

**Table S1.** Summary of the process undertaken to compile and revise the biodiversity schedule (Schedule E) of the One Plan by Horizons Regional Council. Steps 1–3 were conducted in preparation for public notification of the proposed One Plan. Steps 4–7 were undertaken in response to submissions on the proposed One Plan and during the process of expert caucusing throughout the council hearings on the proposed One Plan. During this phase Schedule E underwent several iterations. For full details and justifications of methodologies and revisions see Maseyk (2007, 2008a, b). Biodiversity policies and rules were developed in a parallel process and are not detailed here.

Steps taken to compile the biodiversity schedule in the One Plan	Source of information	Method	Outcome
<b>Step 1: Identification of habitat types previously (A) and currently (B) present within the Manawatu-Wanganui Region and the description of these habitat types (C)</b>			
A: Identification of habitat types previously present in the region	Predicted Potential Natural Vegetation Types of New Zealand (PVNZ, Leathwick et al. 2004) Wetland ecosystems of national importance (WONI, Ausseil et al. 2008)	Regional analysis of PVNZ to determine predicted previous extent of habitat types. Wetland spatial information was modified using the WONI database.	27 habitat types were identified: <ul style="list-style-type: none"> <li>• 18 forest habitat types</li> <li>• 1 scrub habitat (above the treeline)</li> <li>• Wetland habitat</li> <li>• Duneland habitat</li> <li>• 6 non-vegetated habitat types</li> </ul>
B: Identification of habitat types currently present in the region	Land Cover Database v.2 (LCBD2, Terralink 2004) Wetland ecosystems of national importance (WONI, Ausseil et al. 2008) National programme to identify originally rare terrestrial ecosystems (Williams et al. 2006 and subsequently 2007) Expert opinion	Indigenous vegetation cover of similar structure to that predicted by PVNZ was delineated using LCBD2. Remaining habitat type was spatially represented and extent quantified by comparing PVNZ to LCBD2 and WONI.  Ecosystems listed in Williams et al. (2006, 2007) known to be present within the region were identified.  Expert opinion was solicited from DOC ecologists to identify uncharacteristic habitat type not identified by the above methods.	A total of 37 habitat types were identified*: <ul style="list-style-type: none"> <li>• 26 of the 27 habitat types identified above (A) (1 forest habitat type has been lost)</li> <li>• 10 naturally rare habitat types</li> <li>• 1 uncharacteristic habitat (kānuka forest)</li> </ul> Only the first 26 habitat types were spatially depicted.  * this was not considered a complete list of all indigenous habitats found within the region.
C: Description of habitat types	Predicted Potential Natural Vegetation Types of New Zealand (PVNZ, Leathwick et al. 2004) Wetland Types of New Zealand (Johnson & Gerbeaux 2004) National programme to identify originally rare terrestrial ecosystems (Williams et al. 2006) Expert opinion	The PVNZ habitat type names and descriptions were adapted to fit the regional context.  Wetland habitat types were described as per Johnson & Gerbeaux (2004).  Rare habitat type was named and described according to Williams et al. (2006, 2007).  Expert opinion was solicited to describe kānuka forest.	37 habitat types named and described: <ul style="list-style-type: none"> <li>• 16 forest habitat types</li> <li>• 1 scrub habitat (above the treeline)</li> <li>• 8 wetland habitat types (including 4 naturally rare habitat types)</li> <li>• 6 naturally rare habitat types (including duneland)</li> <li>• 6 non-vegetated habitat types</li> </ul> Of these only the 26 habitat types identified using PVNZ, WONI, and LCBD2 were spatially depicted (including wetland generically).  The 8 naturally rare habitats, kanuka forest and 8 wetland types were included by definition only (not spatially depicted).

Steps taken to compile the biodiversity schedule in the One Plan	Source of information	Method	Outcome
<b>Step 2: Classification of habitat types into threat categories</b>	<p>Predicted Potential Natural Vegetation Types of New Zealand (PVNZ, Leathwick et al. 2004)</p> <p>Land Cover Database v.2 (LCDB2, Terralink 2004)</p> <p>National programme to identify originally rare terrestrial ecosystems (Williams et al. 2006)</p>	<p>Previous and current extents of predicted habitat types were compared to calculate portion (%) remaining of former extent of habitat types where this could be quantified.</p> <p>Expert opinion was solicited to determine proportion of loss where quantified data were unavailable.</p> <p>Williams et al. (2006) was used as a definition of 'rare'.</p> <p>Four threat classifications were defined:</p> <ol style="list-style-type: none"> <li>1. <i>Rare</i>: habitat types that have been described as naturally rare ecosystems</li> <li>2. <i>Threatened</i>: habitat types that have been reduced to &lt; 20% of former extent</li> <li>3. <i>At-risk</i>: habitat types that have been reduced to &lt;50% but &gt;20% of former extent</li> <li>4. '<i>No threat category</i>': habitat types that have retained &gt;50% of former extent</li> </ol>	<p>Habitat types identified and described in Step 1 were classified into threat categories:</p> <ul style="list-style-type: none"> <li>• <i>Rare</i>: 8 habitat types</li> <li>• <i>Threatened</i>: 14 habitat types</li> <li>• <i>At-risk</i>: 3 habitat types</li> <li>• '<i>No threat category</i>': 12 habitat types</li> </ul>
<b>Step 3: Compilation of Schedule E</b>	<p>New Zealand Threat Classification and lists (Hitchmough 2002; Molloy et al. 2002, Hitchmough et al. 2007; Miskelly et al. 2008; Townsend et al. 2008; de Lange et al. 2009)</p> <p>Expert opinion</p>	<p>A list of nationally threatened (publications) and regionally uncommon species (expert opinion) was compiled.</p> <p>The Threat Classification System and lists and associated publications were updated by DOC during the course of the One Plan development. The most recent publications were used throughout.</p> <p>Definition of 'riparian margin' habitat was drafted. Significance criteria were drafted.</p> <p>Inclusion and exclusion thresholds for all habitat types were drafted.</p>	<p>Compilation of Schedule E for notification in the proposed One Plan:</p> <ul style="list-style-type: none"> <li>• 37 listed habitat types classified and described. <ul style="list-style-type: none"> <li>• <i>Rare</i> (8), <i>Threatened</i> (14), <i>At-risk</i> (3), '<i>No threat category</i>' (12)</li> </ul> </li> <li>• Definition of <i>At-risk</i> habitat to include riparian margin and habitat containing threatened species.</li> <li>• Table listing 130 nationally threatened or regionally uncommon species</li> <li>• Inclusion and exclusion thresholds for all habitat types</li> <li>• Criteria for assessing ecological significance under four categories (representativeness, rarity and distinctiveness, ecological context, previously assessed sites)</li> </ul>
<b>Step 4: Developing a more effective way to provide for significant fauna</b>	<p>As for Step 3</p> <p>Recovery plan for <i>Powelliphanta</i> land snails (Walker 2003)</p>	<p>Analysis of habitat requirements of nationally threatened and regionally uncommon species.</p> <p>Where critical habitat not already included in habitat types listed in Schedule E, additional habitat type identified, defined, and described.</p>	<ul style="list-style-type: none"> <li>• Removal of species table from Schedule E</li> <li>• Addition of two habitat types defined by presence of threatened species</li> </ul>

Steps taken to compile the biodiversity schedule in the One Plan	Source of information	Method	Outcome
<b>Step 5: Rationalisation of list of habitat types</b>	Expert opinion	Schedule E amended in response to submissions on the proposed One Plan. Expert caucusing to develop a revised list of habitat types to be included in Schedule E.	<ul style="list-style-type: none"> <li>• Identification, description, and classification of additional habitat types: <ul style="list-style-type: none"> <li>• uncharacteristic, non-woody, or originally rare habitat types (4)</li> <li>• riparian margin (1)</li> <li>• habitat of threatened species identified in Step 4 (2)</li> </ul> </li> <li>• Removal of ‘<i>No threat category</i>’ habitat types (12)</li> </ul>
<b>Step 6: Clarifications of significance criteria and inclusion/exclusion thresholds</b>	Expert opinion	Amendments in response to submissions on the proposed One Plan. Expert caucusing to refine wording of criteria and thresholds.	<ul style="list-style-type: none"> <li>• Revision of significance criteria to three categories (representativeness, rarity and distinctiveness, ecological context)</li> <li>• Improvements in definitions of significance criteria</li> <li>• Removal of significance criteria from Schedule E and placement within the policies (Chapter 12)</li> <li>• Refinements to wording of inclusion/exclusion thresholds</li> <li>• Addition of new thresholds to accommodate additional habitat types identified in Step 5</li> </ul>
<b>Step 7: Revised Schedule E</b>	As above	Steps 4–6	Revised Schedule E including: <ul style="list-style-type: none"> <li>• 32 listed habitat types classified and described <ul style="list-style-type: none"> <li>• <i>Rare</i> (10), <i>Threatened</i> (15), <i>At-risk</i> (7)</li> </ul> </li> <li>• Inclusion/exclusion thresholds targeted to habitat type and classification</li> </ul>

## References

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**References continued**

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**Table S2.** A summary of the final list of habitat types identified in the Manawatu-Wanganui Region listed by threat classification. All habitat types classified as Rare, Threatened or At-risk are included in Schedule E of the operative One Plan and thus subject to regulatory protection via the resource consenting process. Definitions and descriptions of these habitat types are provided in the full version of Schedule E in the One Plan. Habitat types categorised as ‘No threat classification’ are excluded from Schedule E and thus are not subject to regulatory protection under the biodiversity provisions of the One Plan. This is also the case for habitat types unaccounted for. All habitat types (regardless of classification) may be eligible for enhancement funding under the non-regulatory methods of the One Plan.

<b>Habitat types classified as Rare, Threatened or At-risk</b>		
<b>Rare habitat types</b>	<b>Threatened habitat types</b>	<b>At-risk habitat types</b>
Dune slack wetland	Hardwood/broadleaved forest or treeland	Podocarp/kamahi forest or treeland
Ephemeral wetland	Kahikatea-pukatea-tawa forest or treeland	Hall’s totara/broadleaf forest or treeland
Pakihi wetland	Podocarp forest or treeland	Mountain beech forest or treeland
Seepage and spring wetland	Podocarp/broadleaf-fuchsia forest or treeland	Indigenous forest, treeland or scrub on alluvial terrace, floodplains, shingle fans or sand dunes supporting divaricating plant species
Cliffs, scarps and tors	Podocarp/tawa-mahoe forest or treeland	Indigenous forest or scrub containing <i>Powelliphanta</i> land snails
Karst systems	Rimu/tawa-kamahi forest or treeland	Riparian margin
Screes and boulderfields	Podocarp/red beech-kamahi-tawa forest or treeland	Indigenous tussockland below the treeline
Active duneland	Podocarp/black beech/mountain beech forest or treeland	
Stable duneland	Hall’s totara/silver beech-kamahi forest or treeland	
Inland duneland	Kowhai-broadleaved forest or treeland	
	Kānuka forest or treeland	
	Bog and fen wetland	
	Swamp and marsh wetland	
	Saltmarsh wetland	
	Lakes and lagoons and their margins	
<b>‘No threat classification’ habitat types</b>	<b>Reason for exclusion</b>	
Estuarine open water	Captured by wetland habitat	
Lake and pond	Not affected by land use activities	
Alpine gravel and rock		
Permanent snow and ice		
River	Dealt with elsewhere in the One Plan	
River and lakeshore gravel		
Podocarp/kamahi-silver beech forest	Well represented (>50% remains), well protected, and lower threat from land use activities	
Mountain beech-red beech forest		
Mountain beech-red beech forest		

<b>Habitat types classified as Rare, Threatened or At-risk</b>		
<b>Rare habitat types</b>	<b>Threatened habitat types</b>	<b>At-risk habitat types</b>
<b>'No threat classification' habitat types</b>	<b>Reason for exclusion</b>	
Podocarp/kamahi-beech forest		
Red beech-silver beech forest		
Silver beech forest		
Scrub, tussock-grassland and herbfield above the treeland		
<b>Habitat types known to be present in the region and unaccounted for in the biodiversity provisions of the One Plan</b>		
Manuka/kanuka scrub		
Shrubland communities		
Induced early-successional vegetation communities		