

The National Environmental Standards for Plantation Forestry – weathering the storm

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When harvesting, specific conditions must be met under the NES-PF including slash management and preparing a harvest plan

Abstract

The National Environmental Standards for Plantation Forestry (NES-PF) came into force in May 2018. Recent severe weather events have seen the NES-PF brought into the forefront as questions are asked about how it will help to mitigate damage caused by forestry slash. A key component here is the NES-PF's Erosion Susceptibility Classification (ESC) tool. This paper takes an in-depth look at the ESC, alongside other aspects of the NES-PF central to delivering its objective to maintain or improve environmental outcomes associated with plantation forestry activities.

Response to severe weather events

A recurring question asked when severe weather conditions damage forests, and in turn neighbouring terrain, through the transportation of slash and logs down waterways is how can we prevent this from happening again?

While there may not be a definitive answer to this question, considering the increase in severe weather events due to climate change, the introduction of the NES-PF provides a comprehensive regulatory environment which will better protect waterways and control slash,

decreasing the damage caused by commercial forestry operations during a severe weather event.

The NES-PF was developed to better protect the environment while also improving operational certainty for the forestry sector. Its objectives are to:

- Maintain or improve the environmental outcomes associated with managing plantation forestry activities nationally
- Increase efficiency and certainty in the management of plantation forestry activities under the Resource Management Act 1991.

Under the regulations most of the eight core forestry activities (afforestation, pruning and thinning to waste, earthworks, river crossings, forestry quarrying, harvesting, mechanical land preparation, and replanting) are permitted provided foresters meet specific conditions. If not, a resource consent is required. Examples of these conditions are:

- For afforestation – setbacks for tree planting from rivers, lakes and wetlands, coastal areas and significant natural areas. For example, afforestation may not occur within 5 m of a perennial river with a bankfull channel width of less than 3 m, or within 10 m of a

perennial river with a bankfull channel width of 3 m or more, or within 30 m of a coastal marine area

- For harvesting – managing slash and submitting a harvest plan (which outlines environmental risks and responses) to the regional council (if requested)
- For earthworks – requirement to install and maintain stormwater and sediment control measures.

At the heart of the NES-PF are three risk assessment tools which help determine whether consent is needed or not. These tools assess:

- The risk of wilding conifer spread – Wilding Tree Risk Calculator
- Erosion – Erosion Susceptibility Classification or ESC
- Disturbance of fish during spawning – Fish Spawning Indicator.

The ESC is a key component of the NES-PF and has the greatest bearing on mitigating the effects of severe weather conditions.

Erosion Susceptibility Classification – defining erosion risk

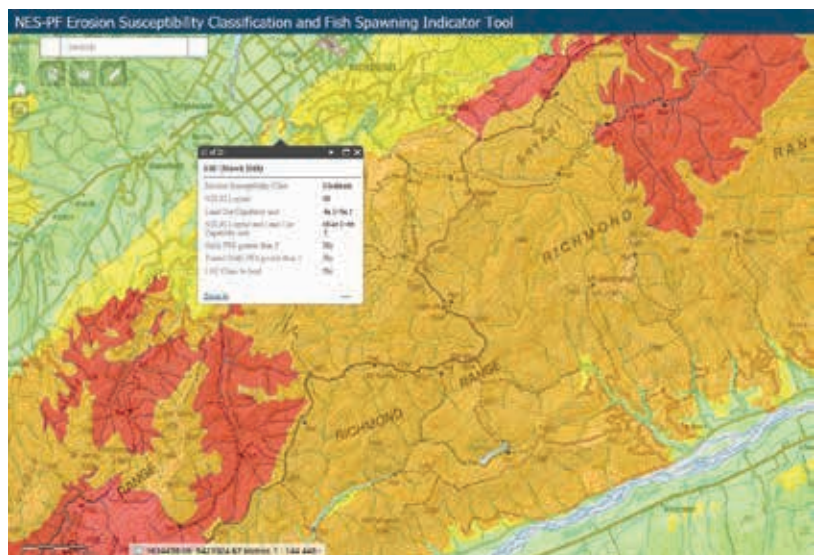
To develop the ESC, all land in New Zealand was assessed to determine its erosion risk for plantation forestry. The ESC tool divides the New Zealand landscape into four colour-coded erosion risk zones:

- Green (low) and yellow (moderate) is land less likely to erode. Here plantation forestry activities are permitted, subject to meeting certain conditions
- Orange (high risk) or red (very high risk) is land more likely to erode. Most forestry activities cannot be carried out on red-zoned land without resource consent. Some activities, such as earthworks, also require consent on orange-zoned land with steeper slopes.

Categories are based on the local topography, dominant erosion process (like wind or water) and rock type. The ESC has been fine-tuned throughout the development of the regulations to ensure the appropriate zone is applied to the land type. The ESC approach and design was developed by Bloomberg et al. in 2011. The authors recommended the four-class ESC based on the potential erosion severity values identified in the New Zealand Land Resource Inventory (NZLRI) and the Land Use Capability (LUC) database.

They then used data from 12 New Zealand catchments to ascertain the likelihood of rain storms severe enough to cause landslides during the four to seven-year period it takes for a forest replanted on clear felled land to develop a full canopy. This helped compare the plantation forestry risk profile to the original erosion risk profile of the LUC system, which was developed for pastoral farming. Using this information, the authors then produced maps and tables of the ESC using Geographic Information System (GIS) analysis to cross-reference the LUC system information to the forestry ESC risk.

In 2015, Te Uru Rākau commissioned Landcare Research to refine the original ESC to identify LUC



Screenshot from the ESC tool showing land classified green, yellow, orange and red zone in the Tasman area

units in the high and very high ESC classes that were misclassified or conservatively classified. Landcare Research was then asked to:

- Refine the ESC so it could be used to assess erosion risk associated with plantation forestry activities in the high and very high classes with more accuracy
- Provide descriptions of the revised classes within the high and very high ESC classes and the erosion risk for different forestry activities, so appropriate controls and conditions could be applied through the NES-PF to manage the effects of these activities.

Creating a best-fit erosion risk assessment tool

Improvements were made to the ESC prior to the Gazettal of the NES-PF in August 2017, and again for the Gazettal of the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018 in April 2018.

In 2016, Landcare completed work to refine the erosion risk assessment in orange and red classified land, particularly in relation to tertiary sediments. In 2017, further work was undertaken to:

- Refine the classification of LUC units on deeply weathered parent materials
- Extend the classification over the whole of mainland New Zealand
- Improve the mapping precision along river margins, lakes and the coast
- Create overlays to identify specific erosion processes and all Class 8e land.

Subsequent to the Gazettal of the NES-PF in August 2017, further anomalies in the ESC class of some LUC units were identified by foresters and regional council land managers. These anomalies were subject to expert review.

Expert review identified a specific adjustment to better reflect erosion risk in steep hillsides on strongly

consolidated marine sediments with skeletal soils. These soils cannot reliably hold a forest crop to maturity, due to soil slip erosion events when soil profiles become saturated in high intensity rainfall events. These slopes and soils are located in parts of Gisborne/East Coast, northern Hawke's Bay, eastern Bay of Plenty, the volcanic plateau and inland Whanganui regions, and required reclassification of specific LUC units to red (very high) risk classification.

Expert review also indicated the need for reassignment from red (very high) risk classification to orange (high) risk classification in areas of the Coromandel and the Nelson, Tasman and Marlborough regions.

The reassignment was needed due to an unintended consequence of grouping all LUC units on deeply weathered parent materials into the red (very high) classification. Known as 'over-risking', this was particularly relevant to the top of the South Island due to the characteristic of the South Island Extended Legend of the underlying NZLRI where several different geology, soil and erosion processes are amalgamated within individual LUC units.

Discussion with Landcare indicated that the most effective way to correct these latest anomalies and to better reflect the impacted lands erosion risk profiles was to revert to the Landcare ESC 2015 revision, with adjustments made to include the expert review and technical adjustments to the Department of Conservation estate and boundary refinements. These new ESC classifications were Gazetted as part of the 2018 amendments.

Adjusting the ESC classification on a case-by-case basis

The ESC, at a 1:50,000 scale, provides a screening tool to assess the risk of erosion in particular forest holdings. Te Uru Rākau recognises that applying the ESC data to the specific requirements of the NES-PF may bring about local issues that require adjustment to the ESC to improve its accuracy.

At an operational level, the ESC must be reinterpreted to the 'no less than 1:10,000' scale as required by Schedule 3 Clause 2a of the NES-PF. The 1:10,000 scale provides for a much more fine-grained assessment of the full range of management factors that will need to be taken into account for foresters planning their operations and council staff considering the need for any consent conditions.

Expert advice can be called on to help with this fine-grained assessment. Foresters, if needed, can seek the expertise of a forestry contractor or their local council to assist with reinterpreting their ESC information from the 1:50,000 scale to the 1:10,000 scale required by the NES-PF. Occasionally this reinterpretation process may uncover an ESC classification that needs to be reviewed. Te Uru Rākau has a process in place for reviewing the ESC classification of an area of land on a case-by-case basis.

Requests submitted for reassessment and adjustment to the ESC will potentially include:

- New mapping provided by forest companies, landowners or any other party, including councils

- Requests for the reclassification of existing LUC units
- Definition of new LUC units, and their ESC, recognised at detailed mapping scales.

The proposed five-step process for reclassification is:

1. **Initiation** – forest company, landowner or other party advises Te Uru Rākau via the info@mpi.govt.nz inbox of an intention to request changes to the ESC.
2. **Field mapping** – the initiator instructs a suitably competent and experienced person to document the basis for reclassification of a LUC unit, or to provide detailed LUC/ESC mapping for a designated area. Detailed mapping would be required to include linework, resource inventory, LUC unit description, potential erosion assessment and ESC class consistent with the guidelines provided in Section 4 of the Lynn et al. 2009 *LUC Handbook* (3rd Edition). While for operational purposes field mapping will likely be completed at a larger scale, proposed revisions to the ESC will require polygonal simplification for application at the 1:50,000 scale.
3. **Quality assurance** – the detailed mapping is subject to quality assurance by Landcare Research, as custodian of the NZLRI and the LUC classification



Land Use Capability (LUC) training in the Hawke's Bay – the data that the ESC relies on to classify land is taken from the LUC classification



The NES-PF regulates eight forestry activities including mechanical land preparation

system, to ensure all the necessary data is supplied and to maintain national consistency and standards in land resource inventory mapping, LUC unit assignment and the maintenance of the ESC class.

4. **Approval** – subject to satisfactory quality assurance, Te Uru Rākau approves the requested changes and adjustments to the ESC.
5. **Incorporation and Gazettal** – Te Uru Rākau actions the incorporation of all approved changes to the ESC, which are then approved by the Minister for the Environment.

To ensure the integrity of the ESC, national consistency is required to any and all changes through Ministerial approval and incorporation by reference (Schedule 1AA of the Resource Management Act 1991 enables written material to be incorporated into a national environmental standard in whole or in part and this material has legal effect as part of the standard). New or replaced material will be made available to the public after the Minister approves and authorises a notice in the *Gazette*.

More information on the ESC, including links to the tool and access to the downloadable ESC database, can be found at: www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/erosion-susceptibility-classification/.

Providing for the greatest degree of protection

There are some locations that require a greater degree of protection than is provided for in the regulations. For this reason, the NES-PF (Regulation 6) allows regional and district councils to enact stricter rules in relation to significant natural areas, outstanding natural features and landscapes, specified geographical areas and sensitive receiving environments. Where these stricter rules apply, they are clearly articulated in council plans.

For example, under the NES-PF, the Tasman District Council can enact stricter rules on land with Separation Point Granite (SPG) soils (a strip of extremely erodible granitic bedrock about 10 km wide that extends for more than 100 km from Separation Point in Abel Tasman National Park to Mt Murchison). The majority of slips that occurred in February when ex-Tropical Cyclone Gita passed through the region were on this land.

The 2018 amendments included the reclassification of the SPG soils in the Tasman region as high risk (orange zone). In the 2017 version these were very high risk (red zone). Under the NES-PF (Regulation 6(3)(a)) council plan rules managing activities in any green, yellow or orange zone land containing SPG soils can be more stringent than the NES-PF. A local rule can also be stricter than the NES-PF if needed to give effect to the National Policy of Freshwater Management or the New Zealand Coastal Policy Statement.

Foresters, if needed, can contact their local councils for more information on whether stricter rules apply to their land.

Guidance on the NES-PF for councils and foresters

To help ensure the NES-PF is correctly implemented Te Uru Rākau have developed three guides which help both councils and foresters through the different aspects of the NES-PF:

NES-PF user guide

The user guide is the primary guidance to help councils and foresters interpret the regulations. It includes an overview of the NES-PF, as well as detailed information on the plantation forestry activities regulated under the NES-PF.

Plan alignment guide

This guidance helps councils align their plans with the NES-PF and it includes information on:

- How to identify rules that conflict with or duplicate the NES-PF
- How to remove that conflict or duplication
- When plan rules may be more stringent than the NES-PF.

NES-PF consenting and compliance guide

This provides operational guidance for councils and foresters on specific aspects of the NES-PF, such as compliance monitoring and management plans.

The guides can be downloaded from: www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/nepf-guidance/.

Further information

For more information on the NES-PF visit: www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/.

For more information on the ESC visit: www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/erosion-susceptibility-classification/.

References

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