BEFORE THE ENVIRONMENT COURT
AT AUCKLAND

I MUA I TE KŌTI TAIAO O AOTEAROA
KI TĀMAKI MAKAURAU

IN THE MATTER OF	the Resource Management Act 1991
And	appeals under clause 14 of Schedule 1 of the Act
BETWEEN	**TE TAIWHENUA O HERETAUNGA, TE RUNANGANUI O HERETAUNGA, TE MANAAKI TAIAO O HERETAUNGA AND NGATI KAHUNGUNU IWI INCORPORATED**
	ROYAL FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND INCORPORATED
	and
	THE MĀORI TRUSTEE
	Appellants
AND	**HAWKE'S BAY REGIONAL COUNCIL**
	Respondent

EVIDENCE IN CHIEF OF JOHN CHEYNE
ON BEHALF OF ROYAL FOREST AND BIRD PROTECTION SOCIETY

Ecology

1 September 2023

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1 INTRODUCTION

1.1 My full name is John William Cheyne. I am the Director of Wetland Works, a small wetland biodiversity consultancy based in Hawke Bay.

1.2 I have spent the last 55 years working in the field of wildlife conservation across most of New Zealand. The major focus of this work has been wetlands and the wildlife they support. I have been based in Hawke's Bay for the last 35 years.

1.3 My work has primarily involved bird surveys, habitat assessments and preparation of wetland enhancement plans. Through this period, I have been employed by the NZ Wildlife Service (1967-87), Department of Conservation (1987-2000), Fish and Game Hawke's Bay Region (2001-2005) and as a contracted wetland biodiversity ecologist (2006-2022) for the Hawke's Bay Regional Council (HBRC), Greater Wellington Regional Council (GWRC), Central Hawke's Bay District Council (CHBDC) and the Department of Conservation (DOC).

1.4 I have been actively involved in the protection of Lake Poukawa and Pekapeka Swamp since 1987 alongside other major wetlands in Hawke's Bay, some of which are proposed as Regionally Outstanding Water Bodies. I am also familiar with and have undertaken bird surveys at Porangahau Estuary, Lake Whatumā, Tukituki River, Ngaruroro River, Ahuriri Estuary, Mohaka River, and Whakakī Lake.

1.5 Since 1987 I have made over 20 visits to Lake Poukawa and Pekapeka Swamp wetland complex. This included kayak bird surveys of the main lake on eight occasions. The most recent ground-based surveys were in May and June 2023.

1.6 I was a member of the Hawke's Bay Region Outstanding Water Bodies Expert Panel convened by HBRC. With fellow panel member Mathew Brady (DOC), I prepared detailed tables and brief reports on threatened bird species present at each of the proposed OWB. I was also a member of the expert panel convened by HBRC which prepared the report 'Native Birdlife in Hawke's Bay: Application of the River Values Assessment System (RiVAS and RiVAS+)'.[1]

1.7 In 2022, I received an NZ Order of Merit (NZOM) for services to wildlife conservation including wetland related work.[2]

[1] Hughey et al. (2012). http://dspace.lincoln.ac.nz/bitstream/handle/10182/4947/LEaP_rp_14.pdf?sequence=1&isAllowed=y
[2] https://www.dpmc.govt.nz/honours/lists/ny2022-mnzm

1.8 I am the Director-General of Conservation nominee sitting on the New Zealand Game Bird Habitat Trust, which has a strong focus on wetland protection and enhancement.[3]

1.9 I am a Director on the Board of Ducks Unlimited NZ, another leading wetlands and waterfowl conservation group.

1.10 I am a member of Birds NZ.

1.11 I am a former trustee of the National Wetlands Trust.

1.12 I confirm I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023 and that I agree to comply with it. Other than when I state that I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

1.13 Forest & Bird have engaged me to assist them with the Outstanding Water Bodies process for the Hawke's Bay Region. I am authorised to give this evidence on Forest & Bird's behalf to the Environment Court in relation to Proposed Change 7 to the Hawkes Bay Regional Resource Plan (PC7).

1.14 I have read and referred to the following expert evidence in preparing my evidence:

a. Evidence in Chief (Ecology) of Dr Andy Hicks dated 11 August 2023,
b. Evidence in Chief (Planning) of Belinda Harper dated 11 August 2023, and
c. Evidence in Chief of Dr Greg Ryder dated 11 August 2023.

1.15 The key documents I have used, or referred to, when preparing my evidence are:

a. Black, M., Brady, M., Cheyne, J., Curtis, A., Kelly, B., Winlove, T. (2019). *Outstanding Water Bodies in Hawke's Bay, Report of the Expert Panel*. HBRC Report No. SP19-19.4.[5]
b. Cameron, F. 2008. *Pekapeka swamp ecological monitoring*. HBRC Plan Number 4025.[6]

[3]https://fishandgame.org.nz/environment/nz-game-bird-habitat-trust/
[4]https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/1.-Other-supporting-information/Local-Expert-Panel-Report.pdf
[5]https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/1.-Other-supporting-information/Local-Expert-Panel-Report.pdf
[6] https://docs.niwa.co.nz/library/public/HBRCp4025.pdf

c. Harper, B. 2020. *Lake Poukawa and Pekapeka Swamp. Summary of Values For Proposed Plan Change 7: Hawke's Bay Regional Resource Management Plan (Outstanding Water Bodies Plan Change)*. HBRC Publication Number 5485.[7]

d. Hughey, K.F.D., Cameron, F., Cheyne, J., Dickson, R., Forbes, A., Hashiba, K., Rook, H., Sharp, T., Stephenson, B., and Welch, B. 2012. *Native birdlife in Hawke's Bay: Application of the River Values Assessment System (RiVAS and RiVAS+).* Land Environment and People Research Paper No. 14. HBRC Plan No. 4376.[8]

e. McArthur, N., Thomas, D., and Lees, D. 2021. *A baseline survey of the indigenous bird values of the Hawke's Bay coastline*. Client report prepared for Hawke's Bay Regional Council, Napier.[9]

f. Parrish, G.R. 1988. *Wildlife and wildlife habitat of Hawke's Bay Rivers*. Science and Research Series No. 2. Department of Conservation, Wellington.[10]

g. Singers, N. *Mapping of Hawke's Bay wetlands*. Prepared for Hawke's Bay Regional Council. NSES Ltd Report 28: 2015/16.

2 SCOPE OF EVIDENCE

2.1 My evidence addresses the following matters:

a. The inclusion of Lake Poukawa and Pekapeka Swamp as OWB for outstanding ecological value.

b. The Schedule 25 OWB Screening Criteria for ecology.

3 LAKE POUKAWA AND PEKAPEKA SWAMP

3.1 I agree with and support Dr Hicks' comments on native aquatic bird habitat and bird numbers at paragraphs 9.59 to 9.66 of his evidence[11] and agree with his conclusion at para. 9.67:

> "After reviewing the available evidence, in my opinion, Lake Poukawa and Pekapeka Swamp do meet the screening criteria for the ecology (habitat for aquatic birds) value set. I consider Lake Poukawa and Pekapeka Swamp are regionally outstanding for ecology values."

[7] https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/3.-Values-reports/Lake-Poukawa-Pekapeka-ID6-Summary-of-Values-Aug-2020-5485.pdf
[8] http://dspace.lincoln.ac.nz/handle/10182/4947
[9] https://www.hbrc.govt.nz/assets/Uploads/5560-A-baseline-survey-of-the-indigenous-bird-values-of-the-Hawkes-Bay-coastline.pdf
[10] https://www.doc.govt.nz/globalassets/documents/science-and-technical/sr2.pdf
[11] As noted in Dr Hicks' evidence, I provided some of the data used to inform some of Dr Hicks' comments.

3.2 Lake Poukawa and Pekapeka Swamp is a large and diverse lowland freshwater wetland which includes a lake, permanent and ephemeral swamp, and water meadow (in the national wetland classification system they are referred to as Lacustrine/Palustrine wetland types). The large size and diversity of this shallow wetland (as illustrated in Figures 1-2) provides habitat for a wide range of wetland plants, invertebrates, and fish which in turn supports a wide range of bird species. Many of the bird species occur in regionally and nationally significant numbers (regionally: dabchick, royal spoonbill, grey teal, black swan; and nationally: bittern, pied stilt, black billed gull).

Figure 1: Aerial panoramas of Lake Poukawa (looking north-east (top) and north (bottom)) showing the lake, permanent and ephemeral swamp, and water meadow (June 2023. Credit Thomas Kay, Forest & Bird).

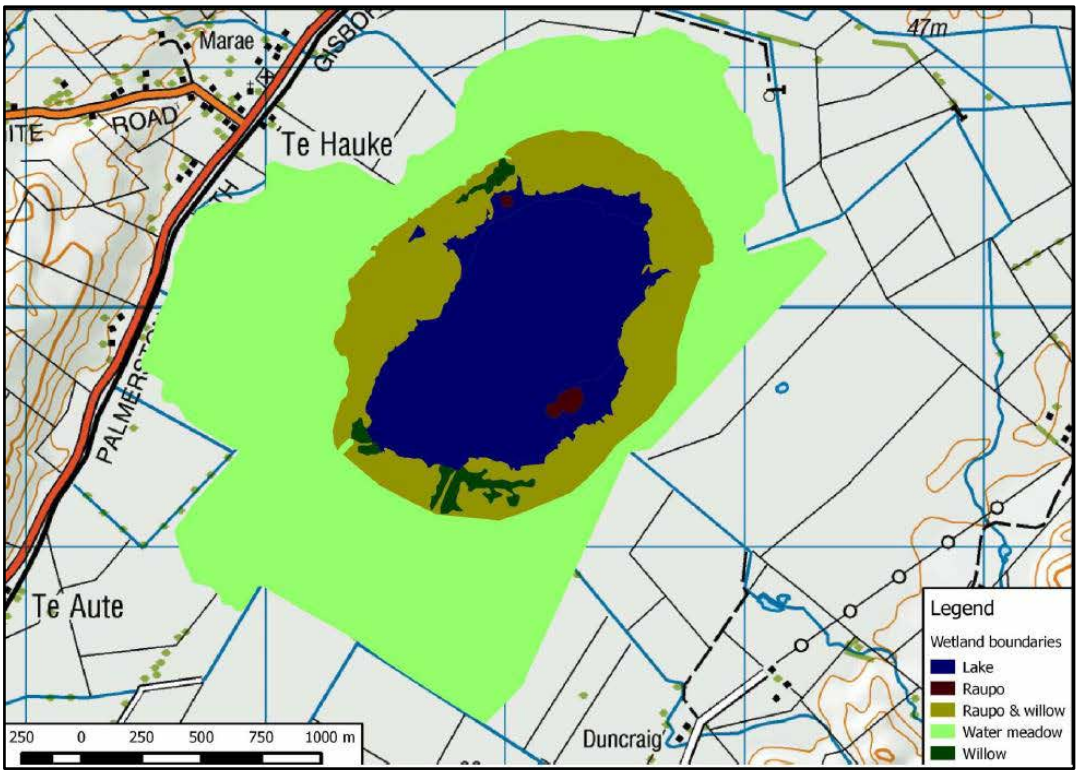

Figure 2: Map showing the "Broad vegetation types of Lake Poukawa. Note: Lake = intermittently and permanently wet area dominated by obligate wetland species." From Singers (2015).[12]

3.3 Lake Poukawa and Pekapeka Swamp hold around 20% of the Hawkes Bay bittern population based on 2011 and 2018 bittern census data. The counts were similar to those at Lake Whatumā (which is listed as an OWB in the decisions version of the plan). In 2021, more bittern were counted at Lake Poukawa and Pekapeka swamp than at Lake Whatumā. Bittern has the highest conservation threat status of 'Threatened - Nationally Critical', which is shared by more high-profile species like kākāpō, takahe and black robin. Other species in this category which have also been recorded at Lake Poukawa in small numbers are grey duck and white heron. The next category after 'Threatened - Nationally Critical' is Extinct.

3.4 In my opinion the ecology values (wetland birds and habitat) of Lake Poukawa and Pekapeka Swamp are at least equal to, and in some instances higher, than the already-listed OWBs at Lake Whatumā and Lake Whakakī.

3.5 The wide diversity of bird species and overall high numbers (abundance) of birds means that, in my opinion, Lake Poukawa and Pekapeka Swamp clearly pass HBRC's preferred wording

[12] Singers, N. Mapping of Hawke's Bay wetlands. Prepared for Hawke's Bay Regional Council. NSES Ltd Report 28: 2015/16.

threshold List A (a) for "a native aquatic bird assemblage that is regionally unique in terms of diversity, abundance, or distinctiveness."

3.6 Lake Poukawa and Pekapeka Swamp would also qualify as OWB based on my suggested criterion of a water body supporting over 15% of a regional population of particular native aquatic bird species listed as Nationally Critical, Nationally Endangered or Nationally Vulnerable on the New Zealand Threat Classification List (discussed below). This is based particularly on the bittern (discussed above) and dabchick[13] populations (the Expert Panel identified Lake Poukawa as hosting 27% of the regional population of dabchick in a 2014 survey[14]). The black-billed gull population would also likely pass this criterion.

3.7 I have also been asked to assess whether Lake Poukawa and Pekapeka Swamp meet the definition of outstanding, which is:

> **Outstanding** for the purposes of an outstanding water body: means conspicuous, eminent, and/or remarkable in the context of the Hawke's Bay Region.

3.8 When I consider Lake Poukawa and Pekapeka Swamp in the context of the Hawke's Bay Region I consider the following features contribute to these water bodies being conspicuous, eminent, and/or remarkable, and therefore outstanding:

a. the wide diversity of bird species, including bittern, black-billed gull, and white heron,
b. the extraordinarily high numbers (abundance) of birds (as noted in tables 1-2 and figures 1-3 of Dr Hicks' evidence),
c. the significant population of bittern
d. the wide variety (and extraordinary extent) of habitat available to various aquatic birds, particularly the large area of ephemeral wetted areas and water meadow, which make the area suitable habitat for such a wide variety of species.
e. the nature of the ephemeral wetted areas and water meadow, being extremely large, within a lowland environment, having a high diversity of vegetation, and being shallow across a large area (resulting in a substantial area of warm water that is extremely productive feeding habitat for birds).

[13] While Dabchick were listed at 'At Risk – Recovering' by the Expert Panel, they are listed in DOC 'Conservation status of birds in Aotearoa New Zealand, 2021' as 'Threatened – Nationally Increasing'. https://www.doc.govt.nz/globalassets/documents/science-and-technical/nztcs36entire.pdf
[14] Page 85 of the Expert Panel Report, https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/1.-Other-supporting-information/Local-Expert-Panel-Report.pdf

4 OWB SCREENING CRITERIA - ECOLOGY

4.1 I generally agree with Dr Hicks views in Section 5 of his evidence, (PC7 SCREENING CRITERIA – ECOLOGY – HABITAT FOR AQUATIC BIRDS (NATIVE AND MIGRATORY). His suggested changes at List A (a), and List B (a) and (b) are supported. However, I consider List A (b) to be too restrictive.

4.2 List A (b) "Supports 5% or more of the national population of a particular native aquatic bird species listed as Nationally Critical, Nationally Endangered or Nationally Vulnerable on the New Zealand Threat Classification List" is not an appropriate threshold in my view. The 5% threshold is a criterion used for some bird species in some National Water Conservation Orders to identify waters as being "nationally" outstanding.

4.3 Identifying a population percentage threshold of individual aquatic bird species as an ecology screening criterion needs to be approached carefully. The figure used for some WCO decisions has been established at 5% of the national bird population (as noted in paragraph 8.4 of Dr Greg Ryder's evidence). In my opinion, to use this national WCO figure to assess whether a waterbody is regionally outstanding, as proposed by Dr Hicks (and in para. 8.2-8.6 of Dr Ryder's evidence)), is unnecessarily strict and inappropriate for the regional context in which waterbodies should be assessed as regionally outstanding.

4.4 Dr Ryder states at paragraph 8.5 of his evidence that using the criterion of 5% of the national population is "reasonable… when you consider the Hawke's Bay region makes up approximately 5.8% of mainland Aotearoa/New Zealand." I consider the extent of the region as a proportion of the total landmass of New Zealand to be irrelevant to what the criteria should be. New Zealand is a diverse landscape with hugely variable concentrations of habitat types across its extent. It would be unreasonable to expect to find species equally distributed across the country in a way that reflects the proportional extent of the regions (for example, it would be unreasonable to expect to find a proportion of braided river birds in Northland that reflects its land mass as a proportion of New Zealand, as braided rivers are not evenly distributed across the country). Hawke's Bay is unique in the relatively high proportion of lowland freshwater wetlands, estuaries, braided rivers, and montane rivers it has, which make it a hotspot for many bird species. Matching a population threshold criterion to the percent land mass of New Zealand which Hawke's Bay makes up is not appropriate from an ecological perspective.

4.5 I consider using a threshold of 15% of the regional population would be more appropriate for the ecology criteria (aquatic birds, freshwater fish and plants) than using a threshold of the national population.

4.6 This would make the criterion in List A (b) (tracked changes against the HBRC preferred version circulated 13 July 2023):

> b) Supports ~~5%~~ 15% or more of the ~~national~~ regional population of a particular native aquatic bird species listed as Nationally Critical, Nationally Endangered or Nationally Vulnerable on the New Zealand Threat Classification List.

4.7 This approach would be more consistent with what has already been used to select the OWB now listed in Plan Change 7. The Expert Panel (of which I was part of) used the criterion of ">15% of a regional population of a native species" for their assessment of outstanding ecology values[15] and the Independent Hearing Panel decision included the criterion of "One of the highest regional populations of a native aquatic bird species which is endangered, threatened or distinctive" for their assessment of outstanding 'Habitat for aquatic birds (native and migratory)'.[16] The Expert Panel considered the use of 15% of a regional population of native aquatic bird species to be a reasonable approach.

4.8 Continuing to use a regional threshold in the criteria for Ecology (as per the Expert Panel report and Independent Hearing Panel decision) would ensure any changes to the criteria do not undermine previous conclusions made as to which waterbodies should be included in Plan Change 7 (particularly those not subject to appeal).

4.9 I consider that of the OWBs proposed for the Hawke's Bay Region, very few, if any, of the proposed OWBs would be able to meet Dr Hicks proposed criteria (List A (b)) "Supports 5% or more of the national population of a particular native aquatic bird species listed as Nationally Critical, Nationally Endangered or Nationally Vulnerable on the New Zealand Threat Classification List". For example, while the lower Ngaruroro is supported by HBRC for inclusion as an OWB in Plan Change 7 based on the Environment Court recommendation for a WCO, I understand the population assessments were a point of debate in that case. Using such a high bar risks many waterbodies that would be outstanding on a regional basis potentially not

[15] Page 9 of Black, M., Brady, M., Cheyne, J., Curtis, A., Kelly, B., Winlove, T. (2019). Outstanding Water Bodies in Hawke's Bay, Report of the Expert Panel. HBRC Report No. SP19-19.4. https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/1.-Other-supporting-information/Local-Expert-Panel-Report.pdf

[16] Page 29 of the Decision of the Independent Hearing Panel. https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/Decision-of-the-Independent-Hearing-Panel-PC7.pdf

qualifying because they do not meet the same threshold used for national WCOs. This would be particularly problematic where national population estimates are limited (making meeting proposed criteria List A (b) ("…5% or more of the national population…") and List B (b) (evidence in support) difficult, even if there is good regional data on a population of native aquatic birds. This would be the case in Hawke's Bay for bittern, a species for which regional data is good but national data is limited.

4.10 Using the criteria proposed by Dr Hicks for List A (b) ("…5% or more of the national population…") potentially disadvantages bittern habitat and populations in the region. None of the Hawke's Bay OWB sites (Lake Poukawa/Pekapeka Swamp, Lake Whatumā, or the Lake Whakakī wetland complex) support a number of bittern above 5% of the national population. However, these sites each support around 15% of the regional population. The Expert Panel Report noted the percentage of regional populations as (noting the Panel's report was published in 2019 and additional data is available and discussed in Dr Hicks' evidence)

- Poukawa-Pekapeka – 9 males 16% of regional population
- Whakakī – 7 males: 13% of regional population
- Whatumā – 12 males 22% of regional population

4.11 For completeness, I note the Maungawhio Lagoon and Opoutama Swamp wetland complex on the Mahia tombolo (with 11 male bittern in 2011 and 10 in 2018) would also readily meet the 15% threshold; as well as the wetland complex may also meet the List A (a) criteria. However, I understand whether this water body (near the coast) would qualify as an OWB is a point of appeal.

4.12 Dr Hicks' proposed criterion also potentially disadvantages whio (blue duck) populations. Whio, a torrent duck, have highly specialised habitat requirements and rely primarily on upland back-country rivers characterised by sections of whitewater. This type of habitat is highly unsuitable habitat for most other water birds using lowland wetlands like Lake Poukawa (where a high diversity of birds can be readily found), apart from shags and the very occasional grey duck or paradise shelduck who may venture upstream.

4.13 These upland blue duck habitats would therefore rely on passing the proposed List A (b) ("…5% or more of the national population…") criterion, or on being "regionally unique in terms of diversity, abundance, or distinctiveness" (proposed List A (a)). The List A (b) national population criterion is inappropriate for reasons I have explained above (and I understand was a point of appeal in the Ngaruroro WCO case, as per para. 8.4 of Dr Ryder's evidence). In terms of the List

A (a) criterion, passing the "diversity" part of this criterion would be difficult for whio habitat (as other species are not often present in these locations, as explained above). Whio habitat would rely on passing the more subjective assessment of "unique… abundance or distinctiveness". Some of Hawke's Bay's backcountry river systems support high regional populations of blue duck (e.g., the Ngaruroro catchment (25% of regional population), Mohaka catchment (35% of regional population), and Wairoa catchment (25% of regional population). Waterbodies within those catchments that readily meet the criteria of 15% of the regional population would be the Upper Ngaruroro (included in HBRC's preferred version of PC7 as per the Environment Court WCO decision), the Te Hoe River (18% of regional population), and the Waiau River (18% of regional population).

4.14 I note that with regard to whio habitat in the Te Hoe and Waiau Rivers, the Independent Hearing Panel decision stated:

> **(6.119)** Te Hoe River supports about 18% of the regional blue duck (whio) population [Footnote: As does the Waiau River, however we have not included the Waiau River in Schedule 25], which is estimated to be about 220 birds, and a high number of other native species. There are only an estimated 1,000 breeding pairs of blue duck left in the country, and it has a conservation status of "nationally threatened". Given that the river also supports other native species, we have found it to provide an outstanding habitat for aquatic native birds, particularly blue duck.
>
> **(7.34)** The upper reaches of the [Waiau] river support one of the two largest populations of blue duck (whio) in the region, with 18% of the regional population (which totals an estimated 220 birds) recorded there. Blue duck are listed as nationally threatened in the NZCTS, with only about 1,000 breeding pairs thought to remain in the country. However as the Waiau River is not known to support high numbers of other aquatic native birds, we have not included it in Schedule 25.

4.15 For clarity, the Expert Panel considered the Hawke's Bay region's whio population to total about 220 birds. The Te Hoe river population was estimate at 40 birds (18% of 220). The Waiau River population was also estimated at 40 birds (also 18% of the population).[17]

4.16 I support both Dr Hicks and Dr Ryders criterion in List B (b) that "Evidence is provided in support of outstanding features". I note that Dr Ryder (at para. 8.6 of their evidence) considers this a

[17] See Appendix 2B of Black, M., Brady, M., Cheyne, J., Curtis, A., Kelly, B., Winlove, T. (2019). Outstanding Water Bodies in Hawke's Bay, Report of the Expert Panel. HBRC Report No. SP19-19.4. https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/1.-Other-supporting-information/Local-Expert-Panel-Report.pdf

necessary requirement to support the use of a criterion based on the proportion of a population. I consider this would still be relevant to my proposed regional population threshold.

4.17 For completeness, I note the above comments also relate to the Evidence in Chief submitted by Belinda Harper, given her statements supporting the criterion proposed for List A (b) rely on the evidence of Dr Hicks and Dr Greg Ryder.

5 CONCLUSIONS

5.1 In my opinion Lake Poukawa and Pekapeka Swamp pass the screening criteria for the native aquatic bird value and meet the definition of outstanding.

5.2 I consider the proposed Schedule 25 screening criteria for Regionally Outstanding Waterbodies requires amendment, specifically the criterion at List A (b) for 'Ecology – Habitat for native aquatic birds' to more appropriately reflect the regional context waterbodies are being assessed within, and to not set the bar at the same level used in a national context used for Water Conservation Orders.