Biodiversity Offsets – A Further Update On The Law

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November 2012

In August 2010 I wrote a note in the RM Journal updating developments in the area of biodiversity offsets and environmental compensation[1]. The 2010 update referred to the Environment Court decisions in *Royal Forest & Bird Protection Society Inc v Gisborne District Council* and *Lower Waitaki River Management Society v Canterbury Regional Council* in which the Environment Court further developed the principles that should inform a decision on biodiversity offsets[2].

Since 2010, the application of biodiversity offsets has been further considered by the Environment Court and Boards of Inquiry on five occasions. This note comments on these decisions in light of the following issues which had been the subject of considerable debate but which have now appear to have been settled:

a. How is the principle of 'limits to biodiversity offsets' to be applied?
b. Is application of the 'mitigation hierarchy' consistent with the RMA?
c. When is it appropriate to move to the next stage of the 'mitigation hierarchy'?
d. What level of 'residual effects' require a biodiversity offset to be considered?
e. Are biodiversity offsets 'mitigation' or something else?
f. What happens if a biodiversity offset is not or cannot be provided?
g. Can pest control resulting in enhancement to existing biodiversity be a biodiversity offset?
h. How should a biodiversity offset be modelled?
i. What is the role of stakeholder engagement?

HMR wind farm

In May 2011, a Board of Inquiry released its decision on Contact Energy's proposed Hauāuru mā Raki Wind Farm.[3] The wind farm proposal involved application for consent for up to 168 wind turbines to operate on farmland near the coast between Port Waikato and Raglan. Associated with the proposal were earthworks for roads, soil disposal, erosion and sediment control, and reticulation of power to three substations.

Contact Energy acknowledged that not all the adverse effects of the project could be avoided, remedied or mitigated completely, and that the direct mitigation may not be

[1] http://www.rmla.org.nz/upload/files/2010august_v5.pdf, page 27.
[2] A 'biodiversity offset' is defined in the Proposed National Policy Statement. Biodiversity means measurable conservation outcomes resulting from actions which are designed to compensate for more than minor residual adverse effects on biodiversity, where those affects arise from an activity after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure and ecosystem function. This definition follows closely the definition in the Business and Biodiversity Offsets Programme (BBOP). See www.bbop.org.
[3] Available at http://www.mfe.govt.nz/rma/call-in-hmr/report-and-decision/final/volume-1/hmr-final-report-vol-1.pdf

sufficient to achieve no net loss.[4] Contact offered a comprehensive package of mitigation and offsets, which was intended to provide offset mitigation to the wide range of effects on indigenous vegetation, indigenous bush birds, shore birds, the New Zealand Falcon, lizards, and invertebrates. Contact's objective was to achieve an outcome where the environment is enhanced through the remediation, and the offset mitigation exceeds the scale of effect.[5] The mitigation/offsets proposals included pest control measures at specified locations, annual funding for the life of the consent into specified bird conservation and breeding programs, covenanting and fencing of the Punga Punga wetland, riparian fencing of specified areas, the translocation of native bats, funding for beach access ways and cultural mitigation, including training local iwi in water quality monitoring.[6]

The Board concluded that with stringent review conditions requiring that specific turbines be shut if bird mortality was too high, they were satisfied that the adverse effects on migratory shore birds would be remedied or mitigated.[7] The Board went on to conclude that other ecosystems, such as indigenous vegetation, other birds, waterways and fisheries would be maintained or enhanced by the proposal, particularly in terms of the indigenous vegetation, due to the extensive pest control measures which formed part of the mitigation/offset package.[8]

The Board noted that there are certain effects that cannot be avoided, mitigated or fully remedied, and that in this regard, the mitigation/offset measures are intended to mitigate, as far as possible, effects that cannot be avoided or remedied.[9]

Transmission Gully Plan Change

In October 2011, a Board of Inquiry released its decision on a proposed plan change request by the New Zealand Transport Agency ("NZTA")[10] in relation to the proposed Transmission Gully motorway project.

NZTA sought changes to policies in the Greater Wellington Regional Freshwater Plan which required adverse effects to be avoided. Certain aspects of the proposed motorway project for which consent was required were non-complying activities. Clearly, it was not possible to avoid effects completely, or to argue that the effects were no more than minor. Consequently, the project would not have passed the threshold tests for a non-complying activity. Therefore, a key aspect of the plan change request was to change the requirement in the plan for simple avoidance of adverse effects to provide for remedy, mitigation and offsetting of such effects where avoidance is impractical or where it would impose significant costs to the project.[11]

NZTA proposed a 'cascading regime' in the policies to allow for effects which were more than minor as follows[12]:

- Adverse effects are to be avoided to the extent practicable;

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[4] Final Report and Decision of the Board of Inquiry into the Hauāuru mā Raki Wind Farm and Infrastructure Connection to Grid, May 2011, paragraph 1038.
[5] Ibid, paragraph 493.
[6] Ibid, from paragraph 1038.
[7] Ibid, paragraph 1097.
[8] Ibid, paragraphs 1097 and 1106.
[9] Ibid, paragraph 1140.
[10] Final Decision and Report of the Board of Inquiry into the New Zealand Transport Agency Transmission Gully Plan Change Request, October 2011. Available at http://www.epa.govt.nz/Publications/PCTG%20Final%20Decision%20Report.pdf
[11] Ibid, Para 29.
[12] Paragraph 29

- Adverse effects which cannot be avoided are to be remedied to the extent practicable;
- Adverse effects which cannot be avoided or remedied are to be mitigated to the extent practicable;
- Adverse effects which cannot be practicably be avoided, remedied or mitigated are to be *offset*.

The Board of Inquiry's decision addressed both the proposed cascading management regime and the concept of offsetting. It concluded:

(a) The cascading concept was supported by the ecological evidence and should be reflected in the wording of the policy[13];
(b) That offsets are a subset of remedying or mitigating effects, and should be distinguished from environmental compensation[14]; and
(c) Because offsets are a type of mitigation, there was no need to specifically refer to offsetting in the policy hierarchy itself. The preferable approach was to refer to and define the place of biodiversity offsets in the explanation to the policy.[15]

The Board stated that the relevant policy should read:

Policy 4.2.33A:

> To manage adverse effects of the development of the Transmission Gully Project, in accordance with the following management regime:
>
> 1. Adverse effects are avoided to the extent practicable;
> 2. Adverse effects which cannot be avoided are remedied or mitigated.
>
> **Explanation: …** Remedying or mitigating can include the concept of offsetting. "Offsetting" means provision of a positive effect in one location to offset adverse effects of the same or similar type caused by the Transmission Gully Project at another location with the result that the overall adverse effects on the values of the water bodies are remedied or mitigated.
> When offsetting is to be applied, there should be a clear connection with the effect and the offsetting measure. Offsetting measures should preferably be applied as close as possible to the site incurring the effects, Hence, there should be a focus in offsetting occurring within the affected catchments along the Transmission Gully route and to specifically address the effects at issue.
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> Offsetting should, as far as can be achieved maintain and enhance the particular natural values affected by the Project when assessed overall.
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> The adequacy of a proposed offsetting measure should be transparent in that it is assessed against a recognised methodology.
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> In this policy “to the extent practicable” requires consideration of the nature of the activity, the sensitivity of the receiving environment to adverse effects, the financial implications and adverse effects of the measure considered compared with other alternative measures, the current state of technical knowledge and the likelihood that effects can be successfully avoided, remedied or mitigated.

[13] Ibid, Para 245.
[14] Ibid, Para 246. The definition is discussed below in the section headed 'Are biodiversity offsets mitigation or something else?' This section also discusses the differences between the NZ approach and BBOP in the use of the terms 'mitigation hierarchy'.
[15] Ibid, Para 248.

Mt Cass wind farm

In December 2011 the Environment Court released its decision on the proposal by MainPower for a wind farm on the Mt Cass ridge in North Canterbury[16].

The Mt Cass ridge was an operating farm, but had extensive limestone features and it was accepted by all parties that there were areas of significant indigenous vegetation and habitat of indigenous fauna on the ridge. The proposal involved the removal of 2.29ha of limestone features (of which 0.8ha is indigenous woody vegetation) and 3ha of silver tussock.

Ecologists providing evidence for opponents to the proposal argued that an offset would be inappropriate because it was inconsistent with the Business and Biodiversity Offsets Programme (BBOP) policy about limits to offsets[17]. They considered that the fact that the karst limestone ecosystem was both historically rare and much reduced from its original extent, and that certain 'at risk plants' were highly vulnerable to changes in grazing intensity, meant that the proposal breached the 'limits to offsets' policy, and that, consequently, consent should be declined.

To address these residual effects, MainPower proposed a biodiversity offset in the form of a covenant to protect 127ha of land owned by MainPower and the following measures undertaken to enhance the area: the exclusion of cattle from the covenanted area, the management of sheep grazing, trapping and removal of pest animals, natural regeneration of indigenous species, restoration planting, weed control, the monitoring of threatened plant species and the monitoring of biodiversity condition.[18]

After considering lengthy and detailed ecological and planning evidence, the Court concluded:

> [273] The wind farm has a limited footprint of 24ha and is largely located within exotic pasture. The layout has been modified to reduce fragmentation and disruption of particularly important ecotones. In return for the removal of 3ha of tussock grassland and less than 1ha of woody vegetation, conservation management, characterised as a biodiversity offset, is proposed to extend across 127ha at the site. We acknowledge that this is not simply a question of scale and there are important considerations relating to edge effects, the indirect effects of altering the grazing regime and the outcomes for open habitat species. All of these have been evaluated and appropriate conditions of consent imposed.
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> [274] In the end we consider the proposed offset programme and modelling to have demonstrated that the management actions both remedy and mitigate many of the adverse effects on biodiversity such that there will be net gain in the medium to long term…
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> [464] We acknowledge the uncertainties inherent in predicting effects within any ecosystem and the possibility for markedly different outcomes for some species. In this context, we have found that MainPower's biodiversity offset model including its sensitivity analysis and time preference discount provides us with confidence that there should

[16] *MainPower NZ Ltd v Hurunui District Council [2011] NZEnvC 384*

[17] Since this hearing BBOP has published the results of its work in the form of the 'BBOP Standard on Biodiversity Offsets' 2012 available on http://bbop.forest-trends.org/pages/guidelines.

[18] Ibid, paragraph 137.

be substantial gains for the biodiversity at the Mt Cass site in the medium to longer term.

Transmission Gully resource consent

In light of its earlier decision on the plan change request, the Board of Inquiry released its draft decision in May 2012 for the designation and resource consents for the Transmission Gully motorway project.[19]

The project would result in the permanent or temporary loss of approximately 120ha of indigenous vegetation (wetlands, shrublands and scrub, seral forest and mature or maturing forest). Other than route realignment, the principal terrestrial mitigation measure proposed by NZTA was a systematic process of re-vegetation, involving for broad restoration treatments[20]. These were intended to be like for like, generally in the catchments where the most vegetation clearance would occur.

It was proposed that there would be a total of 627ha of mitigation planting across the project to offset the 120ha of vegetation affected, although not all of this was for terrestrial ecology purposes.

The Board stated that:

> [452] Much of the debate between the witnesses revolved around the issue of whether or not the mitigation proposal achieved a *no net loss* outcome in terms of ecology or biodiversity values and we will address that directly. The differences between the terms *ecology* and *biodiversity* was also debated by NZTA and the Director-General's witnesses in particular, although the debate was of little assistance to the Board. It was generally agreed that both re-vegetation efforts and ongoing pest management would be required, at least for a certain period post re-vegetation.

It was agreed by the ecology witnesses that in designing an ecological mitigation package, the aim should be no-net-loss of biodiversity, and preferably a net gain[21]. In considering the issue of no net loss, the Board stated:

> [459] We appreciate that a key element of the concept of no net loss is a detailed assessment of the ecological environment and the effects which a project might have on it, accompanied by a principled assessment quantifying the value of biodiversity offsets and the extent of gains which are required to offset losses in biodiversity. Much of the debate between the witnesses and the parties revolved around these matters and the issue of calculation of an [Environmental Compensation Ratio].

The Board did not see any need to make decisions on the finer technical aspects of the modelling exercise. It stated:

> [460] It was not apparent to us why these particular compensation ratios were promoted and it appeared that there may have been a certain *rule of thumb* element to their selection. Ultimately we do not consider that is of any great moment in our decision, even appreciating the need for there to be a principled approach to the quantification

[19] Final Report and Decision of the Board of Inquiry, 12 June 2012, available at : http://www.epa.govt.nz/Publications/TGP%20Final%20Decision%20-%20Vol%201%20Report%20and%20Decision%20-%2012%20June%202012.pdf

[20] Paragraph 429

[21] Ibid, paragraph 454.

of biodiversity offsets. It is not necessary for us to specify appropriate offset mitigation ratios in reaching our decision. There are three reasons for that:

[461] Firstly, none of the witnesses identified any universally accepted ratio for the calculation of mitigation for vegetation loss. It seems to us that such a matter will always be open for debate and that ultimately the adequacy of mitigation proposed (whether biodiversity mitigation or otherwise) is always a matter which is subject to debate and determination by a consent authority.

[462] Secondly, while we recognise the desirability of achieving a situation of no net loss of biodiversity from a project, we do not believe that it is a requirement of RMA that no net loss be achieved in any given case. The principle of sustainable management requires a broad consideration of a range of sometimes competing factors. A consent authority is entitled to conclude that consent ought be granted to the proposal notwithstanding that all adverse effects of the proposal have not been avoided, remedied or mitigated. In other words there may be a net loss of some values or aspects of the environment. The significance of that loss and its *weighting* against the benefits of any given proposal is a matter to be determined by a consent authority applying s5(2) RMA.

The Board concluded:

[475] Having regard to all of the above, we are of the view that the effects of TGP on terrestrial ecology can and will be adequately avoided, remedied or mitigated by the Applicants' proposals. We have included reference to avoidance of adverse effects because that has been achieved by the change of route for the previously designated eastern route to the now proposed western alignment Otherwise the mitigation package proposed by the Applicants achieves a substantial degree of remedy and mitigation of the acknowledged adverse effects of works on terrestrial ecology.

The Court ultimately held that the TGP was in accordance with the revised Policy 4.2.33A.[22]

Horizons Manawatu Regional Plan

In August 2012, the Environment Court released an interim decision on the Horizons Regional Council One Plan. Part of the decision related to the provisions on indigenous biological diversity in both the regional policy statement and regional plan components of the Proposed One Plan. They included a consideration of what the policy framework should be for considering resource consents for activities in 'rare, threatened and at-risk habitats'.[23]

In considering the relevant objectives and policies, the Court endorsed the approach of a hierarchy which reflect the BBOP principles.[24] It concluded that in terms of the way the particular policy was constructed, offsetting is better not to be subsumed within the term 'remediation or mitigation', but should be referred to separately and should come last in the hierarchy[25].

The Court concluded that the relevant policy should be worded as follows:

[22] Ibid, paragraph 1172.
[23] Paragraphs 3-47
[24] Decision Part 3 para 3-92
[25] Paragraphs [3-63] to [3-64].

Policy 12-5 Consent decision-making for activities in rare habitats, threatened habitats and at-risk habitats

a) For activities regulated under Rule 12-6 and Rule 12-7, the Regional Council must make decisions on consent applications and set consent conditions on a case-by-case basis,

1) For all activities, having regard to:

i) the Regional Policy Statement, particularly Objective 7-1 and Policy 7-2A.
ii) a rare habitat or threatened habitat is an area of significant indigenous vegetation or a significant habitat of indigenous fauna.
iii) the significance of the area of habitat in terms of its representativeness, rarity and distinctiveness, and ecological context, as assessed under Policy 12-6.
iv) the potential adverse effects of the proposed activity on significance.
v) for activities regulated under ss13, 14 and 15 RMA, the matters set out in Policy 12-1(h) and relevant objectives and policies in Chapters 6, 13, 15 and 16.

2) For electricity transmission and renewable energy generation activities, providing for any national, regional or local benefits arising from the proposed activity.

b) Consent must generally not be granted for resource use activities in a rare habitat, threatened habitat, or at-risk habitat assessed to be an area of significant indigenous vegetation or a significant habitat of indigenous fauna under Policy 12-6, unless:

i) Any more than minor adverse effects on that habitat's representativeness, rarity and distinctiveness, or ecological context assessed under Policy 12-6 are avoided.
ii) Where any more than minor adverse effects cannot reasonably be avoided, they are remedied or mitigated at the point where the adverse effect occurs.
iii) Where any more than minor adverse effects cannot be reasonably avoided, remedied or mitigated in accordance with (b)(i) and (ii), they are offset to result in a net indigenous biological diversity gain.

c) Consent may be granted for resource use activities in an at-risk habitat assessed not to be an area of significant indigenous vegetation or a significant habitat of indigenous fauna under Policy 12-6 when:

i) There will be no significant adverse effects on that habitat's representativeness, rarity and distinctiveness, or ecological context as assessed in accordance with Policy 12-6.
ii) Any significant adverse effects are avoided.
iii) Where any significant adverse effects cannot reasonably be avoided, they are remedied or mitigated at the point where the adverse effect occurs.
iv) Where significant adverse effects cannot reasonably be avoided, remedied or mitigated in accordance with (c)(ii) and (iii), they are offset, to result in a net indigenous biological diversity gain.

d) An offset assessed in accordance with (b)(iii) or (c)(iv), must:

i) Provide for a net indigenous biological diversity gain within the same habitat type, or where that habitat is not an area of significant indigenous vegetation or a significant habitat of indigenous fauna provide for that gain in a rare habitat or threatened habitat type.

ii) reasonably demonstrate that a net indigenous biological diversity gain has been achieved using methodology that is appropriate and commensurate to the scale and intensity of the residual adverse effect.
iii) generally be in the same ecologically relevant locality as the affected habitat.
v) not be allowed where inappropriate for the ecosystem or habitat type by reason of its rarity, vulnerability or irreplaceability.
vi) have a significant likelihood of being achieved and maintained in the long term and preferably in perpetuity.
vii) achieve conservation outcomes above and beyond that which would have been achieved if the offset had not taken place.

Issues about biodiversity offsets considered by the Court and Boards of Inquiry

As part of their deliberations in the 5 cases described above, the following issues were the subject of legal submissions and contested evidence and of consequent consideration and decision by the Environment Court and Boards of Inquiry.

How is the principle of 'limits to offsets' to be applied?

Sometimes, a biodiversity offset will not be appropriate or possible because of the importance of the biodiversity values present at the site, and the risk that the offset cannot be achieved. Emerging international best practice supports a framework for determining when offsetting is not appropriate, based on the use of limits around the vulnerability and irreplaceability of the biodiversity that may be affected. This is known as the 'Limits to Offsets' policy and is expressed in BBOP as:

> Limits to what can be offset: There are situations where residual impacts cannot be fully compensated for by a biodiversity offset because of the irreplaceability or vulnerability of the biodiversity affected.

The primary policy debate in this context has been whether the decision that an offset is possible or not should be made solely with respect to how important the biodiversity in question is seen to be, rather than having regard both to the importance of the biodiversity and the manner in which the effects of a particular activity are to be addressed. This has been called the so-called 'go, no-go' decision.

At Mt Cass the application site included areas of limestone pavement and boulder fields, which have been identified as 'historically rare ecosystems'[26]. It was argued by some ecologists providing evidence for opponents to the wind farm that where there is a combination of vulnerability and irreplaceability of biodiversity identified as an historically rare ecosystem, **any** effects would result in an unacceptable risk of permanent loss, and consequently biodiversity offsetting would not be appropriate.

The argument was that the project should avoid **all** impacts on such biodiversity, and that consent should be declined unless the project was redesigned to avoid **all** such impacts. It was asserted that it is best practice to **avoid** impacts on threatened and at risk species and on historically rare ecosystems.

[26] Williams PA, Wiser S, Clarkson B, Stanley MC 2007. New Zealand's historically rare terrestrial ecosystems set in a physical and physiognomic framework. New Zealand Journal of Ecology 31. Note that the validity of this classification does not appear to have been considered in the context of the RMA.

That approach was rejected by the Court. The Court stated:

> [230] There is no doubt that the ecosystem at Mt Cass is rare and components of it are vulnerable. We agree with Mr Davis and Dr Lloyd that it meets some of the criteria to be considered with respect to limits to offsetting and considerable care needs to be taken at such a site. However, we agree with Dr Ussher that the extent and nature of the disturbance must also be taken into account when considering whether or not an offset is appropriate.
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> [232] Given the small scale of the disturbance of the karst ecosystem, the limited disruption to ecotones across the ridge and minimal effects on the scarp face we do not consider that "highly vulnerable and irreplaceable components of biodiversity" are affected to such an extent the offsetting is out of the question. We note that the site is not at present securely protected and while the vegetation is in relatively good condition there are continuing pressures from domestic stock, pests and weeds. Given the nature and scale of the effects and the availability of limestone pavement for delivering the offset we find that biodiversity offsetting is both viable and appropriate on this site.[27]

As one commentator has put it:

> … it is not a prima-facie assumption that because an area is rare or vulnerable that an offset is impossible. In New Zealand, the courts have been clear, that although they were dealing with a very vulnerable or rare ecosystems (karst limestone and associated indigenous vegetation, of which less than 5% of its original extent remains), the question is not how rare it is, but how much the project will impact it. If the impact is minor, and the potential exists for some like-for-like offsets (and associated conservation benefits), then the proposal may be acceptable.[28]

The Board of Inquiry's decision on the TGP plan change is also consistent with this approach. The Board had specifically been asked by certain submitters to amend the relevant policy to require 'avoidance' for vulnerable or irreplaceable biodiversity. In rejecting that 'no go up front' approach the Board stated:

> We have not included in the Policy a requirement for avoidance of adverse effects on vulnerable or irreplaceable indigenous biodiversity as sought by the Director General. Mr Bennion also requested a reference to threatened indigenous species or rare or threatened ecosystems. We agree with counsel for NZTA that there is no need to do so. If in any instance, avoidance of adverse effects on particular values is required to achieve sustainable management, that response is available to a consent authority under the Policy as we have drafted it[29].

The outcome of these decisions is that one has to consider the merits of a proposed offset before it is possible to decide whether an offset is available or not. It is not an 'a priori' decision based on the biodiversity values themselves.

The potential to offset effects on 'irreplaceable' and 'vulnerable' biodiversity features can be represented diagrammatically in the following figure[30]. What this figure shows is that as the ecological implications of the risk that an offset will not be able to address the effects of a

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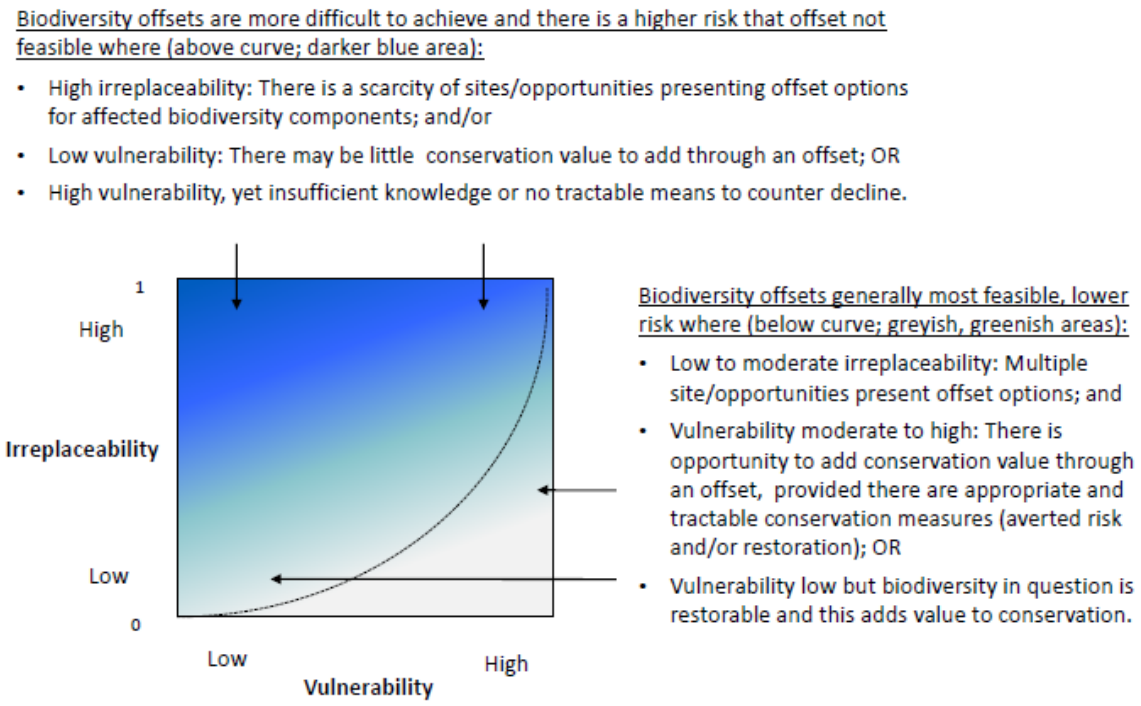
[27] *MainPower NZ Ltd v Hurunui District Council [2011] NZEnvC 384*, paragraph 232.

[28] Footnote 182, "A Missing Piece of the Conservation Puzzle: Biodiversity Offsets" by Alexander Gillespie, prepared for the Department of Conservation 29 March 2012. Available at http://www.doc.govt.nz/documents/conservation/missing-piece-of-the-conservation-puzzle.pdf.

[29] Paragraph 251, page 63.

[30] Reproduced from BBOP (2012) 'Limits to what can be offset' BBOP Washington DC Forest Trends 2012. www.forest-trends.org.

proposal increase, then the standard that a proposed offset is required to meet in terms of certainty of delivery and outcome will also need to increase. There may be situations where the consequences of a proposed offset not delivering are so great that the only way to obtain the requisite certainty of outcome is to require the offset to be provided in advance of the effect being incurred[31].



Is application of a 'mitigation hierarchy' consistent with the RMA?

There has been some debate about whether the RMA requires the adoption of a mitigation hierarchy in the sense used by BBOP, or whether requiring the adoption of the hierarchy in a plan would be inconsistent with the RMA. In addressing this in the context of what the appropriate policy should be in the TGP plan change decision, the Court found:

a. The cascading concept promoted by NZTA in the Request was supported by ecological evidence that in a practical sense avoidance of adverse effects was the natural and preferred outcome in any situation, followed by remediation/mitigation, without any preference between those two methods. The lack of preference between remediation and mitigation reflected the desire to have all options available (following avoidance) to achieve the best environmental outcomes; and

b. Although the Act does not provide a preference between avoidance, remedy or mitigation, the Freshwater Plan seeks to preserve, safeguard and protect natural values. Although those concepts do not require absolute avoidance of adverse effects, we consider that they support a preference for avoidance as a starting point before consideration of the other alternatives (including

[31] "A Process for Assessing Offsetability of Biodiversity Impacts" by Pilgrim, Brownlie, Ekstrom, Gardner, von Hase, ten Kate, Savy, Stephens, Temple, Treweek, Ussher and Ward. Submitted to Conservation Letters, September 2012.

> offsetting). This view was supported by the ecologists' evidence that avoidance of adverse effects was a natural first step and preferred as an outcome[32].

The Board concluded:

> … we considered that maintaining provision for avoidance to the extent practicable as a preferred first category, indicates that in all cases the initial objective should be to avoid effects on the natural character of the water bodies affected by TGP. If adverse effects cannot practicably be avoided then the ability to remedy and mitigate (including by offsetting) would provide any future consent authority with the ability to consider all possible methods of management of adverse effects in order to achieve the best overall environmental outcome[33].

Likewise, the Court in the Manawatu-Wanganui One Plan decision agreed that a policy requiring a 'mitigation hierarchy' approach was appropriate[34].

When is it appropriate to move to the next stage in the 'mitigation hierarchy'?

This issue was discussed by both the Board in the TGP plan change and by the Court in the Manawatu-Wanganui decision.

As I have noted, in the TGP plan change, the Board accepted that complete avoidance of effects was unnecessary to meet the requirements of sustainable management.[35] However, the Board found that the policy should state that the first step in the application of the hierarchy was that 'adverse effects are to be avoided to the extent practicable'. This term is then defined in the Explanation to the Policy as:[36]

> In this policy "to the extent practicable" requires consideration of the nature of the activity, the sensitivity of the receiving environment to adverse effects, the financial implications and adverse effects of the measure considered compared with other alternative measures, the current state of technical knowledge and the likelihood that effects can be successfully avoided, remedied or mitigated.

In the POP decision the Court noted that the BBOP principles use the term 'as far as is practically feasible' as the criterion or point for when decision making should cascade down to another level on the hierarchy. There was discussion as to what the appropriate wording should be in the Manawatu-Wanganui context. The Court concluded that the word *reasonably* should be used throughout the policy which is preferable to *reasonably practicable or practically feasible.* "Reasonably is an objective test, capable of being applied by decision makers"[37].

What level of 'residual effects' require a biodiversity offset to be considered?

Do **all** effects have to be addressed by way of an offset?

An offset is defined by BBOP as an action taken to address 'significant' residual effects.

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[32] Paragraph 245
[33] Paragraph 251 page 83
[34] Paragraphs [3-75] to [3-79].
[35] Paragraphs 213, 219
[36] Page 251, page 63.
[37] Paragraph [3-91].

In the Manawatu-Wanganui One Plan case the Minister for Conservation argued that offsetting principles should be applied to **all** adverse effects left over after mitigating at the point of impact. The Minister considered that for the residual adverse effects, a net biodiversity gain is to be achieved, and that this principle should be applied to **all** exchanges of biodiversity values.[38]

That approach was rejected by the Court. Instead, the Court decided that for 'rare habitat', 'threatened habitat', and 'at-risk habitat' the threshold relates to effects which are 'more than minor'. For other habitats, the threshold for when an offset is required is for 'significant adverse effects'.

While it noted the opinion of two ecologists that 'any effect on a significant ecosystem is significant' it concluded:

> [189] The question of the significance of the adverse effects of vegetation disturbance and loss of habitat is difficult to answer. While we accept that the importance of the ecosystem is a key factor in the evaluation we do not consider that to automatically confer significance on any adverse effect. The magnitude and scale of the effects must also be considered…

Are biodiversity offsets 'mitigation' or something else?

What constitutes 'offsetting' or 'environmental compensation' is not defined in the RMA and the terms have previously been used interchangeably. This has led to confusion by the Court, experts and applicants. The concepts of environmental compensation and offset have "largely been developed as a matter of practice through applications for resource consents offering various remedial, mitigatory or compensatory works to counterbalance adverse effects caused by development proposals, and have been the subject of a number of decisions of the Environment Court"[39].

In the TGP plan change decision, the Board of Inquiry considered previous Court decisions which differentiate between the terms "offset" and "environmental compensation". The Board referred to the Environment Court decision of *JF Investments Ltd*[40] ("JFI"), where the Court recognised that there was a continuum of remedial or mitigating actions which could be offered by an applicant when seeking resource consent. In considering the question of how to assess the value of those actions, the Court found:

> The practical answer is usually that if the proposed remedial or mitigatory action is the repair of damage of the same kind as the adverse effects of the activity, it is easier to accept as not only relevant, but reasonably necessary as well. Similarly, if the proposed remedy is also in the same area, landscape, or environment then its benefits, compared with the costs of the proposed activity, are more easily seen. Conversely, if the offered environmental compensation is too far in distance, kind or quality from the adverse effects caused by the proposed activity then it may be no longer reasonably necessary, but merely expedient for the developer to offer[41].

The Board found that the Court in *JFI* appeared to use the terms set-off (offsetting) and environmental compensation interchangeably, but identified the significance of proximity (in

[38] Paragraph 3-71.
[39] Paragraph 200. TGP plan change decision.
[40] *JF Investments v Queenstown Lakes District Council* EnvC C48/2006
[41] Paragraph 37.

terms of distance, kind or quality) of the counterbalancing action in assessing the value of that action. The Board observed that there comes a point at which the action being offered ceases to remedy or mitigate the adverse effect which has been created and is rather offered as an indirect but compensatory benefit for allowing that adverse effect. An example of the latter type of action would be the offering of public walking tracks on adjacent land in response to a large residential development and golf course in an outstanding natural landscape or an offer to make a cash payment to an environmental cause as a response to damaging a waterbody[42].

The Board went on to say:

> That distinction was recognised by the Environment Court in its decision in *Haka International NZ Ltd v Auckland Regional Council*[43] where the Court was considering the inclusion of provision allowing environmental compensation in a regional plan. The Court made the following observation:
>
> > *We do observe however that in the future drafters of similar provisions might find increased clarity in differentiating between mitigation, in the traditional sense of lessening or making less intense, and compensation. Compensation does not carry a sense of the lessening of the adverse effect in question, but rather of offering recompense for the loss or impairment of whatever advantage or amenity has been affected.*

In differentiating "offsetting" and "environmental compensation" the Board of Inquiry in TGP found:

> What ultimately emerged from the evidence, representations and submissions of the parties was an acknowledgement that the term offsetting encompasses a range of measures which might be proposed to counter balance adverse effects of an activity, but generally fell into two broad categories. Offsetting which related directly to the values affected by an activity was in fact a form of remedy or mitigation of adverse effects and should be regarded as such. Offsetting which did not directly relate to the values affected by an activity could more properly be described as environmental compensation.[44]

The Environment Court in the *Mt Cass Wind Farm* decision adopted the approach from the Board of Inquiry in TGP. The Court then found that the offsetting for Mt Cass clearly relates to the values being affected, and is being undertaken on the same site. Therefore, the Court found it to be a "form of remedy or mitigation of adverse effects" rather than environmental compensation[45].

In the Horizons One Plan case, an argument was made, on the basis of the TGP plan change decision, that because a biodiversity offset is a subset of remediation or mitigation an offset should therefore not be specifically referred to or required. The Court stated in response:[46]

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[42] Paragraph 203

[43] *Haka International NZ Ltd v Auckland Regional Council*, EnvC A097/2007 at paragraph 11

[44] TGP at paragraph 210

[45] Paragraph 463.

[46] Ibid para 3-64.

[3-63] With respect to the Board of Inquiry, we do not consider that offsetting is a response that should be subsumed under the terms *remediation* or *mitigation* in the POP in such a way. We agree with the Minister that in developing a planning framework, there is the opportunity to clarify that offsetting is a possible response following minimisation – or mitigation – at the point of impact.

[3-64] A related argument was that the law does not allow the policy approach of a hierarchy, but requires that any proposal should be treated in the round under the *avoid, remedy or mitigate* mantra. We have already dealt with that argument in Part 2 of the decision dealing with Landscape. We find it acceptable and appropriate for the regional plan to state a preference for the way effects on biodiversity should be dealt with, including by instituting a hierarchy.

This decision is consistent with the Board of Inquiry's comments in the TGP plan change. It clarifies that a Council is entitled to make clear its preference in a plan for offsets being the final step in the mitigation hierarchy.

Perhaps much of the confusion that has arisen over the use of the terms has resulted in the fact that New Zealand has used terminology under the RMA which is similar to BBOP but is used in a slightly different way. Under BBOP, an offset is not seen as a form of mitigation, but rather a method that can be used separately (and subsequently) to mitigation. In context, in New Zealand, an offset is treated as one particular type of mitigation.

One of the BBOP principles for designing and implementing biodiversity offsets is:

> "Adherence to the mitigation hierarchy: A biodiversity offset is a commitment to compensate for significant residual adverse impacts on biodiversity identified after appropriate avoidance, minimisation and on-site rehabilitation measures have been taken according to the mitigation hierarchy".[47]

BBOP literature defines the 'mitigation hierarchy' to be[48]:

a. Avoidance: measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.

b. Minimisation: measures taken to reduce the duration, intensity and / or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.

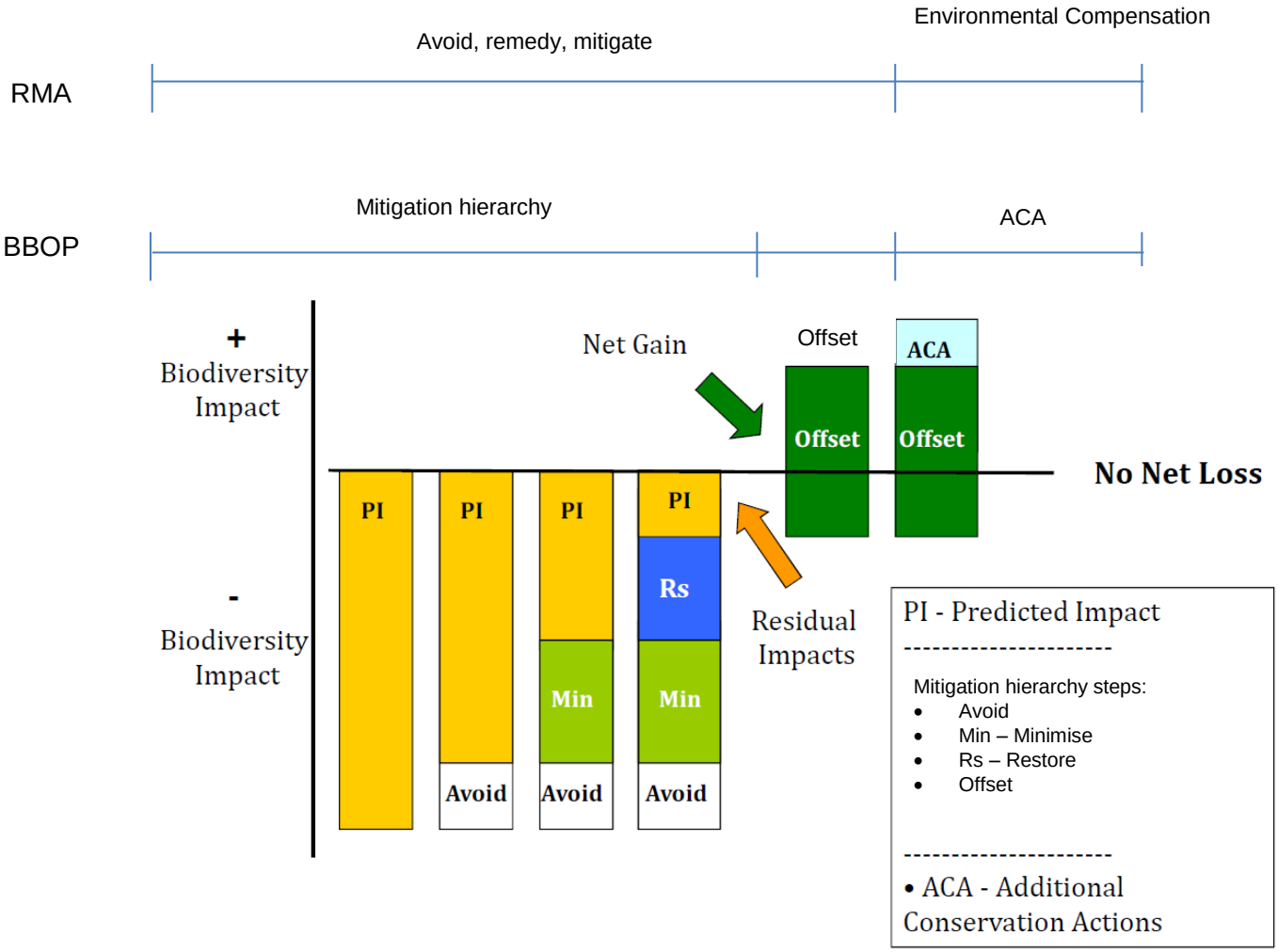
c. Rehabilitation / restoration: measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and / or minimised.

d. Offset: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.

[47] Principle 1, BBOP Standard on Biodiversity Offsets, available at http://www.forest-trends.org/documents/files/doc_3078.pdf.
[48] BBOP Glossary, 2012. Washington, D.C. 2nd updated edition. Available at http://www.forest-trends.org/documents/files/doc_3100.pdf

Offsets under BBOP terminology, therefore, are other measures which are used after mitigation measures have been implemented. The distinction between the place of offsets within the RMA and BBOP frameworks can be illustrated by the following diagram.

Mitigation hierarchy including biodiversity offsets[49]



The distinction between an 'offset' and 'compensation' is not hard and fast and will depend on the situation. It can be depicted as a continuum as illustrated in the diagram below. Note that the line between offset and compensation is not fixed, but instead can be thought of as a sliding scale with no pre-determined point at which compensation is replaced by offset. This is indicated by the progressive shading of green in the diagram below.

[49] Diagram adapted from International Approaches to Biodiversity Offsets, EDS Conference, presentation of Ameri von Hase.

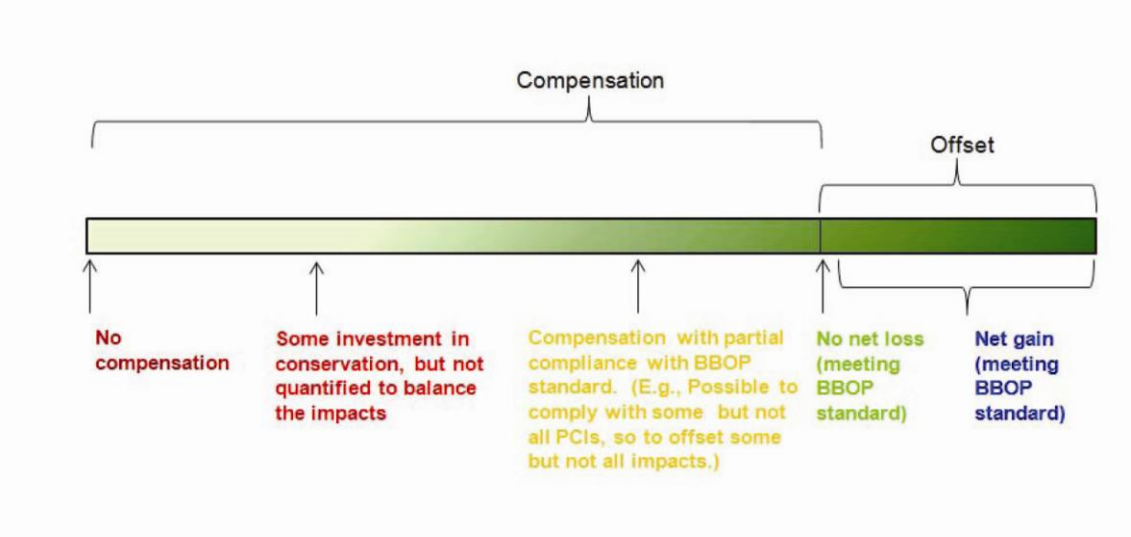


Diagram Source: BBOP Standard on Biodiversity Offsets 2012.

Where a proposed remedial action is the repair of damage of the same kind as the adverse effects of the activity (in biodiversity 'offset speak' 'in-kind') it is more likely to be an offset rather than compensation. Equally if the proposed mitigation is in the same area, landscape or environment ('on site' in biodiversity offset speak) then it is also more likely to be an offset because it is more likely that the remedial activity is similar to the effect.

As one moves towards 'out of kind' and 'offsite', (that is, along the BBOP scale to the left) it is more likely to be environmental compensation.

In summary, therefore, offsets address the residual effects of a proposal, and are “mitigation” because they reduce the overall adverse effects of the proposal. Offsets can be considered under s 5(2)(c) and 104(1)(a) of the RMA when assessing an application for resource consent.

'Environmental compensation' does not offset an adverse effect with a positive effect of the same kind. It is therefore different to an 'offset'. 'Environmental compensation' is where a positive benefit is provided in respect of a different resource or value from that adversely affected.

'Environmental compensation' is not a form of mitigation, because it does not reduce adverse effects. Rather, it is a method to counter-balance adverse effects. 'Environmental compensation' can validly be considered as an "other matter" under section 104(1)(c) when assessing resource consent applications.

An offset can be required by way of a condition, while environmental compensation cannot be required, but can be taken into account and it accepted by a decision maker, can then made be the subject of a consent condition[50]. Where the distinction lies between offsetting and compensation in any particular situation can be determined in the context of that particular situation if that is necessary.

[50] Report of the Minister for the Environment's Resource Management Act 1991 Principles Technical Advisory Group, February 2012, page 88.

What happens if a biodiversity offset is not or cannot be provided?

Various submitters and ecologists have argued that if a true offset is unavailable consent should be declined. The suggestion is that if any non-offsettable effects include high value biodiversity components or biodiversity types (such as at risk or threatened plants or historically rare ecosystems), then offsetting and the development itself is inappropriate.

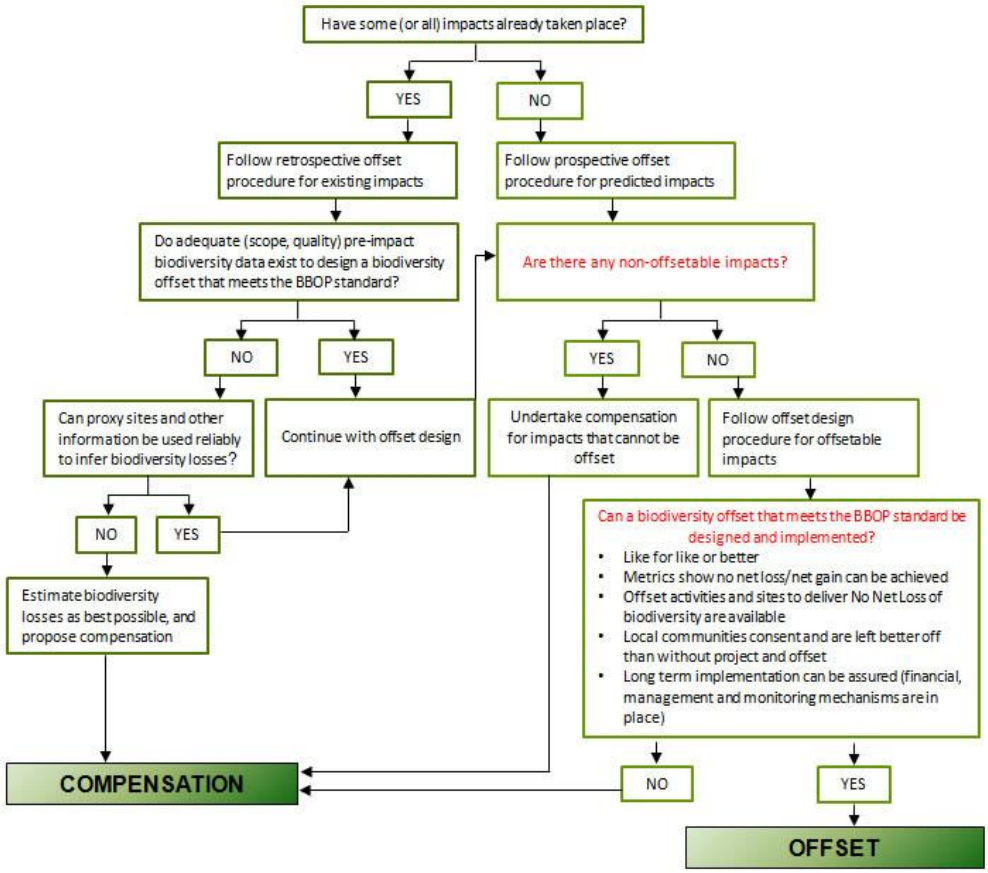
Such an approach is inconsistent with the RMA and would elevate a 'no net loss, like-for-like' test above the sustainable management test of the RMA. As the Board of Inquiry in the TGP final decision stated:[51]

> Secondly, while we recognise the desirability of achieving a situation of no net loss of biodiversity from a project, we do not believe that it is a requirement of RMA that no net loss be achieved in any given case. The principle of sustainable management requires a broad consideration of a range of sometimes competing factors. A consent authority is entitled to conclude that consent ought to be granted to a proposal notwithstanding that all adverse effects of the proposal have not been avoided, remedied or mitigated. In other words, there may be a net loss of some values or aspects of the environment. The significance of that loss and its *weighting* against the benefits of any given proposal is a matter to be determined by a consent authority applying section 5(2) of the RMA.

To the extent that as formally defined an offset defined cannot be provided, it is then open to an applicant to propose environmental compensation or additional measures which are to be taken into account in the overall decision making process.

The process of determining whether an offset or compensation is more appropriate is spelt out by BBOP (2012)[52] and reproduced below as Diagram 3. The decision tree shown in Diagram 3 implies a binary ('yes/no') answer at various steps, although in reality there can often be a continuum of responses. For instance, for a single project the answer may be 'yes' for some impacts, and 'no' for others. However, even in situations where compensation rather than an offset is undertaken, developers are encouraged to consider whether it is possible, and desirable, to get as close as possible to a no net loss outcome as a first step in managing their biodiversity risks.

[51] Ibid, paragraph 462.
[52] BBOP Standard on Biodiversity Offsets 2012.



The RMA does not require *a no-net-loss, like-for-like or net-benefit* approach. Whether the residual effects have to compensated/offset is part of the decision making discretion, and must be undertaken on a case by case basis.

Mitigation contemplates that some form of adverse effects may be acceptable, but the extent to which those effects are acceptable is one of fact and degree.[53] Thus, a consent authority is required to look at the proposal in the round to determine whether or not the adverse effects of the proposal are acceptable.

What is the role of stakeholder engagement?

One of the BBOP principles is:

> Stakeholder participation: in areas affected by the development project and by a biodiversity offset, the effective participation of stakeholders should be ensured in decision-making about biodiversity offsets, and documented in the Biodiversity Offset Management Plan.

It was argued by submitters and ecologists opposed to the Mt Cass wind farm that this principle required something additional to the normal requirements under the RMA for notified consent processes. Some argued that best practice requires agreement of all interested parties and that if agreement is not reached on both the parameters of an offset model and on monitoring requirements, then any proposed offset cannot be called best practice.

[53] *Trio Holdings v Marlborough DC*, W103A/93

Such an approach fails to recognise that the BBOP principles have been developed in an international context, for the purposes of providing guidance to business often in situations where there is no applicable environmental legislation – certainly nothing like the sophisticated and extensive legislation that is the RMA. This particular BBOP principle therefore has no additional application in New Zealand beyond what is fully addressed by the existing legislative framework.[54]

Clearly, it is good practice to engage stakeholders, but the RMA does not give a veto to any actual or potential submitter by requiring their agreement to a proposed offset.

How should a biodiversity offset be modelled?

There has been considerable debate about what type of modelling should be used for determining an offset. Offsetting relies upon good quality information about the biodiversity values at a site and upon a means to convert that information into a 'currency' that can be 'traded' to ensure equivalence between sites.

Biodiversity is complex. Therefore, currencies require a degree of simplification. It is generally recognised, however, that the currency needs to be:

a. Comprehensive: it needs to include 'what we care about'.
b. Practical: It needs to be possible and cost effective to collect the necessary data.
c. Appropriate: given the scale and type of effects. Is it too simple, or unnecessarily complicated given the likely effects.

BBOP does not specify particular methods or models that should be used[55].

In Mt Cass the type of model and its attributes were the subject of extensive evidence and debate. The offset model proposed by the applicant was a 'modified habitat hectares' approach which is taken from an approach used in the State of Victoria in Australia and used in a number of the BBOP pilot projects[56]. This approach is used to account for biodiversity losses and gains for each of the attributes chosen. The habitat score indicates the quality relative to the benchmark conditions and when multiplied by the area of the site, the score produces a measure of quality and quantity and habitat hectares.

An alternative approach urged on the Court by ecologists opposing the wind farm was a type of 'condition area' approach. As the Court described it:

> [205] The ecologists were agreed that the purpose of the biodiversity offset model is to determine the 'quanta' (type and amount) of mitigation actions/initiatives required to offset adverse effects on biodiversity values. However, they were not agreed that the "habitat hectares" model developed for the site is sufficient to assess the proposed biodiversity offset. Dr Lloyd and Mr Davis challenged the choice of attributes, assumptions of net gain, and the adequacy of information for invertebrates, lower plants and ecological relationships. They also considered the rarity of the ecosystem and the importance of the biodiversity on site to preclude an offset approach to adverse effects.

[54] This is true of some other BBOP principles, such as Principle10 "Science and traditional knowledge: The design and implementation of a biodiversity offset shall be a documented process informed by sound science, including an appropriate consideration of traditional knowledge".
[55] See BBOP (2012) 'No Net Loss and Loss-Gain Calculations in Biodiversity Offsets' Forest Trends 2012. Available on www.bbop.org.nz.
[56] www.forest-trends.org/pages/pilot-projects

[206] Dr Norton considered the biodiversity offset model to be robust and to demonstrate that the significant biodiversity values of Mt Cass would be in better condition in the medium to long term than would be the case under the current farm management. He considered the removal of cattle, control of pests, restoration plantings, and active management of threatened species would result in considerable improvements in biodiversity that would not occur without the wind farm. Dr Ussher had reviewed the model and concluded that it provided a robust and transparent measure of the biodiversity. He was confident that the net gain predicated by the model was real and achievable.

The Court then went on to consider the disputed choice of attributes and the model:

[215] Dr Lloyd was concerned that key biodiversity components were missing from the model – different forest types, vegetation composition, other measures of vegetation structure, at risk and locally important plant species, and *Wainuis edwardi* (a potentially affected snail). He thought the choice of attributes fell well short of a fair representation of the biodiversity at Mt Cass and recommended additional species and measures of forest structure to enable objective assessment of milestones. Dr Lloyd considered a species-by-species condition-area model (Condition-Hectares) to be considerably more transparent and appropriate. He regarded the Habitat Hectares model as being well suited to ecosystems services provided by woody vegetation but not to the wider range of biodiversity values at Mt Cass.

[216] Dr Norton maintained that a mix of surrogate and species attributes was more appropriate than a species only approach. During cross-examination Dr Norton explained that the species selected in the model focused on species affected by the wind farm, particular threatened species, and therefore did not include other species such as the *Heliohebe*, scrambling broom or holy grass. Invertebrates were not included as they are difficult to study and little is known about the population abundance or the way they use habitat. In his opinion a high quality habitat would provide for the conservation of groups such as invertebrates, microorganism and fungi.

[217] Dr Ussher added that one of the constraints in modelling was the ability to obtain information and track attributes over time. Thus the Canterbury gecko, which is easier to monitor than the skinks, is to some degree used as a surrogate for other lizards on site. He agreed that more attributes could be added to the model but he did not think it would be necessary and nor would it give a clearer answer. Dr Ussher said that both the Habitat Hectares model, as used for Mt Cass, to both reasonable and appropriate and to provide a robust outcome.

The Court concluded:

[218] The inclusion of a greater number of species and additional parameters in the attributes to be modelled would increase the level of detail and provide more information on the response of the ecosystem and it component parts. However, having more information is not necessarily going to lead to better outcomes for biodiversity at the site. We are satisfied that the model and the attributes chosen are adequate to assess the overall trends in biodiversity at the site. We return to the issue of monitoring of At Risk, Threatened and locally uncommon species when we consider the conditions of consent.

The proposed offset was then assessed against the principles of BBOP and Schedule 2 of the Proposed National Policy Statement of Indigenous Biodiversity. There was consensus between the various experts that these principles provided a useful framework.[57]

The Court summarised its consideration of the offset model by concluding that the biodiversity offset would both remedy and mitigate adverse effects from the construction and operation of the wind farm and provide benefits for biodiversity across the area.[58] In coming to this conclusion, the Court endorsed the BBOP approach and the use of the modified habitat hectares model.

Can pest control resulting in enhancement to existing biodiversity be a biodiversity offset?

There has been some concern expressed that enhancement of an existing habitat to improve its condition is not an appropriate offset for effects on a similar habitat. The argument here is that while such an approach may lead to no net loss in biodiversity, the area or total habitat will be reduced because the activity at the impact site will destroy an area of habitat, and the conservation actions (usually in the form of weed and pest control or fencing out stock or other pests) will not create new habitat.

This argument was put to the Court in the Mt Cass case but not accepted. The Court required the Environmental Management Plan to include a detailed pest animal control programme[59]. Likewise, pest control leading to improvement in condition has been accepted as appropriate in the HMR wind farm case, the TGP resource consent decision[60] and has been generally recognised in New Zealand for many decades as providing positive conservation outcomes.

[57] Paragraph 207
[58] Paragraph 278.
[59] See paragraph 252.
[60] Paragraph 452