

Hurunui Biodiversity native shrubland field day notes, held on the 25th of May.

- *Notes by Shawn Nicholls, HBT Coordinator.*
- *Disclaimer: All notes have been taken under my interpretation and are subject to misinterpretations or misunderstandings.*

Chris, Jane & Jim Earl's Operation (Own and farm the property in Scargill, where the QEII covenant lies)

- The farm lies between historic Stoneyhurst & Glenmark stations.
- Sold in 1863 to Greta Peaks, the property has had various owners since.
- The land holding the covenant is a recent addition 5 years ago.
- 3km to Waipara.
- The Scargill creeks runs through 1km of the farm - essential for stock water.
- Minimal grazing is done around the creek, much of it has been fenced off for protection.
- Most of the hillsides were sprayed in 2010 - took out much of the existing Shrub.
- Cleared the gullies as they provided the most nutrient rich soils for stock.
- Farm has been prone to many different weeds (most notably Old Man's beard)
- Left the dry faces/ridges of shrub; cleared out the rich soil country that provide productive yield.
- Most extensive grazing is done in the springtime.

Duncan Murrays Operation (Farmer of the adjacent farm which includes a section of the QEII covenant)

- Runs a similar operation.
- Sprayed last Autumn.
- Focused on the gullies where the deep soils lay (most productive).
- Leaves the dry nobs for the native shrub as these provide little grazing value.
- Believes its all about getting the balance right (protection / productivity)

Miles Giller (From QEII Trust)

- 3 years ago, Miles saw a potential to protect this piece of land.
- Creek is an essential component for the covenant.
- 2 Covenants with different ownerships.
- Assistance from ECAN in terms of funding for the protection.
- Goal was to protect this dry shrub land area and remnants of native forest.
- High biodiversity values in this covenant.
- Species such as Kanuka, Manuka, Prostrate Kowhai, Coprosma and Mahoe are present.
- Presence of a rare native mistletoe
- Highly threatened species within the covenant.
- Full of ecological values.

- Restrictions?
 - Fencing off from browsers.
 - Counter intuitively, no browsing can do just as much harm as over grazing, must find that symbiotic balance. No grazing allows significant growth of weeds and becomes evasive for natives and perennial grasses. Can smother seedlings and restrict new growth from being established.
 - Graze lightly with sheep only.
 - Reduce chemical sprays as much as possible.
 - Try to revert the land back closer to its pre-human state.
 - Never be able to get full recovery because of lack of native seedlings.
 - Must take extra care of what we have remaining.

Larry Burrows (Research Associate: Ecosystems & Conservation - Manaaki Whenua Landcare Research)

- Works mostly in bush and forest restoration as opposed to shrub restoration
- Dry regions host a significant amount of biodiversity.
- Drylands are the rain shadow areas, meaning they get what ever is left over from frontal systems.
- 17% of drylands have native plants.
- 1.7% in restoration of some sort.
- A diverse species of fauna present (birds, insects, and lizards).
- The gullies and/or wetter areas would have been native forests prior.
- The North/West facing slopes would have changed the least since the arrival of humans because of the harsh dry environments.
- Many introduced exotic grasses throughout the area.

Susan Wisler (Senior Researcher: Ecosystems & Conservation - Manaaki Whenua Landcare Research)

- Originally from the USA.
- Plant ecologist.
- Examines and defines ecosystems that are naturally uncommon.
- Emphasis on the balance of protection vs productivity.
- Lots of interesting shrubs throughout this covenant that may tell us about the past (relics that we can learn from).
- Ecology of divaricating shrubs (entangling branches) is a very rare phenomena throughout the world; still unclear as to why shrubs in New Zealand do this, some think it's a natural adaptation to protect itself against browsing animals.
- Food sources for many so can host a wide range of fauna.
- Important to understand the origins of many of these species.

Jaime McFadden (Hurunui Natives)

- Saw this place as a very special place and thought it was worth protecting.
- Asked for the support of the QEII trust.
- 50 years ago, there were very few shrubs due to clearing.
- 30 years later, through management, has recovered and continuing to expand.
- Rare and unusual shrubs throughout the covenant such as mahoe and mistletoe.
- Landowners have little understanding of what shrub lands are and the value that they hold, the wide range of different shrubs and the complexities that come with every species.
- Calling them “grey shrub” is really underestimating their worth for the environment.
- Spraying options: Metsulphuron on excessive matagouri (kills gorse as well but kinder to large leaved trees and shrubs), Tordon on broom, Muehlenbeckia australis - but kills most things.
- Suggests not to spray dry, exposed ridges as they offer little value for grazing and are generally low productive land.
- Rocky ridges keep clear (valuable habitats)
- Refer to experts before you begin a spraying operation as some sprays focus specific flora, so understanding your objective when it comes to spraying is vital.
- Must be selective and/or meticulous with removal operations especially in gullies that run onto nearby waterways.
- Two Nitrogen fixating shrubs, Matagouri and Kowhai.
- Matagouri is a hot topic in the Hurunui region as farmers are always battling to keep it under control.
- Must find a balance of population as they hold much value being a nitrogen fixer, but also hosting a parasitical fly that kills grass grub.
- Planting in dryer zones is getting much harder due to prolonged drought seasons, instead looking after what you have already got is paramount.
- More common to plant wetland and riparian species as their success rate is substantially higher.
- Essential to monitor weed and pests when carrying out a planting project.
- Working out a “planting plan” is high encouraged.
- You must understand your intentions and what you’re wanting to achieve then pick your plants accordingly.
- Generally planting in covenants is a last resort effort if natural regeneration isn’t happening due to lack of seed source.

John Holmes (Hurunui District Landcare Group)

- The group is farmer driven.
- Help farmers get up to speed with the latest regulations and rules coming through.
- Regulations effect every farm differently so HDLG help decipher how it will affect your operation.
- HDLG do this by running workshops on various matters such as biodiversity, carbon sequestration etc.
- Riparian and forest restoration funding is currently open for applications.
- Visit HDLG website for more info <https://hurunuilandcaregroup.co.nz/>

Additional notes from all speakers

Carbon sequestration

- Best overall carbon absorbers are natives, although they're slow growing they have no commercial use, so they are a permanent carbon reservoir.
- In comparison with pine trees which are fast sequestrators, but since they have so much commercial use their carbon is rapidly put back into the system. This means that ultimately natives are better at absorbing carbon (long term investment) but when you're running a business, pines are both financial and ethical in terms of the environment (short term investment).
- A pine forest will sequester 16 years of carbon as a net amount. This is the period of most growth, but after 3 rotations of harvest & plantings much carbon is lost due to external factors like machinery use and transport, also branch and root decay, and disturbance of soils. Then there's the product end use life span – so 16 years net.
- Pines are a short-term remedy; native shrublands/forests are permanent.
- Wood composition is 50% water and 50% carbon
- In a forest most biomass is in the base of the trunks
- In an area of shrub land less woody material so an overall lower biomass

Weeds

- Exotic grasses are one of the main weeds within the covenant
- Sweet briar (briar rose)
- Hawthorn
- Elderberry can also become problematic.

How much Cost and effort?

- There is no definitive answer to this because every situation is different depending on what you're wanting to achieve and due to your environment.
- Therefore, some projects might be easy and cheap, while others are expensive and demanding.
- Really all depends on your weed control, if you can keep it maintained then you will reduce your labour significantly
- If you collaborate with the QEII trust, you as the landowner have full responsibility for weeds but QEII trust will fund support to help.

- Grazing management in covenanted or protected areas; it is important to find the balance between over grazing and under grazing, as certain plants can become overgrown and have adverse effects on surrounding habitats.
- Covenants always need management and attention to be successful.
- Funding options out there, such as QEII trust, ECAN, HDLG.

Planting & Spraying

- Before undertaking any amount of clearing land through spraying or burning run it past an expert first before going ahead.
- Currently land with bio rich environments are being cleared or planted in pines, due to little understanding of the values of the current cover.
- Planting should focus on wetlands/riparian areas as the success rate is much higher here, especially in these drier times.
- Creating a planting plan is recommended; observe the area you are wanting to plant and create a planting strategy from there with emphasis on understanding your environment. Have an expert look over your plan.
- With more regulations coming and becoming finalized, there is still a lot of uncertainty in terms of land management options at this moment.
 - Thus, an especially important time to understand what is going on your farm biologically and environmentally.
- Must be very vigilant when performing operations.

Pests

- Few deer through the area of Scargill, but it does not take many to do a lot of damage.
- In areas of high deer population, they are becoming a massive problem.
- Some funding programs are now looking into funding deer fencing within protected areas.
- Goats, possums, and rabbits can also be a problem.
- Trapping/culling - good option and can get funding for this.

Main findings for me

- Comprehensively understand your land's environment and the habitats that embody it, but also understand what your intentions are and what you are trying to achieve. If you can perform this everything will become a lot easier.
- The idea of protection versus productivity is also key to success; must look for the "sweet spot" between having a healthy diverse eco-system alongside rich, productive grazing land.

Native Plants found through the region.



Corokia Cotoneaster



Hard Tussock



Kanuka



Manuka



Matagouri



Mingimingi



Muehlenbeckia Astonii



Muehlenbeckia Complexa



Tree Daisy



Olearia Lineata



Porcupine Shrub



Prostrate Kowhai



Native Broom (carmichaelia)



Coprosma Crassifolia



Coprosma Virescens



Silver Tussock



Yellow Shrub Daisy