

## Technical guidance for the determination of natural wetlands under Greater Wellington's proposed Natural Resources Plan.

This document sets out the methodology recognised by Greater Wellington Regional Council (GWRC) for determining the presence of natural wetlands as defined in the Wellington region proposed Natural Resources Plan (PNRP).

### Introduction

All natural wetlands in the Wellington Region meet the definition of significant natural wetland under the PNRP. This is because the extent of natural wetland loss in this region has resulted in these habitat types meeting the representativeness and rarity criteria listed in Policy 23 of the Regional Policy Statement 2013.

Being able to determine whether an area is a wetland and delineating its extent is essential to implementing the PNRP. However the PNRP does not dictate how this should be done. This technical guidance will aid understanding of how a natural wetland has been defined and the tools recognised by GWRC for determining their presence.

### Natural wetland definition

There are two parts to defining a natural wetland according to the PNRP. Firstly the plan uses the Resource Management Act (RMA) definition to identify wetland areas and then applies the exclusions as outlined in the Resource Management National Policy Statement for Fresh Water (2020) [NPS-FM] to define which wetlands may be considered to be natural wetlands.

For the first part, a wetland is defined in the PNRP as:

“a permanently or intermittently wet area, shallow water and land margin that supports a natural ecosystem of plants and animals that are adapted to wet conditions, including the beds of lakes and rivers, the coastal marine area (e.g. saltmarsh), and groundwater-fed wetlands (e.g. springs).”

A natural wetland is then defined as a wetland that is not:

- (a) A wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or
- (b) A geothermal wetland; or
- (c) Any area of improved pasture that, at the commencement date, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain-derived water pooling.

Improved pasture is defined by the Resource Management Stock Exclusion Regulations (2020) as: *“an area of land where exotic pasture species have been deliberately sown or maintained for the purpose of pasture production, and species composition and growth has been modified and is being managed for livestock grazing.”*

GWRC is taking this definition further through this technical guidance by defining a list of exotic pasture species (Attachment 1). This list was derived from the New Zealand Grassland Association handbook of commercially available plants currently cultivated for livestock production in New Zealand (Stewart et al 2014)<sup>1</sup>. These include ryegrass, clovers, cocksfoot, tall fescue, brome species, phalaris, timothy and Yorkshire fog, as well as forage crops.

### **Wetland determination and delineation**

The RMA wetland definition is used as the first step in determining whether or not an area qualifies as a wetland. For this purpose, the key feature of the definition is that wetland habitats support natural ecosystems of plants that are adapted to wet conditions. Wetland plants cannot be present without permanently or intermittently wet conditions. Similarly, wetland animals rely on the presence of wetland plant communities. So, the abundance of plants adapted to permanently or intermittently wet conditions ultimately determines the presence of a wetland.

GWRC has adopted the Wetland delineation protocols, as detailed in the NPS-FM to establish the abundance of wetland plants. These protocols are based on the methodology detailed in Clarkson 2013<sup>2</sup>, with the refinements described in Clarkson 2018<sup>3</sup>. It is important to note that this is the only quantitative, scientific methodology available for this purpose in New Zealand. It determines a quantitative score based on the abundance of plant species that require permanently or intermittently wet conditions for all or part of their life-cycles.

The methodology to be used as detailed in Clarkson 2018 is highlighted here:

- For small areas (< or = 2ha), representative plots should be established in each major vegetation type, while
- For larger areas (> 2ha), representative plots should be established along transects.

Note that if atypical situations occur (e.g. where vegetation, soils or hydrology are absent or illegal clearance activity has occurred) the methodology to be used is that detailed in Sections E-G of

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<sup>1</sup> Stewart A, Kerr G, Lissaman W and Rowarth J. 2014. Pasture and forage plants for New Zealand. New Zealand Grassland Association, Grassland Research and Practice Series No. 8, Fourth edition.

<sup>2</sup> Clarkson B. 2013. A vegetation tool for wetland delineation in New Zealand. Landcare Research

<sup>3</sup> Clarkson B. 2018. Wetland delineation protocols. Manaaki Whenua – Landcare Research

Environment Laboratory 1987.<sup>4</sup> In essence, if vegetation indicators of wetland extent are no longer present, then other indicators of hydrology or soils are to be used.<sup>5</sup>

A spreadsheet that can be used to calculate the Wetland Dominance Test and/or the Wetland Prevalence Test has been developed by GWRC. Please email [roger.uys@gw.govt.nz](mailto:roger.uys@gw.govt.nz) if you would like a copy.

### **Minimum size of a natural wetland**

Neither the PNRP nor NPS-FM define a minimum size for natural wetlands. There are however practical considerations when applying the Wetland delineation protocols. Clarkson's (2013) method uses a 2m x 2m vegetation plot to assess the abundance of wetland plants. Using the same method for determining the abundance of improved pasture species, the smallest area that could be determined to be a natural wetland would need to be at least 3m in diameter. This is necessary to accommodate the 2m x 2m plot which is 2.8m across its diagonal length.

An exception to this guidance is when mapping large wetlands with small satellite wet areas around them that are less than 3m in diameter. If the distance of the satellite to the main wetland is less than the length of the longest axis of the satellite it should be mapped as part of the main wetland complex; unless there is evidence to show that it is hydrologically separate. So, for example, a small patch of sedges at most 2m in diameter should be mapped as part of the main wetland if it was closer than 2m from the edge of the main wetland.

Another exception is where wetland vegetation is present along narrow waterways with subterranean or intermittent flow such as in the bottom of damp gullies. In this instance, if the vegetation community is wide enough that you cannot comfortably step across it and qualifies as natural wetland it should be mapped.

### **Materials provided in attachments**

1. Species list of pasture plants

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<sup>4</sup> Environment Laboratory 1987. Corps of Engineers Wetland Delineation Manual Technical Report Y-87-1. US Army Engineer Waterways Experiment Station, Vicksburg, Mississpp1.

<sup>5</sup> Fraser S, Singleton P and Clarkson B 2018. Hydric soils – field identification guide. Landcare Research Contract Report LC3233. Report prepared for Tasman District Council.

## Attachment 1: Pasture species list from NZ Grasslands Association

Pasture species mentioned in Stewart A, Kerr G, Lissaman W and Rowarth J (2014). *Pasture and Forage Plants for New Zealand*. New Zealand Grassland Association, Grassland Research and Practice Series No. 8, Fourth Edition.

Name	Scientific name
Barley	<i>Hordeum vulgare</i>
Beet – Fodder (Fodder beet / Mangolds)	<i>Beta vulgaris</i>
Brome – Coloured	<i>Bromus coloratus</i>
Brome – Grazing	<i>Bromus stamineus</i>
Brome – Pasture	<i>Bromus valdivianus</i>
Brome – Smooth	<i>Bromus inermis</i>
Brome – Upland	<i>Bromus sitchensis</i>
Chicory	<i>Cichorium intybus</i>
Clover – Arrowleaf	<i>Trifolium vesiculosum</i>
Clover – Balansa	<i>Trifolium balansae</i>
Clover – Caucasian	<i>Trifolium ambiguum</i>
Clover – Gland	<i>Trifolium glanduliferum</i>
Clover – Persian	<i>Trifolium resupinatum</i>
Clover – Red	<i>Trifolium pratense</i>
Clover – Strawberry	<i>Trifolium fragiferum</i>
Clover – Subterranean (Sub clover)	<i>Trifolium subterraneum</i>
Clover – White	<i>Trifolium repens</i>
Cocksfoot	<i>Dactylis glomerata</i>
Fescue – Meadow	<i>Lolium pratense</i>
Fescue – Tall	<i>Lolium arundinaceum</i>
Festulolium	<i>xFestulolium</i> spp.
Kale (Chou moellier)	<i>Brassica oleracea</i>
Kikuyu	<i>Cenchrus clandestinus</i>

Pasture species mentioned in Stewart A, Kerr G, Lissaman W and Rowarth J (2014). *Pasture and Forage Plants for New Zealand*. New Zealand Grassland Association, Grassland Research and Practice Series No. 8, Fourth Edition.

Name	Scientific name
Lotus	<i>Lotus uliginosus</i> syn. <i>L. pedunculatus</i>
Lucerne (Alfalfa)	<i>Medicago sativa</i>
Oats	<i>Avena sativa</i>
Phalaris	<i>Phalaris aquatica</i>
Plantain	<i>Plantago lanceolata</i>
Prairie grass	<i>Bromus willdenowii</i>
Radish	<i>Raphanus sativa</i>
Rape	<i>Brassica napus</i> var. <i>biennis</i>
Rescue Grass	<i>Bromus catharticus</i> syn. <i>B. unioloides</i>
Ryecorn	<i>Secale cereale</i>
Ryegrass – Annual	<i>Lolium rigidum</i>
Ryegrass – Italian	<i>Lolium multiflorum</i>
Ryegrass – Perennial	<i>Lolium perenne</i>
Ryegrass – Short rotation (Hybrid)	<i>Lolium boucheanum</i> syn. <i>L. xhybridum</i>
Sulla	<i>Hedysarum coronarium</i>
Swede	<i>Brassica napus</i> var. <i>Napobrassica</i> or <i>rapifera</i>
Timothy	<i>Phleum pratense</i>
Trefoil – Birdsfoot	<i>Lotus corniculatus</i>
Triticale	<i>xTriticosecale</i>
Turnip	<i>Brassica rapa</i> syn. <i>B. campestris</i>
Wheat	<i>Triticum</i> spp.
Yorkshire fog	<i>Holcus lanatus</i>