Sound environmental management is good business

CAWTHRON MARLBOROUGH ENVIRONMENT AWARDS 2023

Sponsored by Top of the South WOOD COUNCIL

# JUDGES' REPORT

## FORESTRY

## M&R FORESTLAND MANAGEMENT

| | |
|---|---|
| **INTERVIEWED** | Anna Batty and Paddy Wilkins (M&R) and Kim Carter (Kelly Logging) |
| **DATE** | 25 November 2022 |
| **JUDGES** | Rob Miller, Andrew Wiltshire and Wendy Sullivan |

### INTRODUCTION

M&R Forestland Management worked with contractors Kelly Logging to harvest Canantor Forest in the Wakamarina Valley. The project showcases the planning, collaboration, and adaptive management between the two parties to maximise riparian protection during harvest. Careful planning and collaboration with the logging operators resulted in increased awareness of freshwater values and a desire to produce good environmental outcomes. The teamwork meant that all tools were considered and utilised, there was active communication throughout the process and operations were adapted when necessary.

While still too early to confirm long-term impacts, the harvest operation minimised immediate impact on the streams.

The greater ecological awareness shown at Canantor is also being applied by M&R and their contractors at other forests under their management.

## GENERAL INFORMATION

Canantor Forest is located on the east side of Wakamarina River. The property contains two tributaries - Mapps Creek and Fuller Creek. Fuller Creek is a fish spawning habitat for brown trout and kōaro. The native kōaro is classified as At Risk: Declining, and requires cool, forested streams.

The forest is steep with incised gullies and bluffs and high rainfall (1600-1800 mm/yr).
The National Environmental Standard for Plantation Forestry maps the erosion susceptibility as being high, so erosion and sedimentation of the streams during harvest are significant risks.

M&R Forestland Management were contracted in 2018 by the landowners to plan and manage the harvest. M&R contracted Kelly Logging to undertake the harvest, which started in 2021. The harvest is not yet complete. The judges assessed the area harvested to date which was completed in June 2022.

M&R have a clear operational process of Plan-Do-Check-Act. Their approach included careful planning and consultation ahead of harvesting to find the most effective harvesting method for the site, buy-in from all those involved in harvesting, implementation of the planned approach with adaptation where necessary and careful monitoring of results including streambed monitoring of sedimentation and stream health.

The logging method used mechanised, tethered felling machines (ClimbMAX Harvesters) which fell and bunch the logs on steep slopes - improving efficiency and worker safety. High stumps were left near the streams to hold the logs.

M&R decided against the traditional fixed skyline or high lead tower systems and used a smaller scale system using swing yarders. This logging method reduced the size and impact of tower sites, log storage areas and slash piles thus reducing soil damage and risk of erosion. Off-road trucks were also used to minimise soil disturbance.

Logs were dragged away from, or if necessary, cut to size and lifted over streams, to avoid dragging logs through the riparian margins and streams.

M&R's freshwater ecologist Anna Batty was involved in the operation and provided advice throughout. Some monitoring before and during harvest was undertaken; sites were located downstream of harvest in each stream. This involved monitoring deposited fine sediment (< 2 mm) along transects using an underwater viewer, undertaking Rapid Health Assessments, and recording turbidity, macroinvertebrates, phosphorus and nitrate levels. It's too soon for extensive post-harvest results, however M&R report that the results to date have shown no change in water quality due to harvesting.

## THE JUDGES WERE IMPRESSED BY:

- The harvesting and roading plan had been well implemented. The roads were well designed with good drainage and water management. The judges saw no evidence of significant soil disturbance or soil erosion despite there being a major storm event within months of logging. In contrast, other logging areas nearby showed significantly more adverse environmental damage
- The use of a portable swing yarder with a smaller footprint reduced the need for extensive roading, tracking, skid sites and landings which are the main source of sediment in harvesting operations
- The spread of slash meant there was less risk of debris flow to waterways and will armour the soil from erosion and add nutrients to the soils.
- The employment of freshwater ecologist Anna Batty to help with planning and environmental monitoring. This is reported to be a first for harvesting operations in NZ. Anna had been employed primarily to audit compliance, however a stand-out feature to the judges was the level of education and increased awareness of freshwater values and mitigation she provided within both M&R and Kelly Logging teams
- The applicant's collaborative approach between the planners and logging supervisors resulted in a change in techniques to reduce the impact on the environment. This collaboration resulted in a clear understanding of the environmental goals and subsequently a genuine desire to achieve the best outcome for the environment.

## PROBLEMS AND HOW THEY HAVE BEEN TACKLED

- Terrain: The forest has very steep slopes with incised gullies and waterways. M&R used smaller scale swing yarders to reduce the size and impact of tower sites, log storage areas and slash piles thus reducing soil damage and risk of erosion.
- Lack of setbacks: The legacy of many plantation forests is a lack of adequate setbacks to protect streams and riparian margins, with trees planted right to stream edges, as is the case with this forest in the upper areas visited. M&R used a combination of machine falling, manual falling, and cable harvesting to fell away from riparian areas to avoid logs being dragged across streams.

## SUMMARY

M&R Forest Management and their contractors focused on using skilled technical advisors and an adaptive management approach while harvesting a highly erodible, steeply sloped forest, to overcome the risk to streams that had minimal riparian setbacks.

Strong communication and a willingness to use different felling techniques according to site and weather conditions has resulted in minimising soil erosion and damage to riparian margins and streambeds.

M&R continue to apply and enhance best practice in harvesting, roading, freshwater protection, and in sharing their environmental with contractors and landowners. This should have a positive influence outside their organisation.

Continuing to apply an environmental lens to planning and operational work will contribute to positive step-change for the forestry industry.

## SUGGESTIONS

- Soil fill along the edge of the logging roads is a critical source of sedimentation and at risk of erosion during storm events. This should be either removed as soon as possible using end haul cartage or sprayed with a hydroseed mulch to help bind it and protect the road edges from erosion.
- Environmental protection measures for the logged areas should be completed before further logging on this site is continued.
- The judges believe smaller coupe sizes would minimise soil erosion and debris flow. This operation was originally intended to be completed in one continuous harvest, but has been interrupted due to log markets. Smaller areas of contiguous clearcut land could be part of future intentional planning.
- While the judges acknowledged the restraints due to pre-harvest timeframes, it is recommended future monitoring of streams follows the BACI design (before, after, control, impact) to effectively measure natural and harvest induced impacts. This will allow continuous improvement as well as showcasing the environmental benefits of adaptive management practices.
- Engagement with local communities, forestry companies and contractors of the results of the harvesting approach in this example would help build awareness of improved environmental practice techniques. This could include:
    - Sharing results to the wider catchment via the Te Hoiere Project.
    - If results are clearly conclusive once harvesting is completed, an article in the NZ Journal of Forestry would help build professional awareness.
    - Approach the Marlborough Landscape Group (via the Group's forestry representative Siobhan Allen). They are keen to publicise examples of good landscape practice.
- Despite the native vegetation left in the gully, the stream is still exposed to sedimentation and lack of shading. This could result in effectively imposing a 'fish barrier' to the public conservation land above. In light of the difficulty in revegetating the riparian areas after harvesting, we recommend future operations leave wider riparian strips with existing vegetation. These riparian protection zones should be up a minimum of 5-10 m either side of the streams (in keeping with the afforestation setbacks for streams in the NES). Pine trees within these areas should be left standing but treated with herbicide in a "drill and fill" approach so as to kill the trees and let them die and slowly break-down over time. Over spraying using aircraft should be avoided as this is likely to affect native riparian vegetation.