

**BEFORE THE ENVIRONMENT COURT
I MUA I TE KOOTI TAIAO O AOTEAROA**

IN THE MATTER of the Resource Management Act 1991 ('the Act')

AND

IN THE MATTER

of an appeal under Clause 14(1) of First Schedule to the Act

BETWEEN

RAYONIER NEW ZEALAND LIMITED

Appellants in ENV-2018-CHC-49, and section 274 party to appeals: ENV-2018-CHC-40 Federated Farmers of New Zealand, ENV-2018-CHC-46 Southwood Export Limited & Others, ENV-2018-CHC-50 Royal Forest and Bird Protection Society of New Zealand Incorporated

AND

SOUTHLAND REGIONAL COUNCIL

Respondent

EVIDENCE IN CHIEF OF JEROME GEOFFREY WYETH

Date: 20 December 2021

Judicial Officer: Judge Borthwick

Adderley Head

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MAY IT PLEASE THE COURT

INTRODUCTION

- 1 My name is Jerome Geoffrey Wyeth.
 - 2 I am a Principal Planning and Policy Consultant at 4Sight Consulting where I have been employed since January 2012. I have over 16 years' experience in planning and resource management through various roles in central government, local government and as a planning consultant.
 - 3 I hold the qualifications of Bachelor of Science (Geography) and Masters of Science (Geography), First Class Honours. I am a full member of the New Zealand Planning Institute.
 - 4 My primary area of work is policy planning for local and central government clients. I have worked on a number of district and regional plans at various stages of the Resource Management Act 1991 (**RMA**) Schedule 1 process, including preparing planning evidence and appearing at local authority and Environment Court hearings. In recent years, I have been closely involved in the development and implementation of a number of national direction instruments under the RMA (national policy statements and national environmental standards).
 - 5 From 2015 to 2018, I worked closely with the Ministry for Primary Industries and the Ministry for the Environment to develop and support the implementation of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 (**NES-PF**). This includes leading the section 32 evaluation for the NES-PF and preparing guidance to support the implementation of the NES-PF. A key focus of my involvement in the NES-PF was the ability for plan rules to be more stringent than the NES-PF (Regulation 6).
 - 6 I have read the Environment Court's Code of Conduct and agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this statement of evidence are within my area of expertise.
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SCOPE

- 7 I am providing planning evidence on behalf of Rayonier New Zealand Limited (**Rayonier**) who are an appellant and section 274 party on the proposed Southland Water and Land Plan (**pSWLP**). The principal issue in contention and the focus of this evidence in chief is the appropriateness of proposed Rule 25 in the pSWLP (cultivation) as it relates to the two specific plantation forestry activities of windrowing and herbicide spraying.
- 8 Rayonier's appeal seeks that herbicide spraying be removed from the definition of "cultivation" or alternatively that the term "crop" in the definition of "cultivation" be defined as specific to agricultural practices excluding forestry. Rayonier's s274 party notice on the appeal filed by Southwood Export Limited and Others supports amendment to the definition of "cultivation" to exclude stick raking (also known as windrowing). For convenience both matters are addressed in this evidence statement.

DOCUMENTS CONSIDERED

- 9 In preparing this evidence, I have read and considered the following documents as they relate to the scope matters set out above:
- (a) The pSWLP Decisions Version 1 March 2021;
 - (b) Section 42A Hearing Report and Reply Report;
 - (c) The Council's Decision Report;
 - (d) Rayonier's appeal and s274 party notice;
 - (e) The Topic A Interim Decisions;
 - (f) Topic B Overview Evidence of Matthew McCallum Clark on behalf of the Regional Council, 22 October 2021
 - (g) The Joint Witness Statements of the Forestry Experts, 29 November 2021;
 - (h) The Joint Witness Statement of the Planning (Forestry) Experts, 10 December 2021; and
 - (i) The NES-PF.
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WILL SAY STATEMENT AND EXPERT CONFERENCING

- 10 I prepared a will say statement dated 29 October 2021 regarding this matter which is attached as **Appendix A**. The focus of my will say statement was on the two activities of windrowing (referred to in this evidence as 'stick raking or slash raking') and herbicide spraying associated with plantation forestry.
- 11 I participated in planning expert conferences on 17-20 November 2021 and 9-10 December 2021. The focus on the first planning expert conference was on questions to technical experts, where planners interested in forestry matters signed Joint Witness Statement #4 (Forestry expert conference questions from planners).
- 12 I observed the Forestry Expert Conference that took place on 29 November 2021. The participants then signed a Joint Witnesses Statement (the **Forestry Expert JWS**) which addressed the forestry expert conference questions from the planners. The Forestry Expert JWS is attached as **Appendix B**.
- 13 I am a signatory to the Planning (Forestry) Joint Witness Statement (**Planning Forestry JWS**) from the 9-10 December 2021 planning expert conference, which is attached as **Appendix C**. At the conference, the planners agreed that the activity of stick raking or slash raking associated with plantation forestry should be excluded from the definition of cultivation (and Rule 25) provided it could be suitably defined as the low-risk activity described at the Forestry Expert Conference.
- 14 To reach agreement in this respect, the planners relied on the Forestry Expert JWS which stated that stick raking does not break up the soil profile like cultivation does (question 2). A reference to the use of machinery to clear slash was also added to further describe the activity which I suggested to be consistent with the NES-PF mechanical land preparation definition.
- 15 The Planning Forestry JWS records that the planners agree that cultivation definition in the pSWLP should be amended, and a definition of stick raking or slash raking be added to the pSWLP. The purpose of these changes is to specifically exclude the low-risk activities of stick raking or slash raking and herbicide spraying associated with replanting a plantation forest from the cultivation definition in the pSWLP and Rule 25.
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16 The text of the agreed amendments is detailed in the Planning Forestry JWS which is attached as **Appendix C**. I confirm that I support these amendments there are no outstanding issues arising from my perspective.

SECTION 32AA EVALUATION

17 The agreed amendments in the Planning Forestry JWS (**Appendix C**) are essentially the same as the relief sought in my will say statement (**Appendix A**). The only difference it that the activity of stick racking and slash raking is defined, but the intent is the same.

18 I assess the effectiveness and efficiency of the proposed amendments to exclude stick raking or slash raking from definition of cultivation in paragraph 25 to 29 of my will say statement. I retain the view that the proposed amendments are more effective and efficient in achieving the pSWLP objectives compared to the decisions version of the pSWLP for the reasons set out in my will say statement.

19 I assess the effectiveness and efficiency of the proposed amendments to exclude herbicide spraying from the definition of cultivation in paragraph 38 to 41 of my will say statement. I retain the view that the proposed amendments are more effective and efficient in achieving the pSWLP objectives compared to the decisions version of the pSWLP for the reasons set out in my will say statement.

CONCLUSION

20 I support the amendments to the definition of cultivation and the new definition of stick racking or slash raking agreed in the Planning Forestry JWS.

21 I am willing to answer any questions that Court or other parties may have arising from the above matters.

Jerome Wyeth

Dated 20th December 2021

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WILL SAY STATEMENT OF JEROME GEOFFREY WYETH

Date: 29 October 2021

Judicial Officer: Judge Borthwick

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INTRODUCTION

- 1 My name is Jerome Geoffrey Wyeth.
 - 2 I am a Principal Planning and Policy Consultant at 4Sight Consulting where I have been employed since January 2012. I have over 16 years' experience in planning and resource management through various roles in central government, local government and as a planning consultant.
 - 3 I hold the qualifications of Bachelor of Science (Geography) and Masters of Science (Geography), First Class Honours. I am a full member of the New Zealand Planning Institute.
 - 4 My primary area of work is policy planning for local and central government clients. I have worked on a number of district and regional plans at various stages of the Resource Management Act 1991 (**RMA**) Schedule 1 process, including preparing planning evidence and appearing at local authority and Environment Court hearings. In recent years, I have been closely involved in the development and implementation of a number of national direction instruments under the RMA (national policy statements and national environmental standards).
 - 5 From 2015 to 2018, I worked closely with the Ministry for Primary Industries and the Ministry for the Environment to develop and support the implementation of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 (**NES-PF**). This includes leading the section 32 evaluation for the NES-PF and preparing guidance to support the implementation of the NES-PF. A key focus of my involvement in the NES-PF was the ability for plan rules to be more stringent than the NES-PF (Regulation 6)
 - 6 I have read the Environment Court's Code of Conduct and agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues that will be addressed within this Will Say statement are within my area of expertise, except where I rely on the opinion or evidence of other witnesses. Where I rely on other technical evidence to inform my opinion, this is noted in this statement.
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SCOPE OF EVIDENCE

- 7 I am providing planning evidence on behalf of Rayonier New Zealand Limited (**Rayonier**) who are an appellant and section 274 party on the proposed Southland Water and Land Plan (**pSWLP**). The principal issue in contention and the focus of this statement is the appropriateness of proposed Rule 25 in the pSWLP (cultivation) as it relates to the two specific plantation forestry activities of windrowing and herbicide spraying.
- 8 Rayonier’s appeal seeks that herbicide spraying be removed from the definition of “cultivation” or alternatively that the term “crop” in the definition of “cultivation” be defined as specific to agricultural practices excluding forestry. Rayonier’s s274 party notice on the appeal filed by Southwood Export Limited and Others supports amendment to the definition of “cultivation” to exclude stick raking (also known as windrowing). For convenience both matters are addressed in this Will Say statement.
- 9 In accordance with the direction from the Court, this Will Say statement outlines the requested relief from Rayonier and my opinion on how this relief implements the relevant pSWLP objectives and policies. This statement addresses the following two matters:
- (a) The application of Rule 25 to the plantation forestry activity of windrowing and how the relief sought in relation to windrowing will help implement relevant pSWLP objectives and policies.
 - (b) The application of Rule 25 to herbicide spraying associated with plantation forestry and how the relief sought in relation to herbicide spraying will help implement relevant pSWLP objectives and policies.
- 10 My statement also identifies where I rely on, or require, technical evidence to support the relief sought in this Will Say statement and my opinion on the pSWLP provisions. This is important as I expect that technical evidence and conferencing will address matters relevant to my evidence¹ and my opinion may change as a result.

¹ For example, evidence to demonstrate a more stringent approach through Rule 25 than the corresponding mechanical land preparation regulations in the NES-PF is justified in the context of the Southland Region.

PROPOSED RELIEF FROM RAYONIER NEW ZEALAND LIMITED

- 11 The proposed relief from Rayonier is to amend the pSWLP as follows:
- (a) Amend the definition of “cultivation” so that Rule 25 does not apply to windrowing associated with a plantation forest.
 - (b) Amend the definition of “cultivation” so that Rule 25 does not apply to herbicide spraying associated with a plantation forest.
 - (c) Insert a definition for “plantation forest” consistent with the NES-PF.
- 12 The proposed relief is shown as tracked changes to the appeal version of the pSWLP in **Appendix A** of this evidence (the **proposed relief**).

EXCLUDING WINDROWING ASSOCIATED WITH A PLANTATION FOREST FROM RULE 25

The activity of windrowing and adverse effects

- 13 Windrowing is the stacking of leftover vegetation, slash and other material into long narrow rows. The general purpose of windrowing is to clear enough space for the planting of new trees while retaining some nutrients on the site. Windrows can be parallel or perpendicular to the slope (or somewhere in-between), but contoured windrows are generally preferred when safe and practicable to do so as these can act as barriers to downslope movement of sediment.
- 14 The activity of windrowing and how this undertaken by Rayonier in the Southland region discussed in the Will Say statement of Mr Fitzgerald. This outlines the management practices Rayonier implement in relation to windrowing to comply with the NES-PF and relevant industry practice guides and codes of practices. At a general level, these management practices seek to minimise the extent and depth of soil disturbance and leave a layer of slash and organic soil on the soil surface to help protect the soil from erosion and promote early tree growth.
- 15 Mr Phillips’ Will Say statement addresses the potential soil erosion and sediment generation effects from windrowing. This notes that potential adverse effects from windrowing arise primarily on sloping sites where soil is exposed, and sediment can be subsequently entrained and discharged into waterways
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during rainfall events. I understand from Mr Phillips that the actual increase in exposed soils (and subsequent risk of erosion) depends on a range of factors and potential adverse effects can generally be effectively mitigated through good management practices. I understand from Mr Phillips that the primary methods to minimise the risk of windrowing on erosion and sediment generation are:

- (a) Keeping soil disturbance to a minimum and reduce depth of disturbance.
- (b) Establish a barrier or windrow at the base of slope to act as a physical barrier or filter.
- (c) Windrows to be parallel to the contour of the land where safe to do so.
- (d) Where windrowing parallel to the contour cannot occur, establish a windrow at base of non-parallel windrows to act as a physical barrier or filter and/or establish shallow cut-off drains to direct slope wash into windrows.
- (e) Revegetate areas of exposed soils as soon as practicable after the disturbance.

16 At broader level, earthworks and harvesting are the plantation forestry activities with the greatest risk of erosion and sediment generation. The potential impact of windrowing in terms of erosion and sediment yield are considered by Mr Phillips to be an order of magnitude lower than these activities. Further, in relation to the relative susceptibility of the Southland region to erosion and sediment yield, Mr Phillips notes that the region is not regarded as being highly erosion prone. Rather, the Southland region ranks at the bottom of regions in terms of the inherent susceptibility of land to erosion (erosion risk) under the NES-PF erosion susceptibility classification system.

Rule 25 and windrowing

17 Proposed Rule 25 in the pSWLP does not specifically mention plantation forestry or windrowing but applies to the plantation forestry through a general reference to “***Preparing land for growing a crop by mechanical tillage, direct drilling, herbicide spraying...***”. It is unclear whether the activity of windrowing was anticipated when Rule 25 was developed.

- 18 The application of Rule 25 to windrowing will impose some more stringent requirements than the corresponding regulations in the NES-PF (outlined below) that Rayonier has designed its operations and management practices to comply with.

The NES-PF

- 19 The NES-PF was gazetted on 31 July 2017 and came into effect on 1 May 2018. The NES-PF is relevant to the consideration of Rule 25 and windrowing as regulations 72-75 of the NES-PF regulate the plantation forestry activity of 'mechanical land preparation'. While the NES-PF does not specifically refer to windrowing, the definition of mechanical land preparation "*as using machinery to preparing land for replanting trees*" is intended to include this aspect of mechanical land preparation and this is confirmed in the NES-PF User Guide.²
- 20 In relation to mechanical land preparation, the NES-PF includes permitted activity conditions to manage the risk of erosion and sedimentation consistent with recommended management practices referred to above. This includes:
- (a) Requirements for windrowing to be carried out parallel to the contour of the land (except if working parallel would be unsafe). If not working parallel (for safety reasons) then sediment control measures must be used to minimise sediment discharges to water bodies (Regulation 74(1) and (2)).
 - (b) Requirements to stabilise soil as soon as practicable after the completion of the activity (Regulation 74(5)).
 - (c) Requirements for sediment discharges to be managed to not give rise to certain adverse effects in receiving waters consistent with section 70(1) of the RMA (Regulation 74(6)).
 - (d) Requirements to stabilise and contain any disturbed soil to minimise the movement of sediment into any water body and result in specified adverse effects (Regulation 74(7)).

² This NES-PF User-Guide states mechanical land preparation activities include "*Mechanical raking, mulching, windrowing and discing to clear residual slash and create planting sites*". Refer: NES-PF User Guide (May 2018), prepared for Ministry for Primary Industries by 4Sight Consulting Limited, pg. 95.

- (e) Requirement for mechanical land preparation to be setback 5-10m from water bodies (Regulation 74(8)).
- 21 Regulation 6 of the NES-PF sets out the circumstances when plan rules can be more stringent than the regulations in accordance with section 43B(1) and 43B(2) of the RMA³. There are two key areas where Rule 25 is more stringent for windrowing (i.e. requires resource consent for an activity that would otherwise be permitted) than the NES-PF:
- (a) Rule 25 applies a more stringent slope threshold (20 degrees) compared to the NES-PF (25 degrees in orange and red zone land).
- (b) Rule 25 applies a 5m setbacks to all waterbodies whereas the NES-PF applies a 5m or 10m setback depending on the waterbody.
- 22 However, the NES-PF includes a wider range of permitted activity conditions aimed at managing sediment discharges that are specific to mechanical land preparation. The NES-PF also includes additional risk-based controls that require resource consent where this activity is undertaken in areas susceptible to erosion (based on the erosion susceptibility classification) so is arguably more stringent in other areas.
- 23 Accordingly, in my opinion, there is a need to:
- (a) Examine whether a more stringent approach for windrowing in certain conditions of Rule 25 than the NES-PF is justified in the context of the Southland region in accordance with section 32(4) of the RMA.
- (b) Assess whether Rule 25 in the pSWLP is the most appropriate provision to manage windrowing associated with a plantation forest to achieve the relevant pSWLP objectives (compared to the NES-PF) in accordance with section 32(1)(b) of the RMA.
- 24 These are matters that will be addressed in my evidence in chief relying on the technical evidence of other witnesses and in light of the outcomes reached through planning and technical expert conferencing.

³ This includes where the plan rule gives effect to an objective developed to give effect to the National Policy Statement for Freshwater Management (Regulation 6(1)(a)).

How the proposed relief implement relevant pSWLP objectives and policies

- 25 The proposed relief is to exclude windrowing associated with a plantation forest from Rule 25 in the pSWLP so that this activity is regulated exclusively under the NES-PF.
- 26 In my opinion, the proposed relief will help to implement relevant pSWLP objectives that seek to protect the health of water bodies and maintain and improve water quality. This includes:
- (a) **Objective 2** which seeks to provides for te hauora o te taiao (health and mauri of the environment), te hauora o te wai (health and mauri of the waterbody) and te hauora o te tangata (health and mauri of the people).
 - (b) **Objective 6** which seeks to maintain water quality where it is not degraded and improve water quality where it is degraded by human activities.
 - (c) **Objective 18** which seeks to ensure all persons implement environmental practices that safeguard the life supporting capacity of land and soils and that maintain or improve the quality of the regions water resources.
- 27 I hold this view for the following reasons:
- (a) The proposed relief recognises that the effects of sediment discharges and environmental risks associated with plantation forestry activities are comprehensively assessed through the targeted permitted activity conditions for mechanical land preparation in the NES-PF that are based on industry best practice.
 - (b) The NES-PF requires resource consent when the erosion and sediment discharge risks are greater (based on the erosion susceptibility classification system) and where permitted activities cannot be complied with.
 - (c) The proposed relief seeks to implement the NES-PF in a nationally consistent manner as intended.
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- (d) Based on the Will Say statements of Mr Fitzgerald and Mr Phillips, I understand that the adverse effects of windrowing on erosion and sedimentation in the Southland region can be effectively mitigated when undertaken in accordance with the NES-PF and good industry practice.
- (e) I am unaware of any evidence to justify a more stringent approach for the activity of windrowing than the NES-PF regulations in the context of the Southland region.

28 I acknowledge that it can be argued that the proposed relief is less stringent on forestry operations in some instances and therefore potentially less effective in achieving the above pSWLP objectives. However, all provisions needed to be evaluated in terms of whether they are the most appropriate to achieve the objectives, which involves an assessment of the effectiveness and efficiency of the provisions in accordance with section 32(1)(b) of the RMA. In this case, the evidence I have relied on indicates that the economic costs of regulating windrowing through Rule 25 are likely to be substantially higher than any environmental benefits that may be achieved in terms water quality (if any) compared to a more targeted and comprehensive approach through the NES-PF.

29 The proposed relief will also enable windrowing to be undertaken more effectively and efficiently in the region, consistent with nationally consistent standards and industry best practice. In my opinion, the proposed relief will therefore help to implement pSWLP objectives that seek to enable land in the region to be used to support economic, social and cultural well-being. In particular:

- (a) **Objective 3:** which seeks to recognise water and land as enablers of the economic, social and cultural well-being in the region.
 - (b) **Objective 13:** which seeks to enable land to be used to enable economic, social and cultural well-being in the region provided the health of people and communities are safeguarded from adverse effects of discharges and ecosystems are safeguarded.
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EXCLUDING HERBICIDE SPRAYING ASSOCIATED WITH A PLANTATION FOREST FROM THE DEFINITION OF CULTIVATION

The activity of herbicide spraying and adverse effects

- 30 Mr Fitzgerald discusses the operational requirements to undertake herbicide spraying as part Rayonier's land preparation cycle for plantation forestry. The purpose of herbicide spraying is to control invasive weeds, such as broom and gorse, which helps reduce the weed/re-growth competition for the new crop and allow it to be established.
- 31 I understand the most common application of herbicide in a plantation forestry operation is aerial spraying and that modern GPS technology makes the targeted application of herbicide very accurate and efficient, minimising the risk of spray drift as part of these operations. I understand Rayonier's herbicide spraying operations involve a minimum 10m buffer to any waterways which is increased where conditions of the day increase the risk of spray drift. These practices help to reduce the adverse effects of herbicide spraying on water quality, which is controlled under Rule 10 in the pSWLP. However, I understand the purpose of Rule 25 in the pSWLP is to reduce sediment entering waterways as a result of land preparation activities (physical disturbance and herbicide spraying).
- 32 Mr Phillips' has considered herbicide spraying associated with plantation forestry and its influence on erosion and sediment yield in some depth with reference to relevant literature and research on this topic. I understand from Mr Phillips that there is a significant body of research on the use of herbicides for plantation forestry, but this primarily relates to effects on water quality and there is no/limited information in terms of its impact on erosion and sediment yield (i.e. the purpose of Rule 25).
- 33 I understand that herbicide spraying is notably distinct in its potential for sediment generation compared to other mechanical land preparation methods than involve some physical disturbance of the soil. While the practice of herbicide spraying may expose some areas of soil previously protected, the dead vegetation provides a level of protection from rain and subsequent sediment runoff.
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34 Overall, Mr Phillips' concludes in his Will Say statement that spraying of herbicide has a low to negligible impact on erosion and sediment yield compared to other practices that disturb the soil.

Rule 25 and herbicide spraying for plantation forestry

35 The definition of cultivation in the pSWLP specifically includes "*Preparing land for growing...a crop by...**herbicide spraying***". It is unclear why herbicide spraying is included in a rule that appears to be focused on mechanical land preparation methods that physically disturb the soil. This same conclusion is reached by Mr Phillips in his Will Statement, who notes that spraying doesn't have a physical impact on the soil – it is what comes next that does.

36 I note that the national planning standards includes a definition of cultivation as "*means the alteration or disturbance of land (or any matter constituting the land including soil, clay, sand and rock) for the purpose of sowing, growing or harvesting of pasture or crops*". This definition focuses on activities that physically disturb the land and the national planning states that terms defined in the *Definition List* are to be used in regional plans unless the context requires otherwise.

37 The Will Say statement of Mr Fitzgerald indicates that the inclusion of herbicide spraying in the current definition of cultivation in the pSWLP would mean that Rayonier would require a restricted discretionary activity consent for a large proportion of its spraying operations.

How proposed relief implements relevant pSWLP objectives and policies

38 The proposed relief is to amend Rule 25 in the pSWLP so that it does not apply to herbicide spraying associated with a plantation forest. In my opinion, the proposed relief will help implement relevant pSWLP objectives that broadly seek to protect the health of water bodies and maintain and improve water quality. This includes Objective 2, Objective 6 and Objective 18 as discussed above.

39 I hold this view for the following reasons:

- (a) The technical advice of Mr Phillips outlined above that the herbicide spraying associated with plantation forestry has a low to negligible impact on erosion and sediment yield.
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- (b) There are other rules in the pSWLP that manage the effects of aerial agrichemical spraying on water quality (Rule 10).
- (c) The Will Say statement of Mr Fitzgerald who states that Rayonier undertakes herbicide spraying in accordance with best practice to minimise the risk of spay drift and adverse effects.

40 As with windrowing and the proposed relief from Rayonier, I acknowledge that it can be argued that any approach that is less stringent is potentially less effective in achieving the above pSWLP objectives. However, all provisions need to be evaluated in terms of whether they are the most appropriate to achieve the objectives, which involves an assessment of the effectiveness and efficiency of the provisions in accordance with section 32(1)(b) of the RMA. In this case, the evidence I have relied on indicates that the economic costs of regulating an activity with negligible impact on erosion and sediment yield are likely to be substantially higher than environmental benefits (if any) from regulating this activity through Rule 25.

41 Further, in my opinion, the proposed relief will help ensure Rule 25 better implements those pSWLP objectives that seek to enable land to be used to enable economic, social and cultural wellbeing of the region provide adverse effects are appropriately managed. This includes Objective 3 and 13 as discussed above. The proposed relief will achieve this by reducing the operational and consenting costs for plantation forestry in the region while still ensuring the potential adverse effects of herbicide spraying on water quality are effectively managed.

Appendix A: Proposed relief sought by Rayonier

Amend the definition of “cultivation” in the pSWLP as follows:

Cultivation

Preparing land for growing pasture or a crop by mechanical tillage, direct drilling, herbicide spraying, or herbicide spraying followed by over-sowing for pasture or forage crops (colloquially referred to as ‘spray and pray’), but excluding any spraying undertaken solely for the control of pest plant species.

Cultivation also excludes herbicide spraying and windrowing (also known as “slash raking”) associated with a plantation forest.

Insert a definition of “plantation forest” as follows:

Plantation forest has the same meaning as in Regulation 3(1) of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017

For convenience, Regulation 3(1) of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 defines “plantation forest” as follows:

plantation forest or **plantation forestry** means a forest deliberately established for commercial purposes, being—

(a) at least 1 ha of continuous forest cover of forest species that has been planted and has or will be harvested or replanted; and

(b) includes all associated forestry infrastructure; but

(c) does not include—

(i) a shelter belt of forest species, where the tree crown cover has, or is likely to have, an average width of less than 30 m; or

(ii) forest species in urban areas; or

(iii) nurseries and seed orchards; or

(iv) trees grown for fruit or nuts; or

(v) long-term ecological restoration planting of forest species; or

(vi) willows and poplars space planted for soil conservation purposes.

Expert Conference – Forestry

Topic: Proposed Southland Water and Land Plan – Southland Regional Council





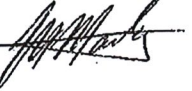
Date of conference: 29 November 2021

Venue: Remote AVL

Facilitator: Anne Leijnen

Recorder: Isabelle Harding

Attendees

Name	Employed or engaged by	Signature
Dr Greg Burrell	Southland Regional Council	
Hamish Fitzgerald	Rayonier NZ	
Dr Chris Phillips	Rayonier NZ	
Sally Strang	SWEL	
Graeme Manley	SWEL	

For ease of reference throughout this JWS, all experts had some relevant expertise in Forestry except the following:

- 1 Dr Burrell is an expert in freshwater ecology and water quality, including landuse impacts on freshwater ecosystems. He is not an expert in forest management or practice.

Environment Court Practice Note

- 2 All participants confirm that they have read the Environment Court Consolidated Practice Note 2014 and in particular Section 7 (Code of Conduct, Duty to the Court and Evidence of an expert witness) and Appendix 3 – Protocol for Expert Witness Conferences and agree to abide by it.

Experts' qualifications and experience

- 3 These are set out in each experts' statement of evidence.

Purpose of expert conference

- 4 The purpose of the conference is to assist the Court by responding to a series of questions, agreed by the experts as the conference progressed, relating to Forestry, and associated issues that the court may wish to consider when determining the appeals. For each question, the experts state matters on which they agree and on which they do not agree, with reasons.

Participants

- 5 This JWS is limited to those Forestry experts that have an interest and took part in the discussion.

Attachments to this JWS

- 6 List of questions for the Forestry experts

Conference outcomes

- 7 The Planning conference identified a number of technical questions to form the basis of the agenda for the Forestry experts. An outcome of this Forestry conference is the answering of these questions. These are attached.

Attachment: Questions to Forestry Experts:

Cultivation definition

1. ***What are the practical and operational implications associated with having to undertake windrowing parallel to contour when the slope is greater than 10 degrees¹? In what situations may this be unsafe?***

The key limitation is safety. To windrow across the slope requires a machine to drive across the slope which is more hazardous and unstable on steeper slopes.

The slope, ground conditions, soil makeup and weather conditions all influence the maximum slope that a machine can operate on. Depending on variables, the slope a machine can operate on is generally between 10 and 15 degrees. On steeper slopes, the safe operating practice is to drive up and down the slope, which means the windrows form in that direction. In addition for some crops, the windrows must follow the direction of the stumps of the previous crop to allow planting to take place in the old crop lines.

Stick raking/windrowing

2. ***Is stick raking/windrowing any different in terms of risk of sediment loss to other cultivation or slopes above 20 degrees?***

As a general principle, as slope increases, the potential for erosion increases. However, there are many factors that will contribute to how much erosion occurs and whether the eroded sediment reaches waterways. The risk of sediment run-off from stick raking is at the lower end of land preparation techniques. In comparison to agricultural cultivation and other forestry land management activities, stick raking is very low with regards to erosion risk. This reflects the low level of soil disturbance. In addition, stick raking occurs in a forestry cutover and the stabilising effects of the old stumps, roots and slash further reduce the potential for erosion and sediment loss.

Cultivation is essentially disturbing and breaking up the soil profile, stick raking does not do this. Stick raking is not cultivation.

3. ***What are the risks from sediment runoff from stick raking? How significant are these risks compared to other forestry and cultivation activities?***

Stick raking is a low-risk activity in terms of sediment run-off. In comparison to other plantation forestry activities (i.e earthworks, road construction, landing construction) it is low risk (See Question 8 below). In comparison to agricultural cultivation, stick raking is significantly lower risk.

4. ***What are the most effective measures to mitigate the risk of sediment runoff from stick raking?***

The most effective mitigation measure is to not disturb the soil. Good practice ensures that not all the branches are moved leaving a layer of fine material on the surface that helps to protect the soil from rain. This also acts as surface roughness elements to capture soil and material that may be moved by rain which forms barriers at the micro level. The preference where the slope permits is to put a windrow across the slope. If the slope is too steep to place windrows across the slope, you need to have a sediment barrier at the base of the slope, usually a windrow.

Reference for compliance with NES-PF, subpart 7, mechanical land preparation, Regulation 74, subclause 2.

¹ As per paragraph c. in the definition of cultivation in Environment Southland's tracked change relief.

5. Are the NES-PF controls for mechanical land preparation (including stick raking) considered to be effective in reducing the risks from sediment runoff?

Yes.

6. Are there circumstances in the Southland region that justify a more stringent approach than the NES-PF in relation to stick raking?

No. Southland has some of the lowest risk geology in NZ. Based on MPI's analysis of the landcover database, 96% of Southland's forests are on land with an erosion susceptibility classification under the NES-PF of low or moderate erosion risk.

7. Will application of the control in the NES-PF result in a reduction in sediment loss during stick raking/windrowing relative to what would occur under controls in Rule 25?

Expected to get the same result. The only difference would be the need to get a resource consent and the time and money involved in obtaining this. Following the NES-PF will produce the same result more efficiently.

Reference for compliance with NES-PF, subpart 7, mechanical land preparation, Regulation 74.

As a general comment it is desirable for the industry to maintain a consistent set of regulations via the NES-PF.

Critical source areas and setbacks²

8. What are the likely practical implications and costs associated with identifying 'critical source areas'³ within a plantation forest ()?

The concept of critical source areas is associated with farming activities. It is not to date a concept that has been used in forestry.

In forestry we can define where the most important areas for sediment generation are, which are not landscape features, as indicated by the Southland Plan definition of critical source areas.

In plantation forestry, potential sediment generating areas are often unrelated to landscape features and are generally in the following order of risk:

- Construction of earthworks,
- Roads and landings,
- harvest tracks,
- haul paths,
- other areas of bare exposed soil,
- covered material/stick raked areas
- sprayed areas

These risks in plantation forestry are managed through the harvest and earthworks plan and the erosion and sediment control plan. Stick raking is managed through a work prescription which falls outside the NES.

9. How effective are the following measures likely to be in terms of mitigating the risks from erosion and sediment runoff:

² Questions 6 to 8 relevant if Rule 25 applies to stick raking.

³ As per definition of critical source areas in Environmental Southland's tracked change relief.

- a. ***Establishing sediment detention when stick raking is undertaken in identified critical source areas⁴?***

The definition of critical source areas from the Plan appears to have been developed for farming. Stick raking will not be undertaken in the most significant sediment generating areas for forestry, as these are defined above (earthworks). Undertaking sediment controls in critical source areas as defined in the definition in the Plan will be ineffective because the most important areas to control in a plantation forestry setting are the roads, landings and earthworks.

- b. ***Graduated setbacks for all water bodies based on slope⁵?***

The NES-PF has graduated setbacks based on the type and size of the waterway (Regulation 74 (8)). The distances are the same in the NES and the Plan but the Southland Plan setbacks are based on slope. With sediment capture by a buffer it is the outer part of the buffer that is the most crucial because that is where most of the trapping happens. There is little need for a graduated buffer in terms of slope for stick raking due to the low risk it poses with respect to sediment generation.

10. ***What are the likely practical and operational implications associated with:***

- a. ***Establishing sediment detention when stick raking is undertaken in identified critical source areas?***

Refer above.

- b. ***Graduated setbacks for all water bodies based on slope?***

Refer above.

Herbicide spraying

11. ***What are the risks from sediment runoff associated with herbicide spraying within a plantation forest? How significant are these risks compared to other cultivation activities that physically disturb the soil?***

Very low. The activity of herbicide spraying is physically not disturbing the soil at all, hence has a low risk of generating sediment. Following spraying, plant material remains intact and forms a mulch and continues to capture sediment alongside the remaining debris on the cutover.

12. ***What, if any, mitigation measures can be used to manage the risks of sediment runoff from herbicide spraying within a plantation forest?***

None.

Critical source areas and setbacks⁶

13. ***How effective are the following measures likely to be in terms of reducing the risks from erosion and sediment runoff:***

⁴ As per Environmental Southland's tracked change relief for Rule 25.

⁵ As per Environmental Southland's tracked change relief for Rule 25.

⁶ Questions 11 and 12 relevant if amendments to the definition of cultivation not accepted.

- a. ***Establishing sediment detention when herbicide spraying is undertaken in identified critical source areas within a plantation forest⁷?***

As noted in the answers to question 11 above, herbicide spraying presents a very low risk in terms of erosion, less so than stick raking. Therefore, the same answers as those given in response to question 9 and 10 apply.

- b. ***Graduated setbacks for herbicide spraying within a plantation forest to all water bodies based on slope⁸?***

From a sediment discharge point of view, the level of risk from sediment discharge does not warrant additional setbacks based on slope. We understand there are rules in the Regional Plan governing aerial chemical application from point of view of protecting waterbodies.

14. What are the practical and operational implications associated with:

- a. ***Establishing sediment detention when herbicide spraying is undertaken in critical source areas (as per Environmental Southland's tracked change relief for Rule 25)?***

As per question 8, the most significant source areas for sediment generation in forestry are earthworks, forestry roads and landings which is managed through erosion and sediment control plans (as required by the NES-PF).

By its nature, herbicide application makes no difference to the potential sediment delivery from earthworks. A requirement to establish sediment detention in critical source areas for herbicide spraying is unnecessary.

- b. ***Graduated setbacks for herbicide spraying all water bodies based on slope (as per Environmental Southland's tracked change relief for Rule 25)?***

Answered in question 13 (b) above.

Supplementary question:

The question was raised, "what are the processes for documenting and checking compliance with the NES-PF rules for land prep?" It was confirmed that harvesting and earthwork plans, and associated erosion and sediment control plans are required under the NES-PF, must be available to the Council and can be monitored for compliance. These requirements do not apply to mechanical land prep due to the low-risk nature of that activity however there are regulations (Regulation 74) that cover these activities and the Council can monitor compliance.

⁷ As per Environmental Southland's tracked change relief for Rule 25.

⁸ As per Environmental Southland's tracked change relief for Rule 25.

Expert Conference – Planning (Forestry)**Topic:** Proposed Southland Water and Land Plan – Southland Regional Council**Date of conference:** 09-10 December 2021**Venue:** Remote AVL**Facilitator:** Commissioner Anne Leijnen**Recorder:** Isabelle Harding**Attendees**

- 1 Witnesses who participated and agreed to the content of this Joint Witness Statement (JWS) by signing it on 10 December 2021.

Name	Employed or engaged by	Signature
Ben Farrell	Southland Fish and Game Council	
Jerome Wyeth	Rayonier New Zealand	
Linda Kirk	Director General Conservation	
Matthew McCallum-Clark	Southland Regional Council	

- 2 Nga Rūnanga advised that their issues were now resolved and chose not to participate.

Environment Court Practice Note

- 3 All participants confirm that they have read the Environment Court Consolidated Practice Note 2014 and in particular Section 7 (Code of Conduct, Duty to the Court and Evidence of an expert witness) and Appendix 3 – Protocol for Expert Witness Conferences and agree to abide by it.

Experts' qualifications and experience

- 4 These are set out in each experts' Will Say statement.

Purpose of expert conference

- 5 The purpose of the expert witness conferencing is to enhance the efficiency of the court hearing process by providing for expert witnesses to confer and identify the issues on which they agree, with reasons. They are also to clearly identify the issues on which they do not agree and give reasons for their disagreement. This will enable the court to focus primarily on matters that remain in dispute, while understanding the basis for agreed matters.
- 6 And specifically, to address:
 - a) Topic B5 – Farming, as it relates to forestry and cultivation.

Key information sources relied on

- 7 The experts relied on the following key sources of information:
 - a) The Will Say statements of each planner and technical expert
 - b) The Council's preferred "track changes" relief, prepared in response to the tracked changes relief provided by the parties on 29 October 2021.
 - c) JWS signed by Forestry experts (29th November 2021)

Conference outcomes

- 8 The planners agreed that the cultivation definition should be amended, and another definition added, to specifically exclude low-risk elements of land preparation for replanting a plantation forest, as follows:

Definition - Cultivation

Preparing land for growing pasture or a crop by mechanical tillage, direct drilling, herbicide spraying, or herbicide spraying followed by over-sowing for pasture or forage crops (colloquially referred to as 'spray and pray'), **but excludes: excluding any**

- a. herbicide** spraying undertaken solely for the control of pest plant species;
- b. herbicide spraying for the establishment or maintenance of plantation forestry;**
- and**
- c. stick raking or slash raking associated with a plantation forest, provided that the resulting windrows follow the contour of the land where the slope of the land is greater than 10 degrees.**

Definition (new) - Stick raking or slash raking

Means the use of machinery to clear slash from harvested plantation forest to enable the replanting of trees. It does not include breaking up of the soil profile or the disturbance of the stumps of the harvested plantation forest trees.