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JUDGES' REPORT

FORESTRY

PF OLSEN MALVERN HILLS PROJECT

INTERVIEWED

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JUDGES

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INTRODUCTION

In 2021 Malvern Hills, a 1165 ha sheep and beef station in the Avon Valley, South Marlborough, was purchased for rotational forestry and carbon credits. The owner engaged forestry management company PF Olsen to undertake the afforestation of the property.

Malvern Hills had been a traditional dry stock farm. The property is bisected by the Avon River and has numerous permanent and intermittent tributaries throughout. The property abuts public conservation land and contains a QEII covenant. Prior to purchase, vegetation comprised of indigenous forest, shrubland, small areas of plantation forest and amenity tree plantings, wetlands and exotic grassland.



PF Olsen are establishing a rotational forest that meets the goals of timber production and carbon sequestration, while maintaining and enhancing indigenous flora and fauna. The judges applaud the way the project's protection efforts and mitigation measures go beyond regulatory

requirements. Nearly 12 percent of the plantable area has been set aside as reserve, making a total of 351 ha of reserves on the property.

GENERAL INFORMATION

To determine the ecological values and potential ecological impacts of the conversion and to support the planning process, PF Olsen engaged Wildlands Consultants to undertake an assessment of the property.

The resulting report found that there are nine different indigenous vegetation types providing habitat for at least four Threatened or At-Risk plant species. The site also provides habitat for at least two At-Risk lizard species and potential habitat for up to six lizard species including the rough gecko (*Naultinus rudis*) that is classified as Nationally Endangered and found only in North Canterbury and South Marlborough.

Eleven indigenous bird species were recorded during the site visit including kārearea/eastern falcon, which is classified as Nationally Vulnerable.

Wildlands reported that:

“Afforestation as originally proposed would reduce the area of the existing indigenous habitat types. Fuchsia and narrow-leaved mahoe forest and wharariki-rarauhe fernland would be entirely removed. Coprosma-matagouri-kānuka shrubland and rock tor shrubland habitats would be reduced in size by more than 60%. Almost half of the kānuka forest and Carex sedgeland habitat would be displaced. Further, mixed habitat types with substantial indigenous components that would be displaced over 90% of their area include kānuka treeland-exotic grassland and desiccated kānuka forest treeland/exotic grassland.”

To avoid impacting the habitat and biodiversity values identified by Wildlands, PF Olsen developed an afforestation plan that aimed to maximise the plantable area and economic return while selecting appropriate planting sites. 667 ha of the 1165 ha property were identified as appropriate for plantations (14ha was existing plantation).

Aligning with the mitigation measures proposed by Wildlands, PF Olsen set aside 75.4 ha of representative areas of indigenous habitat as ‘reserve areas’. These were designed to include as many of the ecologically significant areas as practicable. Areas included a buffer to avoid shading impact on the indigenous vegetation and rocky tors, and to ensure the reserves would not be compromised or destroyed during harvest.

Habitat corridors linking the reserve areas to each other and adjacent conservation land were established to avoid fragmentation of habitats and enable wildlife to migrate between reserves. Riparian margins were set at 10m to avoid shading of waterways and future damage and sedimentation at harvest.

The sites identified as appropriate for forestry included significant areas of open exotic pasture, scattered indigenous vegetation where vegetation removal was not required, and 320 ha where vegetation with low ecological value needed to be cleared under resource consent.



Land preparation prior to planting was done with the goal of minimising impact on the site. Where the slope was too steep, land preparation was restricted to line cutting and planting within existing vegetation. Otherwise, where appropriate and sedimentation into waterways wasn't an issue, mechanical land preparation using slash raking was undertaken.

The property was planted over two successive winters. For releasing plants from weeds, deer damage to the first-year planting necessitated aerial spraying on one large hill slope, but the rest of the planted area was spot sprayed only, to reduce chemical use. Large buffer zones around the wetland pockets were left unsprayed.

A pest control plan was established to protect the plantation from ungulate browse during forest establishment; this also protects and enhances the regeneration of native habitat in the reserves. To date more than 2000 deer, goats and pigs have been eradicated from the property. Future plans include possum and wasp control.

Additionally, a small semi-mature plantation of Douglas Fir was harvested to reduce the chance of wilding conifer spread in the area.

As a member of the NZ Forest Owners Association, PF Olsen is bound by the 1991 NZ Forest Accord which prevents clearance of emerging indigenous forest in excess of 5 ha or established indigenous forest of 1-5 ha taller than 6 m which is practical to protect.

THE JUDGES WERE IMPRESSED BY:

- The comprehensive assessment of environmental effects and desired outcomes prior to planting.
- The reservation of nearly 12 percent of the plantable area which could otherwise have been planted to generate commercial returns.
- Planning the location of reserves and corridors to avoid future damage from harvesting.
- Adopting the suggested recommendations from Wildlands to protect lizard habitat, including applying a 30 m buffer around rock tors. Leaving grassy connecting corridors to enable lizards to move between habitats and avoid leaving ecologically isolated 'islands.'
- Extended setbacks from waterways and wetland areas when planting to avoid shading and keeping connected with public conservation land via riparian margins and wildlife corridors. This will also provide greater protection from sedimentation at time of harvest. A 10-metre buffer is well beyond the 5 metre requirement under the NES-PF for ephemeral streams less than 3 metres wide.
- Avoiding the use of slash raking/mechanical preparation to clear land on steep slopes and land adjoining wetlands and waterways. This reduces the risk of erosion and sedimentation.
- An extensive pest control programme to reduce damage to native revegetation as well as newly planted pines.
- Clearing a small plantation area of existing Douglas fir which is a high-risk species for wilding tree spread.
- PF Olsen advised that the environmental planning and implementation processes used to establish this forest would be used in their other operations around NZ.



PROBLEMS AND HOW THEY HAVE BEEN TACKLED

- Finding a balance between competing goals of maximising economic return through plantable areas and protecting biodiversity that had been identified on-site. PF Olsen spent considerable time with both Wildlands and the property owner to ensure that each party appreciated the recommendations and requirements of the other.
- Deer numbers and resulting damage to seedlings. The company has invested in using highly skilled contractors to control deer numbers.

SUMMARY

Malvern Hills Station was purchased for carbon and timber investment. In recognising the ecological values of the area, and the desire to produce timber with a low environmental footprint, PF Olsen sought advice from Wildlands Consultants.

The resulting mitigation measures put in place go beyond regulatory requirements from NES-PF guidelines and resource consent processes. It is evident that the underlying ethos of environmental protection and enhancing biodiversity at PF Olsen is genuine and entrenched in the planning and future management of this project. They intend to apply this more widely in other forests.

The project demonstrates that there can be a balance in utilising an area for economic gain while ensuring high ecological values are retained. Ongoing protection measures will assist with enhancing biodiversity of this area into the future.

The process of establishing reserves, wildlife corridors and extended riparian margins will have a widespread benefit if they apply this knowledge to future projects elsewhere, as intended.

SUGGESTIONS

- Prepare an Environmental Plan outlining goals, actions and milestones to assist management over the life of the plantation. Include actions such as weed and pest control and monitoring and harvest planning. Capturing the desired outcomes and work to date will also be useful at time of harvest, to ensure the intent of the environmental goals are maintained. The judges recommend that future projects have an Environmental Plan prepared pre-planting.
- Set up a monitoring programme to measure indigenous regeneration success over time. Quantitative evidence is a powerful way of educating others as well as identifying where additional management may be needed. Include:
 - Photopoints of reserves, wetlands and riparian margins. A useful resource on setting up photopoints can be found at NZ Plant Conservation Network.
 - Lizard surveys of tors and wildlife corridors every 3-5 years, or as recommended by a reputable ecologist.
 - Record falcon sightings on <https://ebird.org/home>.
- Connect with the Avon Valley Catchment Group. Catchment groups are a great way to share ideas and resources and enhance the catchment at a landscape scale. The AVCG is already undertaking water quality monitoring and riparian weed control and it may be of value to both parties to share ideas and extend the programmes into Malvern Hills. Consider hosting a field trip or presentation to catchment group members to showcase work to date and build relationships within the community.

- Continue with ungulate, possum and wasp control beyond the establishment phase of the plantation forest, to protect the riparian areas and reserves. Keep records of numbers and effort to monitor trends over time.
- Seek advice regarding feasibility of willow control along the river margins. Crack and grey willow are known to detrimentally impact on flow, sedimentation, and fish habitat.
- Promote the project through media articles or professional journals such as the NZIF's Journal of Forestry as an example of positive environment management. This will help build industry awareness and improve standards as well as public awareness and social licence.