

**BEFORE THE MANAWATU-WANGANUI REGIONAL COUNCIL**

*In the matter of*                      the Resource Management Act 1991

*and*

*In the matter of*                      submissions and further submissions made by  
**MERIDIAN ENERGY LIMITED** to the Manawatu-  
Wanganui Regional Council on the Proposed Horizons  
One Plan – Biodiversity Provisions.

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**STATEMENT OF EVIDENCE OF MATIU CORRIGILL PARK  
Ecologist**

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**11 July 2008**

## **1 Introduction**

- 1.1 My name is Matiu Park. I am a senior ecologist and planner working for Boffa Miskell Ltd and am based in its Wellington office. I hold the qualifications of Bachelor of Science in Ecology (Otago University) and Masters in Environmental and Resource Planning (Massey University). I am a member of the New Zealand Ecological Society and a member of the New Zealand Planning Institute (Grad).
- 1.2 I have worked in the fields of ecology, planning, research and environmental policy for 10 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, being the Ministry's primary adviser on Resource Management Act matters in the period between 2004 and joining Boffa Miskell in January 2007.
- 1.3 I have undertaken a range of ecological assessments across New Zealand. These assessments have ranged from small-scale residential property development, through to large-scale subdivisions and major infrastructure projects. This work has involved biological and ecological surveys, descriptions of natural values, assessments of significance, water quality monitoring and the evaluation of environmental effects on terrestrial and freshwater ecology. I have recently been involved in ecological assessments for significant infrastructure projects in the Manawatu-Wanganui region and have had first hand experience with the notified version of the Proposed One Plan.
- 1.4 In my other role as a planner, I have been involved in a range of projects, mostly with an emphasis on the environmental elements of planning. This has included preparation of submissions, resource consent applications, private plan change documents, preparation of expert evidence and the provision of planning advice. Although I am a qualified planner, I am not presenting planning advice on behalf of Meridian. Planning evidence is being presented by Mary O'Callahan from GHD.
- 1.5 I have been commissioned by Meridian Energy Limited ("Meridian") to provide ecological advice on the indigenous biological diversity provisions of the Proposed One Plan and to present ecological evidence for the purposes of hearings on Chapters 7 and 12. I attended the pre-hearing meeting on indigenous biological diversity in my capacity as expert advisor to Meridian and TrustPower Ltd.
- 1.6 It should be noted that I have also been commissioned by TrustPower Limited ("TrustPower") to provide ecological evidence on Chapters 7 and 12 of the Proposed One Plan. My evidence on behalf of TrustPower is similar to that which I am presenting for Meridian. However, the particular questions I have been asked to

address by the respective parties differ and therefore I have provided separate briefs of evidence.

- 1.7 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.

## **2 Scope of Evidence**

- 2.1 The evidence specifically addresses the indigenous biological diversity provisions contained in Chapters 7, 12 and Schedule E of the Proposed One Plan.

- 2.2 In particular, my evidence provides my independent ecological opinion on a number of specific primary and further submissions made by Meridian.

- 2.3 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.

- 2.4 I have been asked by Meridian to provide ecological evidence on:

- (a) Whether I consider the revised Schedule E recommended by the Officer is robust and if so, in what regard;
- (b) The consistency of the habitats identified in Schedule E with section 6(c) of the Resource Management Act 1991 (the 'Act');
- (c) How significance is usually determined by ecologists for the purposes of section 6(c) of the Act
  - The activity status classification of land disturbance and vegetation clearance activities that impact on rare, threatened and at risk habitats and some recommendations on possible changes to the assessment criteria
  - Discuss the value and benefits of biodiversity offsets, and
  - The appropriateness of the amendments to Objective 7-1, Policy 7-2 and 7-3 and Schedule E put forward in the planning evidence on behalf of Meridian. .

## **3 Overview of Proposed One Plan Biodiversity Provisions**

- 3.1 In my opinion, Horizons has taken a novel approach to the development of provisions for the management of indigenous biological diversity in the Proposed One Plan. In broad terms, Horizons has used the following process:

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- (a) Step one involved the use of predictive models of historical vegetation patterns (LENZ and LPVT<sup>1</sup>) to determine the extent and distribution of vegetation communities across the region.
- (b) Step two involved subtracting from this spatial model of historic vegetation patterns the current regional vegetation patterns produced by a spatial modelling tool (LDCBII<sup>2</sup>). The Wetlands of National Importance (Aussiel et al, in press) was also used to assist with this process. The result is a measure of the extent of loss of each of the identified habitat types.
- (c) Step three was to classify habitat types based on the information that came out of steps one and two. If the plant community was calculated to be restricted to 20% or less of its original distribution it was classified as “Threatened”. If the plant community was calculated to be restricted to between 20% and 50% of its original distribution it was classified as “At Risk”. If the plant community historically had very limited distribution within the region it has been listed as “Rare”. The identified plant communities and habitats were then listed in a schedule to the Proposed One Plan (Schedule E).
- (d) Step four was to link these thresholds to policies and rules. If a community was found to be rare or threatened then any vegetation clearance, earthworks, discharge of contaminants to water, or diversion of water becomes a non-complying activity. Any vegetation clearance, earthworks, discharge of contaminants to water, or diversion of water within an at risk community becomes a discretionary activity.
- (e) Step five was the inclusion of significance assessment criteria against which any consent application for activities within rare, threatened, or at risk plant communities or habitats would be tested.

3.2 The reason this approach is novel is that traditionally a schedule of sites and their significance would be determined following a field survey that identified specific sites, and assessment of each site against significance criteria. That schedule would be included in the plan and provisions would rely upon it (generally alongside with other provisions relating to vegetation clearance thresholds). There are often maps depicting areas of significance.

3.3 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 over a particular area. I therefore support it as a broad-brush tool for identifying areas that are potentially ecologically significant. I consider the use of this framework in

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<sup>1</sup> 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.)

<sup>2</sup> Land Cover Database2 (Terralink, 2004)

Schedule E to be consistent with best practice use of these techniques. The benefits of this approach at a regional scale are considered to outweigh the more traditional approach of using vegetation thresholds and lists of known sites, largely due to the costs involved to individually access and map each habitat type in an area the size of the Manawatu-Wanganui Region.

- 3.4 Although there will be some areas of indigenous biological diversity value within the region that will not be subject to the rules of the Proposed One Plan, it is considered that the generic inclusion of rare, threatened and at-risk habitat types has some merit over desk-top inventories and overall is likely to capture much more than traditional desk-top desktop inventories. Schedule E effectively casts the net very widely.
- 3.5 I consider that the recommendations contained in the section 42A report and the evidence of Fleur Maseyk have gone some way towards addressing the concerns of Meridian as to the application, usability and interpretation of Schedule E and, subject to some minor amendments, I consider these recommendations to represent a vast improvement in terms of maintaining indigenous biological diversity. If the amendments recommended in the planning evidence on behalf of Meridian are also implemented, I would agree with the statement of Fleur Maseyk that Schedule E “is fair and consistent and importantly provides a mechanism for the implementation of a Region-wide focus despite the current knowledge gaps”<sup>3</sup>.
- 3.6 To address the other outstanding matters, I agree with the planning evidence on behalf of Meridian that some amendments should be made to the Proposed One Plan. Accordingly, I have provided advice to Meridian and its planning consultant on the form and detail of such changes that are appropriate in my opinion.
- 3.7 In summary, the relief in the planning evidence on behalf of Meridian seeks to ensure that the provisions contained in the Proposed One Plan are based on sound ecological principles and also strike the appropriate balance between maintaining indigenous biological diversity and the constraints imposed on landuse and can be practically applied and implemented across the environments of the Manawatu-Wanganui Region.

## **4 Maintaining Indigenous Biological Diversity**

- 4.1 The objective in the Proposed One Plan is to maintain biological diversity. This links with the Council’s two responsibilities under the RMA – to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna, and to maintain indigenous biological diversity.
- 4.2 In my opinion, these two responsibilities are inextricably linked in that protecting significant indigenous areas is a fundamental and crucial step toward maintaining indigenous biological diversity. This is because habitats are likely to be “significant” (according to established criteria which I address later in my evidence) when they are

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<sup>3</sup> Fleur Maseyk Evidence, para 116, page 43

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first deemed to be “rare” or “threatened” to the point where they comprise less than 20% of their original extent. This is generally accepted to be a critical threshold for communities and habitats because beyond this point decline and loss occurs more rapidly than it does leading up to the 20% mark.

4.3 Biological diversity is just that – diversity. Therefore maintaining biodiversity requires attention to the range and variety of communities and habitats. It does not necessarily require keeping relative proportions the same or freezing in time the current extent of all indigenous vegetation or habitat.

4.4 In my opinion, what maintaining biological diversity requires is management to ensure that the range of vegetation and habitats is retained – principally through protection of those areas most vulnerable to continued decline as a result of human activity (those at 20% or below, or those that are historically rare) and also through the management of other areas that could become vulnerable to loss if left unchecked given the decline they have already suffered (ie, those that sit at between 20-50% of their original extent).

## **5 Strengths & Weaknesses of Traditional Approach**

5.1 The traditional approach to the identification of significant sites is through the application of significance criteria to sites described through a protected natural area (PNA) style survey. The strengths of this approach are that all plant communities and habitats within a study area are visited and described, and standard data sets are collected that allow an assessment of the significance of the site. There is a high level of confidence that habitats identified are truly significant. In addition, the sites subject to rules are then easily identified by a user of a plan. Generally they are described in schedules and/or shown on maps. There is little room for confusion.

5.2 The weaknesses are that these studies are very expensive, have not been completed for many areas and, where they have been completed, are often sufficiently out of date that they present an unrealistic view of the study area. There are also often issues around the consistency of data, with some studies being very comprehensive, and others more cursory.

## **6 Strengths & Weaknesses of One Plan Approach**

6.1 The main difference between the Proposed One Plan approach and the traditional district plan method of identifying sites for protection is that the trigger for regulatory protection is based on habitat types as opposed to a schedule of sites assessed to be ecologically significant. The One Plan approach aims to both protect areas of significant indigenous vegetation and significant habitats of indigenous fauna under section 6(c) RMA and to also maintain biological diversity under section 30(i)(ga). By using a framework for indigenous biological diversity maintenance based on habitat types, a region-wide approach that identifies areas of potential ecological significance would be implemented in the absence of site specific

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- knowledge. Potentially then, this creates the situation that some areas of vegetation and habitat captured by the provisions of the Plan will not be “significant”.
- 6.2 Both LENZ and LCDB(2) have limitations and become increasingly inaccurate at higher resolutions. However, at the scale of the region these tools provide some significant advantages to the traditional process which relies on site-by-site surveys which are typically incomplete, often out of date, and conducted at different scales and levels of completeness.
- 6.3 The limitations of LENZ are that it is a model of reality, created from a range of environmental factors to predict the distribution of land based plants. It is reliant on the quality of data available and becomes increasingly inaccurate at smaller scales and is known to under or over represent different plant communities which do not fit the model very well.
- 6.4 The limitations of LCDB(2) are firstly that it is a mapping system using satellite imagery. Field surveys are also needed to assess the presence of indigenous vegetation at property and local scales, which has not occurred. Also the vegetation classification system is not exhaustive, some communities which would be separated at a local level becoming combined with other similar communities at the regional level. Mis-classifications of some land cover types can also occur. Finally, identification of some vegetation types, particularly wetlands, is not reliable.
- 6.5 The other limitation of this approach to the identification of areas of potential ecological significance is that it does not take into account the full suite of typical assessment criteria, instead relying on ‘representativeness’ for the inclusion of threatened habitats (that are at less than 20% of their former extent) and ‘rarity and distinctiveness’ for the rare habitats. By not taking into account the other range of factors (such as ecological context, previously assessed sites, size and shape and inherent ecological viability/long-term sustainability<sup>4</sup>), such assessments are always going to be limited.

## **7 Benefits of One Plan Approach**

- 7.1 Taking the above into account, and understanding that there are a number of limitations to these systems in terms of their use as predictive models, on balance I consider that the Schedule E approach has a number benefits over the district plan approaches traditionally used throughout New Zealand. The main benefits of the Proposed One Plan approach over traditional biodiversity provisions have been discussed throughout the evidence of Fleur Maseyk. However, in summary I consider them to be as follows:
- No comprehensive ecological survey specifically for the Region has yet been completed in a formal RMA context that would allow the information to be used within the regional plan beyond information purposes (although a number

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<sup>4</sup> These terms are discussed in more detail in section 6.8 of my evidence.

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of district councils in the region have undertaken ecological inventories and protected significant natural areas)<sup>5</sup>;

- The use of spatial databases and predictive models allows for regular measurable and quantifiable assessments of biodiversity loss at the regional scale (perhaps the most accurate measure of the success of any biodiversity provisions within statutory plans)<sup>6</sup>;
- The traditional district plan dependence on arbitrary tree size and vegetation age thresholds are removed<sup>7</sup> (which would not satisfactorily recognise the different environmental conditions within the Region);
- The use of habitat types largely eliminates the need to include all-encompassing species lists requiring more specialist botanical knowledge (the content and regional significance of which can regularly change);
- It provides a tool, albeit limited, for identifying at a broad regional scale habitats that are potentially ecologically significant and whether resource consent is required (without the need for ecological assessments); and
- It is relatively easily understood by ecologists and can be consistently applied across the wide scale of environments within the Manawatu-Wanganui environments.

7.2 Linked to the above benefits, the recommended amendments as proposed by the section 42A report and the evidence of Fleur Maseyk in my opinion add a number of improvements to Schedule E in terms of its usability, and it being less subjective than the notified version of Schedule E. Yet Schedule E still recognises the potentially most ecologically significant species and habitats as required by the Act.

7.3 I will now explain the most pertinent of these changes in detail.

7.4 As outlined in the evidence of Fleur Maseyk, the Schedule E approach can be justified as being similar to traditional ecological assessments of significance, by the virtue of a habitat type's representativeness or rarity. Although I consider that this approach has some benefits in terms of ease of use via desk-top assessments and immediacy for applicants, it does not provide for the full suite of ecological assessment criteria to be applied and needs to be recognised as rather broad-brush ( a point discussed in more detail in my evidence below). Traditional ecological assessments for determining regional significance would generally consider the full suite of ecological assessment criteria. For example, the concepts of ecological

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<sup>5</sup> Noting that these types of ecological surveys would be extremely expensive and almost cost prohibitive to undertake at the Regional scale.

<sup>6</sup> Noting that there are other important monitoring tools such as pest control, fencing etc. in relation to biodiversity.

<sup>7</sup> For example, the 1991 New Zealand Forest Accord criteria (developed by a range of forestry and ecological representatives) have been used as the basis for thresholds used by other Councils in New Zealand. Many Councils have interpreted this Accord differently to relate more appropriately to variations in district vegetation patterns.



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context and buffering will not be picked up by this approach. I will elaborate on this point as to regional significance in more detail later in my evidence. Not everything captured by Schedule E will be significant in terms of section 6(c) RMA.

- 7.5 Although the Proposed One Plan approach to significance assessment is different from traditional approaches (based on national spatial databases and predictive modelling rather than PNA-style field surveys), I consider that the habitat type classifications outlined in Schedule E are generally well understood in terms of their application and meaning. In this regard, I agree in part with the evidence of Fleur Maseyk that at the regional scale they are largely consistent with nationally accepted criteria for assessing ecological significance<sup>8</sup>. Where I disagree is with the suggestion that habitat type alone can be determinative of ecological significance. It is only one of the criteria – that being, representativeness or rarity. As a consultant field ecologist, much of the information contained in Schedule E is already used as part of undertaking typical ecological assessments and determining the significance of vegetation. The information provided by these databases and models is typically incorporated as part of a desk-top exercise and then validated through on-the-ground field assessment as to the quality and significance of vegetation habitats. Schedule E therefore does part of the job (i.e., determining representativeness and rarity) and in my view, does that part well. Most ecologists are familiar with the use of these databases and their role in assessing historic indigenous biological diversity loss across New Zealand.
- 7.6 As per the evidence of Fleur Maseyk, I agree that the revised habitat type classifications recommended compare favourably with some of the nationally accepted criteria for assessing significance<sup>9</sup> for the rare and threatened habitat types. However, as outlined above I consider the Schedule E approach does not take into account the full suite of assessment criteria necessary to determine the ecological significance of the area as required by section 6(c), much of which can only be assessed via field validation e.g. ecological context, inherent ecological viability etc. Relying on the habitat type solely meeting the ‘representative’ or ‘rarity/distinctiveness’ criterion means that the Proposed One Plan approach can only ever be a broad brush tool for identifying habitats of potential ecological significance.
- 7.7 On this matter I note to the Committee the possible risks associated with such a broad-brush approach to significance and would advise caution at any approach which characterises an area as significant solely based on it being "representative".
- 7.8 As discussed earlier, the proposed Schedule E approach suggests that any habitats that meet the rare and threatened qualifiers in Tables E.1 and E.2 are regionally significant. I do not consider that this inference is sound. I believe the Plan needs to include a statement regarding the limitations of this broad brush approach and that

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<sup>8</sup> Refer Myers *et al*, 1987; Norton & Roper-Lindsay, 2004; Environment Waikato and Wildland Consultants Ltd, 2002.

<sup>9</sup> Evidence of Fleur Maseyk, Table 8 page 43

there is potential that the habitat type may not be significant when assessed using the assessment criteria outlined in Table 7.1 (hence the need for an ecological assessment to confirm this significance). To this end, I do not consider Table 7.1 addresses all the matters that should be taken into account in determining ecological significance. In this regard, I refer to the section 42A report of John Maassen and the quote from *Minister of Conservation v Western Bay of Plenty DC* which lists evaluation criteria generally used to determine the issue of significance. The important elements of this list in my view that are missing from Table 7.1 are those criteria relating to size and shape (affecting the long-term viability of species, communities and ecosystems, and amount of diversity) and inherent ecological viability/long-term sustainability. In the paper by Norton & Roper-Lindsay (2004)<sup>10</sup> they also discuss the need for a qualifier above and beyond the first three criteria (representativeness, rarity/distinctiveness and ecological context) that dealt with sustainability and condition and their belief that this was vital for interpretation of significance under the Act.

- 7.9 I therefore recommend that in addition to the four criteria presented in Table 7.1 new text be added to include these additional criterion used for assessing ecological significance.
- 7.10 With respect to ‘at risk’ habitats, I consider that they too require an ecological assessment to determine their significance and that they are less likely to be regionally significant following such an assessment. Therefore, the concern with these habitats is generally less than that of “protection” and more of ensuring that any loss or modification does not put at peril the diversity they contribute.
- 7.11 Ultimately neither the spatial modelling approach, nor the traditional ground based surveys are perfect, and each has strengths and weaknesses. However, at the regional level, my opinion is that the process undertaken by Horizons is scientifically robust and can be supported as a tool for identifying potential areas of ecological significance under section 6(c) of the Act (with regard to Rare and Threatened Habitats) and important areas of indigenous biological diversity (with respect to At Risk habitats). I can therefore support the use of Schedule E at the regional level for these purposes as long as the limitations of classifying habitats as rare, threatened or at risk based solely on spatial databases and predictive modelling are acknowledged and that this approach does not remove the need for site inspection and more comprehensive significance assessments.

## **8 Significance Assessment Criteria**

- 8.1 Currently there are 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-Lindsay<sup>11</sup> have taken on this role by default.

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<sup>10</sup> Refer Norton, D.A & Roper-Lindsay, J. 2004. NZJE 28/2.

<sup>11</sup> 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

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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. This is discussed further in the following sections.

- 8.2 In almost all variations of the significance assessment criteria, representativeness, rarity and context are used and there is a good understanding by ecologists, planners and the Courts of how these criteria are defined and interpreted. These ecological criteria are considered to meet the requirements of section 6(c) of the Act<sup>12</sup>.
- 8.3 With this in mind, I believe that the criteria as outlined in Table 7.1 as recommended by the officer (representativeness, rarity and distinctiveness, and previously assessed sites) are generally well understood by ecologists, planners and the Courts in terms of their application and meaning and are largely consistent with other nationally accepted criteria as applied across New Zealand in as far as they go. However, this is subject to my comments above and the inclusion of additional criteria relating to size and shape and inherent ecological viability/long-term sustainability (as discussed above in section 7.8). With the amendments I suggest, I am satisfied that Table 7.1 is open enough to apply to the range of sites within the region that are likely to be assessed. I also strongly support the inclusion of the 'previously assessed sites' as a criteria as this builds on historical work.
- 8.4 I note to the Committee that these ecological assessment criteria were originally included as Table E.4 in Schedule E, although I note that there was no plan provision that gave effect to them. On this basis, as proposed by the section 42A report I consider that they are now more appropriately applied via the new Table 7 and through linkages to Policies 7-2 and 7-3.

## **9 Robustness of Schedule E**

- 9.1 While I am generally supportive of the approach taken by Horizons, when looking more closely at Schedule E I have a number of concerns about the detail and achievable implementation of the process, particularly related to the identification of rare, threatened and at risk habitat types.
- 9.2 As has been highlighted in the 'Statement of National Priorities for Protecting Rare and Threatened Biodiversity on Private Land'<sup>13</sup>, the Manawatu-Wanganui Region is still experiencing large losses of indigenous biological diversity.
- 9.3 Section 6(c) of the Act requires the protection of areas of significant indigenous vegetation and habitats of significant indigenous fauna. In terms of the practical application of this term and the effect of the word "significant", the area of indigenous vegetation or habitat of indigenous fauna does not have to be nationally

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<sup>12</sup> Refer for example *Minister of Conservation v Western Bay of Plenty DC [A071/01, 6 NZED 732]* where "significant" necessarily imports the notion of an informed judgement as to those natural resources of the district that need to be protected (paras 19-20)

<sup>13</sup> Ministry for the Environment. 2007. Protecting our Places. April 2007.

- important to be "significant" for the purposes of section 6(c). Rather, it is a question of identifying and assessing those areas or habitats that are significant within the district or region and which require protection. What is 'significant' in the context of the Manawatu-Wanganui Region therefore needs to be determined on the basis of informed judgement as to those areas of vegetation and habitat of the region that need to be protected, and the extent to which the indigenous biological diversity of the region has already been diminished. Because these areas and habitats are generally the most diminished, protection of them will go a long way toward maintaining the indigenous biological diversity of the region.
- 9.4 Based on the research methodology behind the national spatial databases and predictive modelling tools used to inform this assessment<sup>14</sup>, the habitat types identified as rare and threatened are in most instances considered likely to constitute significant indigenous vegetation or habitat for significant indigenous fauna although there will be instances where this is not the case. For example, podocarp forest where the podocarp are suffering from massive die-back. The information behind this assessment is considered robust and 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, but significance must then be verified in the field.
- 9.5 As noted in the evidence of Fleur Maseyk and as identified in the 'Statement of National Priorities for Protecting Rare and Threatened Biodiversity on Private Land'<sup>15</sup>, much of the remaining indigenous vegetation in the region has fallen below self sustaining thresholds. For those habitat types that have less than 20% of their previous cover remaining, there are numerous issues relating to island biogeography theory and extinction thresholds that mean these habitat types are likely to be considered highly representative of former biodiversity pattern, and therefore likely to be considered significant habitats. As noted in Fleur Maseyk's evidence, the smaller, more modified patches of these areas are unlikely to persist in the environment for much longer<sup>16</sup> and the exclusion criteria in Schedule E (Table E.2) effectively remove these areas from consideration (as not meeting the thresholds for significant vegetation or habitat).
- 9.6 The use of proportional cover to determine whether these habitats are threatened (20% or less of former extent) or at risk (50% or less of former extent) is therefore supported. The use of the 'rare' classification to determine habitats that were originally (pre-human) uncommon in the environment is also supported.
- 9.7 In terms of threatened habitat types, I agree with the reasoning behind their inclusion and that using 20% of the former extent means that these habitat types are certainly under-represented in the environment, are unlikely to be self-sustaining and are

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<sup>14</sup> 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)

<sup>15</sup> Ministry for the Environment. 2007. Protecting our Places. April 2007.

<sup>16</sup> Evidence of Fleur Maseyk, para 85, page 33

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therefore likely to meet one of the most important criteria for the assessment of significance in terms of the section 6(c) RMA – that of representativeness. As outlined in the evidence of Fleur Maseyk<sup>17</sup>, it is well known that habitat resilience decreases and susceptibility to incremental loss increases as the proportion of remaining habitat is reduced to 20% of former cover. I agree that it is likely that many of the “threatened” habitat types would constitute regionally significant indigenous vegetation and habitat and therefore warrant protection through the One Plan as per section 6(c) RMA.

9.8 For rare habitat types, which by their definition tend to comprise a high number of endemic species or a high number of threatened plant species, I also agree that these constitute regionally significant habitat and warrant protection through the One Plan as per section 6(c) RMA.

9.9 With regards to “at risk” habitat, I am supportive of the Proposed One Plan approach to including these areas in Schedule E as a cautious approach to ensure that indigenous biological diversity is maintained.

9.10 However, in my opinion the argument as to whether they are regionally significant (under section 6(c) of the Act) or 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. Although these habitat types may be ecologically significant at other levels, I consider that Schedule E should include a note to this effect as one currently assumes regional significance (and therefore the application of Section 6(c) of the Act) solely as a result of their inclusion in Schedule E.

9.11 This point is reinforced by the evidence of Fleur Maseyk which states the following:

*“Activities within patches of habitat type classified as At Risk (by definition of less than 50% of former cover remaining) require a resource consent, although there is potential that any given patch may not be considered ecologically significant when assessed against the criteria presented in Table 7”<sup>18</sup>.*

9.12 For the reasons I have outlined above, I consider that the same potential exists in respect of “rare and threatened” habitat types. I have concerns that this is not recognised in the Plan. My understanding of the Plan at present is that a user only assesses the significance of a habitat after the need for consent is already established.

9.13 I note for example, the following comments in the section 42A report *‘that the habitat classifications used in the proposed One Plan are consistent with the meaning of ‘significant’ as used in section 6(c) of the RMA<sup>19</sup>:*

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<sup>17</sup> Evidence of Fleur Maseyk, paras 78 - 90, pages 31-34

<sup>18</sup> Evidence of Fleur Maseyk, para 118, page 44

<sup>19</sup> Refer section 42A report, page 19

*“Schedule E is the way in which HRC is defining what is significant vegetation or habitat under section 6(c) of the RMA and how HRC is giving effect to its responsibility to maintain biodiversity.”<sup>20</sup>*

- 9.14 On the matter as to significance as per section 6(c) of the Act, I note the particularly strongly worded comments of the section 42A report in relation to the protection of rare and threatened habitats that: *“these two habitat classification meet the necessary tests for being considered ‘significant’ for the purposes of section 6(c) and therefore must be protected. A non-complying activity status is appropriate to provide this protection”<sup>21</sup>*. This demonstrates the Council’s position as being that the amount of vegetation remaining is determinative of significance. As discussed previously, I do not consider this to be in accordance with established criteria for assessing significance.

## **10 Rule Trigger for Activities in Rare and Threatened Habitats**

- 10.1 If there has been sufficient loss of a regionally representative community that it falls in the rare or threatened habitat type criteria (ie, below 20% cover remaining), I consider that there is a risk that any further loss will jeopardise the “maintenance of indigenous biological diversity” and therefore that a level of caution should be applied to any activities within that community that would cause further loss. An appropriate level of caution would be that before any activities are undertaken a rigorous ecological assessment to establish significance occurs, and then (if significant) any effects on the habitat type are either avoided or mitigated through a means that ensures any loss is outweighed in biodiversity terms. I discuss examples of where this may occur when I consider biodiversity offsets.
- 10.2 While I can see some benefit in land disturbance and vegetation clearance activities in rare and threatened habitats being classified as non-complying activities from an ecological perspective in terms of promoting the (almost absolute) protection of these habitat types, I consider it is also worth reminding the Committee that there are inherent risks associated with implementing such restrictive controls. In my opinion, the most significant risk associated with a non-complying activity rule status for activities within rare and threatened habitat types is that landowners / applicants are often reluctant to seek consent, in the experience that obtaining consent for a ‘non-complying activity is impossible’. In many cases, this reluctance can lead to increased, albeit illegal, vegetation clearance across the region (most likely in areas away from the public eye) contrary to indigenous biological diversity goals - and the further erosion of relationships between landowners and Councils.
- 10.3 Accordingly, I agree with the statement of Fleur Maseyk<sup>22</sup> that voluntary methods of biodiversity protection are by far the most effective tool for indigenous biodiversity protection. In this regard, I consider the Proposed One Plan does not provide enough

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<sup>20</sup> Refer section 42A report, page 47

<sup>21</sup> Refer section 42A report, page 109

<sup>22</sup> Evidence of Fleur Maseyk, para 123, page 45

emphasis on this voluntary approach, and the non-complying activity status has the risk of taking indigenous biological diversity protection too far down the regulatory control path. This may not lead to the maintenance of indigenous biological diversity in the long term. Examples of non-regulatory methods that achieve good results in my experience are: Queen Elizabeth II covenants, fencing, and regional council contributions towards fencing and pest control. If a prospective applicant is deterred from applying for resource consent these mitigation options could be lost.

## **11 Rule Trigger for Activities in At Risk Habitats**

11.1 Similarly to rare and threatened habitats, I consider that if there has been sufficient loss of a regionally representative community that it falls in the at risk habitat type criteria (ie, somewhere between approximately 20-50% cover remaining), there is a strong case to apply a level of caution to ensure that activities that may cause further loss are appropriately managed. However, these habitats are likely to be able to sustain more loss or modification than rare and threatened ones before the maintenance of biological diversity is jeopardised. Linked to my previous comments regarding the risks of setting the rule status for activities affecting rare and threatened habitats too high, I consider there may be some merit in amending the activity status for land disturbance and vegetation clearance in at risk habitats from discretionary to restricted discretionary.

11.2 This signals that these habitat types are more widespread which is appropriate because some of the habitat types may be at the upper end of the “at risk” threshold, i.e. close to 50% of their former extent and therefore may not qualify as regionally significant. In my view, as long as the right matters are assessed when an activity is proposed in these habitats, the Council can be confident that indigenous biological diversity is maintained. I have seen the proposed list of matters for discretion that Mary O’Callahan’s evidence puts forward. I consider that these matters enable the Council to assess all the effects of relevance to maintaining biodiversity (e.g. the effects on at -risk habitat and the effects on the ecological significance of the site, as assessed in accordance with Table 7.1) and further allow conditions to be imposed to control the aspects of an activity that will have the most effect on biodiversity (e.g. the nature, scale, timing of the activity; any mitigation measures (including, but not limited to, opportunities for biodiversity offsetting); duration of activity; and revegetation requirements).

## **12 Benefits of Biodiversity Offsets**

12.1 In many situations, the use of biodiversity offsets can be an excellent way of maintaining and ensuring the long-term viability of areas of indigenous biological diversity. It can also be extremely effective in enhancing the biodiversity of a region, especially in circumstances where it has historically been declining, as it has been here. 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 offsetting of effects plus some additional benefits.

- 12.2 The concept of biodiversity offsetting is in its infancy in New Zealand and as far as I am aware, it has not been expressly recognised in any regional or district plans to date. However, internationally and nationally there is a growing appreciation for the benefits that can be derived from applying the concept and it is my opinion that plans ought to expressly recognise it as a tool in order to avoid a situation where it cannot be utilised (despite the benefits) because the plan does not acknowledge the legitimacy of it. The lack of express recognition for the concept of offsetting in existing plans has meant that, although decision makers have interpreted the concept differently, the end result has been some substantial biodiversity gains across a range of environments that would not have happened otherwise (in a more restrictive or prohibitive planning context).
- 12.3 I consider biodiversity offsets could provide landowners and developers with some good incentives to protect or enhance areas of indigenous biological diversity in the knowledge that there could be some modification to these protected habitats. This potential may not be realised by landowners or applicants who are not aware of such options. Accordingly, I would suggest that excluding the opportunity for the application of biodiversity offset – or not expressly recognising it - from the Proposed One Plan could have a detrimental effect on biodiversity in the region by reducing the potential for significant biodiversity gains to be achieved through offsetting. I consider there is a high potential for today’s biodiversity offsets to become tomorrow’s significant natural areas.
- 12.4 Take for example the significant biodiversity gain that would be achieved through the protection of a large remnant of forest (that would otherwise not be protected without some landowner or development incentive) to compensate for the loss of a smaller, less ecologically significant (but still classified as “rare or threatened”) area of indigenous vegetation. Other examples of biodiversity offset that would outweigh the ecological significance of the effects could include the extension of an area of significant indigenous vegetation by providing a large buffer area to create a more ecologically-viable habitat. Without biodiversity offset opportunities and the understanding of the potential of these by landowners and developers, the Manawatu-Wanganui region could potentially be losing out on some substantial and permanent biodiversity gains.
- 12.5 I note that the concept of biodiversity offsets does not suggest that the total modification, disturbance or removal of rare, threatened or at risk rare and threatened habitat types will always be acceptable provided an offset is provided. A meaningful offset will outweigh the adverse effects otherwise it is not an “offset”. In some instances, this will not be able to be done (for example, where there is proposed to be a total loss or modification of a particular habitat type) and if it cannot be done, the activity may not be acceptable. I consider the amendments Meridian proposes to Policy 7-2 go towards recognising this approach by allowing the application of



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biodiversity offsets and financial contributions in respect of activities involving infrastructure of regional or national importance.

- 12.6 The proposed approach via Policy 7-2 recognises for the biodiversity offset potential, with the objective being “net conservation gain”. I have some concerns with the use of the term “net conservation gain” and consider that it would be more appropriate to refer to “net biodiversity gain” consistent with the generally understood concept of the term biodiversity, particularly given the definition (in section 2) and the use of the term ‘indigenous biological diversity’ in the Act (i.e. section 30(1)(ga); section 62(1)(i)). The term ‘conservation’ could be applied negatively, suggesting that the biodiversity offset be limited to those areas with high conservation values, as opposed to having values as buffering or future ecological potential.
- 12.7 I consider that the approach proposed for Policy 7-2 provides suitable scope for applicants to offer up/discuss a range of offset options that correspond to the effects. However, I have some concerns that the offsets provided for by the revised Policy 7-2 are restricted to “a net conservation gain to the habitat type in the Region”, as opposed to solely a “net biodiversity gain”. In my experience, there are often situations where a net biodiversity gain to the same habitat type cannot be achieved due to property boundaries, the nature of tenure and ecological district boundaries etc<sup>23</sup>. Similarly, the protection of other habitat types can sometimes lead to a net gain, for example the protection of a larger remnant of beech-podocarp forest for the loss of half a dozen trees on the edge of a similar remnant. Another example could include the protection of a remnant of podocarp forest (classified as threatened habitat) for the loss of a very small area of Hall’s totara/broadleaf forest (classified as at risk). Accordingly, I consider that this wording risks the potential for some good biodiversity gains that could be achieved through the permanent protection of other habitat types, particularly rare, threatened or at-risk to not be realised.

### **13 Amendments to Schedule E as proposed by the section 42A report and ecological evidence**

- 13.1 The recommended amendments to Schedule E (as outlined in the section 42A report and as discussed by the evidence of Fleur Maseyk) are, in my opinion, a considerable improvement over the notified version of Proposed One Plan. The proposed amendments to Schedule E (and the subsequent policy amendments by which Schedule E is interpreted) go a long way towards ensuring that the schedule is more workable. Although Schedule E as proposed implements a new approach to the maintenance of indigenous biological diversity at the regional scale, I generally agree with the expert evidence that this approach is justified and is based on sound and robust science in terms of quantifying the extent of particular habitat types in the region.

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<sup>23</sup> Take for example the possible situation of the loss of a small highly modified arm of a wetland when the wetland is the only wetland on the applicant’s property, yet the surrounding property has a number of similar wetlands within the same ecological district?

- 13.2 The following is a quick discussion on the merits of those recommended changes to Schedule E as outlined in the section 42A report and the ecological evidence. Although there is some duplication of my discussion of some of these amendments, I have tried to include them all together in this section of my evidence for the benefit of the Committee.

### **Revised List of Rare Habitat Types (Schedule E.3)**

- 13.3 As outlined in the evidence of Fleur Maseyk<sup>24</sup> as rare habitat types are by nature, not common in the environment, and tend to be small in extent, a very thorough and intimate knowledge of the region is required to ensure a rare habitat type has not been overlooked. As per my comments above, the gathering of such information at a regional scale for the purposes of the One Plan is cost-prohibitive. Accordingly, I support the acknowledgement that the list of rare habitat types as it is currently represented in Schedule E is incomplete, and will likely require building on as further substantive information comes to hand. This should be quite explicit however<sup>25</sup>.

### **Habitat Type Definitions as presented in Table E.1**

- 13.4 I support the amendments to Table E.1 to overcome issues of ambiguity associated with the inconsistency of the habitat type definitions as outlined in the evidence of Fleur Maseyk<sup>26</sup>.

### **Addition of new habitat types to Table E.1**

- 13.5 I support the clarification provided to Schedule E through the addition of ‘riparian margin’. Riparian protection is a well understood land management philosophy in New Zealand and will continue to be a key contribution to the biodiversity of the Region.
- 13.6 However, in terms of the RMA’s requirements to protect significant indigenous vegetation and habitat and maintain indigenous biological diversity, I have some concerns as to the application of discretionary activity status to non-indigenous vegetation, particularly given the widespread nature of some of the invasive weed infestations along riparian margins in areas of the Manawatu-Wanganui Region, e.g. crack willow or *Clematis vitalba*. While I recognise that in some cases non-indigenous vegetation can provide habitat for indigenous fauna, I consider that the corresponding level of protection for such non-indigenous vegetation sends a conflicting message to plan users, particularly given the chapter is entitled ‘Indigenous Biodiversity’. Given the limited extent of such habitat surrounding ‘Sites of Significance – Aquatic’ in the region, I consider the benefits of not referring to non-indigenous vegetation outweigh the benefits of its inclusion. I consider the

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<sup>24</sup> Evidence of Fleur Maseyk, para 138, page 49

<sup>25</sup> I would tentatively support referring to the national programme being undertaken by Landcare to identify rare habitats (initiated in July 2005).

<sup>26</sup> Evidence of Fleur Maseyk, para 139, page 50

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words ‘whether indigenous or not’ be removed and ‘indigenous’ be added after ‘any’ in the first sentence.

- 13.7 I also support the recommendation of Fleur Maseyk<sup>27</sup> in relation to the inclusion of the new ‘habitat type containing threatened species’ and consider this approach is more suitably aligned with Horizons indigenous biological diversity responsibilities under the Act. This new habitat type assists with the rationalising of the species list, reducing the need for the all-encompassing Table E.3. Similarly to the riparian vegetation, discretionary activity status is considered a relatively high level of control when one takes into account the potentially large area of coastline across the Region that these species are likely to occur in.

**Removal of habitat types from Table E.1**

- 13.8 I support the removal of the twelve habitat types from Table E.1 for the reasons outlined in the evidence of Fleur Maseyk<sup>28</sup>. Inclusion of these habitat types does not add value to the understanding or implementation of the indigenous biological diversity provisions. I also support the recognition that a number these habitat types are well represented within Public Conservation Land - a point that I consider needs to be made clearer within the One Plan in relation to at risk habitats (as opposed to just the evidence).

**Criteria provided in Table E.2**

- 13.9 I support the proposed amendments to Table E.2 as proposed by the section 42A report and the evidence of Fleur Maseyk<sup>29</sup> as the criteria in Table E.2 provide a number of key determinants as to whether certain habitat types are important in contributing to indigenous biodiversity. The revised criterion for the different habitats improves interpretation. However, while this revised approach to protecting habitats has a number of benefits over the original listed species approach, I have some concerns at what I consider a large number of relatively similar criteria included in Table E.2 and the potential inconsistencies within the table e.g. xiv and xx set different thresholds for stream vegetation.
- 13.10 In the interests of providing clarity and certainty and making Schedule E easy to interpret and apply for both landowners and applicants, I question whether these criteria are all necessary. For example, do the various Water Management Sub-zone criteria provide a sufficiently greater level of protection to potentially rare, threatened or at risk habitats that would otherwise be unprotected? I consider that a standard threshold could be determined that could apply across the region in a manner that would be much simpler to understand. This would also remove the need for Figure E.1 showing the Water Management Sub-zones.

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<sup>27</sup> Evidence of Fleur Maseyk, para 142, pages 50 & 51

<sup>28</sup> Evidence of Fleur Maseyk, para 147, pages 52 & 53

<sup>29</sup> Evidence of Fleur Maseyk, paras 148-153, pages 53 & 54

- 13.11 An alternative approach that would add clarification and assist with ease of use would be to separate the criterion in Table E.2 by community class with key headings e.g. wetland, forest, dunelands, Water Management Sub Zones etc.
- 13.12 As I have discussed above, the proposed addition of criteria to subsection (a) of Table E.2 to incorporate consideration of rare, threatened or at risk habitat types where they occur as treeland is also supported.

### **Rationalising the threatened species included in Table E.3**

- 13.13 As outlined in the submission of Meridian, the inclusion of Table E.3 as notified was more appropriately aligned with the species management mandate of the Department of Conservation. Accordingly, I fully support the rationalisation of the threatened species included in Table E.3 as per the section 42A report and as outlined in the evidence of Fleur Maseyk<sup>30</sup>.
- 13.14 The revised approach (as opposed to general scheduling of all threatened taxa in the region) is supported for a number of reasons - primarily that it is more consistent with the intent of section 6(c) of the Act. I reiterate the evidence of Fleur Maseyk that “a number of these species did not need to be listed in this table as their protection was already provide for within the Proposed One Plan, there existed other protection mechanisms, or a regulatory framework was not the most appropriate response to the threats faced by a particular species”<sup>31</sup>.
- 13.15 Further, I consider that in general the identification of rare and threatened species is problematic in terms of the landowner and Council officers being able to implement plan provisions without specialist advice. While I am not debating the inclusion of these species on the New Zealand Threat Classification System (Molloy et al 2002; Hitchmough et al, 2005), I had some concerns at the inclusion of a number of these species in the original Schedule E, particularly when one reads the introduction to this table which stated “that are easily recognised or are species of rare or threatened habitats at a local scale”.
- 13.16 On a similar matter, I am still concerned with the words at the beginning of Schedule E that say “or could be reasonably known to contain”. While the rationalised approach to Table E.3 is supported, the six species that do remain are all considered well known by ecologists and there is a risk that the retention of these words “or could be reasonably known to contain” would potentially place large coastal areas of the Manawatu-Wanganui region into the at-risk status. This would create a situation that I consider is inconsistent with the intent of the relevant sections of the Act and creates more uncertainty than it does benefit.

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<sup>30</sup> Evidence of Fleur Maseyk, paras 154 - 162, pages 54 - 56

<sup>31</sup> Evidence of Fleur Maseyk, para 154, page 54

### **Removal of Table E-4**

- 13.17 As outlined earlier in the discussion on significance assessment, I support the removal of Table E-4 from Schedule E and its incorporation within the relevant policies as it does not play a part in determining the need for a consent according to the Plan at present, despite it being important in determining whether an area is truly ecologically significant. I also consider that additional criteria need to be added to the Table in order to make any assessment of significance complete.

### **Habitat type names**

- 13.18 The minor changes to more accurately reflect the species assemblages for the region are supported.

### **Overall summary of the revised Table E**

- 13.19 Although I support the submission of Meridian requesting that greater information be provided on biodiversity at the regional level to inform the Proposed One Plan, I also recognise that undertaking assessments of significance for all remnant patches of indigenous vegetation throughout the region in a manner that could be implemented via the One Plan could be a costly exercise. Horizons have therefore, in my view, taken a very cautious approach that will likely capture more habitat types that would be individually identified through a details survey on the ground.
- 13.20 In summary, I agree with the statement of Fleur Maseyk<sup>32</sup> that the proposed approach to Schedule E is a consistent, region-wide approach that allows for remaining indigenous biological diversity to be classified according to its representativeness or rarity regardless of degree of information available pertaining to individual patches.

## **14 Additional Recommendations**

- 14.1 The amendments to Objective 7-1 as outlined in the section 42A report to include reference to the new Table 7.1 is supported. As I outlined earlier in my evidence, the ecological assessment criteria in the new Table 7.1 were originally included as Table E.4 in Schedule E, although I note that there was no plan provision that gave effect to them. I have recommended some amendments to the ecological assessment criteria in order to enable a complete evaluation of the ecological significance of the habitat types identified in the Proposed One Plan.
- 14.2 The revised Policy 7-2 allows some modification of rare and threatened habitat types for nationally or regionally important infrastructure. A relevant example of why it is important to permit some modification is the possible scenario whereby the pruning or removal of 1-2 trees of a much larger remnant classified as a threatened habitat type. In this scenario, I consider that this minor modification could be mitigated by other options such as fencing, pest control or replanting and would not jeopardise the overall ecological integrity of the remnant, or the overall goal of the maintenance of

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<sup>32</sup> Evidence of Fleur Maseyk, key message 2, page 47

biodiversity. I have discussed Policy 7-2 in some detail above and will not repeat these comments here other to say that I am generally supportive of the amendments proposed by the section 42A report. As outlined earlier in my evidence, I am also supportive of the inclusion of reference to biodiversity offsets as a form of mitigation because of the biodiversity gains that can be secured through such mechanisms.

- 14.3 Similar to Policy 7-2, I am supportive of the amendments proposed by the section 42A report in relation to Policy 7-3 for activities in at risk habitats and I support the further amendments proposed by Meridian. The revised Policy 7-3 requires assessment of the ecological significance of the site based upon the site's representativeness, rarity and distinctiveness, and ecological context as assessed in accordance with Table 7.1. As outlined above, there was no plan provision that gave effect to the Table 7.1 assessment criteria (previously included as Table E.4 in Schedule E). These comments are subject to the concerns I have already expressed about Table 7.1 in section 7.8.

## **15 Conclusion**

- 15.1 In conclusion, I support the overall intent and approach of the biodiversity provisions of the One Plan and consider them to represent a workable framework to implement developing best practice at the regional scale, provided a number of critical amendments are made to make them more effective.
- 15.2 The information behind Schedule E is considered to be scientifically robust and is well known by ecologists and planners, ensuring its ease of application across the Region for identifying potential areas of ecological significance and biodiversity importance. There are also a number of benefits to the Schedule E approach over traditional biodiversity provisions in plans that provide for desk-based assessments as to whether consent is required. This approach also allows ongoing biodiversity levels to be monitored in a manner that is consistent with the government's Biodiversity Strategy.
- 15.3 I support Meridian's suggested approach to providing for biodiversity offsets and consider that if this is properly addressed in the One Plan; it has the potential to go a long way towards increasing biodiversity protection across the Manawatu-Wanganui Region.
- 15.4 Accordingly, I would recommend that the relief sought by Meridian be accepted, according to the manner outlined in my evidence on the basis that it will ensure the maintenance of biological diversity in the region in a better way than the provisions proposed in the Plan.

Matiu Park  
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11 July 2008