	Y/N	
RPS 6b	PorHarb	Occurs in Porirua Harbour catchment	Y/N
	RPS6b	Important for harbour protection	Y/N/NA
	RPS6b_Jus	RPS6b) Justification	Justification statement
Management Criteria	IMP_REP_S	Representative score	Score from 1 to 5 as per Appendix 1
	IMP_REP_C	Representative comment	Comment to justify the score
	IMP_TLE_S	Threatened Land Environment score	Score from 1 to 5 as per Appendix 1
	IMP_TLE_C	Threatened Land Environment comment	Comment to justify the score
	IMP_HAB_S	Rare habitats score	Score from 1 to 5 as per Appendix 1
	IMP_HAB_C	Rare habitats comment	Comment to justify the score
	IMP_FLO_S	Rare flora score	Score from 1 to 5 as per Appendix 1
	IMP_FLO_C	Rare flora comment	Comment to justify the score
IMP_FAU_S	Rare fauna score	Score from 1 to 5 as per Appendix 1	

Attribute Field	Attribute Name	Comments
IMP_FAU_C	Rare fauna comment	Comment to justify the score
IMP_COM_S	Community diversity score	Score from 1 to 5 as per Appendix 1
IMP_COM_C	Community diversity comment	Comment to justify the score
IMP_CON_S	Ecological context score	Score from 1 to 5 as per Appendix 1
IMP_CON_C	Ecological context comment	Comment to justify the score
IMP_FH_S	Fauna habitat score	Score from 1 to 5 as per Appendix 1
IMP_FH_C	Fauna habitat comment	Comment to justify the score
IMP_SCORE	Importance score	Sum of all scores
IMP_JUST	Importance justification	Brief summary to justify the overall score
CHANGES	Changes to boundaries	Brief justification of changes to site boundaries and or inclusion as significant (e.g. sufficient ecological values over an above amenity values)
INFOREQ	Further Information required	What further information is required to help decide whether a site is significant or not. Is a site visit required?

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Database 2: Sites not significant under RPS Policy 23 Criteria/potential tree groups - assessment spreadsheet

Data fields used for other TLA and proposed to be used for Porirua City Council

	Attribute Field	Attribute Name	Comments
Site Attributes	SITENUMB	Site Number	Unique site number (e.g. PCC001)
	SITENAME	Site Name	A suitable name, such as nearest road, reserve name, or feature, ecosystem type and unique suffix if required (e.g. Smith Road Wetland A).
	PREVNUMB	Previous site number(s)	If identified in previous surveys then include the number(s) used in that survey
	PREVNAME	Previous site name(s)	If identified in previous surveys then include the number(s) used in that survey
	AREA_HA	Area	Measured in hectares.
	NZTM_X		New Zealand Transverse Mercator horizontal coordinate
	NZTM_Y		New Zealand Transverse Mercator vertical coordinate
	ATL_RANGE	Altitudinal range of site	Altitudinal range calculated from GIS
	LOCATION	Location	Brief location description
	ECOLDIST	Ecological District	May be in more than one ecological district.
	ECODOMAIN	GWRC Ecological Domain	Ecological Domains as per Greater Wellington Regional Council (2002)
	DOMHAB	Dominant Habitats	Brief description of dominant habitat types e.g. forest, shrubland, grassland, flaxland, wetland etc
	SITESUMM	Site Summary	Description of ecological values
	TLA	Territorial local authority	May be in more than one TLA
	STATUS	Status	Private, DOC, Hutt City, GWRC, QEII, Other
	ADJACE	Adjacent land use	Adjacent land use as seen on aerial photographs
	CONDITION	Condition	Any notes about pest plants, pest animals, stock, fencing etc
	LAND_MGNT	Land management issues	Any notes about management undertaken or required
REFS	References	Relevant references	
GWRCDBID	Greater Wellington Database ID	Site number to cross reference to GWRC database (e.g. Wetland database)	
RPS Policy 23 Criteria (can be deleted later)	RPS23A	Criterion a) Representativeness	Y/N
	RPS23A_JUS	Criterion a) Justification	Justification statement
	RPS23B	Criterion b) Rarity	Y/N
	RPS23B_JUS	Criterion b) Justification	Justification statement
	RPS23C	Criterion c) Diversity	Y/N
	RPS23C_JUS	Criterion c) Justification	Justification statement
	RPS23D	Criterion d) Ecological context	Y/N
	RPS23D_JUS	Criterion d) Justification	Justification statement
	RPS23E	Criterion e) Tangata whenua	Y/N
RPS23SIG	Overall Significance	Y/N	
RPS 6b	PorHarb	Occurs in Porirua Harbour catchment	Y/N
	RPS6b	Important for harbour protection	Y/N/NA
	RPS6b_Jus	RPS6b) Justification	Justification statement
Management Criteria	IMP_REP_S	Representative score	Score from 1 to 5 as per Appendix 1
	IMP_REP_C	Representative comment	Comment to justify the score
	IMP_TLE_S	Threatened Land Environment score	Score from 1 to 5 as per Appendix 1
	IMP_TLE_C	Threatened Land Environment comment	Comment to justify the score
	IMP_HAB_S	Rare habitats score	Score from 1 to 5 as per Appendix 1
	IMP_HAB_C	Rare habitats comment	Comment to justify the score
	IMP_FLO_S	Rare flora score	Score from 1 to 5 as per Appendix 1
IMP_FLO_C	Rare flora comment	Comment to justify the score	

	Attribute Field	Attribute Name	Comments
	IMP_FAU_S	Rare fauna score	Score from 1 to 5 as per Appendix 1
	IMP_FAU_C	Rare fauna comment	Comment to justify the score
	IMP_COM_S	Community diversity score	Score from 1 to 5 as per Appendix 1
	IMP_COM_C	Community diversity comment	Comment to justify the score
	IMP_CON_S	Ecological context score	Score from 1 to 5 as per Appendix 1
	IMP_CON_C	Ecological context comment	Comment to justify the score
	IMP_FH_S	Fauna habitat score	Score from 1 to 5 as per Appendix 1
	IMP_FH_C	Fauna habitat comment	Comment to justify the score
	IMP_SCORE	Importance score	Sum of all scores
	IMP_JUST	Importance justification	Brief summary to justify the overall score
	REASON	Failure to meet RPS Policy 23 Criteria	Reason why site doesn't meet RPS Policy 23 Criteria
Tree Group	URBANSITE	Urban site (Yes, No or Part)	Site occurs (in part or whole) in an urban environment, or soon to be developed urban environment
	TREEGPYN	Potential tree group (Yes or No)	Does the site include trees that would warrant projection as a tree group - Yes or no?
	TREEGRP	Potential tree group	Justification as to why the site includes or does not include trees that would warrant projection as a tree group. (not all sites may include trees, and not all trees may warrant protection) Refer to leafy suburbs and previously identified landscape values where appropriate
	TREEGPNO	Tree Group number	Where it has been assessed that a group of trees is likely to warrant assessment as a tree group assign a new and unique tree group number PCCTGXXX-numbers should be spatially logical and consecutive.

Database 3: Significant sites that include urban allotments

This will only include those sites that were found to be significant under RPS Policy 23 Criteria and therefore included in Database 1, and only if the Ecological Site includes one or more urban allotments as defined by Section 76(4A)(a) of the RMA.

Attribute Field	Attribute Name	Comments
SITENUMB	Site Number	Unique site number (e.g. PCC001)
SITENAME	Site Name	A suitable name, such as nearest road, reserve name, or feature, ecosystem type and unique suffix if required (e.g. Smith Road Wetland A).
ALLTNO	Allotment Street number	Street number for allotment address
ALLTSTR	Allotment Street name	Street name for allotment address
AREASITE	Area of ecological site	Area of ecological site within allotment measured in hectares.

Tree group database - yet to be assessed

List of groups of trees that have been assessed for values. The Tree Group Number is the same as generated in Database 2.

	Attribute Code	Attribute Name	Comments
Tree Group	TREEGPN0	Tree Group number	Where it has been assessed that a group of trees is likely to warrant assessment as a tree group assign a new and unique tree group number PCCTGXXX-numbers should be spatially logical and consecutive.
	TREELOC	Tree Group location	List all properties (street number and street name) that include this tree group
	TREEDESC	Tree Group description	Type of tree group (Cluster, Grove or Line) number of trees (in groups as per Boffa Miskell 2015), species (common name), maximum height and location detail (e.g. along back boundary, along road frontage)
Landscape	BOTVALUE	Botanical value	Relative importance in terms of scientific or botanical value (Low/Med/High)
	SCALEFRAG	Scale and degree of fragmentation	Scale of tree group influence within urban environment (Low/Med/High)
	FORM	Form	Integrity of natural form of tree group and canopy (Low/Med/High).
Amenity	COMMEXP	Community exposure	Degree of visibility and size and frequency of viewing audience (Low/Med/High).
	AESTHVAL	Aesthetic value	Contribution to pleasantness and aesthetic coherence of the surrounding area (Low/Med/High)
	ASSOCVAL	Associative values	Cultural, historic and recreational associations (Low/Med/High).
Ecology	CANOPYREP	Canopy representativeness	The degree to which the tree group canopy is representative of the natural (typical and characteristic) vegetation (Low/Med/High).
	RARITY	Rarity	Tree group containing species that are locally uncommon, At risk or threatened in a local, regional, or national context (Low/Med/High).
	STRUCDIV	Structure and diversity	Degree to which tree group conforms to the natural system structure (Low/Med/High).
	FUNCPROC	Function and process	Degree to which tree group provides identifiable ecosystem services (i.e. edge buffering, corridor for wildlife movement, wildlife resources, riparian vegetation, soil stabilisation). (Low/Med/High).
Tree Group category	TREECAT	Tree Group category overall	Category 1 Tree group will have to or more high scores for landscape, amenity, and ecology. Category 2 Tree group will score highly for at least one value. Other Tree groups do not score highly for landscape, amenity or ecology and probably do not warrant protection (although individual trees may warrant notable tree status)
	TREEVAL	High Values	List the reasons for high value for each of Landscape, Amenity and Ecology whichever applicable (format LANDSCAPE - reason, AMENITY - reason, ECOLOGY - reason)
	CHANGES	Changes to boundaries	Brief justification of any changes to site boundaries and/or inclusion as additional tree group
	INFOREQ	Further Information required	What further information is required to help decide whether a tree group is significant or not. Is a site visit required?

MANAGEMENT CRITERIA
(from Wildland Consultants and Kessels Ecology 2015)

	1 Representative	2 TEC²	3 Rare Habitats	4 Rare Plants	5 Rare Fauna	6 Communities	7 Ecological context	8 Habitat for indigenous Fauna
5	Ecosystems ³ that are typical and characteristic of those originally present in the region ⁴ prior to human occupation; or an ecosystem that is one of the better remaining examples of its type in the region.	At least 0.5 ha ⁵ of indigenous vegetation or habitat on Acutely Threatened (<10% indigenous cover remaining) land environments.	Nationally rare or uncommon indigenous vegetation or habitat	Nationally Threatened indigenous plant, lichen, or fungus species present	Nationally Threatened indigenous animal species regularly present	At least 5 indigenous vegetation/habitat types or landforms covered by indigenous vegetation OR at least 80% of the expected indigenous plant species, OR at least one indigenous fauna group with close to expected species richness	Extensive or uninterrupted habitat greater than 100 ha in size or at least 5 km long, OR buffers more than 70% of the margin of an important or vulnerable ecosystem (e.g. stream wetland, dune systems, nationally rare ecosystem type).	Important site or habitat for more than 10 or assemblage of indigenous fauna species
4	Ecosystems that are mostly typical and characteristic of those originally present in the region prior to human occupation, but where parts of the ecosystem are not in original condition; or ecosystems that are some of the better remaining examples of its type in the ecological district.	At least 1 ha of indigenous vegetation or habitat on Chronically Threatened (10-20% indigenous cover remaining) land environments, or wetland habitats smaller than 0.5 ha on Acutely Threatened (<10% indigenous cover remaining) land environments	Regionally rare or uncommon indigenous vegetation or habitat	Nationally At Risk-Declining indigenous plant, lichen, or fungus species present OR regionally uncommon indigenous plant species present.	Nationally At Risk-Declining indigenous animal species regularly present OR regionally uncommon indigenous animal species present.	At least 4 indigenous vegetation/habitat types or landforms covered by indigenous vegetation OR at least 70% of the expected indigenous plant species, OR at least one indigenous fauna group with 70% expected species richness	Extensive or uninterrupted habitat 10-100 ha in size or 3-5 km long, OR buffers 50-70% of the margin of an important or vulnerable ecosystem.	Important site or habitat for 5-9 assemblages of indigenous fauna species
3	Ecosystems that are typical and characteristic examples of the current natural diversity of ecosystem types in the ecological district (but not the best examples remaining).	At least 5 ha of indigenous vegetation or habitat on At Risk (20-30% indigenous cover remaining) land environments, or at least 0.5 ha on Chronically Threatened (10-20% indigenous cover remaining) land environments.	Rare or uncommon indigenous vegetation or habitat at ecological district scale.	Nationally At Risk-Naturally Uncommon, At Risk--Relict or At Risk-Recovering plant, lichen, or fungus species present, OR indigenous plant, lichen, or fungus species present that is rare at ecological district scale	Nationally At Risk-Naturally Uncommon, At Risk--Relict or At Risk-Recovering indigenous animal species regularly present	At least 3 indigenous vegetation/habitat types or landforms covered by indigenous vegetation OR at least 50-70% of the expected indigenous plant species, OR at least one indigenous fauna group with 50-70% expected species richness.	Habitats of 5-9.9 ha in size or 1-2 km long OR buffers 20-49% of the margin of an important or vulnerable ecosystem	Important site or habitat for 2-4 assemblages of indigenous fauna species
2	Ecosystems that retain only limited elements that are typical of the natural diversity of an ecological district.	At least 5 ha of indigenous vegetation or habitat on Critically Under protected (>20% protection) land environments, or at least 0.5 ha on At Risk (20-30% indigenous cover remaining) land environments	Rare or uncommon indigenous vegetation or habitat at the TLA ⁶ scale.	Data Deficient plant, lichen, or fungus species present and recently recorded.	Data Deficient indigenous animal species regularly present	Only 2 indigenous vegetation/habitat types or landforms covered by indigenous vegetation OR at least 25-50% of the expected indigenous plant species, OR at least one indigenous fauna group with 25-50% expected species richness	Habitats of 1-4.9 ha in size or 0.1-0.9- km long OR buffers 1-19% of the margin of an important or vulnerable ecosystem	Important site or habitat for 1 assemblage of indigenous fauna species
1	Ecosystems that contain few or no elements that are representative of the natural diversity of an ecological district.	Under protected land environments or No Threat Category.	No rare / uncommon habitat / community recorded.	No nationally or regionally or locally rare or uncommon plant, lichen, or fungus species recorded.	No rare or uncommon animal species regularly present.	Only 1 indigenous vegetation/habitat type or landform covered by indigenous vegetation OR less than 25% of the expected indigenous plant species, OR less than 25% expected species richness for fauna groups.	Small (<1 ha) areas of habitat that do not buffer important or vulnerable ecosystems.	Unimportant site or habitat for assemblage of indigenous fauna species

² Threatened Environment Classification. Only potentially relevant if indigenous vegetation or habitats are present.

³ For brevity, ecosystems include habitats in this table.

⁴ Where region refers to the Territorial Region, e.g Greater Wellington Region.

⁵ The minimum size for terrestrial habitats was set at 0.5 ha. Wetlands could be any size provided they were still dominated by indigenous species or habitats.

⁶ TLA means Local Territorial Authority and in this context is the area administered by a City or District Council.

WATERWAYS OF PORIRUA HARBOUR CATCHMENT

To give effect to RPS Policy 6 it is likely that policies and rules will be developed that could include restrictions on works and vegetation clearance within five metres of a waterway (five metres is used in the Wellington City Council District Plan). These policies and rules would apply to all headwaters and tributaries flowing into Porirua Harbour including Pauatahanui inlet, Onepoto Arm and the Porirua Harbour mouth. This appendix lists those waterways, and includes proposed 'tag names' for waterways that currently have no name. It is suggested that iwi be consulted with regards to the correct 'tag-name' for streams.

Northing	Eastings	Previous Name	Proposed Name	Harbour Location	Notes
1756312	5448687	Unnamed	Whitireia Trig 107 Stream	Harbour mouth	Also Te Kahikatoa ¹
1754823	5452234	Unnamed	Mt Porirua Stream 2	Harbour mouth	
1755093	5452248	Unnamed	Mt Porirua Stream 1	Harbour mouth	
1755279	5452275	Unnamed	Plimmerton Quarry Stream	Harbour mouth	
1755446	5452276	Unnamed	Hongoeka Stream 4	Harbour mouth	
1755491	5452266	Unnamed	Hongoeka Stream 3	Harbour mouth	
1755605	5452129	Unnamed	Hongoeka Stream 2	Harbour mouth	
1755689	5452054	Unnamed	Hongoeka Stream 1	Harbour mouth	
1756445	5450936	Unnamed	Motuhara Stream	Harbour mouth	Also Motuhara ¹
1756889	5450123	Taupō Stream	Taupō Stream	Harbour mouth	
1756013	5451406	Karehana Stream	Karehana Stream	Harbour mouth	
1756645	5450373	Unnamed	Beach Road Stream	Harbour mouth	Poss. Turi-Kawera ¹
1755904	5449151	Unnamed	Onehunga Bay Stream 2	Harbour mouth	
1755734	5449142	Unnamed	Onehunga Bay Stream 1	Harbour mouth	
1755782	5447678	Unnamed	Onepoto Estuary 2	Onepoto	
1755655	5447723	Onepoto stream	Onepoto Stream	Onepoto	Best and McLeod (1916)
1755480	5447070	Unnamed	Onepoto Road Stream	Onepoto	
1754244	5445901	Unnamed	Takapuwahia Park Stream	Onepoto	
1755677	5447564	Unnamed	Morning View Stream 2	Onepoto	
1755735	5447423	Unnamed	Morning View Stream 1	Onepoto	
1756373	5448220	Kaiaua Stream	Kaiaua Stream	Onepoto	Best and McLeod (1916)
1754958	5446991	Kahotea Stream	Kahotea Stream	Onepoto	
1755583	5447188	Unnamed	Clipper Street Stream 2	Onepoto	
1755515	5447120	Unnamed	Clipper Street Stream 1	Onepoto	
1755699	5446353	Aotea Stream	Aotea Stream	Onepoto	Best and McLeod (1916)
1754377	5446295	Hukatai Stream	Hukatai Stream	Onepoto	Poss Koanga-umu ¹
1756814	5447941	Whitianga Stream	Whitianga Stream	Onepoto	Best and McLeod (1916)
1755145	5445741	Unnamed	Okowai Lagoon Stream	Onepoto	Also Iamanga-o-kohu ¹
1754226	5445802	Takapuwahia stream	Takapuwahia Stream	Onepoto	Best and McLeod (1916)
1754685	5444645	Porirua Stream	Porirua Stream	Onepoto	GW coordinates
1754579	5445112	Unnamed	Uru Kahika Street Stream	Onepoto	Also Te Uru Kahika ¹
1756197	5447121	Papakowhai Stream	Papakowhai Stream	Onepoto	Also Papa-Kowha ¹
1755635	5447640	Unnamed	Oneporo Estuary 1	Onepoto	
1754245	5445786	Mahinawa Stream	Mahinawa Stream	Onepoto	Aka Mahinoa Stream
1756628	5447760	Horopaki Stream	Horopaki Stream	Onepoto	Best and McLeod (1916)
1760279	5447957	Unnamed	The Mast Head Gully Stream	Pauatahanui	Poss. Matai-taua Pa ¹
1758053	5449594	Unnamed	St Austell Close Stream	Pauatahanui	
1757530	5449249	Unnamed	Penryn Drive Stream	Pauatahanui	
1758480	5449720	Unnamed	West Grays Road Stream 3	Pauatahanui	
1758300	5449627	Unnamed	West Grays Road Stream 2	Pauatahanui	
1758121	5449624	Unnamed	West Grays Road Stream 1	Pauatahanui	
1757432	5449199	Unnamed	Camborne Inlet Stream	Pauatahanui	
1760682	5447979	Unnamed	Pauatahanui Estuary Stream	Pauatahanui	
1757909	5449413	Unnamed	Pendennis Point Stream	Pauatahanui	
1760630	5447850	Pauatahanui stream	Pauatahanui Stream	Pauatahanui	GW coordinates
1757356	5447951	Unnamed	Kahu Road Stream	Pauatahanui	Poss. Tinipia ¹

¹ Best E., and McLeod H.N. 1916: - Wellington Country District Shewing [sic] Native Names. Published in Bruce Murray, 2006. An Historical Atlas of Tawa. Tawa Historical Society 1st edn. Soft-cover spiral bound book A3 85p. ISBN 978-0-473-11603-3.

Northing	Eastings	Previous Name	Proposed Name	Harbour Location	Notes
1757817	5448067	Unnamed	Oak Avenue Stream	Pauatahanui	Poss Te Rapa a te Whai ¹
1759553	5449364	Unnamed	Motukaraka Stream 2	Pauatahanui	
1759499	5449425	Unnamed	Motukaraka Stream 1	Pauatahanui	
1759799	5449048	Unnamed	Motukaraka Stream 5	Pauatahanui	
1759732	5449035	Unnamed	Motukaraka Stream 4	Pauatahanui	
1759648	5449010	Unnamed	Motukaraka Stream 3	Pauatahanui	
1760695	5448486	Little Waitangi Stream	Little Waitangi Stream	Pauatahanui	
1759092	5449786	Kakaho Stream	Kakaho Stream	Pauatahanui	GW coordinates; aka Kahao ²
1758892	5449858	Unnamed	Kakaho Estuary Stream	Pauatahanui	
1757415	5448002	Unnamed	Ivey Bay Stream	Pauatahanui	Poss. Tutea-manu ¹
1760078	5449063	Horokiri Stream	Horokiri Stream	Pauatahanui	GW coordinates
1760306	5448818	Unnamed	Horokiri Estuary Stream 2	Pauatahanui	
1759943	5449053	Unnamed	Horokiri Estuary Stream 1	Pauatahanui	
1758790	5449858	Unnamed	West Grays Road Stream 6	Pauatahanui	
1758739	5449855	Unnamed	West Grays Road Stream 5	Pauatahanui	
1758674	5449832	Unnamed	West Grays Road Stream 4	Pauatahanui	
1759575	5447610	Duck Creek	Duck Creek	Pauatahanui	GW coordinates Also Wai-o-Hata ¹
1757988	5447779	Unnamed	Browns Bay Stream	Pauatahanui	
1758687	5447772	Unnamed	Bradleys Bay Stream	Pauatahanui	

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¹ Best E., and McLeod H.N. 1916: - Wellington Country District Shewing [sic] Native Names. Published in Bruce Murray, 2006. An Historical Atlas of Tawa. Tawa Historical Society 1st edn. Soft-cover spiral bound book A3 85p. ISBN 978-0-473-11603-3.

² Stevens G.R. 1974: Rugged landscape: The geology of central New Zealand. Wellington, A.H. & A.W Reed Limited. 286 pp.



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