

# A Review of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017

Are the settings right to incentivise “the right tree  
in the right place”, and is a high trust regulatory  
model the right fit for a high risk industry?

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Royal New Zealand Forest & Bird Protection Society of New Zealand



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## ABBREVIATIONS

<b>ESC</b>	Erosion Susceptibility Calculator
<b>ETS</b>	Emissions Trading Scheme
<b>FSC</b>	Forestry Stewardship Council
<b>LUC</b>	land use capability
<b>MPI</b>	Ministry for Primary Industries
<b>NES</b>	National Environmental Standard
<b>NESPF</b>	Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017
<b>NPS</b>	National Policy Statement
<b>NPSFM</b>	National Policy Statement for Freshwater Management 2014 (as amended 2017)
<b>NZCPS</b>	New Zealand Coastal Policy Statement 2010
<b>NZFFD</b>	New Zealand Freshwater Fish Database
<b>ONL</b>	outstanding natural landscape
<b>RMA</b>	Resource Management Act 1991
<b>SDGs</b>	United Nations Sustainable Development Goals
<b>SNA</b>	significant natural area
<b>WCC</b>	Wilding Conifer Calculator



# 1 Introduction

## PURPOSE

Planting trees is currently a live topic. The government has set a goal to plant one billion trees by 2028. While landscape-scale planting and restoration projects are increasing, water quality is getting worse, and sediment loss (which tree cover can prevent and tree removal exacerbates) is a key contributor. Aotearoa's unique biodiversity is in decline, and habitat loss continues. Climate change impacts are being increasingly felt, and emitters are looking for sequestration opportunities. Recent events in Tolaga Bay and Tasman, and the sediment issues in the Marlborough Sounds, have raised concerns about industry practice and the efficacy of management controls over plantation forestry.

We shouldn't just put trees in the ground without some forethought. Perverse outcomes are likely if we do, and so, the question is: How do we get the right tree, in the right place, for the right purpose?

Plantation forestry sits at the heart of this question. It presents a significant opportunity but also a significant risk if it isn't carefully located or managed well. The Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 (NESPF) are the key regulatory tool for managing plantation forestry, so getting this instrument right is crucial for ensuring plantation forestry in Aotearoa is done well.

The NESPF was gazetted on 3 August 2017 and came into force on 1 May 2018.<sup>1</sup> At that time the government committed to a review of the document within a year. That review is kicking off in early 2019, and it is that process, together with the perfect storm of interest drivers already outlined and the indicators that issues with interpretation and implementation were already cropping up, which prompted us to undertake this analysis.

This report is intended to feed into the government-led review of the NESPF, which may be at risk of failing to address critical issues due to overly narrow terms of reference. It is also intended to feed into government

and public discussions on related topics. The purpose of this document is to explore the effectiveness of the NESPF and identify issues or gaps that are resulting in, or are likely to result in, confusion and complexity in interpretation and implementation; misalignment with other national policy initiatives and instruments; misalignment or missed opportunities in developing national climate change policy and emissions reduction targets; and adverse environmental effects. That analysis is difficult, partly because of the complexity of these issues, partly because of the complexity of the NESPF itself, and partly because the NESPF has only been operational for a short period of time.

As a result, this report does not capture all possible topics, or even all possible issues under the topics that are addressed. The short time period between the NESPF's coming into force and the writing of this report means it is not possible, in most instances, to examine its efficacy on the ground. That means this analysis is something of a desktop exercise, focusing on key issues identified through interviews, background research, statutory interpretation, and the authors' experiences. It is intended to be a constructive springboard for further discussion and work.

## OVERARCHING OBSERVATIONS

Managing the environmental impacts of plantation forestry isn't easy. This complexity is revealed by the many recommendations under each topic in this report. Recommendations have been made in respect of each topic, so the specific issues and possible responses are clear. It is in this section that overall observations and recommendations are made that tie these topic-specific responses together.

The first is that **the NESPF's approach to afforestation and replanting is too permissive and needs to be re-examined. Greater stringency needs to be applied.**

With many existing plantations nearing point of harvesting and the government's push to get trees in the ground, we need to make sure that decisions about where plantation forests are located and what trees are planted are subject to careful and strategic thought. Planning to identify significant environmental values or risks should be occurring *before* planting, not at the point of harvesting or on an ad hoc basis when a certain operational activity needs to occur. This goes for new plantation forests and new rotations at existing sites.

The current NESPF simply does not provide for that level of care and precision.

For example, afforestation and replanting in green-, yellow- and orange-zoned land is permitted, despite many orange-zoned and some yellow-zoned land areas being at high risk of erosion (see the 'Erosion' section). In red-zoned land both are permitted provided the area is less than 2ha in a calendar year. The question needs to be asked: Should trees that are planted specifically for removal be put in these areas? They might provide some stabilisation benefits but those are short-term and the erosion and sediment discharge that will follow on harvesting will be significant, even from smaller areas. The government's planting programme anticipates a significant portion of permanent forest, and areas where risk of adverse environmental effects from tree removal is high should be targeted. The NESPF needs to provide a robust and clear regulatory framework that is consistent with that approach.

Similarly, the NESPF's setback provisions are inadequate. These are either set at a distance for which there is no ecological justification (5m), or at a distance (10m) which, in light of damage that occurs during harvesting, will effectively be halved. This means they, too, are ecologically questionable. The provisions also only apply to a portion of water bodies, either because of size restrictions (eg wetlands) or due to exclusion altogether (eg ephemeral streams). Setback requirements at the point of afforestation and replant are critical because once a tree is in the ground it will likely be removed, meaning impacts are inevitable.

Direction around what trees can be planted is also weak. For example, a requirement to obtain resource consent is only triggered if the Wilding Conifer Calculator (WCC) gives an area a rating of 12 or 'high risk'. This is despite a 10 or 11 rating still being 'relatively high risk'. In addition, replanting the same species is permitted no matter what species was used originally, meaning that wilding conifer spread can be perpetuated on replant.

Greater stringency and careful and strategic planning at the time of afforestation and replanting could allow for more leniency during operation.

The second overarching observation is that **the NESPF's presumption that plantation forestry activities should be a permitted activity needs to be revisited.**

A complex, intensive activity that not only has immediate impacts but contributes to diffuse pollutants does not easily lend itself to the certainty and specificity required

for a permitted activity standard of national application. This is particularly so when that activity occurs across a national landscape that is extremely diverse and which, in many areas, is reaching environmental limits.

The result of taking a permitted activity approach is the use of permitted standards which are either inadequate to achieve the necessary level of environmental protection in all situations, or are uncertain and subject to a value judgement. They are therefore difficult to implement or enforce.

Using management plans that cannot be certified or rejected relies heavily on foresters designing adequate management plans and complying with vague permitted standards. This is a very 'high trust' model, which may not be warranted given the seriousness of potential environmental impacts, variability in practice around the country, and poor compliance outcomes in some areas.<sup>2</sup>

Finding the answer is not easy. National direction has its advantages, but it only works if national standards are set at a point which will ensure protection of all environments. Failure to do that will see continued loss of, and ongoing cumulative impacts on, some of our already threatened ecosystems and biodiversity – like wetlands or estuaries. Council oversight via resource consent has its advantages in allowing site-specific assessment of risks and development of site-specific management responses. However, it isn't a silver bullet, as council rigour in approaching these types of issues is variable around the country.

The answer likely lies somewhere in the middle, with increased nuance in how plantation forestry activities (particularly harvesting) are controlled in different areas and near different, sensitive environments. Under the current NESPF, plantation forestry may end up permitted in some areas and subject to a resource consent requirement in others; however, the balance between those two tools will need to shift if the issues associated with the current approach are to be addressed. The activity status that should apply will require thought. If all potential effects are known, then restricted discretionary status is appropriate. If not, then discretionary activity status should apply. In areas where plantation forestry is not desirable, non-complying or prohibited status should be used.

In some circumstances Forestry Stewardship Council (FSC) standards provide a higher level of environmental protection and could provide guidance for improved regulatory standards in the NESPF.

The third and final overarching observation is that, **in most instances, the adverse environmental impacts of clear-fell harvesting are significant. Therefore policy needs to be developed to facilitate a transition to more sustainable methods** such as continuous cover forestry and other silviculture techniques.

In respect of many of the issues discussed in this report, the issue isn't harvesting per se. It is *how* we are harvesting. Alternative methods, like continuous cover forestry, have a whole range of benefits (eg in relation to erosion, biodiversity and water quality). This is how

plantation forestry is now undertaken in many other countries. Research needs to be carried out to examine how those methods can be applied here, and what is required to make a transition in harvesting method commercially viable for New Zealand foresters. This research needs to include implementation of alternative methods and the creation of demonstration sites to allow for rigorous analysis of outcomes.

## SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONTEXT

Before human settlement, much of Aotearoa was covered in indigenous forest and shrublands. Clearance began with arrival of Māori, and accelerated with the arrival of European settlers. Indigenous forest was cleared to make way for farming, and timber was used for construction. Deforestation of indigenous forest was rapid, and in the early 1900s the government introduced incentives to create plantation forests of important species.

Today, forests cover 31% of our land surface, about 6.5% (1.70 million ha) of which are plantations of mainly exotic species, mostly *Pinus radiata*.<sup>3</sup> Plantation forests are distributed across the country.

In 2016/2017 the value of forest product exports was \$5.47 billion, and the total contribution of the forest industry to GDP was \$3.55 billion. In 2016 the number of forestry workers was approximately 11,000.<sup>4</sup> The sector is party to numerous Accords ranging from social to environmental matters, and is also able to become certified under the FSC certification scheme. This involves uptake of several detailed environmental management requirements.

Plantation forests have a number of environmental benefits. Trees play a stabilisation role, especially on erosion prone land, protecting soil and regulating the rate at which water and collected sediment can run off the land into fresh and coastal water. The "*vegetative litter on the forest floor also acts as a sponge – holding and slowly releasing water for many days after the last rainfall*";<sup>5</sup> which assists with flood and sediment mitigation. Tree cover along rivers and streams also provides shading to assist with temperature regulation.

Plantation trees also make a significant contribution to carbon sequestration, with the New Zealand exotic forest biomass carbon estimated at 283 million tonnes in 2015 (an increase of 150 million tonnes or 114% since 1990). If carbon of the exotic forest soil is included, the total biomass carbon volume is 451 million tonnes in the same period, an increase of 189 million tonnes, or 72%.<sup>6</sup> Under conventional carbon accounting rules, however, sequestered carbon is deemed to be mostly released on harvesting, thus the carbon sequestration benefits are only temporary, either restored if the site is replanted or lost indefinitely if the site is converted to a non-forest land use.

Plantation forests also play a role in mitigating historical indigenous deforestation, providing habitat for some indigenous fauna and the canopy cover required for growth of some indigenous understorey flora. Indigenous

understorey consists mainly of vascular plants which can make up a significant part of the total understorey vegetation, such as in Kinleith Forest where the proportion of indigenous plants in the understorey of a 29-year-old stand was found to be 82%.<sup>7</sup>

Plantation forests can also play an important role in providing connectivity between indigenous forest remnants, and ecological buffers from adjacent non-forest land uses. A total of 118 threatened species have been recorded or observed within plantation estates, some in exotic stands and others in managed indigenous forest remnants, wetlands, and frost flats.<sup>8</sup> These include lizards, frogs, invertebrates, long-tailed bats, and numerous indigenous birds including the north brown kiwi (At Risk-Declining), the great spotted kiwi (Threatened-Nationally Vulnerable), and three ecologically distinct forms of kārearea (the southern form is Threatened-Nationally Vulnerable; the bush and eastern forms are At Risk-Recovering). Some operations, such as Omataroa and Te Teko, actively manage potential impacts on indigenous fauna.

However, realising these positive effects often depends on good management practice. Many benefits are only temporary and are lost during harvesting. This is particularly so when clear-fell harvesting methods are used, as is typical in Aotearoa.

Indigenous understorey and associated fauna habitat are lost on harvesting, as is habitat provided by the plantation trees themselves. Indigenous fauna can also be harmed or killed. Some of the species impacted may also be taonga, adding a cultural element of concern.

Indigenous flora and fauna can also be lost through the establishment of plantations at the expense of original indigenous habitat. Fortunately, this is no longer widespread, although issues still arise with the establishment of exotic plantations in indigenous shrublands and grasslands (eg in Otago and Marlborough).

Just as plantation forestry can assist with mitigating erosion and sediment, it can also contribute to it. Sedimentation associated with forestry activities can have significant impacts on freshwater and coastal ecosystems. This is particularly the case immediately after harvesting, especially when clear-felled, and during the seven year 'window of vulnerability' when neither the roots of harvested trees nor the roots of replanted trees are capable of stabilising soil. However, it is also an issue prior to harvesting in respect of roads, vehicle crossings, and forestry activities in steep areas (especially those with soft soils) like the Marlborough Sounds or in Gisborne.

Deposited sediment smothers benthic habitats. Suspended sediment smothers the feeding and gill structures of invertebrates and fish, is known to reduce fish diversity, reduces fish feeding ability, and "*disrupts the natural primary productivity base of the food chain in both freshwater and estuarine ecosystems*".<sup>9</sup> Forestry operations and harvesting can cause damage to riparian zones and wetlands, both to the ground structure and through loss of vegetation. Planting of exotic species, in particular *Pinus radiata*, in direct proximity to smaller streams and wetlands

can have significant impacts through water yield, with moisture taken from the stream or wetland and absorbed by the surrounding trees.

Similar issues to those resulting from sediment arise with slash movement, which can cause significant physical damage to habitat in the direct vicinity and in downstream environments, including the coastal marine area.

The spread of exotic trees outside the plantation site (wilding conifers) is another significant environmental issue. Wilding conifers are invasive weeds which constitute a significant economic, environmental, and cultural threat

in many parts of Aotearoa. They are a major threat to non-forested indigenous ecosystems such as mineral belts and tussock grasslands, where they can modify the natural ecosystems to the point that indigenous species are lost. In indigenous forests, wilding conifers compete for space with indigenous trees and plants and discourage regeneration of the indigenous understorey. Wilding conifers also present a significant landscape risk, replacing indigenous species and unique geological formations, such as those of the Mackenzie Basin, with exotic monoculture.



Wilding pines, Mackenzie District





Whangapoua forest

## 2 A general outline: the current NESPF

### NATIONAL ENVIRONMENTAL STANDARDS

National Environmental Standards (NESs) are one of the tools available to provide national direction on environmental management and resource use. The Resource Management Act 1991 (RMA) does not specify a purpose for NESs as it does for National Policy Statements (NPSs).<sup>10</sup> Instead, the purpose of a NES is effectively set by reference to scope and content: to set standards for specified resource management purposes that are to be nationally applied.<sup>11</sup>

The scope of what a NES can cover is wide. It can prescribe technical standards, methods, or requirements for:<sup>12</sup>

- Any of the matters referred to in ss 9, 11, 12, 13, 14 or 15 of the RMA, including but not limited to contaminants, water quality, water level, water flow, air quality, and soil quality in relation to discharge contaminants
- Noise
- Monitoring

Its standards may be qualitative or quantitative, relate to discharges, the ambient environment, or classification of resources, specify methods for implementation, or provide for exceptions or transitional steps.<sup>13</sup> A NES can prohibit an activity, require resource consent (including the parameters of that requirement) or permit an activity.<sup>14</sup> A NES must not permit an activity if that activity has significant adverse effects on the environment.<sup>15</sup>

A regional or district plan can only have a rule or rules that are more stringent or more lenient than a NES if the NES says so.<sup>16</sup> Such plans are also able to address the effects of activities subject to a NES where the effect is not dealt with by the NES and where the NES either *“allows an activity and states that resource consent is not required”* or *“states that the activity is a permitted activity”*.<sup>17</sup> In that situation a regional or district plan may include permitted activity controls over and above those of the relevant NES to address those effects. On its face, it does not

appear that s 43A(5) of the RMA provides regional and district plans the ability to address the effects of activities controlled by a NES if the NES classifies the activity as anything other than permitted,<sup>18</sup> or to control those effects using anything other than permitted standards.<sup>19</sup> However, breach of a permitted standard does mean that resource consent is required.

As a document made under the RMA, a NES must also align with the purpose of the RMA: to promote the sustainable management of natural and physical resources.<sup>20</sup> The Minister, when recommending the making of a NES to the Governor-General, must *“recognise and provide for”* the matters of national importance in s 6 of the RMA, have *“particular regard to”* the matters in s 7, and *“take into account”* the principles of Te Tiriti o Waitangi pursuant to s 8. The relationship between NESs, NPSs and the New Zealand Coastal Policy Statement 2010 (NZCPS) is not expressly described, but as the NZCPS (and, by analogy, any NPS) *“gives substance to”*<sup>21</sup> Part 2 of the RMA<sup>22</sup> in the environment they relate to, NESs could be expected to be consistent with NPSs.

### RESOURCE MANAGEMENT (NATIONAL ENVIRONMENTAL STANDARDS FOR PLANTATION FORESTRY) REGULATIONS 2017

As noted above, the NESPF was published on 3 August 2017 and came into force on 1 May 2018. The objectives sought to be achieved by developing the NESPF were to:

- Maintain or improve the environmental outcomes associated with plantation forestry activities
- Increase the efficiency and certainty of managing plantation forestry activities

Those objectives are not set out in the NESPF itself.

The reason given by central government for developing the NESPF was to address difficulties for forest owners

arising from managing forests that straddled the boundary between two regions or districts, in which different planning rules applied. Some difficulties identified included increased costs and uncertainty about the plan rules that must be followed.

The NESPF's underlying premise is that plantation forestry (establishment and operation) is a permitted activity subject to compliance with standards. Inability to meet the standards in the NESPF triggers a requirement to obtain resource consent. The NESPF is intended to "*provide standardised rules for managing the environmental effects of eight main plantation forestry activities ... [which] aim to codify good management practices in a pragmatic balance between national and locational direction.*"<sup>23</sup>

Part 2 of the NESPF is split into nine subparts. The first eight cover the main plantation forestry activities, and the last covers an assortment of specifically identified effects:<sup>24</sup>

- Afforestation<sup>25</sup>
- Pruning and thinning to waste<sup>26</sup>
- Earthworks<sup>27</sup>
- River crossings<sup>28</sup>
- Forestry quarrying<sup>29</sup>
- Harvesting<sup>30</sup>
- Mechanical land preparation<sup>31</sup>
- Replanting<sup>32</sup>
- Ancillary activities (slash traps; indigenous vegetation clearance; non-indigenous vegetation clearance)
- General provisions (discharges; disturbance; diversions; noise and vibration; dust; indigenous bird nesting; fuel storage and refuelling)

Regional or district plan provisions may be more stringent than the NESPF if necessary to:<sup>33</sup>

- Give effect to an objective developed to give effect to the National Policy Statement for Freshwater Management 2014 (as amended 2017) (NPSFM) or specified policies in the NZCPS
- Recognise and provide for the protection of outstanding natural landscapes (ONLs) or significant natural areas (SNAs)
- Manage specifically listed "*unique and sensitive environments*"

The NESPF does not allow regional and district plans to be more lenient than its standards.

The NESPF does not regulate every aspect of plantation forestry. Councils have discretion under s 43A(5) of the RMA to manage effects outside the scope of the NESPF. Effects that were recommended to be left outside its scope include the protection of sites of cultural significance and historic heritage (valued as matters of national importance under ss 6[e] and 6[f] of the RMA) and water yield.

The NESPF includes three risk assessment tools – the Erosion Susceptibility Calculator (ESC), the WCC, and the Fish Spawning Indicator – which are incorporated by reference. These are intended to enable location-specific risk assessments to be undertaken and to provide "*a more tailored approach to the management of adverse effects*" associated with erosion, wilding conifer spread, and fish spawning habitat.<sup>34</sup> Where a high risk of adverse environmental effects is identified under the risk assessment tools, resource consent is required.



Harvesting and earthworks, Havelock



### 3 Māori cultural considerations

#### THE CURRENT NESPF: WHAT DOES IT SAY?

Consideration of Māori cultural issues in the NESPF is limited to papakāinga, defined as:<sup>35</sup>

*a traditional layout of residential accommodation where dwellings are erected to exclusively house members of a whānau, hapū, or iwi, on land that is owned by the whānau, hapū, or iwi, and is Māori land within the meaning of section 4 of Te Ture Whenua Māori Act 1993 (including Māori customary land and Māori freehold land).*

The permitted activity standards for afforestation and forestry quarrying include a setback from the boundary of land zoned in a district plan as papakāinga.<sup>36</sup> Afforestation proposed within 30m of land zoned in a district plan as papakāinga triggers a requirement to obtain a restricted discretionary consent.<sup>37</sup> Similarly, forestry quarrying proposed within 500m of land zoned as papakāinga triggers a requirement to obtain a restricted discretionary consent.

The 'gap' relating to Māori sites of cultural significance was intentional. The Ministry for Primary Industries' (MPI) report on submissions on the draft NESPF and its 2017 NESPF s 32 RMA analysis both concluded that "specific provisions in the NESPF to protect cultural and archaeological sites were not appropriate or practical at a national level"<sup>38</sup> because "the type and level of protection is often site specific and dependent on the values and sensitivities of the site and the knowledge and requirements of the local iwi".<sup>39</sup> As a result, it was recommended that sites of cultural significance be left outside the scope of the NESPF, allowing regional and district councils to continue to manage effects of plantation forestry through plan provisions as the local context requires pursuant to s 43A(5) of the RMA.

However, there are overlaps between Māori sites of cultural significance and some of the specific areas in respect of which councils are afforded flexibility to apply greater stringency, such as:

- to give effect to an objective developed to give effect to the NPSFM; such an objective might, for example, relate to achieving Te Mana o Te Wai<sup>40</sup>, mahinga kai<sup>41</sup>, or a wāhi tapu site<sup>42</sup>
- to give effect to Policy 11 of the NZCPS, in particular Policy 11(1)(b)(iv) and the protection of "habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes"
- to give effect to Policy 15 of the NZCPS and recognise and provide for the protection of ONLs, given cultural and spiritual values are a component of landscape<sup>43</sup>

It would also be possible to provide for Māori cultural considerations through applying mātauranga and tikanga to the way in which effects are assessed in determining compliance with permitted standards, and as part of assessing resource consent applications.

#### DOES IT WORK?

The NESPF's approach has both positive and negative features.

On the positive side, it provides for a management approach and plan provisions that are tailored to the unique circumstances of a region or district. This responds directly to submissions received during consultation on the NESPF that a 'one size fits all' approach to managing impacts of plantation forestry activities on sites of cultural significance would not work due to significant national variability in identification, sensitivity, iwi or hapū concerns, and traditional management methods.

For example, as with ONLs and SNAs, some plans identify sites of cultural significance or taonga, but many do not. In some circumstances, identification is further complicated due to iwi or hapū reluctance to specifically identify sites due to fears they will be targeted for artefacts or destroyed because of concerns over potential restrictions associated with that status. In others, complications may arise due

to significance being tied to a specific occurrence such as a certain time of day or year. Management is similarly subject to local diversity, because the mātauranga and tikanga associated with managing and protecting sites of cultural significance are locally specific and borne out of generations of observation and practice.

However, relying on s 43A(5) of the RMA to provide flexibility for regional or district specific management of plantation forestry impacts on sites of cultural significance also has its problems.

First, there is a risk that if it is not provided for in the NESPF, it isn't provided for at all. The effectiveness of councils in engaging with and providing for cultural matters is variable around the country. In areas where the council has a strong working relationship with local iwi or hapū, it is more likely that rules will be developed to address the impacts of plantation forestry on sites of cultural significance. However, in areas where the relationship between the council and local iwi or hapū is weak, or where there are competing iwi or hapū interests, it is less likely (especially given the complexity and detailed analysis likely to be involved).

Secondly, the flexibility available to councils under s 43A(5) of the RMA is not absolute. On its face, s 43A(5) only provides councils with the ability to include permitted activity standards relating to cultural effects. This means that locations or effects need to be able to be articulated with the specificity and measurability required of a permitted activity standard. This may prove difficult given the issues already discussed (see the 'Structure and Language' section).

Thirdly, it is arguable that some sites of cultural significance are within scope of the NESPF and so recourse to s 43A(5) of the RMA to adopt a regional or district-specific approach is not available. For example, could a plan rely on s 43A(5) to include additional permitted standards relating to indigenous species habitat in the coastal environment that are sites of cultural significance when those areas are expressly covered by Policy 11 of the NZCPS (which is addressed by the NESPF)? Or could a plan include additional permitted standards relating to freshwater sites of cultural significance given cultural values are captured by the NPSFM (which is also addressed by the NESPF)? And if a site of cultural significance falls within a papakāinga area, is it within scope, given papakāinga are expressly captured by the NESPF?

Whichever position is taken (ie out of scope so full discretion, or inside scope with increased stringency), councils would have the ability to include controls specific to their region or district. However, legal uncertainty risks litigation over the lawfulness of proposed rules and could result in increased hesitancy by councils to incorporate rules to address effects on sites of cultural significance.

## RECOMMENDATIONS

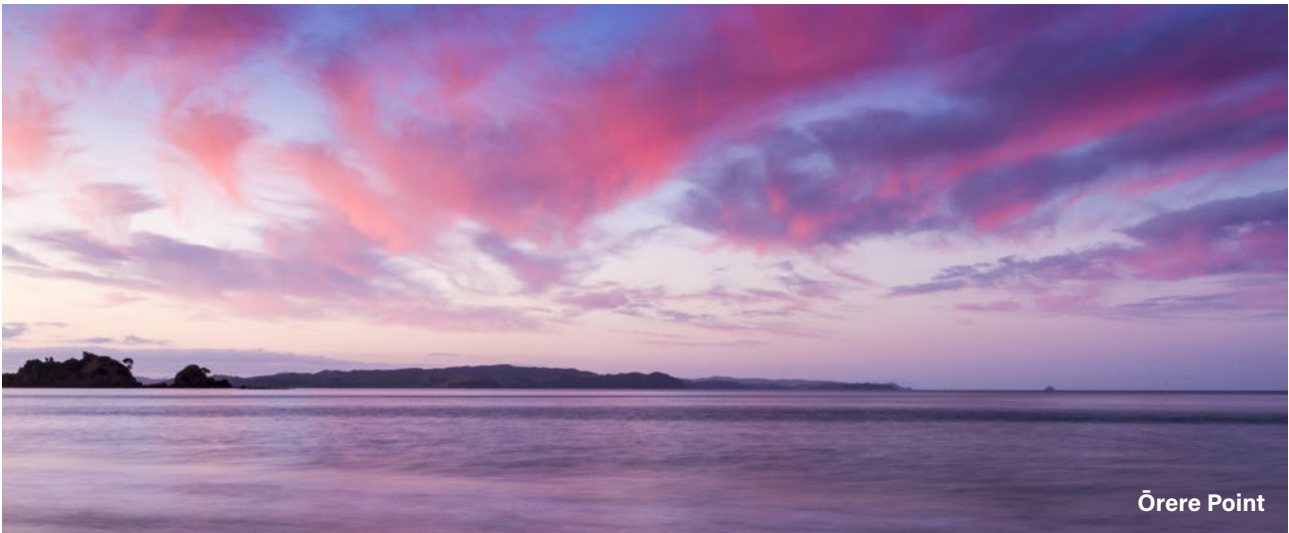
The level of complexity and local nuance associated with sites of cultural significance does not lend itself to a nationally ubiquitous approach. Providing for local flexibility in effects management is appropriate. The question – in light of the issues raised above – is whether excluding impacts on sites of cultural significance from the NESPF is the best method for achieving that. And if it is, what can be done to ensure exclusion is clear?

Recommendations to address the issues raised above are:

- Obtain feedback from regional and district councils on the development and implementation of provisions controlling the effects of plantation forestry on sites of cultural significance, including reasons for why provisions have or have not been developed and any difficulties faced.
- Obtain feedback from a cross-section of iwi and hapū on development and implementation within their rohe, including whether they think additional, specific management provisions are required, whether provisions have or have not been developed, and difficulties faced.
- Consider, taking into account the feedback received from the above steps, whether the NESPF should be amended to specifically state that the control of effects of plantation forestry on sites of cultural significance is outside scope of the NESPF, including when those sites overlap with an area/effect that is within scope.
- Consider what guidance and support measures can be developed for iwi, hapū, and councils for the identification and management of sites of cultural significance. This would likely have benefits that would extend past the NESPF.



Harataunga-Kennedy Bay



Ōrere Point

## 4 Climate change

### THE CURRENT NESPF: WHAT DOES IT SAY?

Alignment with national climate change objectives is not an explicit outcome sought in the current NESPF. The regulatory framework of the RMA has not been seen as a tool for climate change mitigation; therefore, it is not surprising that the NESPF's objectives do not include carbon sequestration. However, the NESPF is relevant to Aotearoa's climate change strategy, given the major role of forestry (both commercial harvesting and permanent) in the government's strategy for meeting emission reduction targets.

The government recognises forestry as currently being New Zealand's most important source of short-term, domestic abatement as it can deliver carbon dioxide removals at a greater scale and lower cost than other domestic actions to reduce emissions.<sup>44</sup> The government's ambition for greater afforestation is currently being operationalised through the One Billion Trees Programme, changes to the Emissions Trading Scheme (ETS), and the drafting of the Zero Carbon Bill. The latter is designed to encourage afforestation and all other forms of abatement "by providing a strong Government signal [for climate action], enduring laws and institutions, stable and predictable policy settings, and incentives for climate-friendly innovation and investment".<sup>45</sup>

Insofar as the NESPF enables or hinders certain forestry activities, it may be aligned or misaligned with the government's abatement strategy. As a principle of joined-up policy-making, these (mis)alignments ought to be a matter of strategic consideration for the NESPF in the future.

### DOES IT WORK?

Whether the NESPF is in alignment with climate change objectives depends on the framework for evaluating success. Alignment can be defined *narrowly* in terms

of climate mitigation only, particularly with a focus on national net emissions, where all other considerations or potential impacts are put aside. Alternatively, alignment can be defined more *widely* in terms of climate change mitigation, adaptation, and broader sustainability outcomes such as those enshrined in the United Nations Sustainable Development Goals (SDGs) or in Part 2 of the RMA. These frameworks are discussed in turn.

#### **Narrow alignment**

For climate change mitigation in general (and, in particular, meeting Aotearoa's 2030 and 2050 emission reduction targets), the general principle is: the more forest the better. This principle also corresponds to the government's immediate priority for the One Billion Trees Programme.

On this narrow framing of success, the NESPF is climate-aligned only to the extent that it promotes afforestation and discourages deforestation by facilitating the replanting of sites or by limiting harvesting.<sup>46</sup> Tree species and forest management systems are only of subsidiary interest, insofar as they can optimise sequestration rates and increase total carbon stocks (although, as discussed below, choice of species and management system is important for climate adaptation and sustainability more broadly).

The promotion of afforestation is consistent with the original objective of the NESPF: to overcome "the main problem ... [of] inconsistency in the management framework for plantation forestry", which can result in "re-litigation of the same issues across the country; inconsistent treatment of forestry operations; operational inefficiency; [and] investment uncertainty".<sup>47</sup> If the NESPF has reduced this operational and investment uncertainty, and thereby encouraged forest land uses, then the maintenance and expansion of total forest carbon stocks can be included in the National Greenhouse Gas Inventory as negative emissions.

On this narrow alignment analysis, the question is whether the NESPF is facilitating land use change from exotic pasture into forestry, and discouraging decisions to shift permanently into a non-forest land use. Given that the NESPF has only been in place since 1 May 2018, it is too soon to verify whether these objectives are being fulfilled. Moreover, it will take some time for evidence to accumulate because of lead-in times required for forest planting.

Requiring resource consent for forestry activities may discourage them due to perceived time, cost, and uncertain outcomes from the consent process.<sup>48</sup> On a narrow alignment analysis, if this means that land remains in exotic pasture, then this outcome is misaligned with climate change mitigation objectives *unless* there are plans in place to establish non-plantation forest, such as "*long-term ecological restoration planting of forest species*"; forest sinks for carbon farming, or plantation forestry managed as continuous cover forestry (see the 'Erosion' section).<sup>49</sup> The viability of non-plantation or non-clear-felled forestry depends on a range of factors (eg carbon price, cost of saplings, landowner aspirations) that are beyond the NESPF's remit; however, a joined-up approach to forest policy would ensure that the conditions are in place for non-plantation forestry to be viable when plantation forestry is not.

A further issue is the uneven distribution of regulatory burden across primary sector activities (henceforth, "sectoral inequity").<sup>50</sup> It is possible that, even for land where plantation forestry activities are permitted by the NESPF, its restrictions could disadvantage plantation forestry relative to other activities like pastoral agriculture, because the latter may not face equivalent restrictions. For example, the NESPF sets out the circumstances for which setbacks must occur, such as 10m setbacks from rivers wider than 3m, which reduces the potential productivity of that site. Such restrictions are defensible for environmental reasons (see the 'Fresh and Coastal Water' section); however, potential lack of comparable restrictions for pastoral agriculture means that the potential productivity for agricultural activities are higher for the same site. This sectoral inequity may be reduced over time, especially through the inclusion of controls in RMA plan provisions to control the water quality and biodiversity impacts of other land uses. Tools like setbacks are becoming more common for pastoral agriculture and development activities, and may become mandatory depending on changes to freshwater policy made in 2019. However, this issue points to the importance of a joined-up policy approach, which places the NESPF within its wider regulatory context (which also includes the ETS and other environmental regulation) and which indirectly influences land use choices in ways that may or may not align with climate change mitigation objectives.

Inequity does not only occur across primary sectors; it also occurs across forests of different sizes. For example, a 10m setback for a 200ha site would restrict forest activities on a relatively larger proportion of the total land area than for a 2000ha site. While there are good

environmental reasons for setbacks, no matter what the scale of forest, it is important to note that they weigh heavier on small-scale foresters, thereby potentially discouraging forest activities that support climate change mitigation objectives. This is not only an issue for the NESPF, because the economics of small-scale forestry involve related hurdles, such as transport and harvesting costs that are relatively higher because of the smaller-scale yields. This also applies to seeking resource consents, which is more onerous for a small-scale forester compared to a large-scale corporate operator. From the climate change mitigation perspective this is problematic, as small-scale forestry plays an important role in establishing forests on sites that commercially driven operators might not consider because they are either too small, too remote, or too economically marginal.

### Wide alignment

This section turns from *narrow alignment*, which focuses solely on mitigation outcomes, to *wide alignment*, which focuses on mitigation, adaptation, and sustainability more broadly. For simplicity's sake, we might conceive of sustainability by reference to the RMA's sustainable management purpose, or by reference to Goal 15 of the SDGs, which calls upon nations to manage forests sustainably, combat desertification, halt and reverse land degradation, and halt biodiversity loss. This wide alignment analysis is more consistent with the framing of the NESPF, which has policy objectives of "*facilitating the sustainable management of natural and physical resources*"<sup>51</sup> and "*maintain[ing] or improv[ing] the environmental outcomes associated with plantation forestry activities*".<sup>52</sup>

The first thing to note is that, by conceiving of climate action more widely, not only do we encounter a plurality of objectives, but also various internal trade-offs between them. For forestry, these trade-offs can be quite pronounced.

Consider, for example, the trade-offs between mitigation and adaptation as these relate to the choice of tree species and forest management systems. As noted above, a narrow focus on mitigation is concerned with species and systems *only* insofar as these optimise carbon sequestration rates. In Aotearoa, this tends to recommend *Pinus radiata*, which is fast growing in a range of circumstances, highly adaptable, and well understood by forestry operators. These qualities make this species attractive for plantation forestry, but also for carbon farming, because rapid growth corresponds to rapid carbon sequestration and, consequently, rapid accrual of carbon credits.

However, from an adaptation perspective, it is not clear that *Pinus radiata* monocultures are the optimal choice. Generally, diversity is the key to ecosystem resilience, both in terms of age and species diversity. Accordingly, even-aged, monoculture forests are generally regarded as more vulnerable to the impacts of extreme weather events such as drought, fire, and windthrow, as well as pests and diseases. Moreover, these risks multiply

as global mean temperatures increase, because of the increased incidence of extreme weather events. From the perspective of land resilience, *Pinus radiata* also has a disadvantage in that its roots rapidly decay after harvesting, so the soil-holding capacity of remaining roots is quickly lost. This means that clear-felled sites are vulnerable to erosion and sedimentation during this 'window of vulnerability', when new trees are yet to establish themselves. The choice of forest management system also has implications for land resilience. Clear-fell forestry leaves the land exposed to climatic impacts after harvesting, but continuous cover forestry has no window of vulnerability because a forest canopy cover is maintained continuously (see the 'Erosion' section).

Another consideration is the trade-off between climate mitigation and sustainability more generally. *Pinus radiata* is an exotic species and so is not aligned with the objective of restoring indigenous biodiversity. Moreover, while *Pinus radiata* may be an optimal choice for carbon farming, especially in the short term, there are questions over long-term sustainability, especially whether landowners would retain forest when it matures and ceases to generate carbon revenue, and whether large *Pinus radiata* forest sinks would have social licence among future generations. These tensions are captured by the idea of 'bio-perversities', which are defined as "negative biodiversity and environmental outcomes arising from a narrow policy and management focus on single environmental problems without consideration of the broader ecological context".<sup>53</sup> However, bio-perversity can cut both ways. Just as a narrow focus on climate change mitigation could be detrimental to biodiversity, so too could an overly narrow focus on biodiversity result in suboptimal outcomes by the exclusion of activities that deliver other environmental benefits, such as the use of exotic species for erosion control, carbon sequestration, or the providing of more immediate carbon benefits while simultaneously acting as a nursery for indigenous forest species that will ultimately take over.

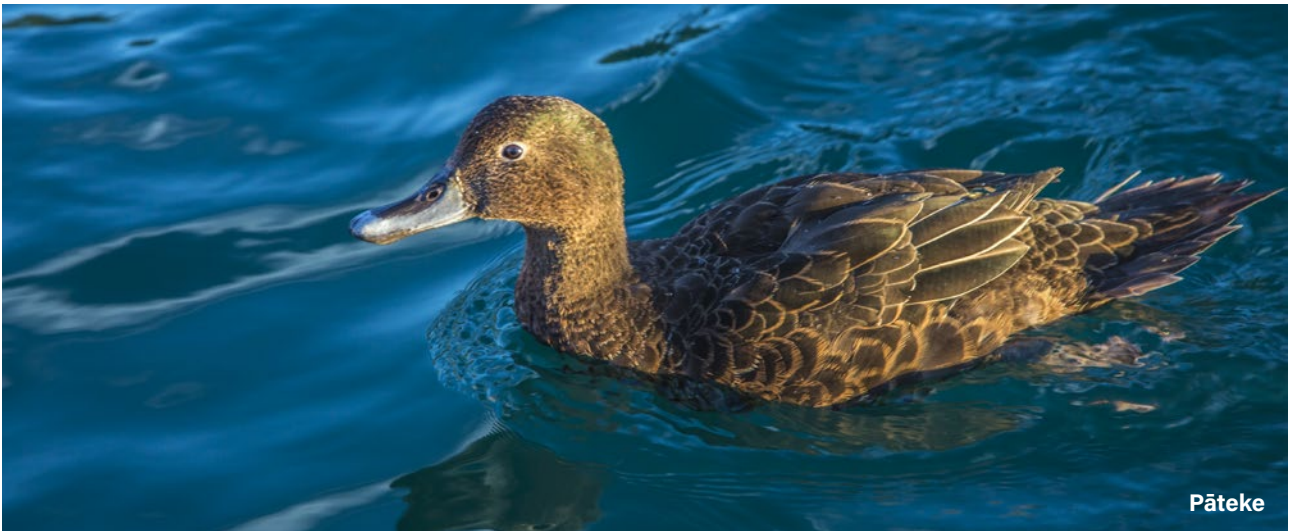
A further issue is wilding conifer spread. *Pinus radiata* has potential as a wilding conifer species, although this capacity is greater for other species such as *Pinus contorta* and Douglas fir. The spread of wilding conifers is commonly regarded as an environmental threat because of its implications for the integrity of SNAs, ONLs, visual amenity landscapes, natural character areas, sites of cultural significance, or the opportunity to preserve non-forest land uses such as high country farming (see the 'Wilding Conifers' section). On a narrow alignment analysis, the spread of wilding conifers could be seen as beneficial, because wilding conifers sequester carbon; however, on a wide alignment analysis, carbon sequestration is only one among a wider set of considerations about the environment's capacity to sustain itself. This wide analysis is more consistent with the broad sustainability objectives of the NESPF and Part 2 of the RMA.

Although, as noted, the RMA has not in practice been seen as a tool for climate change mitigation, s 70B of the Act specifically anticipates the development of NESs to "control the effects on climate change of the discharge into air of greenhouses gases". In that scenario, regional councils are able to make rules necessary to implement the standard. This potentially opens the door for the NESPF to address mitigation. However, this is not clear-cut, as s 70B relates specifically to a NES "made to control the effects on climate change", not one made for a different purpose (ie controlling forestry) which also happens to touch on climate change mitigation issues. What is clear is that there is an opportunity to address climate change-related discharges and mitigation via the RMA, including through the planting of trees. The inclusion of climate-related objectives in the NESPF or a separate but complementary NES would force the conversation on how to maximise environmental co-benefits, and where and when one objective should be preferred over another. It would, of course, add another layer of complexity, but this is a complex issue. It all comes back to the right tree, in the right place, for the right purpose.

## RECOMMENDATIONS

Recommendations to address the issues raised above are:

- Include the RMA and its subsidiary instruments (like the NESPF) within the remit of the national climate strategy process. Consider *inter alia* the role of the RMA (and subsidiary instruments) in that strategy and any necessary legislative amendment to allow it to fulfil that role.
- Given the increasing risks of massive forest loss as a result of climate change, consider the role that the NESPF might play in building the resilience of future forests, in line with best practice for climate adaptation. This might include the inclusion of firebreaks, rules on slash and residue management to reduce fire risk, tighter regulation of clonal forestry, species diversification, and climate-resilient management practices for thinning, fertilising, weeding, and pest control.<sup>54</sup> The importance of considering firebreaks is emphasised by the recent fires in Tasman.
- Undertake a national forestry strategy and/or a national land use strategy which includes, but is not limited to, the NESPF. This strategy ought to take a holistic view, not only assessing the effectiveness of regulatory instruments (eg the NESPF, ETS, forthcoming Zero Carbon Bill, and non-climate related environmental regulation like the NZCPS and NPSFM), but also the interactions between these instruments and various market factors, and the emergence of sectoral inequities for the land sector. Investigate options for reducing inequities and establishing ubiquitous, cross-cutting controls where appropriate, such as setbacks that apply equitably to competing land uses.



## 5 Indigenous biodiversity

### THE CURRENT NESPF: WHAT DOES IT SAY?

The NESPF recognises that plantation forestry activities have the potential to adversely affect indigenous flora and fauna, and aims to address this by giving particular consideration to SNAs, controlling indigenous vegetation clearance, and requiring steps to be taken to reduce impacts on some bird species when nesting and freshwater fish species when spawning.

These controls are intended to implement the directions to decision-makers in s 6(c) of the RMA (to recognise and provide for the protection of significant indigenous vegetation and significant habitats of indigenous fauna), and in ss 30 and 31 (regarding maintenance of indigenous biodiversity, and maintenance and enhancement of ecosystems in water bodies and coastal water).

#### Vegetation clearance

The NESPF does not apply to indigenous vegetation clearance that occurs prior to afforestation; this activity remains for regional and district councils to regulate.<sup>55</sup> Clearance of indigenous vegetation is otherwise provided for in Regulation 93. Outside SNAs, vegetation clearance is permitted where the vegetation is understorey, within an area of a failed plantation forest, or within an area of plantation forest that has been harvested within the previous five years. Clearance of indigenous vegetation within or adjacent to a plantation forest is also permitted where it is in the same ownership and does not exceed 1ha or 1.5% of the total indigenous area. Clearance of vegetation that is overgrowing a forestry track that has been used within the last 50 years and "*incidental damage*" to indigenous vegetation are permitted, including where the vegetation is part of a SNA.

The NESPF defines "*indigenous vegetation*" as "*vegetation that is predominantly vegetation that occurs naturally in New Zealand or that arrived in New Zealand without human assistance.*"<sup>56</sup>

"Vegetation clearance" is defined as:

- (a) the disturbance, cutting, burning, clearing, damaging, destruction, or removal of vegetation that is not a plantation forest tree; but
- (b) does not include any activity undertaken in relation to a plantation forest tree.<sup>57</sup>

#### Approach to SNAs

In addition to the vegetation clearance rule, some relevant activity-specific rules have particular controls relating to SNAs. A SNA is:<sup>58</sup>

- an area of significant indigenous vegetation or significant habitat of indigenous fauna that—
- (a) is identified in a regional policy statement or a regional or district plan as significant, however described; and
- (b) is identified in the policy statement or plan, including by a map, a schedule, or a description of the area or by using significance criteria.

Afforestation within a SNA or within 10m of one is a restricted discretionary activity.<sup>59</sup> Spoil and overburden cannot be disposed of within a SNA.<sup>60</sup> River crossings may not be installed within a SNA.<sup>61</sup> Replanting may not occur closer than the stumpline to an existing SNA.<sup>62</sup> Wilding conifer control is required within some SNAs (see the 'Wilding Conifers' section). Harvest plans must identify the location of SNAs that are to be protected during harvesting.<sup>63</sup>

There are no standards or setbacks in relation to SNAs that apply to earthworks or forestry quarries, except that:

- For earthworks where a forestry earthworks management plan is required,<sup>64</sup> it must identify the location of and mark on a map "*any features that are to be protected during the operation, including significant natural areas.*"<sup>65</sup> These plans must also identify the environmental risks associated with the earthworks



and provide measures to avoid, remedy, or mitigate adverse effects on the environment.<sup>66</sup>

- For forestry quarries, excavated overburden must not be deposited into a SNA (however, no setback is required).<sup>67</sup> Where a quarry erosion and sediment management plan is required, it must identify the environmental risks associated with the quarrying activities and provide measures to avoid, remedy, or mitigate the adverse effects of the activity on the environment.<sup>68</sup>

### **Habitat, including for mobile fauna**

Where certain bird species<sup>69</sup> nest in plantation forests, steps must be taken to identify their presence and the location of nesting sites, staff trained to identify the birds and their nests, and measures installed to avoid or mitigate impacts on the birds and their nests.<sup>70</sup> The NESPF does not otherwise address fauna species that may use plantation forests, such as bats, reptiles, frogs, and invertebrates.

### **Aquatic biodiversity**

Aquatic ecosystems are adversely affected by sedimentation and loss of riparian vegetation (see the 'Fresh and Coastal Water' section). This part of the report addresses the NESPF's approach to activities that occur within water bodies.

The NESPF controls apply to perennial rivers, defined as "a river that is a continually or intermittently flowing body of freshwater, if the intermittent flows provide habitats for the continuation of the aquatic ecosystem"<sup>71</sup>

Disturbance of the bed or vegetation in the bed of a perennial river or lake is subject to controls relating to freshwater fish spawning. The Fish Spawning Indicator, incorporated by reference and available through MPI's website, provides information about freshwater fish presence, absence, and spawning periods.

Fish passage is addressed in two areas of the NESPF: fish passage must be maintained as part of river crossing construction,<sup>72</sup> and blockages to fish passage must be addressed in reporting on slash trap maintenance.<sup>73</sup>

### **Stringency**

The NESPF allows greater stringency of rules to give effect to Policy 11 of the NZCPS (in relation to coastal and marine biodiversity), to give effect to an objective developed to give effect to the NPSFM, and rules that recognise and provide for the protection of SNAs.<sup>74</sup>

## **DOES IT WORK?**

### **Vegetation clearance**

The NESPF definition of "indigenous vegetation" may be problematic to apply as part of the vegetation clearance regulation, as the term "predominantly" is uncertain. It is unclear whether it refers to composition (eg more than 50% of individual species are indigenous), cover (more

than 50% of the cover of a given area is taken up with indigenous species) or something else. This can result in uncertainty as to whether the rule applies. Furthermore, indigenous "predominance" can be particularly difficult to demonstrate in an enforcement context following vegetation clearance. In *Director-General of Conservation v Invercargill City Council*<sup>75</sup> the Environment Court declined to incorporate the term "predominantly" into a definition of indigenous vegetation because of its uncertainty. The definition in the NESPF was specifically noted.

In relation to the definition of "vegetation clearance", clause (a) is clear, but clause (b) is uncertain. It is unclear to what extent an activity that would be covered by (a) should be considered to relate to a plantation forest tree and thus be excluded by (b). For example, harvesting results in the destruction of vegetation (indigenous understorey) that is not a plantation forest tree, but is an activity undertaken in relation to a plantation forest tree.

Regulation 93 allows "incidental damage" of adjacent SNAs. The definition of incidental damage includes requirements that:<sup>76</sup>

(a) *The damage does not significantly affect the values of the SNA; and*

(b) *The ecosystem can recover to a state where it is predominately of the composition previously found at that location within 36 months.*

The need for judgement about whether the anticipated damage will "significantly affect the SNA's values", and whether the ecosystem will recover within 36 months makes this provision highly subjective. It is likely to be impossible to enforce except in the most egregious cases of damage. However, taking steps to minimise the risk of damage is more effective than even the best incidental damage rule.

### **Approach to SNAs**

The NESPF appears to be premised on an assumption that SNAs are only remnant indigenous bush blocks that are readily identifiable from their vegetation. However, plantation forestry blocks themselves can provide significant habitat for indigenous fauna,<sup>77</sup> and the application of SNA criteria based on the ecological values present would result in some areas of plantation forestry (both forest and cutover) meeting the NESPF's definition of a SNA for that reason. Plantation forestry may also host indigenous vegetation qualifying as significant under s 6(c) of the RMA.<sup>78</sup>

This means that activities may require resource consent where they are undertaken within a SNA (or within the required setback from a SNA), such as harvesting of a plantation forest that is significant habitat for kiwi or bats or replanting in an area of cutover that is significant habitat for karearea. A consent requirement is seen to be problematic by forestry operators. How to manage effects on SNAs within production forests requires careful thought, and effective management would likely demand additional and more nuanced controls than those in the current NESPF.

Afforestation may not occur as a permitted activity within SNAs, but in regions that have not identified SNAs in their regional policy statement or plans, this relies on the forestry operator proactively identifying that the area where afforestation is proposed is not a SNA. This is unlikely to be a significant issue in forested areas, but where shrublands or grasslands would meet SNA criteria, identification becomes more complex and because indigenous vegetation clearance (controlled outside the NESPF) is not necessarily required prior to afforestation, there may be no interaction with the council prior to afforestation occurring. Conversion of grassland and shrubland to exotic forestry is considered to be a significant risk, especially given anticipated forestry expansion under the One Billion Trees Programme.

Many plantation forestry activities are not required to be set back from SNAs (eg earthworks), and where setbacks are required (generally of 10m) they are likely to be insufficient to protect SNAs, particularly from the impacts of harvesting, where the trees themselves may be as tall as 50m. The Scion assessment of the environmental costs and benefits of the NESPF did not include any evidence that a 10m setback would be adequate to protect SNAs.<sup>79</sup>

While harvest plans must identify the location of SNAs to be protected, a requirement to proactively plan for SNA protection from the point of afforestation would be more effective in ensuring protection is achieved over time. This would require consideration of how the overall forestry operation was likely to affect SNAs and to incorporate these considerations into forest design and planning.

### **Habitat, including for mobile fauna**

The NESPF's nesting bird regulation is unlikely to be enforceable except in very clear cases, because its requirements are too general. Compliance is achieved where (unspecified) training is provided so that operators can identify the presence of birds, and where (unspecified) steps are taken to avoid or mitigate impacts on nest sites. This level of generality is also inadequate to address what may be significant adverse impacts on threatened species.

An obvious shortcoming in the NESPF is that species other than birds are not provided for at all. Many species have lost so much of their natural, indigenous habitat that they rely on plantation forestry habitat. Nearly three-quarters of indigenous forest has been cleared in the last 1000 years, including 85% of lowland forests and wetlands. In some of the main plantation forestry regions – Gisborne, Waikato, Bay of Plenty, Hawke's Bay and Canterbury – indigenous forest losses have been high (84%, 77%, 52%, 83%, and 91% respectively). Even in areas like Gisborne that retain relatively large areas of indigenous vegetation (23%), only 15% of this is original vegetation and there are only 25ha of intact forest remaining in the lowland areas. Nearly half of all forest in the Gisborne district is now exotic. Exotic plantation forests are therefore becoming more important in some regions as habitat for helping to conserve indigenous fauna on a landscape scale. Failing to both assess the effects of forestry activities on indigenous fauna and ensure the protection of species that live in

plantation forest could have significant impacts, even including species extinction.<sup>80</sup>

FSC's certification scheme places additional indigenous fauna management requirements on plantation forestry operators, demonstrating that management of indigenous species within plantation forests is not incompatible with forestry operations. Signatories are required to identify indigenous habitat that supports rare, threatened, or endangered species and that is important to their life cycle, and protect it in management planning. Within production areas, the presence of populations of rare, threatened, or endangered species or areas important to their life cycle is to be progressively identified and mapped as either "*known presence*" or "*reasonable expectation of finding*" before harvesting in management plans and site-specific work prescriptions.<sup>81</sup> Rare, threatened, or endangered species known to be present, or discovered in production areas, are to be protected and managed.<sup>82</sup> Management plans and work prescriptions for areas due for harvesting or silviculture are required to detail steps to be taken to protect rare, threatened, or endangered species in production areas.<sup>83</sup> This includes progressively training employees and contractors in recognition of these species, and in contingency planning to enable protection of located species.<sup>84</sup>

FSC certification also requires that a proportion of the overall forest management area be managed so as to restore the site to a natural forest cover.<sup>85</sup> At least 5% of the management unit must be retained in or restored to natural forest, and a minimum of 10% of the ecological district or region must be protected or restored to indigenous vegetation. However, this can be achieved through "*equivalent ecological effort*", which includes steps such as active restoration of reserves, where there is a deficit of reserve set-aside.

These measures suggest that if the objective is to conserve indigenous species that rely on plantation forests, a much more comprehensive and integrated approach is required rather than simply identifying bird nesting sites and avoiding or mitigating effects on these. The FSC certification scheme's standards indicate that foresters themselves are aware of this and are actively working to manage effects on indigenous species.

Similarly, a recent report<sup>86</sup> describing current knowledge of indigenous fauna within plantation forests and the impact of forest harvesting concluded that given the diverse habitat requirements, dispersal abilities, and threat status of indigenous fauna, a multifaceted approach will be required within plantation forests to help conserve indigenous biodiversity on a landscape scale. The report found this approach should include retaining areas of forest which develop high structural complexity, and maintenance of mixed-age exotic stands and individual threatened species programmes. Retention forestry, the practice of setting aside small areas within plantation forests, is noted as having emerged in recent decades as an effective, practical approach to achieve biodiversity gains internationally, and is now used in many countries

including the United States, United Kingdom, Canada, Australia, Germany, Sweden, and Argentina.

The report also includes many specific management recommendations that could be considered alongside existing FSC-based standards as part of the formulation of specific NESPF controls, rather than a generic 'avoid or mitigate' approach. It identified that few studies have been carried out on indigenous fauna in plantation forests in Aotearoa and that further information would assist to understand and provide for species conservation.

Excess sediment in estuaries and other marine ecosystems can smother habitats, such as seagrass meadows and mussel beds, and detrimentally affect water clarity<sup>87</sup>. Sub-tidal rocky reef systems are also at risk.<sup>88</sup> Some very high value areas like Mahurangi Harbour, Long Bay Marine Reserve, and Hahei Marine Reserve can be heavily impacted by sediment. In theory, the NESPF allows councils to apply more stringent rules to protect SNAs and other areas meeting Policy 11 of the NZCPS in the coastal marine area, but in practice only a few councils have identified marine SNAs. As a result, ecologically significant coastal sites may not receive adequate protection from sedimentation impacts through regional rules.

### **Freshwater biodiversity**

Ephemeral streams only flow for part of the year, after rainfall, and so do not come within the NESPF definition of perennial river. While ephemeral streams tend to have reduced fish communities, they are highly important for invertebrate life. By not including ephemeral streams in the regulations controlling effects on freshwater, the NESPF is failing to provide protection for entire ecosystems.

Freshwater bodies can provide significant habitat for indigenous fauna. While the NESPF generally recognises SNAs on land and includes provisions to protect them, it is less effective at controlling activities within freshwater SNAs. River crossings other than fords (culverts, drift decks, and temporary river crossings) may be installed as a permitted activity regardless of the water body's significance as habitat. The Opouri River in Marlborough was given as an example where this is of significant concern. New fords are not permitted in a river listed in a regional plan or water conservation order as a habitat for threatened indigenous freshwater fish or a freshwater fish spawning area, but this does not provide any protection for indigenous freshwater fish that are at risk but not threatened, except when they are spawning. In theory greater stringency can be applied to meet SNA criteria but in the freshwater context inclusion of criteria for identifying freshwater SNAs is unusual and actual identification is even more unusual.

The NESPF focuses on streams as freshwater fish spawning habitat (using the Fish Spawning Indicator) and does not capture the broader ecosystem value of freshwater habitat, or habitat at other stages of a freshwater fish's life. The Fish Spawning Indicator itself has shortcomings, in that generally the models used are national models for freshwater fish presence and based on the New Zealand Freshwater Fish Database

(NZFFD), which is more complete in some regions than others. There is a range of reasons for this, including that tangata whenua in some regions do not support publication of information about their taonga species and other natural values, which then presents as an 'absence' in the database. There is also criticism of the accuracy of the freshwater fish spawning periods used as not being regionally appropriate in some cases.

The NZFFD and Fish Spawning Indicator are excellent tools and valuable when used for the right purpose. However, that purpose is not a regulatory one, especially one where the presence or absence of data is being used to determine presence or absence of fish. Multiple submissions on the NESPF and feedback received by the reviewers raised issues with reliance on the NZFFD and Fish Spawning Indicator, due to significant gaps in data.

### **National Policy Statement for Indigenous Biodiversity**

The government is currently developing a proposed NPS for Indigenous Biodiversity, based on the draft prepared by the Biodiversity Collaborative Group. The Group's draft NPS includes specific provisions relating to plantation forestry. Its accompanying report, which sets out complementary measures for maintaining indigenous biodiversity, identified gaps in and issues with the NESPF's management of effects of plantation forestry on indigenous flora and fauna. The content of a NPS for Indigenous Biodiversity may have implications for the NESPF, which will need to be considered.

## **RECOMMENDATIONS**

Recommendations to address the issues raised above are:

### **Vegetation clearance**

- Review definitions of "*indigenous vegetation*" and "*vegetation clearance*" to ensure they are sufficiently certain to be enforceable. Delete reference to "*predominantly*" in the "*indigenous vegetation*" definition.
- Amend the requirements for harvest plans to include:
  - A requirement to identify the measures that will be taken to ensure SNAs are protected during harvesting
  - Where "*incidental damage*" to SNAs is anticipated, details of how the forestry operator has determined that such damage will meet the definition of "*incidental damage*" (including that the damage will not significantly affect the values of the SNA and that the ecosystem will recover to a state where it is predominately of the composition previously found at that location within 36 months)
  - A requirement for independent expert ecological advice in relation to the above matters

### **Approach to SNAs**

- Recognise that areas of plantation forest may qualify as a SNA due to the presence of significant indigenous vegetation, or because they provide significant habitat for indigenous fauna. Tailor the NESPF controls relating to SNAs to address these circumstances. This will require a much more comprehensive approach to controlling the effects of plantation forestry activities on indigenous fauna species within plantation forests than is currently provided for under the NESPF.
- Require a new forestry plan at the point of afforestation that identifies where SNAs are located and how they will be protected throughout the plantation forestry rotation. As part of that plan, require forestry operators to demonstrate prior to afforestation that areas where afforestation is proposed do not contain indigenous vegetation cover. If they do contain indigenous vegetation cover, require them to demonstrate that the indigenous vegetation is not a SNA.
- Review SNA setback provisions (such a review should include expert ecological advice) and increase setbacks where ecological advice indicates this is required to protect SNAs.
- Require and incentivise regional councils to progress identification of marine SNAs, and provide guidance to assist councils to derive regional rules relating to plantation forestry that address effects of sediment on marine SNAs.

### **Habitat, including for mobile fauna**

- Incorporate integrated species conservation measures for all indigenous species that use plantation forests

as habitat. Ensure this is reflected in regulations and harvest plan requirements (which to be meaningful must be verified and able to be changed by councils). Species conservation measures should not be limited to steps to avoid or mitigate impacts on individuals.

- Further investigation of indigenous fauna within plantation forestry should be encouraged.
- Consider whether support in the form of grants for forestry owners and managers to help retain habitat that benefits biodiversity (other than existing SNAs which must be protected by law) should be provided.

### **Freshwater biodiversity**

- Recognise that freshwater biodiversity is not limited to fish species, and ensure other aquatic species are also recognised and protected in the NESPF, including by providing protection to ephemeral water bodies.
- In relation to indigenous freshwater fish, continually improve the Fish Spawning Indicator by ongoing investment in verification, testing, and use of regional data. Enable an alternative regulatory mechanism to be used in areas where the NZFFD is known not to be an effective predictor of presence or absence.

### **National Policy Statement for Indigenous Biodiversity**

- After the NPS for Indigenous Biodiversity has taken effect, undertake a review for the specific purpose of aligning the NESPF with the NPS for Indigenous Biodiversity.





## 6 Fresh and coastal water

### THE CURRENT NESPF: WHAT DOES IT SAY?

All activities covered by the NESPF are subject to at least one permitted activity standard aimed at controlling effects on fresh or coastal water. These come within five broad categories:

- Setbacks
- Mixing or minimisation of sediment
- Depositing material into or in proximity to water
- Management plans
- Water body-specific activities

Controls based on erosion susceptibility and classification under the ESC are also directly relevant to controlling impacts on fresh and coastal water, as are controls relating to freshwater fish passage. These are discussed under the 'Erosion' and 'Indigenous Biodiversity' sections.

#### Setbacks

A setback is the most common water-related permitted activity standard in the NESPF. A setback is defined in the NESPF as "*the distance measured horizontally from a feature or boundary that creates a buffer within which certain activities cannot take place*".<sup>89</sup>

There is variation between activities regarding setback distance and the water bodies to which a setback is applied. To be undertaken as a permitted activity (provided the other permitted standards are met) afforestation, the first activity addressed in the NESPF, must not occur:<sup>90</sup>

- Within 5m of a perennial river<sup>91</sup> less than 3m wide, or a wetland larger than 0.25ha
- Within 10m of a perennial river greater than 10m wide, a lake larger than 0.25ha, an outstanding freshwater body, a water body subject to a conservation order, or a SNA
- Within 30m of the coastal marine area

Operation of harvesting machinery,<sup>92</sup> mechanical land preparation<sup>93</sup>, and replanting<sup>94</sup> are subject to the same setbacks. An exception applies to harvesting machinery, with operation able to occur within the setback distances if "*disturbance to the water body from the machinery is minimised*" and the machinery is operated at a water body crossing where slash removal is necessary; where essential for directional felling in a chosen direction; or to extract trees from within the setback. Replanting is also subject to an additional setback standard requiring resource consent for replanting closer than the existing stumpline adjacent to a perennial river, wetland, lake, SNA, or the coastal marine area.

Different setbacks apply to earthworks which, to be permitted, must not occur within 10m of all the above listed water bodies, except for SNAs which are not addressed.<sup>95</sup> The same 30m setback from the coastal marine area applies. The earthworks setbacks are subject to exceptions for river crossings, slash traps, specified volumes of spoil, and maintenance of existing earthworks.<sup>96</sup>

A slightly different set of setbacks again applies to forestry quarrying, with a 20m setback applying to perennial rivers of any size, a wetland larger than 0.25ha, or a lake larger than 0.25ha, and a 30m setback to the coastal marine area.<sup>97</sup> No other water bodies are mentioned (eg outstanding water bodies).

In all but one instance, if an activity is proposed to be undertaken within the setback a restricted discretionary activity resource consent must be applied for. The exception is harvesting where inability to comply results in a controlled activity resource consent requirement unless being undertaken in Class 8e land or an area not classified under the ESC. In those two instances, restricted discretionary resource consent is required.

#### Mixing or minimisation of sediment

There are two broad categories of permitted activity standards focused specifically on sediment (excluding ESC-related controls). The first is the use of a general

standard, the wording of which mimics s 70(1) of the RMA,<sup>98</sup> requiring sediment to be managed to ensure that after reasonable mixing it does not give rise to "a conspicuous change in colour or visual clarity", "the rendering of freshwater unsuitable for consumption by farm animals" or "any significant adverse effects on aquatic life". Earthworks, harvesting, mechanical land preparation, and the use of slash traps are all subject to such a permitted activity standard.<sup>99</sup>

Except for harvesting, inability to comply with the standard results in a restricted discretionary resource consent requirement. For harvesting, inability to comply results in a controlled activity resource consent requirement (unless being undertaken in Class 8e land or an area not classified under the ESC). In those two instances, restricted discretionary resource consent is required.

Falling within the second category are permitted activity standards which refer to minimising sediment entering water. In respect of earthworks, harvesting, and mechanical land preparation, stabilisation of the area where the activity is being undertaken must be done to "minimise" sediment entering water and resulting in at least one of a number of listed impacts. Those impacts differ slightly between activities. All include the impact of damage to the receiving environment, and have a variation focusing on damage, damming, or diversion of the waterway. Harvesting also includes degradation of habitat or the riparian zone.<sup>100</sup> Inability to comply results in the same resource consent requirements as under category one set out in the paragraph above.

### **Depositing material**

Restrictions on placement of material in a water body, or within specifically identified proximate areas, is another method by which the NESPF addresses the risk of adverse effects on fresh and coastal water. Common between slash, spoil for earthworks, excavated quarry burden, and disturbed vegetation from harvesting is a permitted activity standard that material must not be deposited into a water body or coastal water.<sup>101</sup>

All are also subject to additional and more specific deposition restrictions.

Slash from pruning and thinning or harvesting cannot be deposited on land that would be covered by water during a 5% annual exceedance probability event as a permitted activity. However, if this (and the restriction on deposition in a water body) is not complied with, removal is only required if it would not be unsafe and if required to avoid blocking and damming, erosion, significant adverse effects on aquatic life, or damage to downstream environment or property.<sup>102</sup>

Deposition of spoil is also not permitted if it is proposed to be over slash or woody vegetation, or "onto land in circumstances that may result in the spoil or sediment entering water".<sup>103</sup> Excavated burden from quarrying is subject to a similar restriction, with an extension to prevent deposition within a setback as a permitted activity.<sup>104</sup>

Disturbed vegetation from harvesting is subject to additional permitted controls which require deposition to

avoid diversion or damming of water and degradation of aquatic habitat or the riparian zone. In addition, as a starting point, harvesting must be undertaken in a manner which sees trees felled away from water bodies and the riparian zone unless unsafe. In steeper areas, the ability to fell away from water bodies is limited. If unsafe, trees must be "felled directly across the water body for full length extraction before de-limbing or heading". Full suspension harvesting is required across rivers of 3m or more in width.<sup>105</sup>

Inability to comply with permitted activity slash standards for pruning and thinning to waste, and harvesting in green-, yellow-, or orange-zoned land, results in a controlled activity resource consent requirement. Otherwise, restricted discretionary resource consent is required.

Earthworks that do not comply with spoil deposition standards are a restricted discretionary activity. Forestry quarrying in green-, yellow-, or orange-zoned land<sup>106</sup> that does not comply with the excavated burden deposition standards is a controlled activity. In red-zoned land, earthflow terrain in orange-zoned land, or an area undefined in the ESC, restricted discretionary activity status applies.

### **Management plans**

Management plans required for earthworks, harvesting, and forestry quarrying all have water-focused components.<sup>107</sup>

The earthworks and harvest management plans must identify all water bodies, setbacks, the coastal marine area, registered drinking water supplies, existing and proposed river crossings, and slash storage areas. For sites with perennial rivers, they must identify downstream rivers, lakes, estuaries, or the sea if those areas are at risk of slash or sediment deposition if mobilised.

Specifically related to the earthworks management plan, a description of works to be undertaken and the management practices that will be used to avoid, remedy, or mitigate risks (including erosion and sediment control measures) is required. The harvest plan must include a description of harvesting methods, timing, duration, intensity, and management practices that will be used to avoid, remedy, or mitigate risks on features listed above. Both plans must also include response measures if heavy rainfall occurs.

The forestry quarrying management plan is simply required to identify on a map wetlands and lakes larger than 0.25 ha, perennial rivers, water tables, the coastal marine area, and setbacks.

### **Water body-specific activities**

River crossings and slash traps are subject to their own suite of specific permitted activity standards.

Subpart 4 covers five different types of river crossings: single culvert, battery culvert, drift deck, ford, and single span bridge. There are seven permitted activity standards applying to all crossing types. Each is then also subject to a number of specific standards.

Common controls relevant to impacts on water are extensive and mean that for a river crossing to be permitted it must (in summary):

- Not alter the natural alignment or gradient of the river<sup>108</sup>
- Provide for fish passage<sup>109</sup>
- Not cause or induce erosion of the bed or bank, or create sedimentation, and must be maintained to avoid erosion<sup>110</sup>
- Not be located within a wetland greater than 0.25ha, a wetland less than 0.25ha if it covers 20m or more, an outstanding freshwater body, a water body subject to a water conservation order, or a SNA<sup>111</sup>
- Discharge no contaminants other than sediment.<sup>112</sup>
- Be designed taking all practicable steps to avoid deposition of organic matter or sediment, to minimise disturbance, and avoid concrete entering water<sup>113</sup>
- Be constructed so that elevated sediment levels do not occur for longer than 8 hours, with machinery out of the water body unless necessary, and so that materials and equipment that are in the water are removed within five days of completion<sup>114</sup>
- Be subject to flow estimates using the incorporated method<sup>115</sup>

Permitted standards specific to each crossing type are set out in Regulation 46 and relate generally to location, size, and design.

Inability to comply with the common permitted activity standards (except for the flow estimate requirement) leads to a restricted discretionary activity resource consent requirement. Inability to comply with the crossing type-specific standards means the crossing becomes a controlled activity. Types of river crossings not covered by the NESPF are a discretionary activity.

Specific controls on slash traps are contained in Subpart 9. A slash trap is defined as "a structure set in a river, on the bed of a river, or on land to trap slash mobilised by water". Standards relevant to impacts on water relate to flow, quality, and natural character. In summary, in order to be a permitted activity slash traps must:

- Allow water to flow freely, avoid damming, and be lower than 2m<sup>116</sup>
- In areas where the upstream catchment is 20ha or larger, must not be located within the bankfull channel width<sup>117</sup>
- Be inspected within five working days of a "significant rainfall event in the upstream catchment that is likely to mobilise debris"<sup>118</sup>
- Be cleared of debris following a 5% annual exceedance probability flood event<sup>119</sup>
- Be maintained to avoid erosion and to ensure effectiveness<sup>120</sup>
- Not alter the natural alignment or gradient of the river, or cause or induce erosion<sup>121</sup>

- Discharge no contaminants other than sediment<sup>122</sup>
- Be designed to take all practicable steps to avoid deposition of organic matter or sediment, to minimise disturbance, and avoid concrete entering water<sup>123</sup>
- Be constructed so that elevated sediment levels do not occur for longer than 8 hours, with machinery out of the water body unless necessary, and so that materials and equipment that are in the water are removed with five days of completion<sup>124</sup>
- Not result in specified outcomes after reasonable mixing, as discussed above under 'Mixing or Minimisation of Sediment'<sup>125</sup>

Inability to comply with permitted activity standards results in a restricted discretionary activity resource consent requirement.

### **Catch-all discharge, disturbance and diversion provision**

Regulation 97 effectively comprises a 'catch-all' permitted activity relating to discharges, disturbances, and diversions. It confirms that discharges of sediment, disturbance of the bed or bed vegetation of a river or lake, and diversion of water associated with plantation forestry activities are permitted activities, subject to the standards set out under the relevant subpart in the NESPF. It then introduces an additional, overarching standard to sit alongside the activity-specific standards relevant to those impacts relating to protection of freshwater fishing spawning areas. It also introduces an exception to the NESPF's disturbance provisions by defining disturbance of the bed or bed vegetation to exclude:

(6) ...

(a) *vehicles using a ford to cross the wetted river bed at a rate of up to 20 axle movements per day;*

(b) *hauling logs over the bed of a river less than 3 m wide where butt suspension is achieved in the segment of the river marked in the Fish Spawning Indicator, in the relevant spawning period shown in the fish spawning indicator, unless any species listed in Group B in the Fish Spawning Indicator is present;*

(c) *clearing a slash trap.*

Regulation 97 also addresses wetland disturbance and classifies it as a permitted activity subject only to limited freshwater fishing spawning standards, provided the wetland is greater than 100m<sup>2</sup> and less than 0.25ha, or greater than 100m<sup>2</sup> and the activity is harvesting.

Activities that cannot comply with Regulation 97 become a discretionary activity.

### **Stringency**

A number of the areas in respect of which plans have the flexibility to be more stringent than the NESPF are relevant to water. Directly relevant is provision for increased stringency to:

- Give effect to "an objective developed to give effect to the National Policy Statement for Freshwater Management"

- Give effect to Policy 22 of the NZCPS:

#### *Policy 22 Sedimentation*

- (1) *Assess and monitor sedimentation levels and impacts on the coastal environment.*
- (2) *Require that subdivision, use, or development will not result in a significant increase in sedimentation in the coastal marine area, or other coastal water.*
- (3) *Control the impacts of vegetation removal on sedimentation including the impacts of harvesting plantation forestry.*
- (4) *Reduce sediment loadings in runoff and in stormwater systems through controls on land use activities.*

Even though Policy 22 relates to coastal water, it is also relevant to freshwater management because it could be relied on to impose more stringent controls further up the catchment.

- Recognise and provide for the protection of freshwater and marine SNAs
- Manage relevant unique and sensitive environments such as "activities within 1km upstream of an abstraction point of a drinking water supply for more than 25 people where the water take is from a water body"

Additional protection for fresh or coastal water is indirectly available via the ability for plans to be more stringent to give effect to Policies 11, 13 and 15 of the NZCPS, and to recognise and provide for the protection of ONLs. Protection of coastal biodiversity as required by Policy 11 of the NZCPS may demand controls focused on water quality outcomes to, for example, avoid adverse effects on a threatened species, marine reserves, or on the habitat of species at the limit of their natural range. Similarly, protection of natural character or landscape may demand controls relating to water quality or water body formation if presence of water bodies or a specific water body is a value contributing to the natural character of an area or classification as an ONL.

### **Does it work?**

What can be said for the NESPF is that it contains numerous provisions relating to fresh and coastal water. The question, therefore, is less about whether gaps need to be filled and more about the adequacy of what is there.

This report does not intend to address all water-related provisions, but rather focuses on a subset of key, high level issues. For example, technical parameters relating to crossing construction and design are not addressed, nor are controls relating to minimum stormwater diameters on different slopes or to aquifers. The report is intended to be the starting point for a more detailed analysis.

### **Setbacks**

To start on a positive note, the inclusion of setbacks in the NESPF is itself a win, as setbacks are often a contentious issue when making or changing regional or district plans. Unfortunately, *how* they have been included raises concern.

First, the adoption of setbacks is pointless if the setback distances are inadequate to protect riparian and instream ecosystem health. Research on riparian setback distances indicates that a minimum setback width of 10m is needed to achieve improvements in instream habitat and provide sustainable riparian areas.<sup>126</sup>

The NESPF's setbacks for afforestation, harvesting machinery, mechanical land preparation, and replanting from a perennial river less than 3m wide (or a wetland larger than 0.25ha) do not meet the scientifically established 10m minimum. Instead, only a 5m setback is adopted.

A complication which needs to be factored into setback width is the extent of ground disturbance that occurs during harvesting. Removal can result in significant disturbance extending well into the setback area, meaning that, for example, only 5m of a 10m setback will remain intact. This degradation needs to be accounted for in any setback width, as do the water absorption impacts of trees, in particular *Pinus radiata*, in close proximity to wetlands and smaller water bodies. If trees are planted too close to these features they will effectively be 'sucked dry.'

The adoption of inadequate or minimum setbacks at the point of replanting misses an opportunity to reduce or remove risks of adverse effects on fresh and coastal water. Permitted activity setbacks at replanting should be set at a conservative distance that aligns with the distance necessary to achieve protection of the most sensitive water bodies.

The lack of scientific justification for setbacks less than 10m, the apparent failure to factor in degradation and loss of the setback buffer during harvesting, and the well-recorded adverse impacts on water quality, natural character, and aquatic ecosystems of forestry form a potent trio that call into question the lawfulness of the NESPF's permitted setback standards under s 43A(3) of the RMA.

Putting setback width to one side, the limits on water bodies subject to setback standards are also concerning. For example, setbacks are only required for wetlands greater than 0.25ha – which is a 50m by 50m wetland. New Zealand's wetlands are compositionally unique and are home to many endemic flora species. They are generally accepted to have reduced nationally by 90%; they are on the precipice of total loss. Wetlands smaller than 0.25ha have very high ecological values, both in an intrinsic sense and in terms of ecosystem services. No ecological justification for restricting protection to wetlands greater than 0.25ha appears to be provided in the background documents. The lawfulness of this approach is questionable, with s 6(a) and (c) of the RMA requiring the preservation of the natural character of all



wetlands, and the protection of significant indigenous vegetation and habitat to be recognised and provided for as a matter of national importance. Similarly, the NPSFM requires protection of the significant values of wetlands generally, not only those of a certain size. Issues around the practicality of identification and delineation of wetlands are acknowledged. However, wetland identification and protection have been identified by the government as core components of its Essential Freshwater work programme, which will hopefully assist.

Rivers less than 3m wide are equally as valuable. Smaller streams in the headwaters are the main conduits to lower reaches. Water quality impacts there will significantly increase cumulative impacts down the catchment. Loss of riparian vegetation in upper reaches will likely result in increased water temperatures at the point of clearance and down the catchment due to loss of shading. Smaller rivers, both those with continuous and intermittent flow, and surrounding riparian vegetation, also provide critical ecological habitat. For example, macroinvertebrates and indigenous freshwater fish, like the shortjaw kōkōpu, take refuge in streams that are intermittent or as small as 0.3m wide in the upper reaches of a catchment, and riparian vegetation alongside headwater streams provides important spawning habitat during autumnal freshes.

The short point is that size of a water body is not determinative of its value, so should not be used as the determinant for the application or width of a setback. What should be determinative is the sensitivity of the water body, and its slope, soil, and rainfall.

The permitted setback standards also suffer from a lack of consistency. Setbacks for some activities capture a much broader range of water bodies than others. Similarly, the

matters of discretion applying to activities are different. No clear reason for these differences is apparent.

### *Mixing or minimisation of sediment*

The underlying issues with the NESPF's permitted standards relating to mixing or minimisation of sediment relate to uncertainty and lack of measurability.

The permitted standards relating to mixing uplift the words of s 70(1)(c)–(g) of the RMA (or a subset of those). However, subsections (c)–(g) are not put forward by s 70 of the RMA as standards that should be applied to a permitted activity in a plan. Rather, on the face of s 70, they constitute the test that a regional council must apply before it classifies a discharge to water or land which may enter water as a permitted activity. The regional council must satisfy itself that the standards that do apply to an activity proposed to be permitted will mean none of the effects in s 70(1)(c)–(g) are likely to arise. This interpretation of s 70 of the RMA is consistent with the requirements that a permitted activity standard should be specific (so that an applicant can know whether it will comply), should not include a "value judgement", and should be set at the point that the consent authority can be confident that it will fulfil its obligations under the RMA<sup>127</sup> (in respect of water, being primarily ss 30(1)(c) and 70 of the Act, and the NPSFM).

Failure to include precise and measurable permitted activity standards results in difficulties with compliance and enforcement. For example, how does an operator know if a colour change qualifies as "conspicuous"? What is there to ensure that an operator and regulator are applying the same definition of "conspicuous"? How does a forester know whether or not its operation is having significant adverse effects on aquatic life without constant



monitoring? In the NESPF's defence, this is an approach that has been adopted by regional plans. However, that is not a reason for a national regulation to itself adopt an inadequate approach.

Precise measures have been developed to assess compliance with the requirements of s 70 of the RMA. For example, a "*conspicuous*" change has been defined as a percentage change in horizontal visibility of a black disc between upstream and downstream measurement (the 'disc test'). The acceptable percentage change may decrease in water bodies with sediment-sensitive species to enable a regional council to be satisfied a permitted activity is not likely to have significant adverse effects on aquatic life. There are also specific measures for deposited sediment. These types of precise measures are likely to be easier to comply with.

Permitted activity standards relying on minimisation of effects suffer from similar problems. The word "*minimise*" is open to broad interpretation: whether it has been achieved is a value judgement, suggesting that it is not an appropriate permitted activity standard. A requirement simply to "*minimise*" impacts also risks non-compliance with the requirements of ss 30 and 70 of the RMA, as it does not install a clear, baseline level of acceptable effects. Instead, an activity can be considered compliant even if it has significant impacts (eg results in a significant amount of sediment entering a water body) provided the forester has done everything it can, within the confines of how it wants to run its operation, to "*reduce [sediment] to the smallest possible amount or degree*".<sup>28</sup>

On a plain reading of the permitted standard, minimisation of sediment entering water is only required if it will result in one of the specifically listed outcomes. For example, all soil disturbed by earthworks must be stabilised or contained to "*minimise*" sediment entering water and resulting in either diversion or damming of any water body, or damage to downstream infrastructure, property, or the receiving environment.<sup>29</sup> If sediment is not going to result in one of those outcomes, it appears it does not need to be contained. In contrast, disturbed soil generated from harvesting must be contained to "*minimise*" sediment entering water and resulting in the outcomes above and degradation of aquatic habitat, the riparian zone, and fresh or coastal water environments. There is no obvious justification for this difference. The deleterious effects of sediment are the same irrespective of the activity that has generated it.

### **Depositing material**

Setbacks, uncertain and subjective wording, and an inability for councils to ensure locally nuanced controls are in place again rear their heads as high level issues with the NESPF's management of deposition of material.

Outside of avoiding deposition into a water body, the key permitted standard is avoiding deposition on land that would be covered by a 5% annual exceedance probability event. This report does not look at the adequacy of that percentage figure. What it does explore is whether this standard is sufficient on its own. It is

probably not, especially for orange-zoned land. What the additional parameters should be is not clear and requires investigation. In some instances, for example on green- or yellow-zoned land, general storage setbacks from water bodies as an additional standard may be sufficient. However, in other areas, such as orange-zoned land, the management difficulties associated with gradient and soil may demand a case-by-case approach from the outset, which points towards a resource consent requirement.

Moving to deposition of spoil and excavated burden, both are subject to an additional permitted activity standard preventing placement "*onto land in circumstances that may result in [spoil/excavated burden] or sediment entering water*". Implementation would inevitably require a value judgement, which is not appropriate for a permitted activity standard (see the 'Structure and Language' section). Arguably, the adoption of such a standard indicates that site-specific controls are required for councils to be certain that effects are accounted for and appropriately managed.

Harvesting is also subject to a permitted standard that full suspension removal of logs is required over water bodies greater than 3m wide. This, in a similar vein to the setback provisions, ignores the importance of smaller streams. Practical limitations mean that full suspension over all water bodies is unrealistic. However, a case-by-case approach would allow for identification of highly sensitive locations, or key tributaries, and require full suspension over those sites. At present, this would theoretically be available in red-zoned land as a controlled activity condition. However, land around Aotearoa zoned as green, yellow or orange will all have water bodies smaller than 3m where a more careful approach may be justified. Management of harvested logs across or through wetlands is subject to additional control under the catch-all discharge and disturbance regulation, Regulation 97. Under Regulation 97(2) disturbance of a wetland is permitted only if the wetland is greater than 100m<sup>2</sup> and the associated activity is harvesting. Again, as discussed in relation to setbacks, this ignores the significant value of smaller wetlands, is inconsistent with their protection as a matter of national importance, and fails to give effect to the requirement in the NPSFM that the significant values of *all* wetlands, not wetlands of a certain size, are protected.

Freshwater management is extremely complex, as is the operation and management of a plantation forest. On top of this, the adverse freshwater impacts of plantation forestry are known and can be significant. This is not a situation that lends itself easily to a nationally applicable permitted activity management approach, especially when it comes to harvesting. It restricts the ability of councils to work with operators to develop appropriate harvesting and operational methods and put restrictions in place if necessary. Currently the situations where council involvement in harvesting will be triggered in respect of green-, yellow-, and orange-zoned land are limited. In green-zoned land, this might be acceptable but in some yellow-zoned land and for orange-zoned land there is still significant risk of water impacts due to the gradient and

soil associated with those areas. In addition, in red-zoned land that is not Class 8e harvesting is only a controlled activity. Although control is reserved over many matters (although an obvious gap is fauna habitat) a council's ability to install conditions is curtailed by the risk of being considered to have frustrated the consent.

### Management plans

Management plans can be useful tools. However, their utility turns on the quality of the content and proper implementation and monitoring. Achievement of quality management plans under the NESPF faces two hurdles when it comes to managing effects on water.

First, the content requirements in Schedules 3 and 4 are incomplete. In some respects, important content is missing altogether, as not all forestry activities with effects on water are required to be included in a management plan. This means there is no complete picture of the impacts of an overall operation on water.

Second, there is no verification, feedback, or peer-review step of management plans by councils because their preparation is a permitted activity standard. Councils are unable to reject a plan or require changes to it where they consider it uses inappropriate methods. Review is simply a 'tick box' exercise to make sure the listed content is provided. This 'high trust' model of regulation is untested (see the 'Structure and Language' section).

### Catch-all discharge, disturbance, diversion provision

Issues with this provision as it relates to wetlands have been addressed above.

A further issue is how disturbance is defined for the purposes of the regulation – which is to exclude vehicles using a ford to cross a wetted river bed at a rate of up to 20-axle movements per day. There are different views on the adequacy of this provision. On one hand, directing vehicle crossings to established fords is a good thing (provided the ford is well constructed) as this limits the extent of area impacted and the amount of sediment discharged. This is, of course, provided that the number of fords is limited, and their construction is directed away from sensitive areas. On the other hand, there appears to be no ecological or water quality justification for the 20-axle movement figure. In addition, the way in which the exception is framed – an exclusion to the meaning of disturbance – effectively creates a 'factual fiction'. It says that 20-axle crossings is not disturbance when it is. The courts have not looked favourably on factual fiction provisions relating to freshwater.<sup>130</sup>

### Water-specific activities

Insofar as the permitted standards relating to river crossings and slash traps include setbacks, a "reasonable mixing" provision, a requirement to "minimise" effects, or water body or wetland minimum size, issues have been discussed above.

The two key issues in respect of river crossings are a failure to specify a maximum number of crossings, and a failure to require avoidance of crossings at ecologically sensitive locations.

The biggest issue with slash traps is not the adequacy or inadequacy of the permitted activity standards, but rather the NESPF's focus on them being the answer to controlling material mobilised during rainfall events. In many areas, in particular those with steeper gradients and soft soils, a slash trap is nothing more than an ambulance at the bottom of the cliff. They are a necessary component of slash management, but the focus on them is directing attention away from an issue at the heart of the forestry debate: that in some parts of Aotearoa, plantation forestry is located in environments that simply cannot cope with the pressures of harvesting. No control around placement of slash or number of slash traps is going to be sufficient to prevent significant amounts of debris being mobilised when it starts to rain heavily, especially in a clear-felled area. The simple response to this issue, which is unlikely to be palatable to operators, is not to clear-fell.

### Stringency

There are multiple avenues available to councils to exercise increased stringency in relation to fresh and coastal water, which is a good thing. However, two issues stand out.

First, greater stringency is available in order to give effect to "an objective developed to give effect to the National Policy Statement Freshwater Management". For a council to include more stringent rules in reliance on this provision, it must have at least notified a plan change for the purpose of giving effect to the NPSFM, or have undertaken a full review of its plan and concluded its objectives<sup>131</sup> give effect to the NPSFM. Unfortunately, the freshwater planning process is not a fast one, and it is likely that a number of councils have not done either. In areas where that is the case, councils will be unable to rely on this provision to include more stringent rules. To make matters worse, it appears that some councils are carrying out the exercise of amending their plan to align with the NESPF, including the deletion of existing provisions (which does not require a full RMA Schedule 1 process), in advance of being ready to change their plan to implement the NPSFM. A simple solution to this issue is for greater stringency to be available in order to give effect to the NPSFM itself, as well as to an objective developed to give effect to the NPSFM.

Secondly, the potential evidential difficulties with successfully putting in place more stringent provisions have been discussed under previous sections. This issue is exacerbated in the fresh and coastal water context, because diffuse pollutants are a critical source of environmental degradation. Councils may face pushback on the basis of insufficient ability to attribute to forestry activities specific, and quantifiable, responsibility for a contaminant. This is most likely to occur in mixed-use catchments. However, even in the Marlborough Sounds where there has been extensive research undertaken that confirms forestry as a significant contributor to sediment

in the coastal marine area and freshwater tributaries, this issue is arising, with proceedings currently under way questioning the justification for the proposed Marlborough Environment Plan's more stringent rules.

## RECOMMENDATIONS

Recommendations to address the issues raised above are:

- Determine whether the permitted activity approach (both in respect of individual activities and overall) gives effect to the NPSFM, in particular: staying within limits; integrated catchment management; protection of ecosystem health, wetlands, and outstanding water bodies.
- Change the activity status of harvesting in orange- and red-zoned land to provide for regulatory oversight.<sup>132</sup> Review the activity status of harvesting in green- and yellow-zoned land, taking into account the issues identified by this report.
- Recognise that generous setbacks need to apply from the point of afforestation and replanting, because it is difficult to impose greater setbacks at a later stage.
- Review the NESPF's setback distances and reset at the appropriate distance to protect freshwater quality and the riparian zone, also accounting for the destruction to the setback as a result of undertaking the relevant activity.
- Review the coastal setback distances to ensure adequacy, and amend to increase if required.
- Review the areas to which the NESPF's setbacks apply, and amend to capture missing areas, (eg all wetlands) and ensure consistency in the water bodies to which setbacks apply across all activities.
- Review mixing and minimisation standards to determine whether a specific, measurable standard can be substituted. If it can, make appropriate amendments. If not, investigate and include the most appropriate alternative activity status.
- Investigate what additional placement and storage provisions are required to apply to deposited material. In doing so, consider whether different provisions should apply to different zones. If it is not possible to develop clear, measurable standards, investigate and include the most appropriate alternative activity status.
- Investigate additional provisions relating to suspension requirements over sensitive areas or water bodies, including wetlands. If it is not possible to develop clear, measurable standards, investigate and include the most appropriate alternative activity status.
- Investigate and report on the ecological and legal justification for adopting an exception to 'disturbance' for 20-axle movements at a ford per day. Make any necessary changes to respond to findings.
- Amend Regulation 6 to allow for more stringent rules in plans to:
  - Give effect to the NPSFM itself, as well as to objectives developed to give effect to the NPSFM
  - Expressly refer to the ability to include rules to control diffuse pollutants, to which plantation forestry contributes, when introducing more stringent rules to give effect to the NPSFM or Policy 22 of the NZCPS
- Include alignment of the NESPF with updated or newly introduced national freshwater policy (eg an updated NPSFM or a new, freshwater-focused NES) in the government's review of the NESPF. If any updated or newly introduced national freshwater policy is released after the government's NESPF review is completed, undertake a freshwater alignment review of the NESPF (for efficiency this could be undertaken in tandem with a NPS for Indigenous Biodiversity alignment review).





## 7 Erosion

### THE CURRENT NESPF: WHAT DOES IT SAY?

The ESC is a risk-screening tool, developed by MPI for the NESPF. The tool combines climatic data with the New Zealand Land Resource Inventory and the land use capability (LUC) rating. The ESC determines the risk of erosion on land across Aotearoa based on its environmental characteristics. These characteristics include rock type, topography (steepness of the slope), and dominant erosion process (such as wind or water).

The ESC classifies land into four categories of erosion susceptibility according to the level of risk: low (green), moderate (yellow), high (orange), and very high (red). The ESC is used to classify Aotearoa into zones that align with these levels of risk, each of which have different restrictions under the NESPF. These zones are:

- Green- and yellow-zoned land:
  - Less likely to erode
  - Plantation forestry activities are permitted.
- Orange-zoned land:
  - More likely to erode
  - Plantation forestry activities are permitted, with some greater stringency for orange-zoned land with a slope of 25 degrees or more.<sup>133</sup> The NESPF's most relevant requirement is that a forestry earthworks management plan must accompany the harvest plan.<sup>134</sup>
- Red-zoned land:
  - Most likely to erode
  - Most plantation forestry activities cannot be carried out on red-zoned land without resource consent.
  - As per orange-zoned land, a forestry earthworks management plan must accompany the harvest plan.
  - There are exemptions to controls on red-zoned land for plantation forestry which is harvested under

continuous cover forestry (where a minimum of 75% canopy cover is maintained) or small coupe harvesting (where no more than 2ha is clear-felled in any 3 month period).

### DOES IT WORK?

There are two major issues in this section.

First, regarding erosion-prone land, is the NESPF facilitating the right tree, in the right place, for the right purpose?

Secondly, are the consent requirements for red-zoned land sufficient, or should these requirements be extended to orange-zoned land or even yellow-zoned land?

These issues are addressed in turn.

There is significant literature to support the benefits of woody vegetation cover for reducing localised surface erosion and mass-movement processes.<sup>135</sup> One research project found that afforestation of whole catchments can reduce loads of sediment into water bodies by as much as 90%.<sup>136</sup> On the face of that statistic it would be reasonable to conclude that plantation forestry should be encouraged on red-zoned land, which is arguably not the effect of the NESPF's requirement for resource consent for replanting and harvesting in those areas.

The problem is that it's not that simple, because the erosion-control benefits of plantation forests are short lived, lasting only as long as the trees are in the ground. On extraction that benefit is gone, and the bare face that remains can itself result in significant amounts of sediment ending up in sensitive receiving environments. This issue is particularly acute in respect of forestry operations which undertake extraction by clear-felling, the typical method in Aotearoa. This opens the 'window of vulnerability' – the period of time before the roots of new trees replace the rotting roots from the previous rotation. During this time, land is vulnerable to landslides, which may in turn mobilise slash, debris and sediment to be deposited into fresh or coastal water. The predominance of *Pinus radiata* in clear-felling systems is associated with a larger window of

vulnerability due to its rapidly rotting roots. Species such as beech, blackwood, cedar, cypress, eucalyptus, kauri, poplar, redwood, and totara have much slower root decay rates, thereby providing soil stability and land resilience for longer after harvesting (if they are harvested at all).<sup>137</sup>

Against that background, the right tree, in the right place in red-zoned land, is clearly a tree that stays put or one that is extracted while others remain to provide continued soil stability (ie continuous cover forestry).

To be consistent with that outcome, the NESPF and the wider forestry system need to disincentivise clear-fell forestry in red-zoned areas, and incentivise permanent or continuous cover forestry in red-zoned areas. Insofar as the NESPF's requirement for resource consent for replanting and harvesting in red-zoned land is a disincentive for clear-fell forestry, it is consistent with that outcome. However, although a restricted discretionary resource consent requirement may be a disincentive, it does not send a clear message that clear-fell harvesting in these areas is generally not acceptable. Permitted status for "*long-term ecological restoration planting of forest species*" or "*willows and poplars space planted for soil conservation purposes*"<sup>138,139</sup> and the NESPF's more lenient approach to continuous cover forestry are also consistent with the outcome sought. However, a question remains as to whether continuous cover forestry would be adopted in practice, notwithstanding a more lenient activity status. This is because in Aotearoa, unlike in Europe, the economic viability of continuous cover forestry systems is not clear. Economic viability depends on a host of factors which fall beyond the scope of the NESPF including forest revenue streams, subsidies, knowledge extension, and landowner aspirations. These factors may be beyond the scope of the NESPF, but they are critical issues that need to be addressed if we are to transition to more sustainable forestry methods. When it comes to establishing permanent forests, ensuring the One Billion Trees Programme's criteria are calibrated to favour red-zoned areas is critical.

If these two things don't happen, there is a real risk that red-zoned land will remain bare, or continue to rotate through a cycle of cover and stability to sediment loss, both of which are environmentally suboptimal.

The second major issue is whether the NESPF is too permissive in its treatment of orange-zoned land. Orange-zoned land is classed as 'high' erosion risk because it includes a number of LUC units that are highly vulnerable to erosion. Given that extreme weather events are increasingly likely because of climate change, the risk of erosion is also increasing. By permitting afforestation, harvesting, and replanting of plantation forest on orange-zoned land, especially when the intention is to clear-fell, there is a question as to whether the NESPF is consistent with s 43A(3)(b) of the RMA, which does not allow a NES to state that an activity is permitted if it has "*significant adverse effects on the environment*". It is likely that a resource consent requirement in order to assess the acceptability of both location and harvesting method is more appropriate, with more lenient provision made for continuous cover and small coupe harvesting as is currently the case under the NESPF for red-zoned land.

However, the same conundrum arises with this issue as with the first. The best outcome for orange-zoned land is for it to be forested. But the question is: in what sort of forest? In some orange-zoned areas plantation forestry that adopts current, typical methods will be acceptable and in others it will not. A resource consent requirement on orange-zoned land may discourage plantation forestry in those areas, which isn't necessarily a bad thing if the wider environment is sensitive to the period of intensive sediment loss that will likely follow harvesting. However, there needs to be something to fill the gap, so the land does not remain bare. Again, continuous cover forestry or permanent forest is that something. Unless there is an adequate enabling environment for establishing continuous cover or permanent forestry in place, there is a risk that orange-zoned land will remain bare by default.

In short, the NESPF cannot be seen in isolation from the wider context that it operates in, and relevant agencies need to put in place appropriate enabling mechanisms to facilitate outcomes that deliver maximum public value.

A subsidiary issue relates to the fidelity and granularity of the ESC: "*The ESC is recognised as having limitations related to: the underlying data it was derived from; the scale of mapping; and probable misclassification of some land.*"<sup>140</sup> This is inevitable for broad-brush zoning. It may result in restricting activities on sites where the risk of environmental damage is low or permitting activities on sites where the risk of environmental damage is high. Reliance on the ESC is therefore arguably at odds with the site-specific considerations that might result in the optimal balance between environmental and financial sustainability by enabling integrated land use management that is attuned to the capacities of the landscape.

## RECOMMENDATIONS

Recommendations to address the issues raised above are:

- Change the activity status for clear-fell harvesting in all red-zoned areas to non-complying. Provide for continuous cover forestry either as a permitted or controlled activity depending on the control considered necessary to address effects other than erosion.
- Change the activity status for clear-fell harvesting in all orange-zoned areas to restricted discretionary at a minimum. Provide for continuous cover forestry as a permitted or controlled activity depending on the control considered necessary to address effects other than erosion.
- Initiate a programme for the purpose of developing policy and other necessary mechanisms (eg upskilling and education) to facilitate a transition to more sustainable forestry methods, like continuous cover forestry.
- Review the One Billion Tree Programme criteria to ensure they operate to favour permanent, indigenous forest on red-zoned land.



## 8 Wilding conifers

### THE CURRENT NESPF: WHAT DOES IT SAY?

The NESPF includes provisions to address wilding conifer risk at the point of afforestation, when replanting with different species, and through provisions requiring removal of wilding conifers in specified situations.

The NESPF relies on establishing wilding conifer risk by using a risk calculator: the Wilding Conifer Calculator (WCC). Afforestation of a conifer species may not be carried out as a permitted activity in an area with a WCC score of 12 or more. A score of 12 or more means that afforestation requires consent as a restricted discretionary activity.<sup>141</sup>

Conditions on afforestation also require that all wilding conifers must be removed at least every 5 years after afforestation where established in wetlands or SNAs on the same property on which the afforestation activity occurs, and on any other adjacent properties under the same ownership or management as that of the property on which the afforestation activity occurs.<sup>142</sup>

Upon replanting, a resource consent is required if replanting with a different conifer species; in an area with a WCC score of 12 or more; and where the previous plantation had a lower risk calculator score.

Wilding conifers that have established in wetlands and SNAs must be eradicated before replanting begins if the wilding conifer has resulted from the previous harvest, or at least every 5 years after replanting if the wilding conifer has resulted from the replanting.<sup>143</sup>

Where resource consent is required for afforestation or replanting due to wilding conifer standards not being met, the council's discretion is limited to the level of wilding conifer risk; the mitigation proposed to restrict wilding conifer spread, including the species to be planted; effects on the values of SNAs or ONLs (where relevant); and information and monitoring requirements.<sup>144</sup>

A council could adopt more stringent plan provisions in relation to wilding conifers where this is related to protection of SNAs or ONLs.<sup>145</sup>

### DOES IT WORK?

The key issues are that:

- The WCC is a 'high trust' tool which relies on the adequacy of the assessment.
- Controls may not be sufficiently stringent to minimise wilding conifer risk.
- The NESPF externalises much of the cost of wilding conifer control.

#### *High trust tool reliant on adequacy of assessment*

A WCC score is generated by a "suitably competent person" on behalf of the forestry company. This includes a person with silviculture experience.<sup>146</sup> There is no express requirement for the assessment to be carried out on site. Compliance with the NESPF rules is achieved by submitting a calculator score of less than 12. Councils have no discretion as to whether they accept an assessment, even if they disagree with it. There appears to be some concern about the quality of the assessments received so far.

While a calculator approach might be appropriate where the assessment is quantitative and objective, there are various subjective, qualitative aspects to the WCC that can change assessment scores significantly (eg where within a forestry block the "siting" assessment is carried out or the extent to which land is identified as "downwind").

Wilding conifer risk management is therefore an aspect of the NESPF that represents a 'high trust' model with little scope for independent regulatory oversight.

#### *Controls may not be sufficiently stringent*

The WCC takes into account species growth, species palatability (susceptibility to browsing by livestock), siting (topographical position relative to prevailing wind direction), downwind land use, and downwind vegetation cover before generating a binary permitted or consented outcome. The requirement for resource consent is set at the point at which there is 'high risk' of wilding conifer spread (ie a score of 12 or more).

The WCC should more accurately be viewed as representing a risk spectrum. A score of 12 or more represents 'high risk', a score of 10 or 11 indicates a relatively high risk; yet any score less than 12 means afforestation can occur as a permitted activity. Activities with a relatively high risk of causing significant economic and environmental effects on surrounding land would not normally be classified as permitted under the RMA.

A score of 0 in relation to the downwind land use (intensive grazing on developed pasture) or downwind vegetation cover (plantation forest or intensively grazed pasture) criterion means that the total score becomes 0 regardless of the score for other criteria. This potentially converts a moderate to high risk afforestation activity (eg Douglas fir afforestation in Marlborough) into a deemed low risk permitted activity. This means that the risk assessment is greatly influenced by those two criteria, even though the downwind land may be in different ownership, and the land use or vegetation cover could well change over the life of the initial and subsequent plantation forest rotations. This suggests that the WCC does not accurately reflect the risk of wilding conifer spread.

With respect to replanting, the NESPF is less stringent again. Consent is only required where there is a change of species; a WCC score of more than 12; and the previous crop did not have a higher risk score. The last clause applies even where the previous crop required resource consent due to wilding conifer risk. This means a high risk species like Douglas fir planted in the wrong area could be replanted there as a permitted activity (even if the previous crop had required resource consent). If the previous crop had resulted in wilding conifer spread, allowing the same activity to continue does not avoid, remedy, or mitigate adverse effects. This approach provides for the continuation and exacerbation over time of an activity with known adverse environmental effects that extend outside the property boundary, which simply makes no sense. Replanting high risk species should not be an expectation.

The guidance specifies that even with a total score of 0 a small risk of unwanted spread cannot be fully excluded. However, those are not requirements under the NESPF. The Forest Owners Association has said that forest owners undertake a range of measures to control wilding conifer risk, including planting buffer trees with a lower seed spread risk, such as *Pinus attenuata* or hybrid *radiata*, around the edge of plantations.<sup>147</sup> These measures are not requirements of the NESPF (although they could potentially be required for 'high risk' afforestation under a resource consent).

NESPF controls are not adequate to deal with wilding conifers that have established on properties other than that of the forest owner. For afforestation, the permitted activity requirement to control established wilding conifers is limited to SNAs, wetlands, and to the forest owner's land. The impacts of wilding conifers on biodiversity justify a stringent approach to wilding conifer removal in SNAs and wetlands, but it is not clear why removal of all wilding conifers is not required given the risk they pose to other environmental and economic values. The restriction of this provision to the forester's own land is understandable given the difficulty in requiring people to undertake activities on other people's land as part of a permitted activity framework. However, this could be addressed by requiring written approval from neighbouring landowners or consent

conditions, which would allow for a discussion with neighbours on agreed conditions addressing their land.

Upon replanting, a similar restriction to SNAs and wetlands applies, but the provision does not appear to be restricted to the forester's land. It is not clear whether this is intentional.

Overall, the NESPF's provisions are inadequate to manage the significant environmental, cultural, and economic risks posed by wilding conifers.

### Externalisation of cost

In a recent report based on surveys of landowners affected by wilding conifers, according to the participants the wilding conifers had come mainly from other properties, with 26% blamed on nearby commercial forestry. Eight per cent said wilding conifers were from their own forest and 4% said wildings were due to historic plantings by the government. There was a shift in attitudes about who should bear the cost of dealing with wilding conifers: in 2015 more respondents considered controlling wilding conifers should fall to the owner of the property from which the seeds came. By 2017 more people thought the government should take over. This potentially reflects the growing magnitude of the problem.

The New Zealand Wilding Conifer Management Strategy 2015–2030 and regional programmes like the Marlborough Sounds Restoration Trust are considered to be achieving good outcomes, but they require a huge amount of volunteer effort and public funding alongside forestry industry contributions.

While some spread of wilding conifers results from legacy state forestry service or shelterbelt issues, the costs associated with spread from plantation forestry should be borne by forestry companies.

## RECOMMENDATIONS

Recommendations to address the issues raised above are:

- Introduce a zoning or spatial planning approach that enables councils in moderate to high wilding conifer risk areas to require consent for afforestation or replanting in order to retain the discretion to assess wilding conifer risk and either decline consent or impose appropriate conditions. There is plenty of information about where the vulnerable areas are, and a consent process should apply in these areas.
- Reassess the WCC to ensure that it does not place undue reliance on neighbouring land cover and land use in assessing wilding conifer risk.
- Make changes to the replanting regulations so that they do not perpetuate previous high wilding conifer risk scenarios.
- Introduce permitted activity conditions requiring foresters to demonstrate that they have approached all landowners within the receiving environment of their plantation forest and that they have offered to undertake wilding conifer removal on those properties. If this offer has been accepted, the site should be incorporated into a wilding conifer management plan specifying appropriate objectives and actions to ensure wilding conifer removal will be undertaken.





## 9

# Landscape and natural character

## THE CURRENT NESPF: WHAT DOES IT SAY?

### Landscape

Explicit provision for landscape in the NESPF is focused on two landscape categories: ONLs and visual amenity landscapes. Provision is further limited to only those ONLs and visual amenity landscapes that:<sup>148</sup>

- Are identified in a regional policy statement, regional plan, or district plan as outstanding or as having visual amenity values, however described
- Are identified in the policy statement or plan by their location, including by mapping, a schedule, or a description

When it comes to management and consideration of potential effects on landscape, the NESPF draws a clear distinction between establishment of plantation forestry and the undertaking of activities as part of the operation of a plantation forest.

Afforestation is subject to a permitted activity standard that it must not occur within an ONL. Inability to comply with that condition results in a restricted discretionary resource consent requirement. Discretion is restricted to *"the effects on the values of ... the outstanding natural feature or landscape"*.<sup>149</sup>

No other activity covered by the NESPF and undertaken as part of operating a plantation forest is subject to a permitted activity standard specifically relating to potential impacts on ONLs.

Councils are able to include more stringent rules to address impacts on ONLs under Regulation 6. This regulation provides for a rule in a plan to be more stringent than the NESPF if it *"recognises and provides for the protection of outstanding natural features and landscapes from inappropriate use and development"*, or if it gives effect to Policy 15 of the NZCPS (which requires the avoidance of adverse effects on ONLs in the coastal environment and the avoidance of significant adverse effects on all other coastal landscapes).

A measure of vicarious protection is arguably provided via permitted activity standards relating to water bodies (see the 'Fresh and Coastal Water' section), as water bodies or the presence of water are often values contributing to classification as an ONL.

Afforestation is also not permitted within a visual amenity landscape (as defined by Regulation 3). Inability to comply results in a controlled activity resource consent requirement *if* the relevant plan identifies plantation forestry activities as restricted in visual amenity landscapes. Control is restricted to effects on the visual amenity values of the landscape.<sup>150</sup> There is no ability for plans to be more stringent than the NESPF.

There is some consideration of effects on amenity in a more general sense via permitted activity standards requiring afforestation and forestry quarrying to be set back specified distances from a dwelling(s).<sup>151</sup>

### Natural character

Areas of identified natural character value (eg areas of outstanding natural character) are not referred to by the NESPF.

Ability to address effects on the natural character of the coastal environment is available under Regulation 6 and includes the ability for plans to include rules that are more stringent than the NESPF to give effect to Policy 13 of the NZCPS. It is also addressed to a limited extent via controls on activities occurring within 30m of the coastal marine area.

The ability to address effects on natural character of water bodies and wetlands is covered to some extent by permitted activity standards relating to those areas, although natural character is generally not itself specifically the focus of those provisions (see the 'Fresh and Coastal Water' section). Where resource consent is required, impacts on natural character are only relevant if referred to in the matters over which control or discretion has been reserved.

## DOES IT WORK?

There are four high level issues with the NESPF's approach to landscape and natural character.

First, the definitions of ONL and visual amenity landscape mean that these landscapes must be specifically identified in a policy statement or plan in order to fall within the NESPF's ambit. This means that unless a council has gone through an identification exercise and incorporated this into its policy statement or plan, there is no ability for it to control afforestation or adopt more stringent rules for landscape protection purposes. There is no ability to rely on identification via criteria which allow for a case-by-case assessment, as there is for SNAs.<sup>152</sup>

The extent to which this is an issue in practice depends on the extent to which these landscapes have been identified in policy statements or plans, and the quality of that identification process. On a cursory review many district plans had identified ONLs via mapping or description,<sup>153</sup> but there are important exceptions, such as Tasman (which includes Golden Bay) and Wellington, meaning there are many ONLs not protected. Conversely, although many district plans have discussed the importance of amenity to different zones or locations, they have not specifically identified visual amenity landscapes.<sup>154</sup>

There is additional scope for control in the coastal environment due to the ability for increased stringency in order to give effect to Policy 15 of the NZCPS. However, an attempt to introduce more stringent provisions to address coastal landscape effects in a more general sense (without a focus on formally identified areas) may be met with opposition given that the protection of identified areas is the approach of the NESPF's provisions specific to ONLs and visual amenity landscapes. It is also likely to be more difficult to prove that increased stringency is required as the size and generality of the area subject to control increases from, for example, a specific ONL to an entire coastline.

Secondly, controlled activity status for afforestation proposed in a visual amenity landscape does not give councils any real ability to control effects on those landscapes. This is because, as a controlled activity, resource consent must be granted.<sup>155</sup> Although councils have the ability to impose conditions in respect of matters over which control is reserved, those conditions cannot be so onerous so as to frustrate (effectively negate) the consent. Because there is no ability for councils to adopt more stringent provisions to control impacts on visual amenity landscapes, afforestation in these areas cannot be avoided and councils are restricted to 'tinkering around the edges' in an effort to try and ameliorate effects.

Thirdly, there is no ability to control the effects of plantation forestry adjacent to visual amenity landscapes. This issue extends past afforestation to control and management of operational activities. Controlling the effects of plantation forestry adjacent to an ONL is theoretically available via the increased stringency provisions.

The lack of value placed on visual amenity landscapes is a significant gap. These landscapes are generally identified

due to their significance to local communities, forming an important part of their background and heritage. They are the landscapes that New Zealanders "*commonly inhabit, work in, and travel through*".<sup>156</sup> As a result, their protection is important. Plantation forestry comes with significant visual impacts, but also other impacts on amenity such as reduced access, noise, and traffic.

Fourthly, the NESPF does not directly control the effects of plantation forestry on the natural character of the coastal environment. Although there is flexibility for councils to adopt more stringent provisions for this purpose, it places the onus back on councils to develop and pursue appropriate controls, and justify when greater stringency is warranted. This, as discussed, is likely to have its challenges. There is no clear reason why natural character has been treated differently to landscape given the trend in identification of outstanding and high natural character areas, and the equally strong direction in the RMA and NZCPS regarding their preservation.

## RECOMMENDATIONS

Recommendations to address the issues raised above are:

- Alongside the matters already included in Regulation 6, provide councils with the flexibility to apply greater stringency to:
  - Protect landscapes and natural character when specific landscape or natural character areas have not been identified in regional policy statements and plans
  - Protect visual amenity landscapes
- Include amendment of the definition of ONLs to capture situations where they have not been identified in a plan but rather are identified by case-by-case application of criteria (as per the approach to SNAs) as an issue to be considered in the NESPF review.
- Amend the activity status for afforestation proposed to occur in a visual amenity landscape from controlled to an activity status which provides councils with the ability to decline consent.
- Develop and incorporate provisions, or amend existing provisions, to control effects on landscape and natural character from adjacent plantation forestry.
- Insert analogous provisions for natural character areas as included for ONLs and visual amenity landscapes (as recommended to be amended).
- Undertake a review of other amenity effects associated with plantation forestry. For effects intended to fall outside scope of the NESPF, consider whether that should be expressly stated in the NESPF. For effects intended to fall within scope of the NESPF, consider adoption of additional controls as necessary to manage those effects. Amend the NESPF as required.



## 10 Structure and language

### THE CURRENT NESPF: WHAT DOES IT SAY?

Some matters are outside the scope of the NESPF. Expressly excluded are "vegetation clearance that is carried out before afforestation" and "any activities or general provisions and conditions not specified in regulation 5(1)".<sup>157</sup> Councils may also continue to control activities and effects not covered by the NESPF (see the 'The Current NESPF: A General Outline' section).

Many of the activities controlled by the NESPF are permitted, subject to compliance with standards. The NESPF thus places a great deal of reliance on these standards (in terms of their effectiveness, clarity, and enforceability), and on forestry operators' compliance with them, including compliance with requirements to submit management plans for certain activities.

MPI has developed guidance to assist with the implementation of the NESPF.

### DOES IT WORK?

There is likely to be uncertainty while the NESPF is being implemented as to whether it controls particular effects or not. Examples of effects that are not controlled by the NESPF are transport effects, effects on water yield, and effects on cultural values; but this is only apparent from the lack of provisions to address these matters in the NESPF and from reading the background documents. Recourse to background documents such as evaluation reports and submission summaries will be required in order to determine whether a matter is within the scope of the NESPF or not. This is not particularly satisfactory in the context of regulations.

In an attempt to provide for most aspects of plantation forestry as permitted activities, the NESPF strains the ability of the permitted activity framework to adequately deal with the matters it intends to control.

Jurisprudence directs that qualifying standards for permitted activities must be clearly specified and capable of objective attainment.<sup>158</sup> Some of the permitted activity standards within the NESPF do not appear to meet the legal standard of certainty required. For example, sediment from forestry activities has significant cumulative impacts on receiving freshwater and marine environments. In relation to this potential effect, the relevant NESPF provision for earthworks says:

*26 Permitted activity conditions: sediment*

*Sediment originating from earthworks must be managed to ensure that after reasonable mixing it does not give rise to any of the following effects on receiving waters:*

- (a) any conspicuous change in colour or visual clarity;*
- (b) the rendering of fresh water unsuitable for consumption by farm animals;*
- (c) any significant adverse effect on aquatic life.*

"Reasonable mixing" is not defined. What constitutes a "significant adverse effect on aquatic life" entails a degree of judgement that makes the standard incapable of objective interpretation. Issues with this standard and others that are similar are further addressed in the 'Fresh and Coastal Water' section.

Other provisions have limited enforceability, as regulators cannot practicably identify non-compliance. For example, fords across rivers are a permitted activity, subject to standards including that:

*(b) use of the ford must not cause a conspicuous change in colour or visual clarity beyond a 100 m mixing zone downstream of the ford for more than 30 consecutive minutes after use of the ford...*

This standard acknowledges the adverse impacts of turbidity on aquatic ecosystems that can occur when fords are used for regular river crossings. However, the permitted activity framework for fords does not provide for the risk of river crossings to be assessed and

outcome-focused conditions to be imposed. In place of such an assessment, this practically unenforceable standard has been used. It is unlikely to be effective in controlling the turbidity effects it is aimed at controlling.

The NESPF aims to be consistent with ss 6(a) and (c) of the RMA by specifying that most forestry activities may not occur as a permitted activity or must be set back from ONLs and SNAs. However, many districts and regions have not identified ONLs or SNAs.<sup>159</sup> The NESPF deals with this in relation to SNAs by defining those terms to include areas that meet criteria in a regional policy statement or plan (areas do not need to be mapped as SNA to be considered as such), but the issue remains for ONLs. While this is an improvement on the notified NESPF, which was limited to mapped SNAs, it still provides for a framework where forestry activities are permitted unless the forestry operator identifies that an area meets regional policy statement or plan criteria as an SNA. An example of where this does not appear to have worked effectively is afforestation within South Marlborough shrubland that is identified as meeting SNA criteria but is not mapped as such within the plan.

Several plantation forestry activities are permitted subject to the forestry operator submitting a management plan to the relevant local authority.<sup>160</sup> Because permitted activity rules cannot reserve discretion to the council to approve or decline plans,<sup>161</sup> compliance with the regulations is achieved simply by submitting the plan. The plan requirements are topic-focused rather than outcome-focused. For example, the forestry earthworks management plan must:

*(d) describe clearly the management practices that will be used to avoid, remedy, or mitigate risks due to forestry earthworks that have been identified on the map, including the proposed erosion and sediment control measures to be used and the situations*

*in which they will be used, in sufficient detail to enable site audit of the management practices to be carried out:*

- (e) include the following for earthworks management:*
- (i) water run-off control measures:*
  - (ii) sediment control measures during construction and during harvest:*
  - (iii) the method used to manage excess fill for large-scale cut and fill operations, and if end haul, the proposed disposal location:*
  - (iv) methods used to stabilise batters, side cast, and cut and fill:*
  - (v) post-harvest remedial work (timing and methods).*

Provided those matters are addressed in the plan, it must be accepted. There is no verification, feedback, or peer-review step. Councils are unable to reject a plan or require changes to it where they consider the plan uses inappropriate methods or is inadequate for some other reason. The same issue arises in respect of the WCC (see the 'Wilding Conifers' section). Compliance monitoring is limited to whether the plan's provisions are implemented, rather than whether mitigation activities are appropriate, or environmental outcomes acceptable.

There is a risk that plan content is 'cut and pasted' from other sites and operations rather than being site-specific.

The unverified management plan approach assumes that forestry operators will submit management plans that are high quality, and which adequately address the environmental risks that they are intended to manage. That assumption is untested, and this 'high trust' model of regulation is unlikely to be warranted across the board.



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### INTERVIEWS

In writing this report the authors spoke with experts, council representatives, industry representatives, consultants, and mana whenua. The input of everyone spoken with was invaluable and very much appreciated. Interviewees are not quoted nor referenced by name.

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# ENDNOTES

- 1 Reg 2, NESPF
- 2 For example, the 2017/2016 forestry compliance review undertaken by Marlborough District Council found 50% non-compliance and 20% serious non-compliance, making a total of 70% non-compliance. See Marlborough District Council, 2018.
- 3 MPI, 2017b, 12
- 4 New Zealand Forest Owners Association, 2017
- 5 New Zealand Forest Owners Association, 2017
- 6 New Zealand Forest Owners Association, 2017
- 7 Dyck W J, 1997, 6–9
- 8 Pawson S M et al, 2010
- 9 New Zealand Freshwater Sciences Society, Submission on the NESPF.
- 10 It also does not set out the relationship between NPSs and NESs.
- 11 ss 43, 44A RMA
- 12 s 43(1)(a)–(c) RMA
- 13 s 43(2) RMA
- 14 s 43A RMA
- 15 s 43A(3) RMA
- 16 s 44A(2) RMA. The same applies to bylaws: s 43E RMA. Designations are treated differently. A designation prevails over a NES until either it lapses or one (or more) of its conditions to which the NES is relevant is altered. A NES also prevails over an existing designation if, when the NES is made, there is no outline plan for the designation: s 43D.
- 17 s 43A(4) RMA
- 18 That is, if it is classified as controlled, restricted discretionary, discretionary, or non-complying.
- 19 That is, a regional or district plan could not simply install a controlled, restricted discretionary, discretionary, or non-complying consent requirement. It could include a permitted standard specifying, for example, that the activity must not occur in a specific area, with failure to comply resulting in a consent requirement.
- 20 s 5 RMA
- 21 *Environmental Defence Society Inc v New Zealand King Salmon Company Ltd* [2014] NZSC 38 at [85]
- 22 Being the part setting out the RMA's purpose and principles.
- 23 MPI, 2016, 3
- 24 Reg 5
- 25 Reg 3 definition: "(a) means planting and growing plantation forestry trees on land where there is no plantation forestry and where plantation forestry harvesting has not occurred within the last 5 years; but (b) does not include vegetation clearance from the land before planting."
- 26 Reg 3 definition: "means pruning plantation forest trees and thinning to waste involving the selective felling of plantation forest trees within a stand where the felled trees remain on site."
- 27 Reg 3 definition: "(a) means disturbance of the surface of the land by the movement, deposition, or removal of earth (or any other matter constituting the land, such as soil, clay, sand, or rock) in relation to plantation forestry; and (b) includes the construction of forestry roads, forestry tracks, landings and river crossing approaches, cut and fill operations, maintenance and upgrade of existing earthworks, and forestry road widening and realignment; but (c) does not include soil disturbance by machinery passes, forestry quarrying, or mechanical land preparation."
- 28 Reg 3 definition: "(a) means a structure that is required for the operation of a plantation forest and provides for vehicles or machinery to cross over a water body; and (b) includes an apron and other structures and materials necessary to complete a river crossing; but (c) does not include a stormwater culvert or a culvert under a forestry road or forestry track."
- 29 Reg 3 definition: "(a) means the extraction of rock, sand, or gravel for the formation of forestry roads and construction of other plantation forestry infrastructure, including landings, river crossing approaches, abutments, and forestry tracks,—(i) within a plantation forest; or (ii) required for the operation of a plantation forest on adjacent land owned or managed by the owner of the plantation forest; and (b) includes the extraction of alluvial gravels outside the bed of a river, extraction of minerals from borrow pits, and the processing and stockpiling of material at the forest quarry site; but (c) does not include earthworks, mechanical land preparation, or gravel extraction from the bed of a river, lake, or other water body."
- 30 Reg 3 definition: "(a) means felling trees, extracting trees, thinning tree stems and extraction for sale or use (production thinning), processing trees into logs, or loading logs onto trucks for delivery to processing plants; but (b) does not include— (i) milling activities or processing of timber; or (ii) clearance of vegetation that is not plantation forest trees."
- 31 Reg 3 definition: "(a) means using machinery to prepare land for replanting trees, including root-raking, discing, ripping, roller crushing, clearing slash, and mounding the soil into raised areas; but (b) does not include— (i) the creation of alternating drains and planting mounds using a V-shaped blade attached to the front of a bulldozer; or (ii) earthworks or forestry quarrying."
- 32 Reg 3 definition: "means the planting and growing of plantation forestry trees on land less than 5 years after plantation forestry harvesting has occurred."
- 33 Reg 6
- 34 MPI, 2017b, 8
- 35 Reg 3
- 36 Regs 14, 54
- 37 Regs 17, 61
- 38 MPI, 2017b, 88
- 39 MPI, 2017b, 88; 2017a, 4.101
- 40 See Section AA, NPSFM
- 41 See Appendix 1, NPSFM
- 42 See Appendix 1, NPSFM
- 43 See Policy 15(c)(viii), NZCPS
- 44 The two other main types of abatement are reducing domestic emissions and international purchasing of emission reductions.
- 45 Office of the Minister for Climate Change, 2018
- 46 Regs 8–17, 62–71, 76–81
- 47 Ministry for the Environment, 2010, vii
- 48 Of course, as discussed elsewhere in this report, the resource consent process can protect environmental values that are ignored by a narrow alignment analysis.
- 49 Reg 3
- 50 See Forestry Reference Group, 2018
- 51 Ministry for the Environment, 2010, vii
- 52 Te Uru Rākau—Forestry New Zealand, 2019
- 53 Lindenmayer D B et al, 2012
- 54 Pinkard L, 2010
- 55 Reg 5(3)
- 56 Reg 3
- 57 Reg 3
- 58 Reg 3
- 59 Regs 12, 14, 16
- 60 Regs 30, 55
- 61 Reg 43
- 62 Reg 78
- 63 Schedule 4
- 64 These are required for earthworks involving more than 500m<sup>2</sup> of soil disturbance in any 3 month period.
- 65 Schedule 3, Clause 3(3)
- 66 Reg 27(2)
- 67 Reg 55
- 68 Reg 59
- 69 North Island brown kiwi, Eastern falcon, Bush falcon, North Island weka, and any indigenous bird species classified as Nationally Critical, Nationally Endangered, or Nationally Vulnerable.
- 70 Reg 102
- 71 Reg 3
- 72 Reg 40
- 73 Reg 91
- 74 Reg 6
- 75 *Director-General of Conservation v Invercargill City Council* [2018] NZEnvC 175 at [36]
- 76 Reg 93
- 77 Specific examples include long-tailed bats roosting at Waitapu in Kaingaroa Forest, and a population of Hochstetter's frogs inhabiting an area within plantation forest in Rodney District, Northland. Other species known to use plantation forest include various skink and gecko species and many invertebrates including *Powelliphanta* snails and peripatus.
- 78 At Iwitahi (Kaingaroa Forest) 36 species of native orchids grow within an area of plantation forestry.
- 79 Scion, 2015
- 80 The example of the Eyrewell beetle (only 10 individuals ever found, the 5 most recent findings from a Canterbury plantation forest) was described recently; see Hancock, F, 2018a
- 81 FSC, 2013, Indicator 6.24
- 82 Indicator 6.2.12
- 83 Indicator 6.2.13
- 84 Indicators 6.2.14 and 6.2.15
- 85 Criterion 10.5
- 86 Peterson P and E Hayman, 2008
- 87 Ministry for the Environment and Statistics New Zealand, 2015
- 88 Gillespie P, 2007

89	Reg 3	123	Reg 89(b), (c)
90	Reg 14(3)	124	Reg 89(d)–(f)
91	Reg 3 definition: "means a river that is a continually or intermittently flowing body of freshwater, if the intermittent flows provide habitats for the continuation of the aquatic ecosystem."	125	Reg 90
92	Reg 68	126	Davies-Colley R J et al, 2000; Reeves P et al, 2006; Parkyn S M et al, 2003; Parkyn S, 2004; Daigneault A J et al, 2017
93	Reg 74	127	See the 'Structure and Language' section.
94	Reg 78	128	Wyeth J, 2018, 9.10
95	Significant natural areas are subject to a permitted activity control relating to deposition, which is addressed below.	129	Reg 31
96	Reg 29	130	<i>Hawkes Bay and Eastern Fish and Game Councils v Hawkes Bay Regional Council</i> [2014] NZHC 3191
97	Reg 54	131	'Objectives' in this context means both policy objectives and numerical objectives developed under Part C NPSFM and the National Objectives Framework. This conclusion is reached due to the changes from the draft NESPF, which referred only to a "freshwater objective," to the gazetted version which refers to objectives generally.
98	s 70(1) RMA: "Before a regional council includes in a regional plan a rule that allows as a permitted activity— (a) a discharge of a contaminant or water into water; or (b) a discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water,— the regional council shall be satisfied that none of the following effects are likely to arise in the receiving waters, after reasonable mixing, as a result of the discharge of the contaminant (either by itself or in combination with the same, similar, or other contaminants): (c) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials: (d) any conspicuous change in the colour or visual clarity: (e) any emission of objectionable odour: (f) the rendering of fresh water unsuitable for consumption by farm animals: (g) any significant adverse effects on aquatic life."	132	Noting that specific activity statuses are recommended under the 'Erosion' section.
99	Regs 26, 65, 74, 90	133	For example, Regs 35(2a), 73(2c, 2d), 75(1b)
100	Regs 31, 32, 67, 74	134	Reg 66(3)
101	Regs 20, 30, 55, 68	135	For review, see Satchell D, 2018
102	Regs 20, 69	136	Hill R and I Blair, 2005
103	Reg 30(2)	137	See Satchell D, 2018
104	Reg 55(1)	138	Reg 3
105	Reg 68	139	Noting that depending on the location and species used this may not necessarily be consistent with achieving wider indigenous biodiversity outcomes.
106	Except in earthflow terrain: Reg 60(3)	140	Phillips C et al, 2018
107	Regs 27, 59, 66, Schedule 3	141	Regs 11, 16
108	Reg 39(a)	142	Reg 11(5)
109	Reg 40	143	Reg 79
110	Regs 41, 42	144	Regs 17, 81
111	Reg 43	145	Reg 6(2)
112	Reg 44(a)	146	Reg 11
113	Reg 44(b), (c)	147	Newsroom, <i>New Zealand's Super Sized Weed Problem</i> , <a href="http://www.newsroom.co.nz/2018/11/14/320273/nzs-super-sized-weed-problem">www.newsroom.co.nz/2018/11/14/320273/nzs-super-sized-weed-problem</a> .
114	Reg 44(d)–(f)	148	Reg 3.
115	Reg 45	149	Reg 12, 17(1)(c)
116	Reg 84	150	Reg 13, 15(4)
117	Reg 85	151	Regs 14, 53, 54
118	Reg 86(1)	152	Noting that this approach has its own issues, as discussed in the 'Structure and Language' and 'Indigenous Biodiversity' sections.
119	Reg 86(1)	153	The Kaipara District Plan, Auckland Unitary Plan, Thames-Coromandel District Plan (proposed), Waipa District Plan, Waitaki District Plan, Marlborough Environment Plan (proposed), Gore District Plan, Mackenzie District Plan, and Wellington City District Plan had not, and it does not appear that the Regional Policy Statement or Natural Resources Plan (proposed) do either.
120	Reg 86(1)	154	An example of a plan that does is the Marlborough Environment Plan (proposed).
121	Reg 87	155	s 87A(2) RMA
122	Reg 89(a)	156	Brown S, 2003
		157	Reg 5(1) sets out the activities the NESPF applies to
		158	<i>Maclean v Thames-Coromandel District Council</i> A046/03 at [19]–[21]
		159	For example, Marlborough, Tasman, Nelson, Thames-Coromandel have not identified SNAs.
		160	Reg 27 forestry earthworks management plan, Reg 58 quarry erosion and sediment management plan, Reg 66 harvest plan.
		161	<i>Bryant Holdings Ltd v Marlborough District Council</i> [2008] NZRMA 485 (HC)





