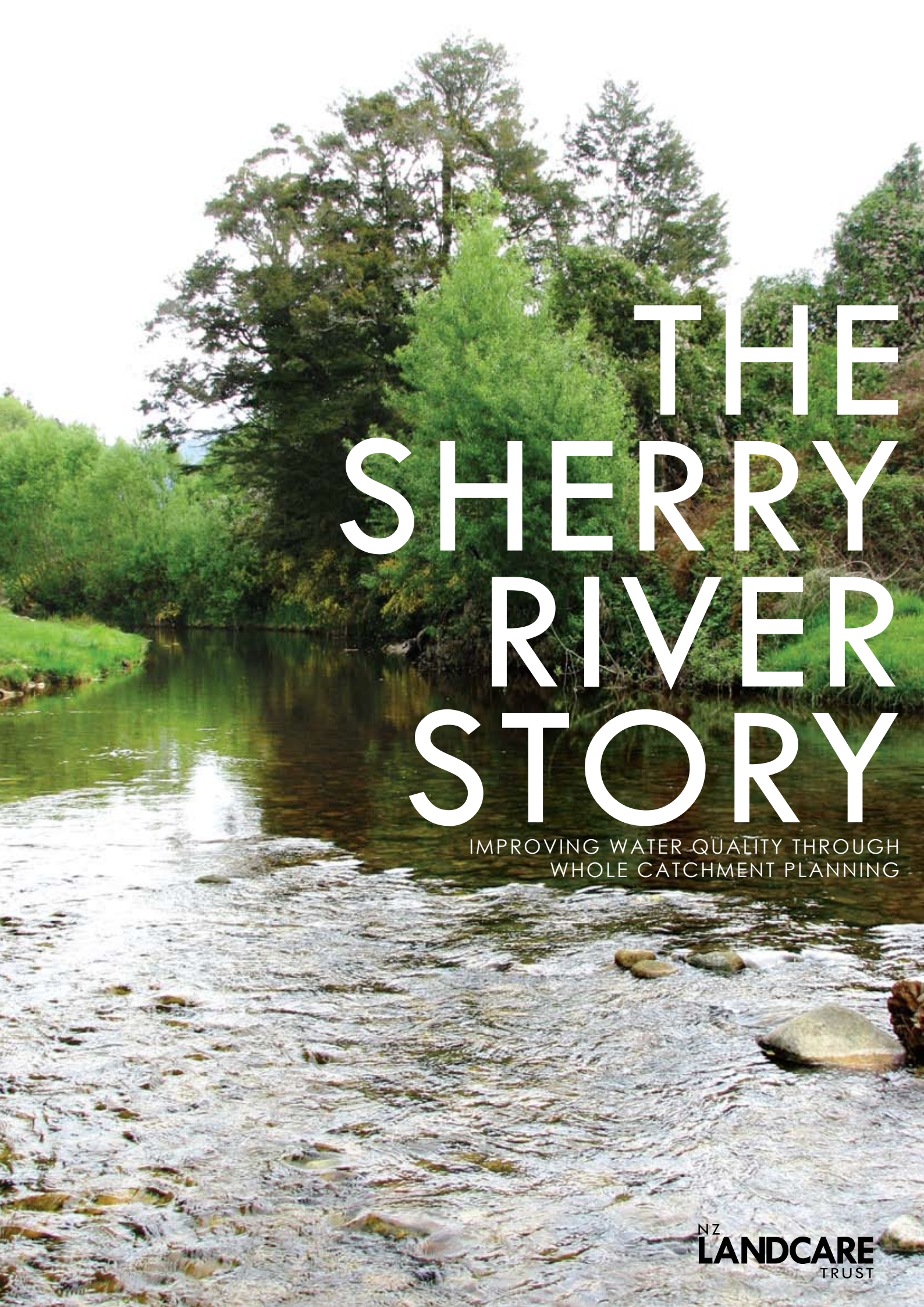

THE SHERRY RIVER STORY

IMPROVING WATER QUALITY THROUGH WHOLE CATCHMENT PLANNING

NZ LANDCARE TRUST

THE SH
IS OUR
PLACE
AND
OUR H

SHERRY RIVER HOME

This is the story of the Sherry River Catchment Group, a small rural community working together to resolve environmental problems that have emerged due to the impact of farming and forestry over the past fifty years. It is a demonstration of how voluntary action can grow from within a community when information and support are available.
The Sherry catchment land uses are a mix of forestry and pastoral farming including dairy, sheep, beef and deer. It is representative of many communities throughout rural New Zealand. The Sherry River Catchment Group hope their story will inspire and help other farming communities who are faced with similar environmental problems.

Our story starts when the Sherry River (Matariki) was a remote valley visited only by hunters, gatherers and travellers who went there to make use of its resources.

The next three phases were: the pioneers in their survival phase of land clearances and mining, the agricultural production and intensification phase, the new science-based era of sustainability.

Our story, also celebrates the actions of those who reside there today. Local people are making a huge effort in applying the underpinning scientific knowledge now available to farming communities, ensuring their farms remain environmentally sustainable and productive for future generations.

Cover image: The Tannin coloured Sherry River at the Bensemann's property, 2010. Photo: Barbara Stuart

NZ LANDCARE TRUST

Produced by NZ Landcare Trust for
the Sherry River Catchment Group,
October 2010.

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GEOGRAPHICAL DESCRIPTION

Nestled under the north-west Nelson ranges, part of the Motueka river system and a tributary of the Wangapeka, the Sherry River flows between the Tadmor and Dart rivers.

The Sherry catchment, covering 7800 hectares, is found in the upper reaches of the Motueka River catchment.

THE CLIMATE

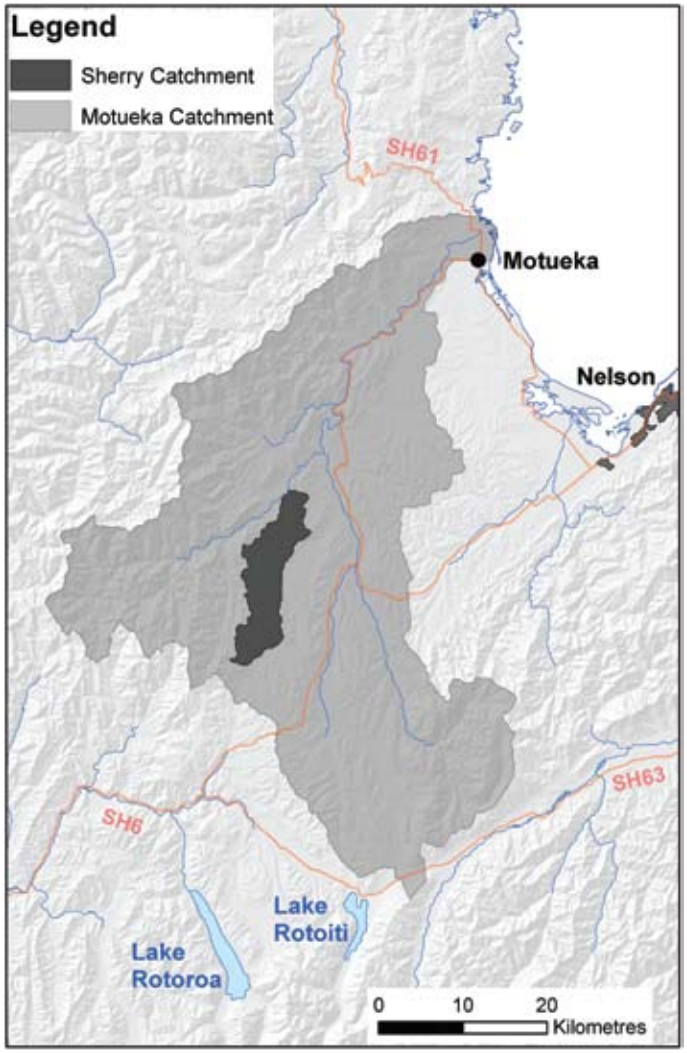
The climate in the Sherry River catchment (Sherry) is described as four distinct seasons; long winters followed by a spring which arrives up to six weeks later than experienced in coastal areas, shorter summers that can be very hot with temperatures reaching 30°C and early Autumn frosts. The predominant rainfall arrives from the south-west.

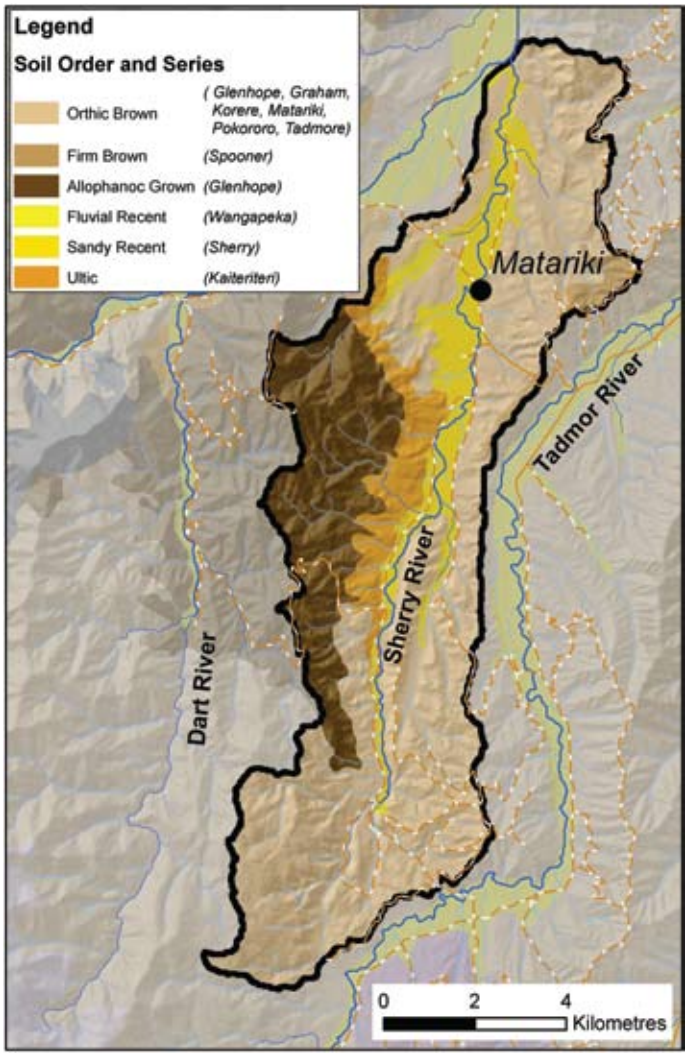
SOILS

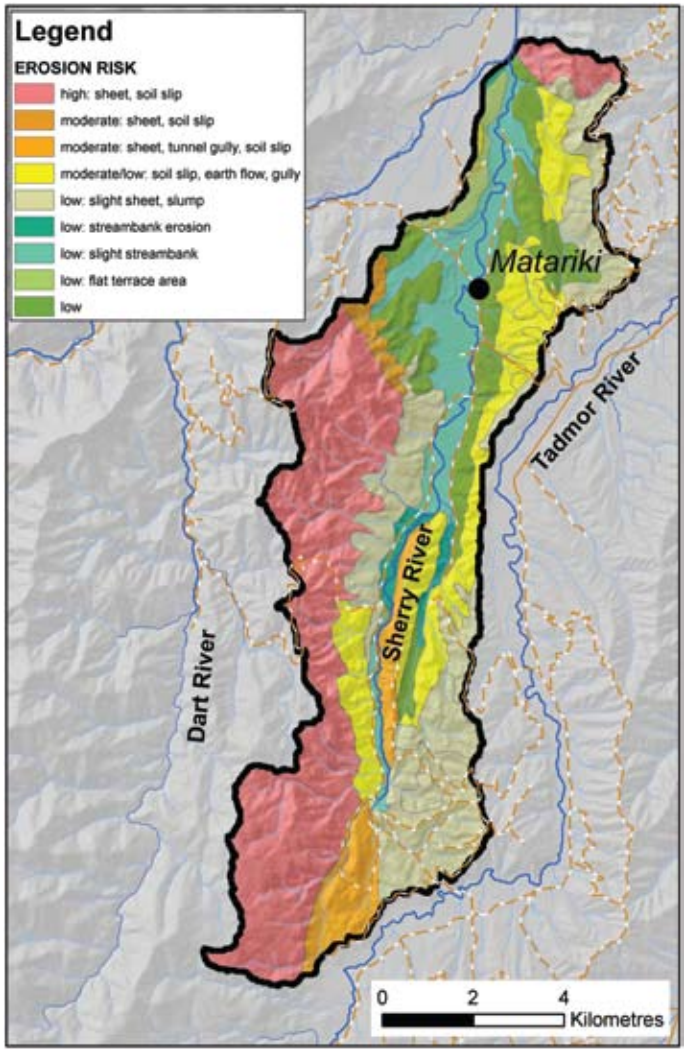
Soils in the Sherry vary greatly. They include the Sherry sand and sandy loams of the river flats and the Matariki silt loams of the higher papa terraces. These two soils support most of the intensive pastoral farming in the valley. Pastoral farming also occurs on the Tadmor hill soils that border the flats and terraces. These are hill country soils based on sandstone, siltstone and mudstone. Kaiteriteri and Glenhope soils occur on the steeper hill country along the western margins of the valley. These soils are derived from the highly erodible Separation Point Granites.

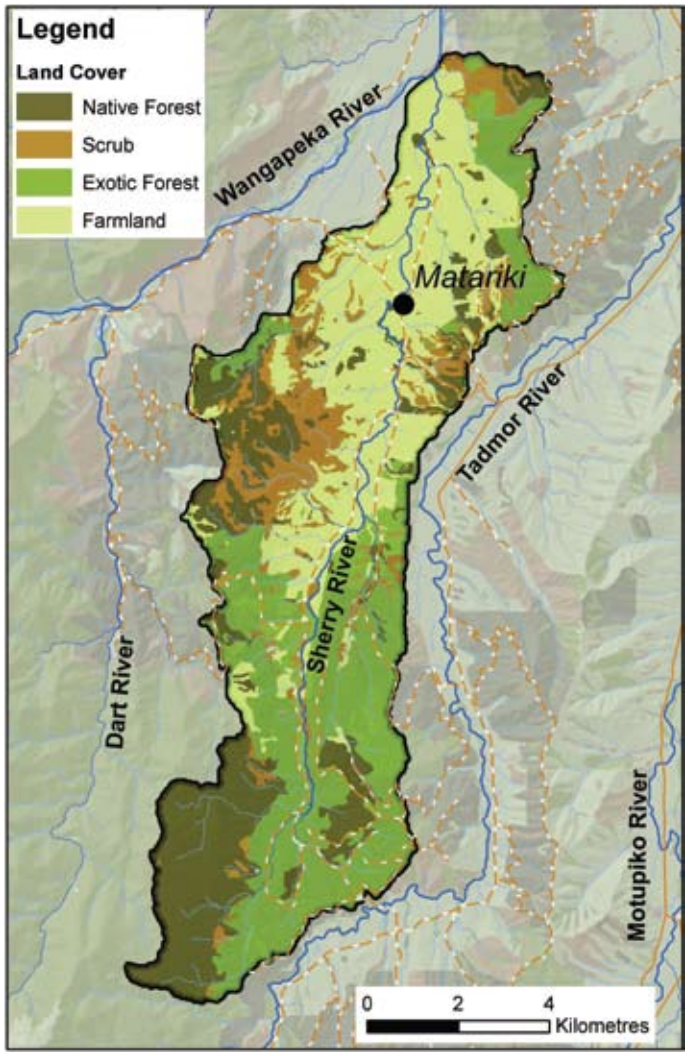
Whilst forestry has been established on some of the granite country, much of the granite is covered in native scrub and bush. Exotic forestry is mainly situated at the southern end of the catchment covering a variety of soil types including the Spooner hill soils derived from the Moutere formation.

Map showing Sherry River Catchment within the larger Motueka Catchment boundary; Nelson city bottom left.









Maps: James Barringer, Landcare Research; Data from Landcover Database and New Zealand Land Resource Inventory.

THE HISTORY

Throughout the inland districts of Nelson and Marlborough a network of trails and access routes were used by tribes passing through and by the local controlling tribe for seasonal foraging and harvesting. The Whangapeka and Matariki area was on one of those trails used by Maori travelling to and from the West Coast for precious Pounamu (Greenstone).[1]

Against a backdrop of shifting power, very little has been written about the pre-European occupation of the Sherry, Matariki area. The inland climate would not have been practical for permanent settlement. Most known sites of occupation were on the main stem of the Motueka River and coast.[2]

Historians[2] tell us the Nelson area was controlled by the Tumatakokiri people at the time of Abel Tasman's visit. The conquest of the Tumatakokiri by Kurahaupo and Ngai Tahu tribes took place at the beginning of the nineteenth century. After the 1828-30 raids of Te Rauparaha the area was settled by his close allies Ngati Rarua and Te Atiawa.

The Whangapeka/Wangapeke area was used as a resting place by travellers and a place for gathering food for the journey ahead to find Pounamu. Whoever held the mana for the rohe held the key to the Pounamu. Anyone who wanted to use the trail would normally request permission to do so. The same principles were used in Golden Bay by those travelling to and from Tai Poutini/West Coast.

The name "Matariki" is very interesting. Matariki is the Maori name for the group of stars also known as the Pleiades Star Cluster or the Seven Sisters. The Japanese call it Subaru and here in New Zealand it is the traditional Māori New Year.

The pre-dawn rise of Matariki can be seen in the last few days of May every year. The New Year is then marked from the sighting of the next new moon which occurs during June (in 2010 it was 24 June).

Why was Matariki important? Traditionally, at this time, the visibility of Matariki determined the coming season's crop. Brightly visible stars at Matariki were forecasters of a warmer season ahead and thus a more productive crop. Hunting and foraging from the forest and river was poor in mid-winter, so Matariki was the time when the land was cleared in preparation for planting in the warmer season. Matariki is also an important time for whanau to gather and reflect on past and future issues.[3]

Early settlers have suggested Battery Hill at Matariki was a regular campsite for parties travelling the Pounamu (Greenstone) trail on the Wangapeka track. The surrounding land was clear of vegetation when the European settlers arrived, as was another similar site on the Mokihinui River. These were thought to be regular campsites for travellers to and from the West Coast to extract precious Pounamu. The sites were kept clear of vegetation to ensure

1953 Sherry River Flood. After a localised cloud burst that washed logs and debris from the steep-land peaks 'Rocky & Old Sow' flooding the valley floor. Photo: Courtesy Jack Anglesey.

S. Woods & bogged tractor – 1953 Flood Orchard Creek, Sherry River. It created weeks of work and serious loss of income for landowners. The Hop & Berry gardens were washed away also miles of fencing had to be replaced. Photo: Courtesy Jack Anglesey.

potential attackers were seen approaching. Pre-twentieth century settlers found broken tools lying about on the ground which had been used by people using Battery Hill as a temporary stopover, or as a result of a conflict between tribes.

The river was named the Sherry by the early European settlers because its colour resembled sherry. The track to the goldfields at the Baton and Wangapeka passed through here but the land, other than the Wangapeka run, was not taken up for farming purposes until the late 1860's. Most of the flats and neighbouring hillsides were in heavy bush, while the Wangapeka Plain and the site of present day Matariki were scrub country.

Gold was found in this area in the early 1860's but information about that particular period is now difficult to obtain. In 1864 a rush developed on the Tadmor Hill and this brought many people to the district. In those early settler days, gold mining played an important role as an earner of overseas funds for a developing country. Successive governments encouraged prospecting and the Sherry is one of the many areas where miners came. In 1878 it is recorded that 12 settler families resided in the Sherry. During the depression of the 1930's gold mining increased in the Sherry when the government subsidised the unemployed.[4]

From a history of gold mining which degraded the Sherry River to sludge, there followed an era of saw milling, sheep farming, hops, raspberries, forestry and dairying consisting of small dispersed herds.

Mr. Bill Lukey, a farmer of the area noted, "*Gold mining in the Sherry was always a boom and bust industry based on outside investors from Britain wanting to make money. They floated companies that fizzled out. There was never ever good mining. The gold was known as 'shakers gold', fine leaf gold that was hard work to find. The last person to pursue gold mining in the Sherry was Barry Shirtcliffe during the 1990's.*"

The Shirtcliffe farm hill country section was subsequently purchased by the Council and is now primarily pine forest, managed for Tasman District Council by P.F. Olsen & Co. The main flats, where much of the mining was carried out, is still farmed today.

Recreationalists are still known to pan for gold in the Sherry River today.

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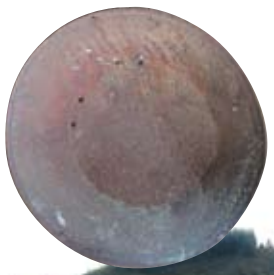


A memento of former gold panning days.

A decaying hop kiln, remnant of a former Sherry land-use.

VALUING RARE PLANTS FROM THE SHERRY RIVER

Roger Gaskell, Department of Conservation

The Sherry River catchment is no exception to the story of almost total native forest removal that has occurred during human occupation throughout lowland Nelson.

It is however extremely fortunate that small fragments of lowland forest remain in the Sherry basin. Although these have been historically cut over for Totara, Rimu and Matai timber they are valuable refuges for both plants and animals and provide insights to botanical richness of the Sherry Valley.

Two geographic factors contribute to the forest type and species mix of indigenous forest in the Sherry Valley. The first is geology. Underlying the Sherry basin is a deposit of mudstone or "papa". These calcium rich sediments form an impervious barrier to groundwater hence the many springs and seeps and generally high water table around the basin floor. The second factor is the basin topography. Cold winter air becomes ponded in the basin trapped by the narrow outlet of the valley at Blue Rock.

Inversion climates (very cold still air) and calcium rich soils are both drivers of plant species diversity.

An example of these influences on plant species is the tree daisy *Olearia polita*. It is one of eight rare olearia species. *Olearia polita* has a conservation status of Nationally Endangered (second highest category) and grows only in the Sherry and Hope River catchments. *Olearia polita* is a small tree up to four metres tall with a preferred habitat of wet and frosty forest margins. Identifying features are small green glossy round leaves with pale undersides and a slightly weeping adult form. A profusion of fragrant-scented flowers in spring attracts a myriad of native insects.

Landowners play a vital role in the conservation of this rare plant with covenants protecting the three best populations in the Sherry/ Wangapeka basin. Besides *Olearia polita* the covenants protect stands of beech/podocarp forest and several other rare plant species.

Roger Gaskell, DOC, and farmer Nicky Bavin, discuss rare plants.

The scarlet mistletoe is probably the most iconic of these. Scarlet mistletoe or *Peraxilla colensoii* is a curious plant and member of a highly specialised genera of parasitic plants, the loranthaceous mistletoes. It has a conservation status of Declining. Silver beech are with rare exceptions the only host trees for *Peraxilla colensoi*.

Scarlet mistletoe plants are often overlooked concealed among branches high in old silver beech trees but during mast years produce spectacular displays of scarlet flowers. Nectar and fruit eating birds are vital agents for pollination and seed dispersal of loranthaceous mistletoes. Flowers will remain closed and unpollinated if not opened by Tui or Bellbird and germination success is greatly increased if fruit passes through the gut of a fruit eater. A sticky coating adheres excreted seed to twigs or branchlets. Once germinated the root tissue of the small mistletoe plant begins a long journey inside the bark of the beech tree limb to eventually emerge from the trunk of the host tree. Mistletoes are highly palatable to possums. Low possum numbers in the valley is likely to be one of the reasons for the size and health of *Peraxilla colensoi* mistletoe plants in the Sherry River.

Coprosma obconica is another rare plant that shares frost inversion habitat with *Olearia polita* and a range of small leaved shrubs in the Sherry Basin. *Coprosma obconica* has a conservation status of Declining. It is a heavily branched, tangled shrub with tiny grey green leaves when growing in an open location. This growth form is known as "divaricating" and is often a characteristic of inversion basin plants.

Coprosma obconica and *Olearia polita* are forest margin species requiring high light and minimal competition from rank grass growth for seedlings to thrive. In the pre human landscape browsing birds such as moa would have been an integral part of the Sherry Basin ecology. Large numbers of moa and other ground dwelling birds created areas of open habitat on forest margins, a requirement of a range of rare plant species. A conservation problem for many of these species including *Olearia polita* and *Coprosma obconica* is how to duplicate the disturbance these forest margin species have evolved with and require for successful recruitment. Fencing and removal of grazing in many cases results in competition from rank growth which suppresses germination and seedling survival. Sheep grazing can, in some cases, be a management option. The challenge is finding the balance.

Open and closed scarlet mistletoe flowers. Photo: Roger Gaskell

Olearia polita: highly scented flowers

Olearia polita: shiny foliage and red/brown bark.

Abby Butler, DOC, observes the rare *Coprosma obconica* at Bill and Lisa Anglesey's Covenant. Photo Roger Gaskell

FORESTRY IN THE SHERRY RIVER CATCHMENT

Andrew Karalus, Nelson Forests

THE EVOLUTION OF FORESTRY PRACTICES

Plantation forestry occupies 35% within the upper Sherry River catchment. The first plantation forests in the catchment were established by the New Zealand Forest Service (NZFS) from the mid1960's through to the mid 1980's. This period was referred to as 'the second planting boom' in Golden Downs by the NZFS and it coincided with the development of the NZFS Tapawera headquarters. The forests were established on what was regarded as marginal farmland purchased by the NZFS. It was a period of conflict with farming attitudes and many saw the 'invasion' of forests as a threat to the nation's established farming base.

Sherry landowners' forestry visit.

Plantation forestry offers a low input and high output farming system particularly for land where weed invasion and topography create challenges for profitable pastoral farming. The drawback is the need to carry the establishment and silviculture costs for a long (25-30 years) time until harvesting revenues provide any significant positive cash flow.

The low input forestry system has many environmental benefits during the growing cycle. External inputs are few. In a typical rotation a site will have one broadcast herbicide treatment before planting, to control weeds and natural pine regeneration. About half of the one-year-old crop gets one further application of herbicide immediately around the new seedling. Around 75% of sites get a single application of boron in year 3-5 (to avoid tip die back associated with boron deficiency) and around 10% of sites get one application of N and /or P to correct deficiencies.

Not surprisingly, water quality from plantation forests is high over the growing cycle and similar to water draining from indigenous forests. Additionally the vegetation cover and tree roots provide significant support to soil and reduce slope instability.

TYPICAL RADIATA PINE ROTATION

Year 0	Land preparation - broadcast herbicide
Year 0	Plant 800-1000 stems per hectare
Year 1	Spot herbicide to release young seedling from weeds
Year 3-5	75% of sites broadcast Ulexite (slow release boron)
Year 3-5	10% of sites broadcast N and/ or P to correct plant nutrient deficiencies
Year 6	First lift Prune (if a clearwood regime chosen)
Year 8	Second lift prune (if a clearwood regime chosen)
Year 10	Thin to ~ 300 stems/ha (clearwood) or 400 to 500 stems/ha (structural)
Year 26	Measure to identify log grades in the crop and optimise harvest timing
Year 28-30	Construct or re-establish roads and harvest.

FORESTRY ENVIRONMENTAL EFFECTS

Earthworks associated with road and skid construction can cause significant offsite sedimentation effects and removing the tree crop, particularly around stream margins, can also affect water quality and stream habitats. It can also increase flood risks, in part due to increased flow from cleared land. These risks are real and acknowledgement of them has led to significant improvements in forestry operations over the last 20 years.

Extensive burning and bulldozer blading used to be common land clearance methods; today excavators with rakes are used to shift vegetation and slash sparingly while leaving the topsoil and root systems in place. Harvesting was also predominantly ground based with access tracks cut across slopes so skidders and tractors could extract logs to processing sites where trees are cut into logs, (called skids) located in the floor of a valley. Today, most harvesting is cable hauler where trees are pulled to skids on ridge tops. The road networks are also placed on ridgelines rather than along valleys.

Today, stream classification systems and Codes of Practice are used to identify and manage operations near stream margins to reduce the impacts of harvesting in line with each stream's values, and planning involves a detailed assessment of the potential effects of the operations.

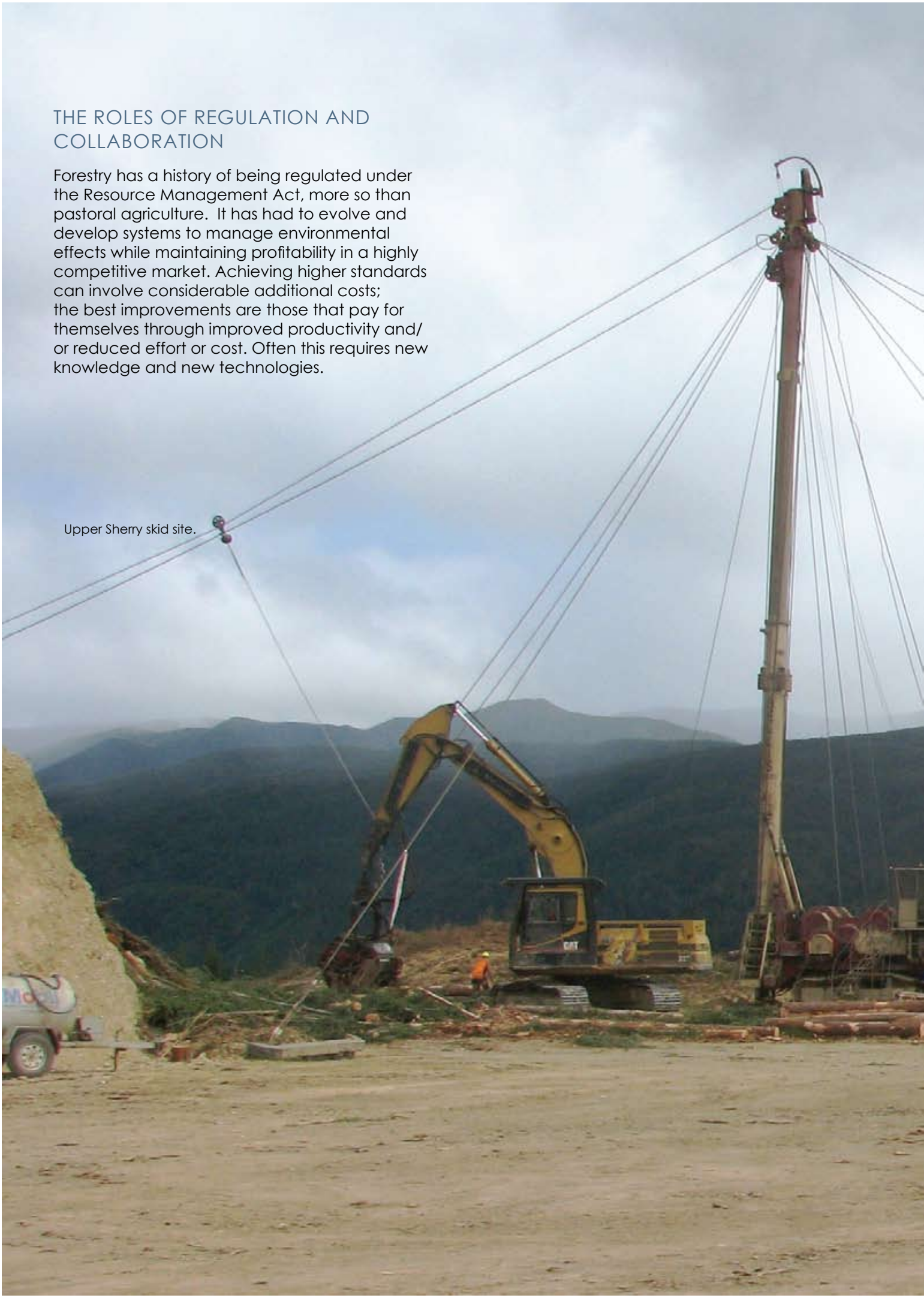
HOW MUCH 'MANAGEMENT' IS ENOUGH?

The Motueka ICM research and state of the environment studies confirm that plantation forests are generally meeting high performance standards and maintaining high water quality even during road construction and harvesting. However all land, even untouched catchments, can be subjected to extraordinary climatic events which can result in extraordinary effects such as sedimentation and debris flows.

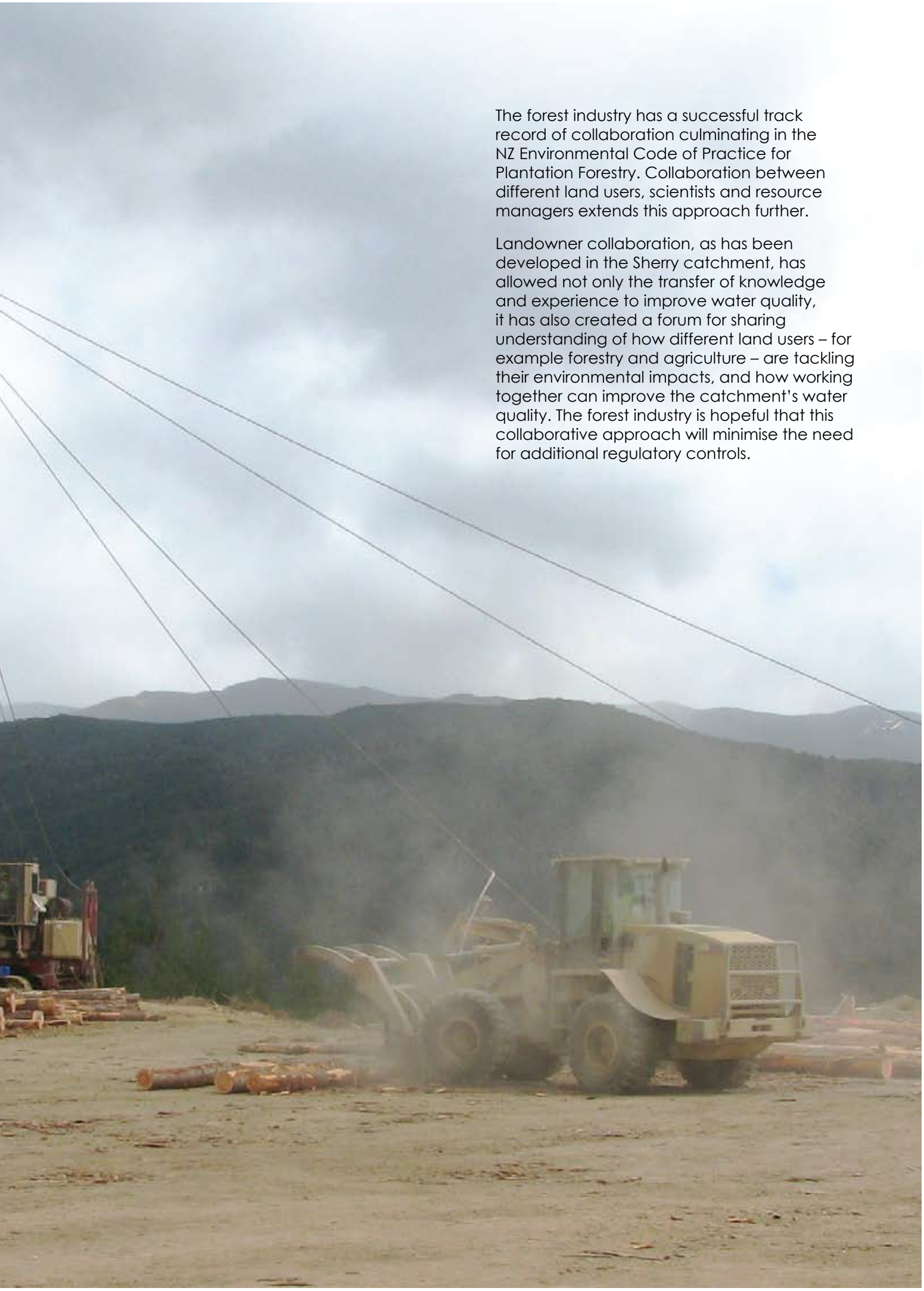
Environmental resilience, or the ability to recover from events, is an area where further research could be needed to help decide what 'acceptable risk' for land management practices is. At this point the research suggests that forestry practices are meeting 'acceptable risk'.

THE ROLES OF REGULATION AND COLLABORATION

Forestry has a history of being regulated under the Resource Management Act, more so than pastoral agriculture. It has had to evolve and develop systems to manage environmental effects while maintaining profitability in a highly competitive market. Achieving higher standards can involve considerable additional costs; the best improvements are those that pay for themselves through improved productivity and/or reduced effort or cost. Often this requires new knowledge and new technologies.



Upper Sherry skid site.



The forest industry has a successful track record of collaboration culminating in the NZ Environmental Code of Practice for Plantation Forestry. Collaboration between different land users, scientists and resource managers extends this approach further.

Landowner collaboration, as has been developed in the Sherry catchment, has allowed not only the transfer of knowledge and experience to improve water quality, it has also created a forum for sharing understanding of how different land users – for example forestry and agriculture – are tackling their environmental impacts, and how working together can improve the catchment's water quality. The forest industry is hopeful that this collaborative approach will minimise the need for additional regulatory controls.

THE CHALLENGE FACED BY LANDOWNERS

Landowner focus on the river began in 2001when researchers from the Motueka Integrated Catchment Management (ICM) Programme analysed water quality in all the tributaries and rivers of the Motueka Catchment. Land use in the Sherry Catchment came under scrutiny when the ICM science team reported to the farming community high levels of bacterial contamination indicating that the river was unsafe for swimming in its lower reaches.

Issues faced by the community were;

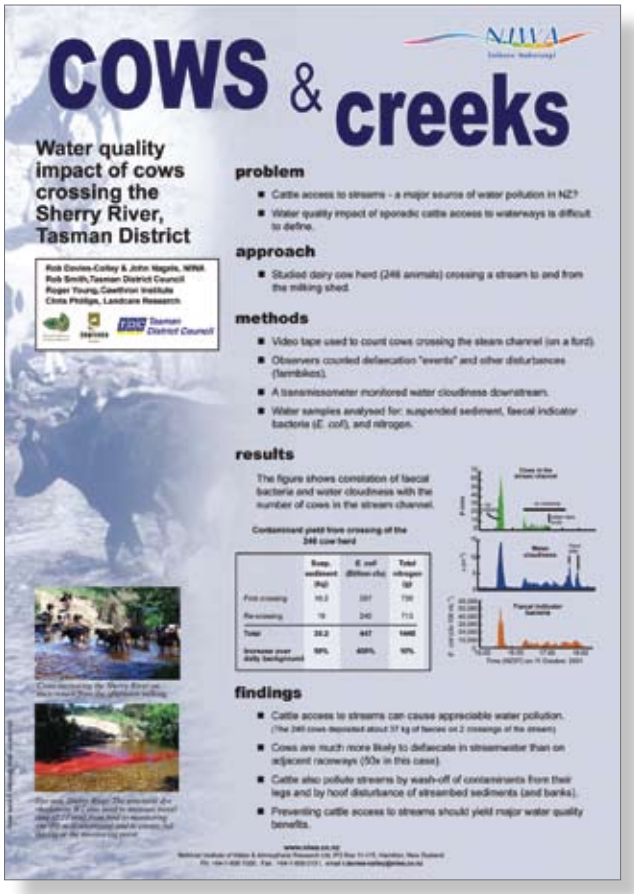
- *E.coli* levels exceeding safety standards for bathing and stock drinking water.
- Suspended solids and sedimentation.
- Lack of shade on some stretches of river resulting in a need to protect fish habitats.

This news was a shock to landowners who felt hurt and surprised by the information. Long term residents thought that the water quality was much improved on how it had been in the gold mining past. Locals and their families have always used the river for drinking water and recreation without harm.

The problem of unwanted bacteria and sediment had quietly arrived as farming and forestry became more intensive.

Electric fishing with Trevor James of Tasman District Council.

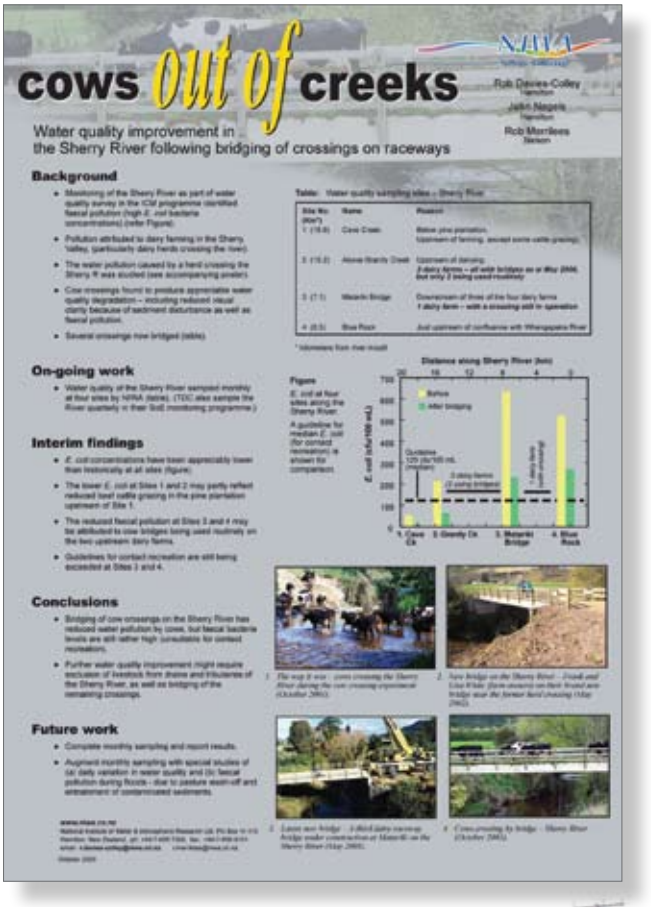
From the first farmhouse meeting in 2001, Sherry landowners treated these problems very seriously. The farmers agreed to a study of the effect of cows on water quality as they crossed the river. The resulting ICM study, 'Cows & Creeks' revealed that walking cows through rivers had a marked impact on stream water quality, particularly faecal contamination.



Break feeding in the Sherry River catchment.

The findings of this study led to a change in how we think about management of the riparian areas and the river as an eco-system.

As a direct result of this information landowners took action. Three major bridges were built over the Sherry River and a fourth, formerly used for farm vehicles is now used to cross cows. By stopping the practice of cows crossing through the river a 50% improvement of water quality was achieved. This was documented by the science team in a further report 'Cows out of Creeks.'



LANDOWNERS BECAME MOTIVATED TO DO MORE

While monitoring revealed there was a significant reduction in bacterial contamination, the water quality still exceeded the guidelines at two sites for contact recreation (swimming). It became clear that in order to gain further improvements in water quality, a range of other good environmental practices were required.

Meetings facilitated by the NZ Landcare Trust in association with the Motueka ICM programme, enabled all landowners in the catchment to come together as a Landcare or Catchment group. By working together they were able to set their own targets and have a collective voice.

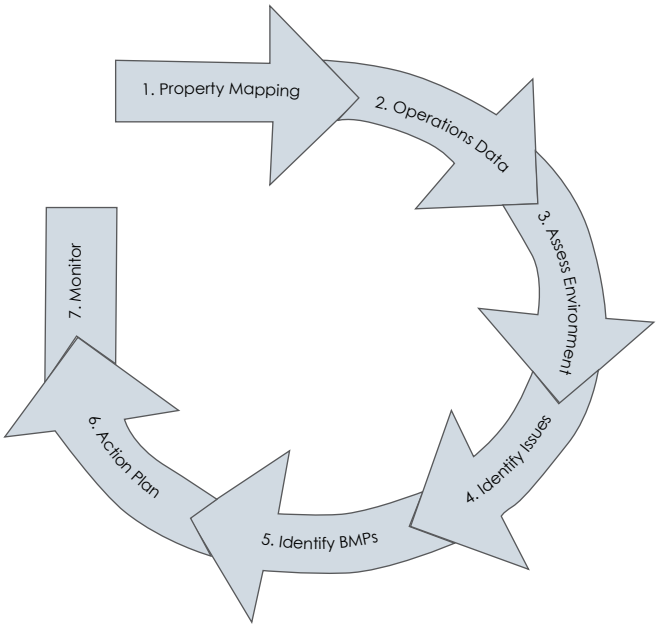
A successful application to the Sustainable Farming Fund enabled the group to begin this work in 2007. A three-year project continued the work with landowners to develop Best Management Practice (BMP) information and Landowner Environmental Plans (LEPs) specific to the requirements of individual farms and land uses along the Sherry River. This included all working farms – dairy, sheep and beef farms, two forestry companies, a free range poultry farm and other small land owners in the catchment.

The group recognised that keeping stock out of water is a fundamental step to improving water quality. One option for this is to fence and plant stream banks (riparian management).

ICM researcher Nick Ledgard (Scion Research) demonstrates farmer-friendly planting and spraying techniques at a Sherry field day, spring 2009.

LANDOWNER ENVIRONMENTAL PLANNING PROCESS

Developed for the Sherry SFF project by the Landcare Research ICM programme



Landowner Environmental Planning Process model courtesy of Andrew Fenemor, Landcare Research.

1. Property Mapping
   Identifying biophysical resources such as land uses, land capability, vegetation cover, waterways, wetlands, rock and soil types, and slopes using aerial photographs and soil maps

2. Current Operations Data
   Compile detailed information on current fertiliser use, stock numbers and management, crop rotations etc.

3. Environmental Assessment
   Issues assessment (e.g. water pollution and risk, erosion) and identification of sensitive natural features and sites of potential concern (e.g. steep slopes, effluent ponds)

4. Identification of Issues
   Nature and locations of activities currently or potentially affecting (in this case) water quality

5. Identification of Possible Best Management Practices (BMPs)
   Using BMP guide, external resources and advice from professional adviser, identify practical solutions to remedy degraded areas or protect natural areas

6. Formulation of Action Plan
   Create a practical timeline (eg. over 5 years) for the implementation of BMPs

7. Monitor and Revise
   Ongoing monitoring of effect of BMPs on water quality. Revise action plan in light of monitoring results and own observations, recognising this is a learning process

Farmers meet with judges of the Tasman-Nelson Environment Awards 2009.

IMPROVING WATER QUALITY BY RIPARIAN MANAGEMENT

First steps for the group were practical farmer-friendly riparian trials conducted under the ICM programme by Lisa Langer, Nick Ledgard and David Henley of Scion.

- The purpose of the riparian trials was to create an establishment method for plant survival in the frost prone Sherry climate, where the woody weeds Old Man's Beard, gorse, blackberry and broom dominate.
- The purpose of planting river banks and side steams is to create a buffer to filter run-off from land and to provide stream shade in summer.

Hot tips;

- It is better to establish small areas well.
- Successful 'establishment' means that plants are alive and growing well after 2 years; 'planting' only means placing seedlings in the ground - a waste of time if they die.

You can download 'The Sherry River native plant establishment guidelines' from: www.landcare.org.nz/regional-focus/upper-south-island/sherry-river/

Tasman District Council willow removal and re-planting with natives is taking place on sections of the Sherry River catchment.

The ICM researchers also drew attention to the removal of Crack Willows (now designated as a pest plant.) Reduction of much needed shade on the river during the hot summer months puts the habitats of trout and native fish species at risk when summer temperatures are high. It was suggested that a two-stage planting approach be tried, inter-planting shrubby native species as a nurse crop with native shade trees once establishment has occurred.

However, it is expected that native plantings will take many years before they restore shade.

Nick Ledgard at the ICM Nelson Workshop, April 2010, had an alternative approach and suggested using introduced species to provide shade and then their removal when native plants are established.

Andrew Fenemor, programme leader for the Motueka Integrated Catchment Management project, discusses steps to improve water quality with Sherry River farmers.

Fencing off and planting a side stream to filter run-off at the Meade farm.

LANDOWNER STEPS TO IMPROVING WATER QUALITY

A multi-pronged approach was still required even after bridges had been put in place, to achieve the community target for safe bathing water.

The landowners knew that turning this around would be much tougher and require everyone's involvement.

At the kick-off workshop held in October 2007, a Landowner Environmental Planning (LEP) process and Best Management Practices for the Sherry catchment and land uses were discussed.

This was also an opportunity for dialogue between farmers, upstream forestry managers and the Council's river supervisor, about sediment sources and willow maintenance.

Ongoing water quality monitoring results from Tasman District Council's Trevor James are reported back to the group regularly.

The group commissioned farm planning consultant, Andrew Burton, to help them write their own Landowner Environmental Plans. This involved a one on one farm visit from Andrew to work with landowners to identify and prioritise practical, on farm solutions for a farm plan.

Farmer comment:
The Landowner Environmental Plan that we have for each farm is another practical tool that enables us to identify and prioritise what we think will give us the most bang for our buck. It is also a plan that our farm managers or staff can understand and get in behind. They are the people that are on the ground doing the work.

Philip Riley

Nicky Bavin discusses her farm plan with visitors from Ecuador.

LANDOWNER ENVIRONMENTAL MANAGEMENT TIPS

Recommendations linked to improving water quality for the Sherry environment.

STOCK MANAGEMENT

- Fence stock out of waterways, bogs, seeps and wetlands.
- Exclude stock from grazing saturated soils in autumn and winter.
- Bridge or culvert dairy herd crossings.
- Provide alternative water in stock troughs
- Use stand-off pads during autumn/ winter for cattle.
- Control runoff from stock tracks, sheep/ cattle yards and races, directing it away from open water.

LIMITING POTENTIAL FOR SOIL EROSION

- Riparian plantings for stream bank protection.
- Planting slopes vulnerable to slips.
- Wintering large animals off farm.

REDUCING RUN-OFF

While it is not possible to completely eliminate all sediment and bacteria run-off from developed catchments like the Sherry in high rainfall events, the following farm plan tips are suited to reducing run-off from medium to small events.

- The use of riparian strips to keep contaminants on the land, not in the water.
- Use existing wetlands and/or constructed wetlands to capture sediment, nutrients and microbes in surface and subsurface flows.
- Locate offal pits and agrichemicals away from surface or groundwater.
- If burying individual dead stock, locate the pit away from surface water or groundwater.
- Use of nutrient budgets and soil testing to only apply the optimum fertilizer required.
- Have sufficient storage for wet conditions to enable deferred application of effluent when the soil can absorb nutrients. Use low rate application systems that keep nutrients in the root zone for plant use.
- Maintain healthy soils on the farm in order to ensure good drainage and infiltration rates.

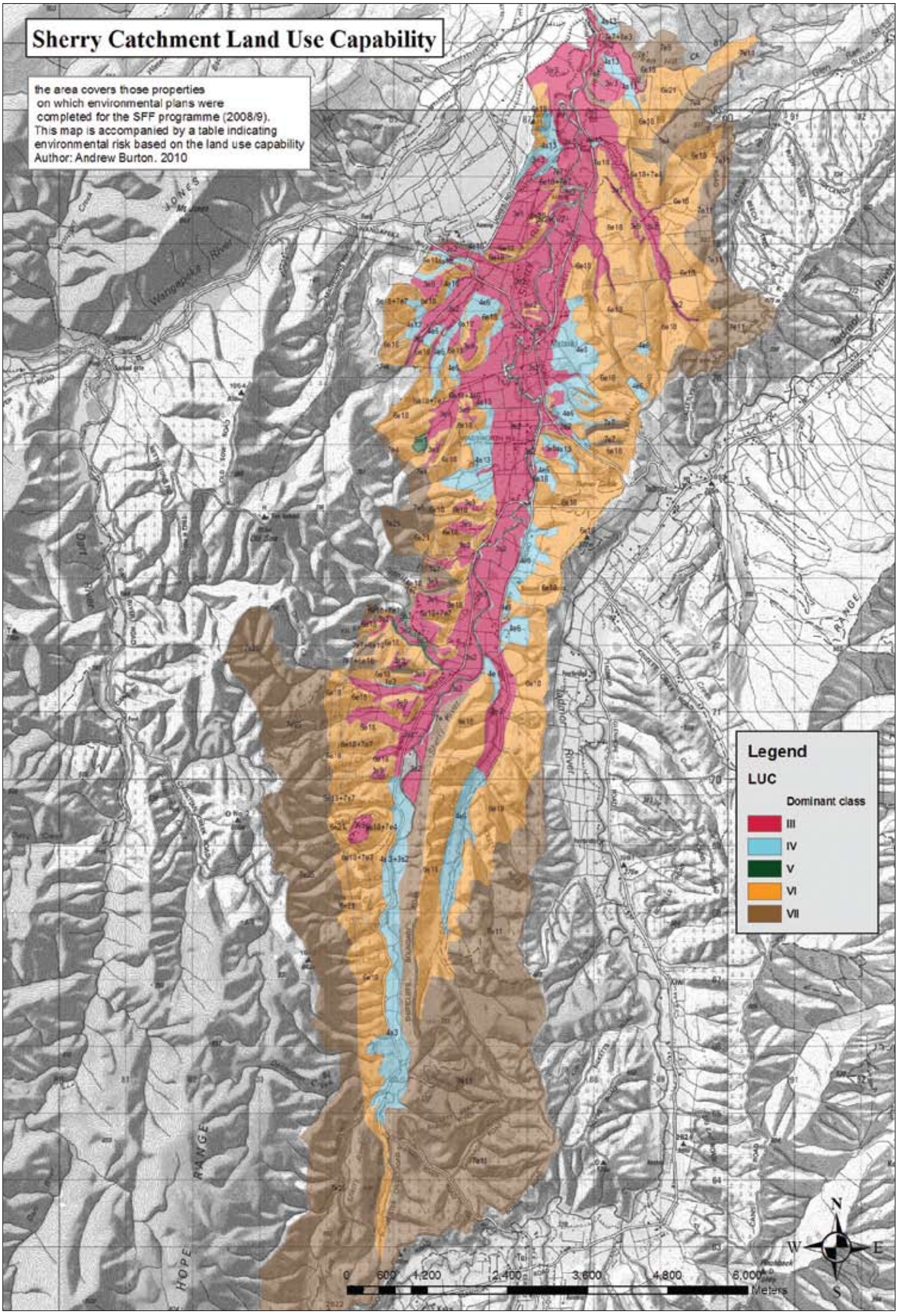
Farmer Frank White discusses farm planning with Andrew Burton, farm adviser.

Farm adviser, Andrew Burton, demonstrates the Soil Health Assessment Kit.

LAND USE CAPABILITY

The NZ Land Use Capability (LUC) classification system is a way to classify the landscape in relation to its capacity to sustain production permanently. The LUC is based on these factors: rock type, soil, slope, erosion degree and type, vegetation and climate. Nationally the LUC has eight classes, I being very versatile land and VIII being steepland best suited to protection. The map of the Sherry Catchment shows it has class III to VII land.

CLASS	UNIT	PREDOMINANT LAND USE	LAND USE INTENSITY	FAECAL CONTAMINATION RISK	NUTRIENT LEACHING RISK	EROSION RISK	MANAGEMENT REQUIREMENTS
	3e9	sheep/beef/ dairy	high	moderate, saturated soils at times but distanced from waterways	moderate	low: flat terrace area	grazing
III	3s2	dairy/sheep/ beef	high	moderate/low, naturally wet areas are vulnerable and areas close to waterways	high	low: slight streambank erosion	grazing, riparian
	3w3	dairy	high	moderate, saturated soils at times but distanced from waterways	moderate	low: flat terrace area	grazing
	4e16	sheep/beef	medium	moderate, saturated soils at times, close to waterways	moderate	low: streambank erosion	grazing, riparian
IV	4e6	sheep/beef	medium	moderate, spring and seep areas exist	moderate	low	grazing
	4s13	dairy/beef/ sheep	high	high, sloping land, soil prone to pugging	moderate	low: streambank erosion	grazing, riparian
	4s3	forestry/sheep	low	low	low	low: streambank erosion	erosion
V	5s3	sheep/scrub	low	low	low	moderate: streambank	erosion
	5w1	sheep/cattle	medium	moderate, saturated soils at times, close to waterways	moderate	low	grazing
	6e16	sheep/cattle	medium	low	low	low	
VI	6e18	sheep/beef/ forestry	medium	low	low	moderate/low: soil slip, earth flow, gully erosion	erosion
	6e18	dairy	high	moderate, rolling hill country dissected by numerous gullies	moderate	moderate/low: soil slip, earth flow, gully erosion	grazing, riparian
	6e18+7e7	forestry/sheep	low	low	low	moderate: earth flow, soil slip, gully, sheet erosion	erosion
	6e21	forestry	low	low	low	moderate: soil slip, sheet erosion	erosion
VII	7e11	forestry/sheep	low	low	low	low: slight sheet, slump	
	7e25	forestry	low	low	low	high: sheet, soil slip	erosion
	7e4	forestry/sheep	low	low	low	moderate: sheet, tunnel gully, soil slip	erosion
	7e7	forestry/sheep	low	low	low	moderate: sheet, soil slip	erosion
	7e9	unproductive	nil	low	low	high: sheet, soil slip	erosion



Map: Andrew Burton, Tasman District Council; Data from farm mapping programme using the NZLRI technique.

ACHIEVEMENTS OF SHERRY RIVER LANDOWNERS 2001– 2010

- 16 Landowner Environmental Plans made up of 4 Sheep & Beef, 4 Dairy, 2 Forestry, I Poultry, 5 smallholdings.
- 3 bridges built.
- 4000 plants along waterways.
- 5018 metres of fence along waterways.
- First equal winners of Tasman-Nelson Environment Awards 2009.
- Strong farmer involvement and participation.
- The Sherry River Catchment Group story is an example of Integrated Catchment Management locally and nationally.

Sherry River champions meeting at Angelsey's woolshed.

Lisa White and Jocelyn Riley accept the Tasman-Nelson Environment Community Award from the Nelson City Council mayor, Kerry Marshall, on behalf of the group, 20 November 2009.

MOTIVATING FACTORS FOR SHERRY FARMERS IN THE TASK OF CLEANING UP THEIR RIVER

"We want to minimise farming's impact on the environment and want our farming business in the dairy industry continuing 50 years from now."

"Landowners here regard this valley as our place and our home."

"Council rules need to be in place to ensure farmers maintain water quality."

"Our community working together in our own catchment with councils and science support, will achieve far more positive outcomes."

"So we are prepared to invest time and money but not on ideas that won't achieve our water quality goals."

"Our community has seen measurable results from the efforts of the local catchment group and I think that inspires us to keep working at it."

"We are to start using a product called Eco N, a nitrification inhibitor, starting on a small scale, to see if this will have benefits for us as it has on Canterbury dairy farms."

"We recognise we can only minimise not remove all impacts of land use."

"This project has helped lessen our environmental impact – they have also been practical business investments."

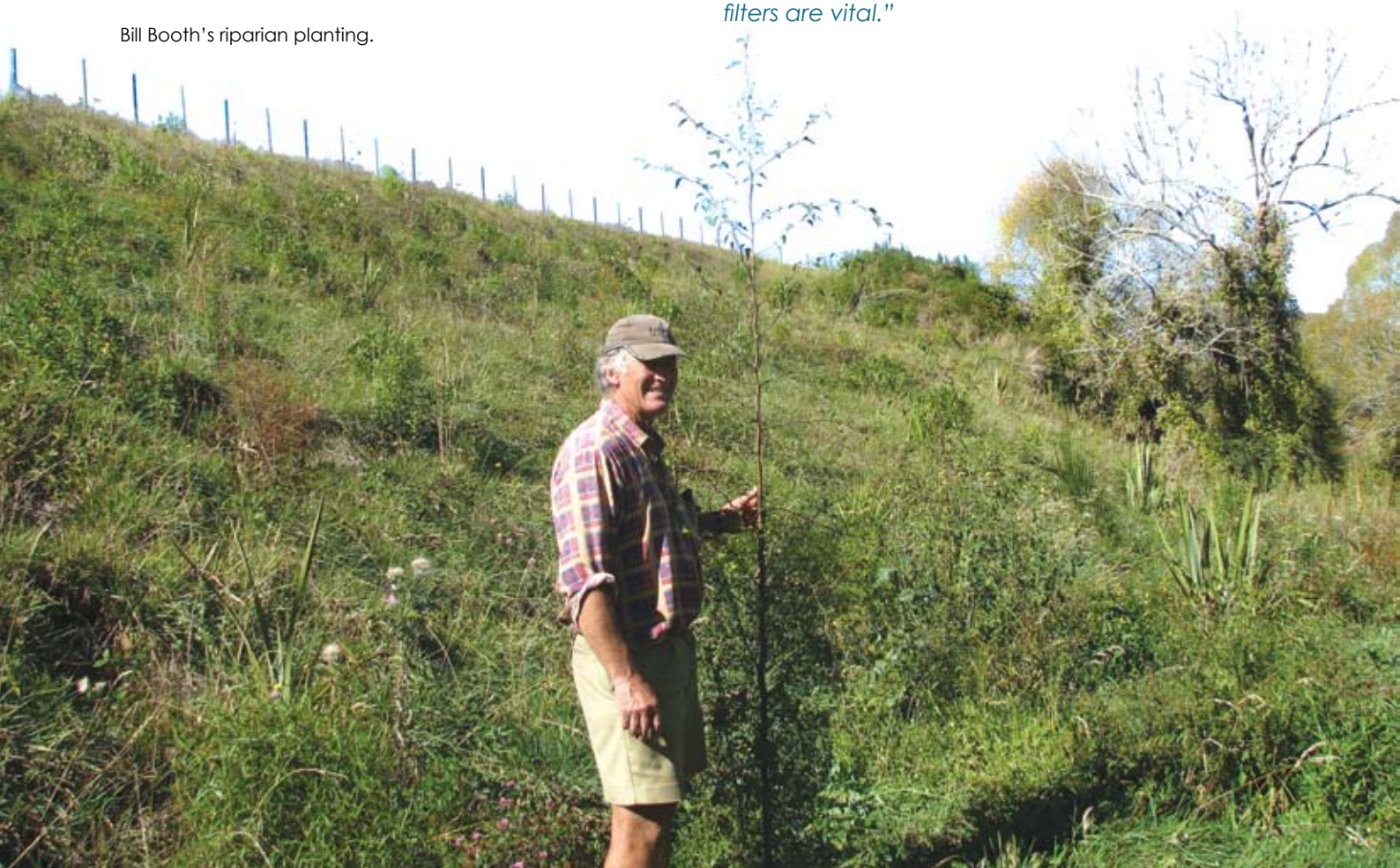
Roger Gaskill, introduces *Olearia Polita* at the planting day, August 2007.

LANDOWNER ACTIONS & CONCLUSIONS

Sheep farmers, Bill and Jeanette Booth of Blue Rock, farm at the confluence of the Sherry and the Wangapeka Rivers. Over the past five years, under the guidance of Scion's Nick Ledgard and Dave Henley, they have planted 300 metres of the river bank. After storm events Bill collects water quality samples and delivers them to the Cawthron Institute for anaylsis.

"Catchment group field days reinforce written material. Fencing side streams and riparian filters are vital."

Bill Booth's riparian planting.



Roy and Yvonne Bensemann farming mid-way up the valley, have enjoyed the farming planning process with Andrew Burton and value the information provided on soil types and use of wetlands to improve water quality.

Roy has been a quiet driver behind the project from the very begining having an obvious appreciation for the bigger picture.

"Non-judgmental NZ Landcare Trust co-ordination is what has helped everyone in the valley to tackle water quality."

Farmers Phil and Jocelyn Riley.

"We welcome follow-up and support with the implementation phase of our farm plans by NZ Landcare Trust and Andrew Burton, our farm environmental consultant."

The Bensemanns have eliminated stock from the river by fencing and planting along part of their property.

Dennis, David and Trish Meade of Matariki who are the Nelson Sheep and Beef Monitor Farmers; are installing reticulated water and fencing off an area of Biggs Stream to help reduce and polish run-off before it reaches the main stem of the Sherry River.

"Water reticulation is the biggest step we can take"

Poultry Farmer Alistair Reay runs 2500 hens, 80% in lay at one time, with a daily production of 1600 eggs.

"Grass cover is important for reducing poultry run-off."

Steve and Kerrie Semmens, the next generation, have requested support to revegetate a Significant Natural Area on their land.

Sheep and beef farmers Lisa and Bill Anglesey's property now includes a recenty convenanted QE11 wetland.

"We enjoyed the landowner environmental planning process. We would like our planning consultant, Andrew Burton, back to check in with us on progress and update our farm plan."

From Left Lisa and Bill Anglesey at a farm planning session with Andrew Fenemor and Andrew Burton.

NICHE LAND-USE EXAMPLES

Ed and Lorraine Lukey's investment in the past is not just an interesting story, it holds future tourism potential.

The old stables, situated on the farm of Ed and Lorraine Lukey at Matariki, was built to a Kentish Stable design for the owner of the Matariki run, now lovingly restored by Ed. The Matariki run was broken up into smaller holdings in 1907. When the families who took up the land arrived, there was a need for a school and somewhere for community gatherings. The Stables provided that amenity. The upstairs loft was used for dances and meetings, while the downstairs area which had been used to house a wagon or gig became the school room until the new school was built in 1909. One of the families to take up land at Matariki was the Wattie family, (Wattie Rd). Sir James Wattie briefly attended the school at the Stables as a boy.

Those landowners ran dairy cows that crossed the stream daily, many grew hops and raspberries that supplied Kirkpatrick's jam factory in Nelson. Produce was sent by train from Tadmor.

"Our Catchment Group needs to continue. It was a shock to find how bad water quality became with intensive farming."

The restored Wangapeka Stable built in 1860 to a Kentish stable design.

Bee keeper Jeff Lukey produces Manuka Honey, marketed with the strap line 'Sherry Valley Gold.' Jeff grows trees for production and has a special interest in rare plants *Olearia Politia* and the threatened scarlet mistletoe which are both growing on his property.

Jeff Lukey uses locally endemic endangered species to enhance a stream running through his garden.

BRIDGING THE SHERRY

Frank and Lisa White, dairy farmers at 'Twin Oaks' got involved in the cow crossing study.

"Great ideas evolved through the LEP process. We have increased the area where we spread our effluent to 10 hectares. We are frustrated though at how much there is to do and the cost."

The Savage family built a bridge and installed the first weeping wall effluent system in the valley with a pond that has 2-3 months' storage capacity.

Frank and Lisa White standing on their bridge.

Paul and Nicky Bavin's bridge, built 2005.

Jeremy Savage in front of the bridge built on their farm in the lower Sherry.

WHERE WE ARE NOW

Improving water quality remains a long term goal for the Sherry River community. Scientists encourage us not to lose heart if monitoring results do not show rapid change.

In developed catchments, maintaining good water quality is ongoing. We are continuously making small improvements but there are still times of the year when monitoring data shows spikes that do not meet our goal of bathing standard water quality. Riparian plantings take a long time to become fully effective for filtering and shade.

We know there is still work to be done. Working together helps share the load and keep everyone focused. We need the ongoing support from Council and the co-ordination role provided by the NZ Landcare Trust to help us. We are assured by the Motueka Integrated Catchment Management science team that water quality goals in the Sherry River will be reached as our Landowner Environmental Plans are implemented. As a farming community we are confident that given time and income we have the skills to make this happen.

The Sherry River Catchment Group management team.

Bill Anglesey and Bill Booth erect the Sherry River Catchment Group sign; a daily reminder of the commitment by Sherry catchment landowners.

IMPACTS OF LAND-USE ON THE MOTUEKA RIVER & THE RIVER PLUME

Scientific information from the Motueka ICM project tells us that the health of the Motueka River is better than the national average but, in flood events, it is unsafe to swim or harvest shell fish in the river plume because of high levels of bacterial contamination. These die off in sunlight.

Nutrient loadings into Tasman Bay are not excessive and are a source of food for shellfish, however with higher nutrient loadings come higher bacterial loads.

Compared with other countries, suspended sediments in the river plume are not high but the science team are cautioning that changes should be tracked to determine if there is sediment build up in parts of Tasman Bay over time. Historical evidence confirms that suspended sediments affect the scallop fishery. It is the medium to large flood events which are the main cause of sediment transportation as it flushes the incremental build up of sediments in side streams. Voluntary, affordable management practices, which minimise transportation of sediments out into Tasman Bay, will help protect the future potential of the shellfish resource.

The Sherry River showing the colour from which it derived its name.

ACKNOWLEDGEMENTS

This booklet was researched and compiled by Barbara Stuart Regional Co-ordinator for NZ Landcare Trust. It has been produced to mark the end of the Sustainable Farming Fund project and the Motueka Integrated Catchment Management research project, and to honour the wonderful people who make up the Sherry River community. It is intended that this booklet will remain with the community as a reminder of both projects and to inspire wise future sustainable land management.

Special thanks to Andrew Fenemor, who helped make it all happen, and who resided in Wangapeka catchment during his childhood. The community has greatly appreciated his involvement and expertise along with that of the science team involved in the 10-year Motueka Integrated Catchment Management (ICM) programme who motivated the sub-catchment work in the Sherry River.

The science team members included Rob Davies-Colley, Chris Phillips, Les Basher, Roger Young, John Nagels, Rob Merrilees, Paul Gillespie, Lisa Langer, Nick Ledgard, Dave Henley, Trevor James and Andrew Burton.

The Motueka ICM project is a partnership between Landcare Research, The Cawthron Institute, NIWA and Tasman District Council. Its purpose is 'Improved management of and social learning about land, freshwater, and near coastal environments in catchments with multiple, interacting and potentially conflicting land uses'.

Granite Creek.

Special thanks to:

Andrew Fenemor
Coordination and editorial support

Nick Ledgard & David Henley
Sherry River native plant establishment guidelines

James Barringer
Mapping

Barney Thomas, DOC
The definition of Matariki and history of the area

Roger Gaskill
Rare plants and technical support

DOC, Motueka Area Office
Mistletoe photos and project support

Hilary Fenemor
Review & compilation of best management practices

Andrew Burton
Farm environmental planning

Trevor James, Tasman District Council
Water quality monitoring

Rob Merrilees, NIWA
River flow monitoring

Ed and Lorraine Lukey
The history of the Matariki Stables

Bill and Jeff Lukey
The history of goldmining and land uses

Abby Davidson, NZ Landcare Trust
Graphic design

James Barnett, NZ Landcare Trust
Editing

Marc Dresser, Landcare Research
Editing

Lewis Metcalfe, Fonterra

Debbie Care, DairyNZ

David Harris, Rabo Bank

Andrew Karalus, Nelson Forests Ltd

Neil Deans, Rhys Barrier and Lawson Davey, Nelson Marlborough Fish & Game Council

Students, Tapawera School

Louise Askin, Sustainable Farming Fund

Nick Dalgety and Chas Perry, Ministry of Agriculture & Forestry (Richmond Office)

Edwin Newport, Federated Farmers

Rob Smith, Tasman District Council

Thanks to the farming families past & present:

Roy and Yvonne Bensemann

Frank and Lisa White

Bill and Lisa Anglesey

Rod and Pauline O'Beirne

Ed and Lorraine Lukey

Bill and Jeanette Booth

Philip and Jocelyn Riley

Dennis, Trish and David Meade

Paul and Nicky Bavin

Steve and Kerry Semmens

The Savage family

Harry and Joan Hancock

Alistair Reay and Linda Barnett

Jeff Lukey

Maps, information and photographs from:

Barbara Stuart, NZ Landcare Trust

Andrew Fenemor, Motueka ICM Project Leader

Andrew Burton, Tasman District Council

James Barringer, Landcare Research

Jack Anglesey (historic photos)

THE SHERRY IS OUR PLACE AND OUR HOME

Sustainable Farming Fund
Ministry of Agriculture and Forestry
Te Manatū Ahuwhenua, Ngāherehere

TDC Tasman District Council

Landcare Research
Manaaki Whenua

NIWA
Taihoro Nukurangi