

IN THE MATTER OF The Resource Management Act 1991

AND

IN THE MATTER OF appeals under clause 14 of the First Schedule to the Resource Management Act 1991 concerning proposed One Plan (Combined Regional Policy Statement and Regional Plan) for the Manawatu-Wanganui Region.

BETWEEN **TRUSTPOWER LIMITED**
ENV-2010-WLG-000145

AND **MERIDIAN ENERGY LIMITED**
ENV-2010-WLG-000149

AND **OTHER PARTIES**
Appellants

AND **MANAWATU-WANGANUI (HORIZONS) REGIONAL COUNCIL**
Respondent

**STATEMENT OF EVIDENCE OF MATIU CORRIGILL PARK ON BEHALF OF
MERIDIAN ENERGY LIMITED AND TRUSTPOWER LIMITED
RELATING TO THE PROPOSED ONE PLAN BIODIVERSITY PROVISIONS**

17 February 2012

Introduction

- i. My name is Matiu Park. I am a senior ecologist and planner working for Boffa Miskell Ltd, based in its Wellington office. I hold a Bachelor of Science in Ecology from Otago University, and a Masters in Environmental and Resource Planning from Massey University.
- ii. I have worked in the fields of ecology, planning, research and environmental policy for 14 years, including being self-employed as an ecologist for a number of these years. From 1997 to 2000, I was self-employed in a range of ecological roles, including field survey and site inventories, restoration planning, research, and assessments of effects. From 2002 to 2006, I was a policy adviser in the Environment Group of the Ministry of Transport, where I was the Ministry's primary adviser on Resource Management Act matters from 2004 to 2006. I joined Boffa Miskell in January 2007.
- iii. I have undertaken a range of ecological assessments across the North Island. These assessments have ranged from small-scale residential property development, through to large-scale subdivisions and major infrastructure projects, a number of which have been in the Manawatu-Wanganui Region. This work has involved biological and ecological surveys, descriptions of natural values, assessments of ecological significance, water quality monitoring and the evaluation of environmental effects on terrestrial and freshwater ecology.
- iv. My professional memberships include the New Zealand Planning Institute (Grad) and the New Zealand Ecological Society.
- v. I have read the Code of Conduct for Expert Witnesses issued as part of the Environment Court Practice Notes. I agree to comply with the code and am satisfied the matters I address in my evidence are within my expertise. I am not aware of any material facts that I have omitted that might alter or detract from the opinions I express in my evidence.

1 Scope of Evidence

1.1 My evidence provides my independent ecological opinion on a number of specific appeal points Meridian and TrustPower are a party to. My evidence takes into account the section 42A report recommendations on the indigenous biological diversity related provisions of the Proposed One Plan and the relevant expert ecological evidence prepared by and on behalf of Horizons.

1.2 My evidence covers the following:

- (a) The approach in Schedule E including the methodology for identifying “at risk”, “rare” and “threatened” habitats and how this related to the approach to assessing significance under section 6(c) of the RMA;
- (b) Why it is important to include the reference to “site specific assessments” in Policy 7-2A;
- (c) The accepted approach to biodiversity offsets; and
- (d) Why it is important that the reference to “functioning ecosystem processes” in Policy 12.6 is retained.

2 My involvement in the One Plan

2.1 I was originally commissioned by Meridian and TrustPower to provide ecological advice as part of the Council level process relating to the indigenous biological diversity provisions of the Proposed One Plan and to present ecological evidence on Chapters 7 and 12 and Schedule E. Since these original hearings, I have been assisting Meridian and TrustPower with ecological advice on matters relating to the unresolved appeals to which they are interested parties. In my capacity as expert advisor I attended a number of pre-hearing meetings on indigenous biological diversity, as well as caucusing and mediation on the One Plan provisions on behalf of Meridian and TrustPower.

2.2 Overall, the evidence on behalf of Meridian and TrustPower seeks to ensure that the provisions contained in the Proposed One Plan are based on sound ecological principles and also achieve a realistic approach to maintaining indigenous biological diversity and recognising the constraints imposed on land use. The provisions should be capable of practical application and

implementation across the varied environments of the Manawatu-Wanganui Region.

3 The Schedule E approach

- 3.1 In summary, the Manawatu Wanganui Regional Council (Horizons) has taken a novel approach to the development of provisions for the management of indigenous biological diversity in the Proposed One Plan. The One Plan approach applied predictive models (LENZ and LPVT¹) to determine the historical extent and distribution of vegetation communities across the region. They then subtracted the current regional vegetation patterns produced by a spatial modelling tool (LDCBII²) from the historical vegetation to determine the extent of loss of each of the identified habitat types.
- 3.2 If the plant community was calculated to be reduced to 20% or less of its original distribution it was classified as “Threatened”. If the plant community historically had very limited distribution within the region it was listed as “Rare”. If the plant community was calculated to be reduced to between 20% and 50% of its original distribution it was classified as “At Risk”. Other scientific research on naturally rare or uncommon plant communities and habitat types were then incorporated where there was insufficient detail to map these areas using spatial modelling tools (e.g. rare karst landforms, wetlands, habitat for rare invertebrates etc.). The identified rare, threatened and at-risk plant communities and habitats were then classified and listed in a schedule to the Proposed One Plan (Schedule E). These thresholds were then linked to policies and rules. Finally, the One Plan included established significance assessment criteria against which any consent application for activities within rare, threatened, or at risk plant communities or habitats would be tested.
- 3.3 The reason this approach is novel is that traditionally a schedule of sites and their significance would be determined by field survey followed by assessment of each site against significance criteria. That schedule would be included in the plan and provisions would rely upon it (generally alongside other provisions relating to vegetation clearance thresholds). Typically maps are also included locating areas of significance.

¹ Land Environments of New Zealand (Leathwick et al, 2002; Leathwick et al, 2003) and the Leathwick Predicted Potential Natural Vegetation Types (Leathwick et al, 2005, Leathwick et al, unpubl.)

² Land Cover Database2 (Terralink, 2004)

- 3.4 Overall, I am supportive of the general approach proposed by the Proposed One Plan to maintaining indigenous biological diversity in the Manawatu-Wanganui Region. The use of the national spatial databases and predictive models is considered to be scientifically robust for identifying the remaining extent of a given community at a regional scale when supported by scientific research on naturally uncommon and rare habitat types and species.
- 3.5 Based on the research methodology behind the national spatial databases and predictive modelling tools used to inform this assessment³ the habitat types identified in Schedule E as "rare" and "threatened" are in most instances considered likely to constitute significant indigenous vegetation or significant habitat for indigenous fauna (section 6(c) RMA), although, as I outline below, there will be instances where this is not the case.
- 3.6 The Schedule E approach also has the benefit of allowing a broad brush assessment of the potential significance of an area to be determined through a relatively straightforward desk-top exercise by council staff. I therefore support Schedule E as a broad-brush tool for identifying areas that are potentially ecologically significant. I consider the use of this framework in Schedule E to be consistent with best practice use of these techniques.
- 3.7 Following the submissions and Council hearings on the Proposed One Plan, there have been a number of substantial changes to Schedule E that in my opinion have improved its application, including size thresholds and habitat type definition changes. At the request of the Department of Conservation a number of additional habitat types have been included. However, partly as a result of some of these changes and new inclusions, Schedule E continues to cast the net very widely (as I outline in my discussion below of Policy 7-2A) making, in my view, site assessments an essential requirement of the ongoing process.
- 3.8 Given the extent and complexity of the Region's indigenous flora and fauna, Meridian and TrustPower have accepted Horizon's approach to the development of Schedule E through predictive and spatial imagery. However, Meridian's and TrustPower's acceptance of the Schedule E approach is based on the need to groundtruth rare, threatened or at-risk habitat types to

³ Land Environments of New Zealand (Leathwick et al, 2002; Leathwick et al, 2003); Land Cover Database2 (Terralink, 2004); the Leathwick Predicted Potential Natural Vegetation Types (Leathwick et al, 2005, Leathwick et al, unpubl.); and Wetlands of National Importance (Aussiel et al, in press)

determine ecological significance at the site level through the discretionary activity resource consent process. This requires flexibility in the rule and assessment criteria to allow for the finding of field investigations which may be contrary to the predictive model outputs.

- 3.9 As outlined by Mr Schofield's evidence, this uncertainty is also the reason why discretionary activity status is the more appropriate classification for activities in these areas, as opposed to the non-complying status sought by the appellants. This brings me to my next point, Policy 7-2A and the necessity of undertaking site visits to determine ecological significance.

4 The need for "site specific assessments" in the One Plan

- 4.1 While the Schedule E approach was novel in terms of moving away from traditional site assessments and inventories of significant areas in plans, there was sufficient uncertainty in the predictive and satellite imagery used, that site visits are required to confirm a site's significance. Ultimately, relying on the habitat type solely meeting the 'representative' or 'rarity/distinctiveness' criterion means that Schedule E can only ever be a broad brush tool for identifying habitats of ecological significance under the RMA.

- 4.2 In my opinion, Schedule E was developed on the premise of site visits. The first page of Schedule E includes a comment - "a site visit where required" in terms of interpreting the Schedule. I also understood that DOC initially supported the site visit approach, noting Ms Hawcroft's evidence to the council hearing on this matter where she stated in support of the Schedule E approach that *"The combination of a schedule that identifies habitats as likely to be more or less significant (rare, threatened, at risk or no-threat) and the requirement for site-specific decisions where habitat is likely to be significant is a practical middle ground between a default vegetation clearance and land disturbance rule (which assumes all habitat is significant) and a schedule of significant sites (which assumes any sites not in the schedule are not important)"*⁴. Ms Hawcroft also stated in response to the Schedule E approach that it *"is much preferable to have a process that triggers an inspection that*

⁴ Refer Statement of Evidence of Ms Amy Hawcroft, 11 July 2008, paras 14 and 19

*will be site-specific and up to date, rather than relying on patchy and dated information*⁵ .

- 4.3 The evidence of Ms Barton for Council also clarifies in her Court evidence her position as to the importance of site visits when discussing the relevant activity status where she says *“Rare and threatened habitats are significant in terms of s.6(c) in the framework as established under the DV POP, but the condition and particular value of these habitats need to be addressed on a case by case basis*⁶. Ms Barton goes on to state in her discussion on her experience with the practical application matters of the One Plan to date that *“Schedule E habitat types were readily identified on the ground, and guided by the biodiversity policies, ecological values associated with the respective sites were determined”* (para 55(a)) and *“As site visits are undertaken by Horizons environmental management officers (soils) and/or ecologists and at times also a consent planner, the biodiversity provisions of the DV POP can be discussed alongside water quality provisions and rules regarding land to determine the best outcome. By enabling such site-specific, on-site conversations to be held, the biodiversity provisions are working to guide sound land management decisions at the property scale”* (para 55(b)).

- 4.4 Given the fundamental importance of Policy 7-2A(a) to the subsequent biodiversity provisions in the Regional Plan, I reiterate and confirm my agreement with the concluding comments of the Council hearing committee after hearing from all the ecological experts. The Committee’s report clarified that it cannot be assumed that all rare habitats, threatened habitats and at-risk habitats are automatically s 6(c) RMA areas, stating:

“Based on all the evidence of the ecological experts, we have decided that we should distinguish between rare habitats and threatened habitats on the one hand and at-risk habitats on the other, at least to some extent. We have concluded that: (a) rare habitats and threatened habitats should be recognised as s 6(c) areas unless site-specific assessments determine otherwise; but (b) at-risk habitats need site-specific assessments to determine their ecological significance”⁷ (emphasis added).

⁵ Ibid, para 124, page 31

⁶ Refer para 53 at page 17 of Ms Barton’s planning evidence for Council on the biodiversity provisions.

⁷ Refer page 5-19 of Biodiversity and Heritage Hearing Decision - Volume 1 - Part 5.

- 4.5 Given the appellants' position that all the rare and threatened habitat types in Schedule E are ecologically significant – and that therefore site-specific assessments are not required to determine significance – to assist the Court I will now outline some of my recent experiences in the Region in Schedule E habitat types that determine otherwise.

Swamp and marsh wetlands

- 4.6 Schedule E identifies swamp and marsh wetlands as a threatened habitat type. They are defined as '*swamp and marsh wetlands support indigenous sedges, rushes, reeds, flaxland, tall herbs, herbfield, shrubs, scrub and forest*'. Under Table E.2 of Schedule E, a swamp and marsh wetland habitat type must comprise an area of naturally occurring indigenous wetland habitat covering at least 0.1ha. The only exceptions in Table E.2(b) are damp gully heads, or paddocks subject to regular ponding, or dominated by pasture or exotic species, or ditches or drains or areas or wetland habitat artificially created.
- 4.7 In essence, because the inclusion of 'swamp and marsh wetland habitat types' was determined largely by satellite imagery and predictive modelling (i.e. less than 20% remaining = threatened habitat type), Schedule E determines that all 'swamp and marsh wetlands', irrespective of condition or modification are significant if they are larger than 0.1 ha and dominated by indigenous species. While there is no doubt as to the large scale of historic loss of wetlands in the Region, this is not sufficient justification to imply that every wetland, irrespective of condition, is ecologically significant under section 6(c) RMA. There are numerous examples of highly modified wetlands dominated by raupo, a common and often invasive indigenous species in the Region. I note Table E.2(b) actually excludes 'ditches or drains supporting raupo', highlighting the nature of this species.
- 4.8 As a further illustration, I am currently undertaking a joint Department of Conservation and Horowhenua District Council-funded review of approximately 30 large coastal dune lakes and wetlands in the Horowhenua District. While there is no doubt that a number of these wetlands are ecologically significant, a number are so highly modified that Horizons field staff have commented in the Regional Wetland Inventory that although meeting the Schedule E habitat type definitions, a number are considered to

be *'extremely low value and extremely degraded'* (Otawhaki Lagoon), *'fairly low condition, southern units are very degraded by stock'* (Kuku Lagoon) and *'relatively low ecological value'* (Lake Waitaha). While these comments do take into account some aspect of a site's condition, they raise doubt as to whether each of these dune lakes and wetlands indeed constitute significant indigenous vegetation or significant habitat under section 6(c) RMA. These comments also highlight the importance of site visits to confirm ecological significance and the risk of Schedule E being used to determine significance on representativeness or rarity alone.

Cliffs, scarps and tors

- 4.9 Under the Schedule E habitat type description, 'cliffs, scarps and tors' are determined as areas *"where bare substrate, or indigenous lichenfield, tussockland, herbfield, shrubland or scrub, occurs on cliffs (including coastal cliffs), scarps or tors of any rock type"*. The only exclusion for uncommon habitat types in Table E.2(a) is that they must comprise an area larger than 0.05ha (500m²).
- 4.10 I have three major issues with the appellants' position seeking deletion of site-specific assessments to determine ecological significance with this habitat type. First, I do not agree that all the cliffs in the Region are ecologically significant. A number of sites which I am familiar with are highly erodible with larger areas entirely absent of flora and fauna (e.g. the numerous Rangitikei River papa cliff-faces one would typically encounter travelling along SH1). For example, on questioning my colleague Dr Vaughan Keesing, one of the co-authors of the Department of Conservation's Rangitikei Ecological District Protected Natural Area Survey, Dr Keesing commented that during his PNA survey these were considered so common, ubiquitous and of so little ecological value that they were specifically ignored, unless covered in vegetation.
- 4.11 I have also fairly recently been involved in a Meridian Energy wind farm assessment in the Region, Project Central Wind just out of Waiouru. In this example, large areas of habitat where roading and turbines were proposed were consistent with the Schedule E definition 'cliffs, scarps and tors' habitat type. A concerted effort (2 days field work) by experienced botanists, a herpetologist and an entomologist failed to establish any rare flora or fauna

present. Given the scale of these exposed habitat types in the Project Central Wind area alone, I contend that including such areas on the basis of substrate alone is inconsistent with the intention of section 6(c) which provides for the protection of significant indigenous vegetation and significant habitat for indigenous fauna. Further, I consider that by including physical substrates within the rare habitat types on the premise that these areas may potentially contain rare species, means that a site visit is imperative to ground truth the supposition.

- 4.12 My final concern is that in the absence of a site visit, it is almost impossible to determine whether a certain habitat type meets all the Schedule E criteria (Tables E.1, E.2(a) and E.2(b)).
- 4.13 In re-considering the above limitations regarding some of the habitat type inclusions in Schedule E, it is essential that the decisions version of Policy 7-2A(a) be retained to ensure the RPS recognises that some of the habitat types listed in Schedule E may not be determined as significant indigenous vegetation or significant habitat for indigenous fauna.
- 4.14 During expert caucusing, Policy 7-2A(a) and the necessity of a site visit to determine ecological significance was discussed at length, and some suggestions to reword this provision were undertaken. The ecologists agreed to the addition of '*Habitats determined*' at the beginning of this clause to reflect that these were not deemed significant on the basis of their sole inclusion in Schedule E and that some additional determination was required. It was considered that the ecological significance criteria in Policy 12-6 would have provided the basis for determination of which Schedule E habitats were deemed significant. On reflection and in discussion with my planning and ecological colleagues, I support my original position to retain the decisions version of Policy 7-2a(a) which stated '*unless site-specific assessments determine otherwise*'. In the absence of this wording, ecological significance under section 6(c) is determined by Schedule E alone. Mr Schofield discusses the implications of the appellants' relief in his statement, including the relationship between Policy 7-2A and Policy 12-6.

5 Biodiversity offsets (Policies 7-2A and 12-5)

- 5.1 The Department of Conservation and Fish and Game seek a number of changes to the biodiversity offset provisions in Policies 7-2A and 12-5. In

contrast to the appellants', I consider the decisions versions of both Policy 7-2A of the RPS and Policy 12-5 of the Regional Plan provided sufficient guidance to apply biodiversity offsets for a range of purposes, including most importantly providing for biodiversity offsets associated with nationally or regionally significant infrastructure. In my opinion, the appellants' position seeking to restrict their application would have a range of consequences. My colleague, Mr Schofield, also discusses the application of biodiversity offsets from a statutory planning perspective.

- 5.2 In general, the deletion and insertion of new text in Policy 7-2A and Policy 12-5(b) sought by the Department of Conservation and Fish and Game effectively puts aside the tested application of biodiversity offsets within the 'avoid, remedy and mitigate' framework and inappropriately replaces these terms with what I consider to be restrictive and untested biodiversity offset provisions with no proven scientific basis or support. In my opinion, Council's decisions version was consistent with the recognised application by ecologists of biodiversity offsets as a type of mitigation (rather than being a separate type of action).
- 5.3 The use of biodiversity offsets can provide an appropriate way of maintaining and ensuring the long-term viability of areas of indigenous biological diversity and enhancing the biodiversity of a region. The changes sought by the appellants' propose to *"allow biological diversity mitigation offsets in appropriate circumstances, and only after determining that (a) any adverse effect cannot be avoided, remedied or otherwise mitigated; and (b) that such offsets will result in a net indigenous biodiversity gain"*.
- 5.4 Therefore, in my opinion, the appellants' relief outlined above would unnecessarily limit the ability of both Policies 7-2A and 12-5 to allow applicants to offer up/discuss a range of biodiversity offset options that correspond to the effects. As an example, an applicant may be unable to mitigate effects within the area affected by the activity – a requirement sought by the appellants.
- 5.5 In my experience, biodiversity offsets can provide a useful mechanism by which the effects of an activity can be mitigated through the protection and or enhancement of other areas. That is, it includes mitigation which may not be "on-site" or "in-kind" but which nonetheless achieves an off-setting of effects

plus some additional benefits. Although decision makers to date have interpreted the concept of biodiversity off-sets differently as a result of where the concept sits in the RMA context (i.e. is it interchangeable with mitigation or does it sit below mitigation in the 'avoid, remedy or mitigate' framework), in my experience biodiversity offsets have always formed a component of mitigation.

- 5.6 I agree with Meridian and TrustPower that retaining some flexibility in approach is important to ensure these biodiversity gains can be considered as part of any mitigation package.
- 5.7 The Court should be aware that there is currently no single agreed method for calculating net loss or gain of biodiversity or biodiversity values in New Zealand. Methods being considered and tested through pilot studies include some which focus on key species and some which are based on condition (or quality) and/or area of habitat. This matter has been recently discussed in some detail by my colleague Dr Judith Roper-Lindsay in evidence presented on behalf of Meridian and TrustPower on the Proposed Canterbury RPS.
- 5.8 It is also my opinion that much (but not all) of the difficulty in agreeing on a single system for calculating net loss or gain of biodiversity arises from ecological factors and the lack of detailed knowledge about species, habitats and ecosystem processes. Freshwater ecosystems provide further difficulty to the application of the concept. I have summarised the ecological matters around which I understand there is still debate:
- (a) There is no certainty about which species can be taken as surrogates for wider biodiversity values in every environment;
 - (b) Some of the useful indicators or surrogates may be difficult to find on the ground (e.g. lizards);
 - (c) There are valid differences of opinion about the biodiversity importance of successional vegetation types that follow modification by events such as fire or flood;
 - (d) Populations and communities vary throughout seasons, annually and over years but the time needed to collect data on these changes is outside most project planning life-times; and
 - (e) There is limited data on the natural or enhanced regeneration trends of many vegetation and habitat types, and hence on the time that may be needed to achieve any "gain".

- 5.9 As is evidenced in the appellants' relief sought in Policy 12-5 which seek to establish a off-setting hierarchy (e.g. through the use of terminology such as *"the desirability of providing for a net indigenous biodiversity gain within the same habitat type or, where not reasonably practical, in the same ecologically relevant locality as the affected habitat"* and *"whether offsets are inappropriate for the ecosystem (or habitat) type by reason of its vulnerability or irreplaceability"*), there are also a number of unresolved issues around the time and spatial scales over which biodiversity loss or gain can be quantified, measured or ultimately applied. Further difficulties also arise from concerns around the legal, policy and management frameworks needed to ensure that biodiversity benefits actually accrue.
- 5.10 Determining a method appropriate for New Zealand's biodiversity is one of the aims of the Department of Conservation's Biodiversity Offsets Programme. I understand that this programme is seeking to develop a method that is both scientifically sound and practical to apply. I understand that the DOC Biodiversity Offsets Programme concludes in June 2012 and that a "Guidance" document is currently being drafted to set out findings, advice and recommendations.
- 5.11 In my opinion, until such time as this national guidance is finalised, trialled and tested for practical (and legal) application under the RMA, less prescriptive policies such as those provided by the decisions versions of Policies 7-2A and 12-5 will provide more appropriate guidance to local authorities on the application of biodiversity offsets. I agree that these provisions could be coupled with additional guidance in terms of explanatory notes and/or definitions to assist in clarifying how the biodiversity offsets will be interpreted and to clarify that offsets are part of the "avoid, remedy, mitigate" framework of the RMA and to enable biodiversity offsets to be considered as part of a mitigation package.
- 5.12 The Board of Inquiry has recently confirmed this position in response to the management methods proposed the New Zealand Transport Agency to address residual biodiversity effects associated with the proposed Transmission Gully Project, stating: *"for the purposes of Transmission Gully Project the concept of offsetting is intended to encompass management methods which fall into the categories of remedying, or mitigating (or even*

avoiding) adverse effects".⁸ I also understand that the recent Mt Cass decision (*EC 2011/384*) accepted offsetting as one component in package of biodiversity protection and management options in the case of biodiversity and habitat losses associated with this Canterbury wind farm.

6 Reference to “functioning ecosystem processes” in Policy 12.6

- 6.1 The proposal by the Department of Conservation and Fish and Game to delete the criteria ‘*has functioning ecosystem processes*’ from the ecological assessment criteria is in my opinion inconsistent with other plans and policy statements generally well understood by ecologists, planners and the Courts in terms of their application and meaning.
- 6.2 There are currently no nationally adopted ecological assessment criteria. However, criteria that were developed as part of a Ministry for the Environment discussion document in 1999 by Norton and Roper-Lindsay⁹ have provided the basic framework adopted by many local authorities. These criteria built on earlier assessment criteria developed for the Protected Natural Area Programme and have been adopted by many councils and ecologists, often in a modified form that adds or removes criteria according to context. In almost all variations of the significance assessment criteria, representativeness, rarity, distinctiveness/pattern and ecological context are used and there is a good understanding by ecologists, planners and the Courts of how these criteria are defined and interpreted. Overall, these ecological criteria are considered to meet the requirements of section 6(c) of the Act.
- 6.3 Examples of operative regional policy statements that include the concept of functioning ecosystem processes are as follows:
- (a) Appendix 3 of the Waikato Regional Policy Statement Criteria for Determining Significant Indigenous Vegetation and Significant Habitats of Indigenous Fauna includes “It is an area of indigenous vegetation or habitat that is a healthy and representative example of its type because: its structure, composition, and ecological processes are largely intact; and if protected from the adverse effects of plant and animal pests and

⁸ EPA 0072 Final decision and report of Board of Inquiry into the NZTA Transmission Gully Plan Change Request

⁹ Also refer Norton, D.A, & Roper-Lindsay, J. 2004. Assessing significance for biodiversity conservation on private land in New Zealand. *New Zealand Journal of Ecology* Vol.28(2)2, Pages: 295-305

of adjacent landuse (e.g. stock, discharges, erosion), can maintain its ecological sustainability over time.”

- (b) Appendix F of the Bay of Plenty Regional Policy Statement includes within the criteria for Indigenous Vegetation and Habitats of Indigenous Fauna the following: Naturalness - 3.8 Indigenous vegetation or habitat of indigenous fauna is in a natural state or healthy condition, or is in an original condition and under Viability and Sustainability - 3.11 Indigenous vegetation or habitat of indigenous fauna is of sufficient size and compact shape and has the capacity to maintain its ecological viability over time; and 3.12 Indigenous vegetation or habitat of indigenous fauna supports intact habitats and healthy functioning ecosystems.

6.4 In my opinion, the deletion of Policy 12-6(i)(C) ‘*has functioning ecosystem processes*’ as sought by the Department of Conservation and Fish and Game would remove an important and accepted component of representativeness (the over-riding criterion for ecological evaluation). For an ecologist undertaking an inspection of a site, to ignore the condition of that site and whether or not ecosystem processes are intact and robust would be to ignore fundamental parts of the ecology of the site.

6.5 Further to my earlier comments in relation to the necessity of site visits to determine ecological significance of ‘rare, threatened and at-risk’ habitat types, in the absence of such a criterion, there would be no measure as to the degree of similarity between the current community and its original state. This approach would be inconsistent with established ecological assessment criteria and case law. On this matter I note the recent *Friends Of Shearer Swamp Incorporated v West Coast Regional Council* ([2010]NZEnvC 345) decision went so far in this regard as to relate a site’s condition to that which occurred as at 1840.

6.6 As I have outlined in my earlier discussion of the Schedule E approach, the broad-brush identification of habitat types based on satellite imagery and predictive models has some limitations and thus requires site visits to confirm the habitat type values. Indeed, the introduction to Schedule E states that it is recommended a suitably qualified expert is engaged for assistance with interpreting and applying Schedule E. In the absence of a Schedule E determination of condition, a habitat type becomes significant on species presence alone. As outlined by Kelly and Park, 1986¹⁰, in their discussion of

¹⁰ Kelly, G.C & Park, G.N. 1986: The New Zealand Protected Natural Areas Programme: A Scientific Focus. New Zealand Department of Scientific and Industrial Research.

ecological representativeness being the primary concept of the Protected Natural Areas programme, “*representativeness is concerned more with maintaining natural ecological processes and patterns in both space and time, than with individual species*” (page 27).

- 6.7 I consider that the Schedule E approach can be justified as being similar to traditional ecological assessments of significance, by the virtue of taking into account a habitat type’s representativeness or rarity. However, relying solely on ‘LENZ rarity’ for the inclusion of threatened habitats (those habitat types that are at less than 20% of their former extent) and ‘rarity and distinctiveness’ for the rare habitats, does not take into account the full suite of typical assessment criteria. By not taking into account the other range of factors (such as ecological context, condition/ecosystem functioning, size and shape and long-term sustainability) such assessments are always going to be limited. Accordingly, given Schedule E only does part of the job, it is vital that the ecological assessment criteria in Policy 12-6 contain the full suite of criteria to ensure those important considerations of a site’s condition and ecological functioning are included, both to assess a site’s significance and the significance of potential effects on the values that make a site significant.
- 6.8 As far as I am aware, the most recent decision of the Environment Court in terms of the application of ecological assessment criteria is the *Friends of Shearer Swamp Incorporated Decision* referred to earlier. This decision resulted in the inclusion of criteria in the West Coast Proposed Regional Land and Riverbed Management Plan as an appendix. The appeals related to Variation 1 which provided for the management of wetlands on the West Coast. In this most recent case law example, one of the components of the ecological context assessment criteria related to whether “*it contributes to the ecological functions and processes within the wetland.*” While functioning ecosystem processes were considered separately in this decision to representativeness (they are included within representativeness in the Proposed One Plan), they still formed an important part of the criteria and allowed for a measure as to the degree of similarity between the current community and its original state.
- 6.9 While this matter was discussed at some length during recent caucusing (30 January 2012) and some modifications to the functioning ecosystem processes assessment criteria agreed by the ecologists present, the

amalgamation of the term '*functioning ecosystem processes*' into a broader criterion in Policy 12-6 that included a number of other factors such as species composition, structure, diversity and size has had the unintended effect of potentially reducing the application of this criterion to a much broader criterion. I agree with the proposed recommended amendment to Policy 12-6 as outlined in the evidence of Mr Schofield.

- 6.10 Where I do agree with the appellants' is that functioning ecosystem processes alone is not determinative of ecological significance. It is simply one of a range of recognised criteria that assist in qualifying "representativeness" to ensure that good quality examples are significant. In my experience, areas with functioning ecosystem processes are likely to have species, vegetation or habitats that would tick at least one of the other assessment criteria. On this matter I therefore disagree with Ms Barton's statement (page 34) that all three sub-clauses in Policy 12-6(a)(i) stand on their own and if any one of the provisions is found in a particular circumstance that the box is ticked and therefore the habitat is considered representative. Similarly, for the reasons I have outlined above in relation to the examples of wetlands and cliffs, scarps and tors, while these areas may be reduced from their former extent (i.e. 20% or less of known or likely former cover), this is not sufficient rationale, on its own, to determine that any remaining areas of this habitat type are automatically ecologically significant.
- 6.11 My concerns therefore remain with the Department of Conservation's and Fish and Game's appeal that in the absence of such a criterion, there is no basis to exclude areas which trigger the default 20% rule (rare, threatened or at-risk habitats) even though a habitat type has poor or non-existent ecosystem processes. Again, in the case of a small highly modified and fragmented wetland meeting the Schedule E habitat type definition, protection may prove to be impossible in the light of changing land uses. The functioning ecosystem processes criterion also recognises that habitat types do not operate in isolation from their surroundings, rather that they are components of ecosystems, e.g. the case of a wetland being influenced by changes in surface water some distance away. Given the wide range of habitat types captured by Schedule E, functioning ecosystem processes becomes an important consideration that should be taken into account as a matter of

course. In conclusion, I reiterate the following comment from the Council's decision on this important criterion which stated:

“We have also decided to include the other part of the previous criterion for ecological context, but to link it with both of the other criteria for representativeness to enable consideration of whether the site does have functioning ecosystem processes. We have done this in part because habitat being under-represented has effectively already been addressed by its inclusion in Schedule E and in part because we understand from Mr Fuller’s comments that this would enable some evaluation of condition and sustainability”. (Page 5-21 of decision)

7 Conclusion

- 7.1 In conclusion, I continue to support the overall intent and approach of the decisions version of the One Plan and consider the biodiversity provisions represent a workable framework to implement developing best indigenous biodiversity practice at the regional scale.
- 7.2 Overall, the One Plan approach to identifying habitat types through Schedule E based on a combination of satellite imagery and predictive modelling is unique. Despite the range of limitations with this approach I continue to support the use of Schedule E as a tool for identifying potential areas of ecological significance under section 6(c) of the RMA for rare and threatened habitats and for identifying important areas of indigenous biodiversity for at-risk habitats.
- 7.3 However, my continuing support is contingent on retention of field assessment and an ability to consider and assess those aspects that make a particular site ecologically significant. Without these, I consider the proposed use of Schedule E in the manner envisaged by the appellants’ to determine that all rare and threatened habitat types are ecologically significant under section 6(c) RMA is inconsistent with good ecological practice under the RMA.
- 7.4 Given the issues associated with the Schedule E approach, site visits to ground truth a site’s values will always remain an important component of ecological significance assessments. Ensuring that the ability to undertake site-specific assessments to determine a rare or threatened habitat type is

ecologically significant is retained in the Proposed One Plan remains of fundamental importance.

- 7.5 Clarification as to whether a particular Schedule E habitat type is regionally significant (under section 6(c) of the Act) or is solely important for the maintenance of indigenous biological diversity certainly needs to be undertaken by on a case-by-case basis using standardised ecological assessment criteria and field observation, as opposed to solely via predictive modelling and vegetation cover analysis. The consideration of a sites condition and ecological functioning typical to its former presence remains vital to this determination of significance. Although these habitat types may be ecologically significant at other levels, Policies 7-2a and 11-6 need to properly reflect that not all habitat types are of regional significance (and therefore the application of Section 6(c) of the Act) solely as a result of their inclusion in Schedule E.
- 7.6 Similarly, given the central basis of Schedule E is to utilise predictive modelling and satellite imagery to determine the representativeness of a range of habitat types as potentially ecologically significant, ensuring the full suite of ecological assessment criteria is present in the Proposed One Plan is fundamental. The limited range of criterion put forward by the appellants is inconsistent with best practice and those historically applied by ecologists, planners and the Courts.
- 7.7 Finally, given the ongoing debate and research into the practical application of biodiversity offsets under the RMA, the policies 7-2a and 12-5 should reflect that they are simply one of a number of options in the mitigation framework, rather than a mandatory requirement or subject to a hierarchy.



Matiu Park
Senior Ecologist, Boffa Miskell Limited
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