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CAWTHRON MARLBOROUGH ENVIRONMENT AWARDS 2023

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JUDGES' REPORT

LANDSCAPE & HABITAT

NIKAU FOREST

INTERVIEWED	Ket Bradshaw and Russell Jackson
DATE	8 December 2022
JUDGES	Chris Beech, Dave Hayes and Wendy Sullivan

INTRODUCTION

Nikau Forest in Kaituna is owned by Ket Bradshaw and contains rotational forest plantations of mixed species, grazing land and a 2ha wetland.

The wetland was classified as "Significant" by Marlborough District Council in 2013 and Ket was actively planting it with various species including kahikatea. However, the 2015 the Onamalutu fire caused significant damage to the plantation forestry and most of the wetland's natural vegetation cover and all its plantings were lost.

In the seven years after the fire there has been impressive natural regeneration of the wetland. Restoration activities have concentrated on intensive woody weed control and allowing natural regrowth of wetland species. While devastating, the fire has given Ket an opportunity to rethink the strategy for managing the surrounding land and restoring the wetland.

GENERAL INFORMATION

Nikau Forest is a 45 ha property on Lamberts Road near the Northbank of the Wairau River.

The property was primarily planted in plantation forests in the mid 1980s, with the lower flats retained in grazing (sheep) and wetland.

The wetland is approximately 2 ha in the bottom of the valley and is fed by springs, surface run-off and a number of side creeks. The side creeks have retained native vegetation cover, with some planting undertaken.

The outlet stream of the wetland, "the canal", has been historically straightened and realigned. It is currently choked with woody weeds and vines but also contains a mix of native species.

The Onamalutu fire destroyed approx 600ha of plantation forest on the property and surrounding area. The wetland was significantly burnt leaving only flax and *Carex secta* stumps.

Damaged plantations (*Cupressus lusitanica*, Douglas fir, *Eucalyptus regans*, and *Pinus radiata*) had to be prematurely harvested in autumn and winter due to the deteriorating quality of timber. This resulted in a significant amount of sediment washing into the wetland.

C. lusitanica and Eucalyptus regans plantations have self-seeded since the fire, and the resulting thicket is now being managed for timber production but they are also spreading throughout the grazing land, other plantations and side creeks. Alder, willow, hawthorn, Tasmanian blackwood, gorse and blackberry are also rampant in the outlet stream and side creeks, with control measures instigated as and when time and labour permit. The wetland itself is largely weed free, the most obvious weed being Himalayan honeysuckle.

Since the fire, Ket has planted permanent plantations of *Pinus pinea* (pine nut) and undertaken a joint venture for Dryland Eucalypt trials. Pine nuts were chosen as a standing crop because Ket was uncomfortable with the impact of sedimentation on the wetland resulting from harvest practices.

The wetlands have been left to naturally regenerate and now have a dense cover of primarily flax, raupo and *Carex* spp. Manuka is self-sowing along the dry margins.

A significant amount of effort has gone into woody weed control, initially concentrating on the pine nut plantations, and then in the wetland and side creeks. Work has now started along the outlet stream.

Ket has recently developed a mountain bike track through one of the plantations and plans to open it for community use.

Ket stated that the amount of weed control after the fire put her into 'survival mode'. Now that the pine nuts are established she can look towards restoration. Ket's goals are to re-wet the wetland/valley floor from 2 ha to 15 ha with the potential bonus of carbon sequestration, extend the native forest cover in the side creeks, undertake possum and stoat control, and involve the community in the restoration.

THE JUDGES WERE IMPRESSED BY:

- Ket's resilience after the catastrophe of the fire; she was able to reassess appropriate land use, assess the impacts from previous harvest practices and implement solutions such as planting pine nuts to avoid clear-felling and the accompanying soil disturbance.
- The amount of weed control that has occurred to date. Ket and Russell have developed a clear list of priority weed species and locations, implemented buffers and are steadily working across the property.
- Use of drill and fill weed control techniques to reduce impact of weed removal from steep slopes and wetlands.
- Managing wilding lusitanica and Eucalyptus regans to create an opportunity from a problem.
- Genuine commitment and passion for the property shown by silviculturist Russell, who shares a sense of ownership of the project.

PROBLEMS AND HOW THEY HAVE BEEN TACKLED

- The exacerbation of weeds resulting from the fire has been responded to a variety of low impact weed control techniques: drill and fill, cut and paste, hand pulling and grazing.
- Pacing the restoration of the land: Prioritising workload and balancing land use needs with restoration and working with what is there.

SUMMARY

Nikau Forest is an excellent example of incorporating land management practices that are sympathetic to indigenous biodiversity and threatened ecosystems.

The natural regeneration of the wetland has been impressive. By focusing on woody weed control, Ket has aided regeneration, while setting a manageable restoration target.

A stand-out feature of the project was the high value placed on the wetland and ensuring that the property is managed to protect and enhance the wetland from surrounding land use.

SUGGESTIONS

- There needs to be a clear goal for restoration: what are you aiming to restore – permanent wetland, ephemeral wetland, open and/or flowing water?
- Develop a wetland restoration plan including the wetland type, past and current hydrological factors. This information will assist in setting the restoration goal and

objectives, guide restoration activities and set timeframes that are manageable. A useful template is the Wetland Plan Template.

- Use MDC Historic Maps 1957-1964 to have an understanding of the earlier footprint of the wetland and placement of the outlet stream.
- The judges agree that re-wetting the wetland will allow wetland plants to naturally regenerate, help exclude some weed species and extend the area of wetland habitat. This would need to be done by renaturalising the outlet drain to slow the flow and raise the water table. It is recommended that suitable expertise is sought to ensure the ecological requirements of the outlet are considered. Advice could be sought from NZ Landcare Trust national team, and/or DOC's wetland advisor Hugh Robertson based in Nelson. A useful resource is NZLT's Enhancing drainage ditches webinar.
- Remove Himalayan honeysuckle from the wetland area. Himalayan honeysuckle grows rapidly to produce dense thickets that replace and exclude other species. In the wetland environment it is unlikely to get shaded out.
- Continue to drill and fill the exotic trees and weeds within and adjacent to the outlet stream.
- With the removal of exotic species along the outlet stream, ensure adequate vegetation cover is planted to maintain shade, cool water temperature and provide habitat for aquatic life. Natural regeneration will occur as there are existing seed sources, but acceleration by planting robust species such as Carex secta and flax may be necessary in some places. Resumed planting of kahikatea for shady habitat would be desirable, especially given past experience of how these thrived.
- Continue to remove woody weed species from the side creeks. Plant with trees that will eventually provide shade to outcompete weed species. Refer to DOC's Northbank Plant List.
- Progress site security. Investigate QEII, MDC or DOC covenants. This will provide long-term security if the property changes hands and provide some financial and professional support.
- Seek out like-minded landowners in wetland restoration and host a workshop on the property. Include neighbours to try to develop a catchment-wide approach.
- Future rat and mustelid control will be necessary if a mix of ecosystems are developed and inhabited by their characteristic birds, for example ducks in open water, bittern in raupo, fern birds in adjacent shrublands, and pukeko.