

Tabled at Hearing 24/04/2013

Submission of Pam Richardson submitter number 253 on  
the proposed Environment Canterbury Land and Water  
Plan 24<sup>th</sup> April 2013

1. My name is Pam Richardson. I farm with my husband Ian and our son Andrew on our property 'Balcarres' in Holmes Bay, Pigeon Bay Banks Peninsula.
2. Our property 'Balcarres' is a 687 ha Banks Peninsula hill and high country sheep and beef property. The property is situated 85kms from Christchurch in a small inlet to the left of Pigeon Bay in Holmes Bay. The property is off the Holmes Bay Port Levy Road and is 4kms on shingle road from the beach area of Pigeon Bay.
3. We have three distinct classes of land:
  - 40ha of rolling downs which are subdivided into 15 paddocks that have all been cultivated and are in high performing grasses or in forage crops.
  - 600ha of steep grassland in 60 paddocks that are top dressed regularly.
  - 40ha of tussock grassland located in the Wild Cattle Hill area.
  - community groups to resolve issues and benchmarking.
4. We have farmed 'Balcarres' since 1988. Farming and our love of the land comes from understanding our relationship with the land, the capability of the soils, the indigenous vegetation, the climate, monitoring etc. We spend considerable time networking, attending

5. We are members of Federated Farmers of New Zealand and I am the Facilitator of the Banks Peninsula Branch of North Canterbury Federated Farmers. I have held this position for 20 years. I am also a Past President of North Canterbury Federated Farmers [2000 to 2004]
6. In 2000 I was awarded a Banks Peninsula Community Services Award for my work. Ian and I also have an Environment Canterbury Outstanding Contribution Award for work with Pest Management Work on Banks Peninsula and in 2010 Awarded a Member of the New Zealand Order of Merit for Services to Conservation and the Community.
7. As the Banks Peninsula Branch Facilitator and a Past President of North Canterbury Federated Farmers I have had considerable opportunities and experience of working with communities to find solutions to group concerns in a wide range of activities such as the *Akaroa Harbour Issues Working Group*, the *Banks Peninsula Pest Liaison Committee*, the *Goat Working group* a founding member of the *Banks Peninsula Conservation Trust*.
8. I am now the *Chairman of the Akaroa Wairewa Community Board* and a *Banks Peninsula Zone Committee Member - Community representative*
9. Learning about the Environment and the effects we are having inspired me to research the real meaning behind sustainability. In March 2007 I received a Certificate of Achievement from the Open Polytechnic of New Zealand having pursued a prescribed programme of study and having satisfied the academic requirements of Intro to Sustainability Using Natural Step.

10. In 2006 we entered our property in the Ballance Farm Environment Awards and received a Land and Life Award.

11. I am very aware of the Local Government Act and the Resource Management Act 1991 and I have been actively involved in a considerable number of District and Regional council processes. The District Plan- as a submitter and on the Task Force for Mediation of the Banks Peninsula District plan and the Environment Court hearing Briggs / Christchurch City Council, Environment Canterbury and its many documents - the Natural Resources Regional Plan, the Regional Pest Management Strategy, and the Annual Plan etc

12. I am passionate about the community and what can be achieved by working together. Working to find solutions amongst a group of people with many differing views has been a challenge but I believe that we have been very successful.

13. Community support is an integral part of my life and in my many roles it is about supporting a large 'family' of farmers. We have so many positive results on Banks Peninsula.

14. In my submission there are three issues that I would like to address. These issues will impact on our property --the high soil erosion prone land mapping, the extensive non-suitability area for septic tanks on Banks Peninsula, and Farm Plans.

15. Over the years the landowners of Banks Peninsula have worked very closely with the staff of the Land Portfolio section of Environment Canterbury addressing weeds and pest issues etc. If the present land uses are causing such a problem why has it not been worked through with our landowners? Why have there not been workshops to highlight the issues to ensure we understand the issues? Where are the fact sheets?
16. Banks Peninsula has several Farm Discussion groups, a dairy farm group and the Southern Bays Farm Discussion Group. All meet regularly and become involved in the critiquing of each other's property and offering advice. Banks Peninsula is often said to be farmed as 'one big farm'. The Southern Bays group carries out annual benchmarking. The farmers are good at working together and understand the importance of what can be achieved when all contribute.
17. The Banks Peninsula farming community also works together when faced with challenges and understands the importance of combining efforts. We have been involved with a number of organizations working together to benefit the much wider community eg the Possum Management Strategy ,the Environment Court hearing to resolve Landscape Issues etc.

18. To keep the team in touch, we have email networks, newsletters etc. Environment Canterbury should be sharing information with our community. Any opportunity to learn about our environment what is happening and what we could do to improve situations is important for our sustainability and continued use of Banks Peninsula land.

19. I believe that environment Canterbury has a responsibility to monitor and share information with us as landowners. It is not fair or reasonable to have designations placed on our land and presented to us with rules 'out of the blue'. The septic tank defined area and rules area are attached as presented at a recent meeting.

20. Banks Peninsula can be considered premier New Zealand hill country because of the soils, the climate and the closeness to the markets. The area is farmed in keeping with the environment and the climatic changes throughout the year.

21. With our property the lines on the map for the high soil erosion risk reasonably reflect what we know about the underlying soils and their classification and that are suitable for cultivation and are already under cultivation.

22. The wider Banks Peninsula community will not be aware of the Soil Erosion Risk map and the extensive area involved

or the rules around these areas. Already appropriate areas are under cultivation. It is important that we are to improve pasture and how important it is in our land and stock management.

23. The decisions to cultivate appropriate areas are worked though with careful decisions being made. You can see the problem areas across the land. On our property we do not have any evidence of erosion or slippage on our cultivated land.

24. Farmers have been farming Banks Peninsula since the 1850's and has seen many changes but sheep and beef farming remains and in our catchment similar stock numbers were recorded in 1900 in our Holmes Bay catchment . [Taken from Annual Sheep Returns 1899/1900 attached ]

25. We have become experts at what we are doing and our stock is well sought after. As a farming family we have a passion for our property, the land we own and our future. We are progressing through farm succession.

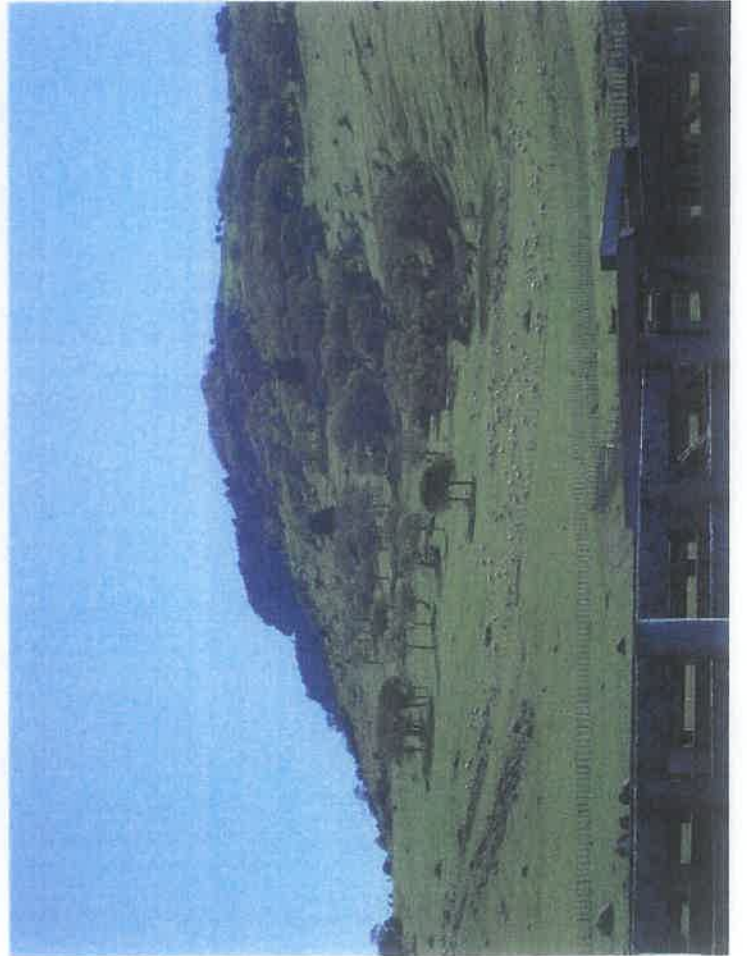
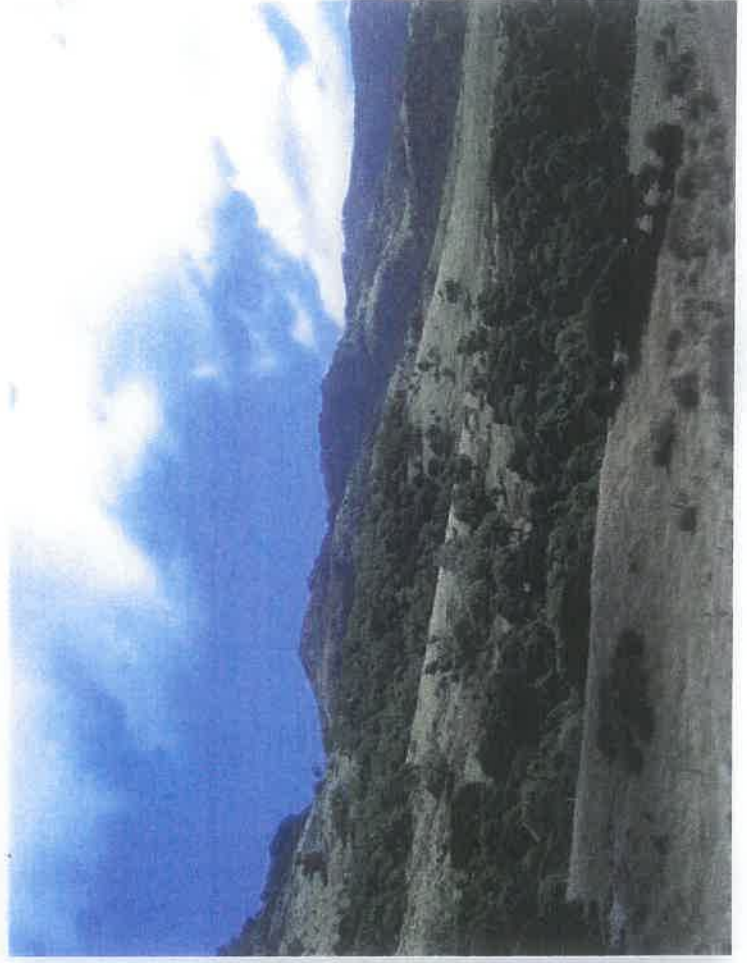
26. We have a farm plan that we have developed by working with a range of specialists that have come to our property We have Farm Management studies by Lincoln University students with reports on our property, an Ecological Survey identifying areas of significance, an Olearia Survey, old Soil and Water Conservation Board plans identifying soil types etc.

27. We have written our plan in our own words. It is how we see it .Our skills have come from working with our land seeking information and by our involvement with other people and organisations.
28. There will be some extra input that will be required eg with fertilizer application - we use an appropriate advisor and will call in advisors when necessary and use them to provide any support advise etc tailored for use of our property.
29. Banks Peninsula tools eg Overseer programmes have not been designed with us or for us. We are different to the Canterbury plains and because of our extensive pastoralism the model will not truly reflect the situation.
30. We are committed to farming sustain ably and will record the progress and developments that occur on our property. The early photographs show a battered and burnt landscape.
31. Today we see a 'healing 'landscape. The pastoral grasslands and scattered remnants with a backdrop of the sea are what contribute to a magnificent picture of Banks Peninsula.
32. The Richardson family wants to ensure that we have opportunities for farm succession and long term economic sustainability. We have worked very hard to have the property and the family also has strong attachments and feelings for our land. They want the opportunity to build on our achievements.

33. We are an extensive pastoral operation and can be considered a low cost business. We have to contain our costs to survive .We are part of the Southern Bays farm discussion group and benchmark our properties to ensure that we using best practice
34. The property is a family business and we intend to finish the farm succession programme already underway.
35. Our property is special we have worked hard to achieve sound management. We will continue to make wise decisions to ensure we continue 'the repair to our land following the early settling of Holmes Bay.
36. The Richardson family thanks the commissioners for the opportunity to share our concerns today.



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## **Our vision for ‘Balcarres’**

*“A farming operation working with a balanced, diversified landscape where native ecosystems continue to flourish, special attributes of the property are protected and enhanced, economic returns from ‘Balcarres’ are sustainable and the Richardson family are able to enjoy the fruits of their labour with the next generation taking over the responsibility for the operation in the very near future.”*

*October 2006*

## **‘Balcarres’ and how it all began for the Richardson family**

‘Balcarres’ is a 710 hectare property located in Pigeon Bay, Banks Peninsula. My husband Ian and I own and operate the property in partnership. Andrew, our son is the stock manager and in the very near future we hope that we are able to pass the leadership role on to Andrew and his partner Jo. We have two other children Hamish and Sarah.

Owning a farm was the goal Ian and I set, when we married in 1972. A farm was beyond our financial means but with the support of our families and a family loan from our grandparents, Ian and I purchased, Mountain View Holiday Park Hanmer Springs. We rebuilt the entire motor camp, replacing cabins, building motels, squash courts, toilet blocks and kitchens. Many valuable skills were attained during this time, including design and construction of buildings, welding, plumbing, and management and business skills. Our lives were hectic and the customer was always ‘king’. Our children were growing and we needed a holiday or a change of lifestyle.

We evaluated our options including our assets at the holiday park. With friends interested in purchasing the park, we started looking for ‘that special place’, our farm.

In 1988 ‘Balcarres’ located in Pigeon Bay was purchased, with the Wroxton block of 135 hectares being added in 2000 and in 2005 a further 89 hectares of the Currie property. The farm is now considered to be a well balanced property. As outlined in a 1988 property report<sup>1</sup>, a number of factors including the strong volcanic soils, temperate climate, lack of serious weeds and location near a major commercial centre combine to make this an attractive property. The additional land acquired since the farm was purchased has added an improved balance of summer and winter country and areas of fertile soils already developed with new grasses.

Ian and I looked at several properties, searching for something that was relatively low maintenance and having an ‘x’ factor. Banks Peninsula was the favoured spot. Ian had many fond memories of family holidays and work experience in the area and during our time in Hanmer Springs, our family had many short breaks at Hickory Bay. The deal was clinched in April 1988 and the era at Hanmer Springs was closed. The farm became a reality.

## **Features that make ‘Balcarres’ special**

The farm is adjacent to the coastline. The main farm rises from easy spurs around the homestead to 100 metres above sea level, then climbs with increasing steepness to volcanic rock escarpments at 621 metre above sea level, all forming a large basin with a

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<sup>1</sup>Property of Strathmore Enterprises Pigeon Bay, Simes Urban and Rural Valuers report 1988.  
Revised 2012 / 2013

south easterly aspect. From the summit, an area of easy to moderately steep hill country drops away to the North West, giving a good balance of aspect.

On the Wroxton block, the land climbs rapidly once again, to a flattened ridge line facing north into the warm winter sun. This block grows all winter and balances the cooler moister homestead block.

The Currie block has provided opportunities for improved pasture development and the opportunity to finish stock. An extra 38 hectares of adjoining land is leased.

The property, with the additional land purchase since 1988 can now be considered a well balanced 6000 stock unit, hill country, sheep and beef property, breeding its own replacements and generally capable of fattening a good proportion of sale stock with some sheep sold as breeding stock to local farmers.

### **A glimpse of Early Banks Peninsula and what we have today**

Hugh Wilson describes in his book *Hinewai, the Journal of a NZ Naturalist*, Banks Peninsula was once richly clothed from side to side with forest. Human settlement over 700 years ago began the deforestation. The Peninsula was once home to birds too numerous to number and all swept away by two waves of human settlement. The first was from tropical Polynesia some 700 years ago and the second was 150 years ago by Europeans. Today only one percent of the original old growth forest remains.

European settlers quickly recognised the value of the timber and of the cleared land for cultivation and pasture. By 1900 virtually all the forest was removed by cutting for timber and increasingly by purposeful and accidental fires. As the bush was cut down fires became frequent. The great fire of 1863 originating in Pigeon Bay eventually covered the whole of Banks Peninsula. "The fire lasted a long time and for weeks the sky was scarcely seen through the thick volume of smoke".

The Holmes Bay catchment where our property is located is said to have provided the timber for the Lyttleton Rail Tunnel and some of the major buildings in the first city of New Zealand, the city of Christchurch. The timber was also used to build boats and many of the homes in the Pigeon Bay area.

Parts of the property have names that perhaps reflect who some of our neighbours were in those very early days. Maori Gully is said to have been part of the access route used by Maori between Pigeon Bay and Port Levy. History tells a story that a previous landowner found a Maori musket in the area indicating that Maori frequented the area. Holmes Bay is named after one of the early owners and the suppliers of timber to the Lyttelton Rail Tunnel. Mount Sinclair is named after early owners of land in the bay.

As a result of human settlement much damage was done to the native vegetation but beyond belief, Hugh Wilson<sup>2</sup> writes, "the native forest species have been quietly regenerating faster than they are being cleared. The Peninsula is now a growing treasure trove of biodiversity with birds 100 years ago so few now are flourishing among regenerating vegetation. The result native forest trees and scrub now cover about 15% of

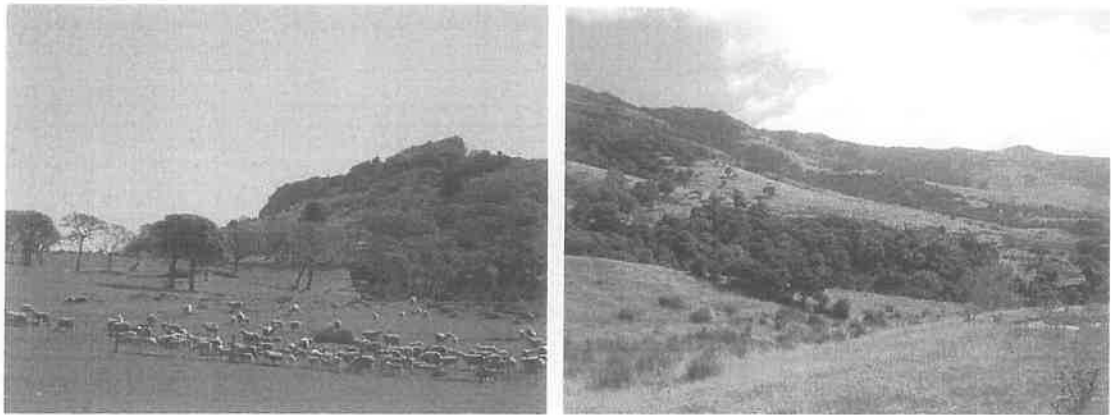
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<sup>2</sup>Hugh Wilson Botanist and writer of Banks Ecological Region.  
Revised 2012 / 2013

the Peninsula's 100,000 hectares still only a fraction of the forest cover that greeted the Europeans in the 1830's, but definitely an improvement on the forest's nadir at the start of the 20<sup>th</sup> century."

When you look at our property and what has occurred as the land has been used, it reflects a balance of landuse allowing production and in places regeneration to take place. 'Balcarres' has a rich mosaic of indigenous vegetation in some quite clearly defined areas with extensive ecological corridors, mixed with exotic vegetation and several small woodlots. It is a rich diversified landscape.

The aim today is to ensure that we build on those gains that have already been achieved. It is about matching our landuse with our environment, the soils and soil classification and the climate.



## **Thumb Nail Sketch of the Property**

**Owner's:** Pam and Ian Richardson

**'Balcarres'**

**Pigeon Bay**

**Banks Peninsula**

### **Property Information**

**Area:** 686ha plus 38 leased 670ha [effective]

**Altitude:** 50 to 600m

**Rainfall:** 600 to 1000mm

**Aspect:** It is considered as a 'well balanced' property, with all year growing potential.

**History of Farm:** Purchased in 1988. Originally farm was part of Holmes Bay Estate. We are the 3<sup>rd</sup> owner. Increased property by 100 ha in July 1999, leased 38 ha 2004 and purchased a further 85 ha in 2005. In April 2005, 27.6 ha of bush reserve covenanted with a Banks Peninsula Conservation Covenant.

## Stock information

### Sheep

#### Breed: Romney

M/A Ewes 2500

1year 120

120E Hoggets 680

Rams 30

### Cattle

#### Breed: Hereford and Hereford Cross

M/A Cows 120

Rising 1yr 120

Rising 2yr 35

4 bulls

## Total stock units

Sheep s/u 3150

Sheep%: 64%

Cattle s/u 1800

Cattle %: 36%

**Total Stock Units 4950 Stocking rate 7.2**

## Farm Management:

Sheep easy care North Island Romney rams have been selected for fertility and growth rate. Some lambs sold prime to gain the early market price differential with the early November average at this stage of 17 kg. Moving through the season lambs will be sold prime and as stores on lamb plan. Surplus ewe lambs sold under contract. The breeding objective is to reach 140 to 150%. - 2013 145%

## Vital Statistics:

**Type of farm:** 'Balcarres' is a Banks Peninsula hill country sheep and beef operation, breeding its own replacements, selling store stock and fattening a small proportion of sale stock. Some stock is sold to customers on the Canterbury Plains who are seeking well bred ewe lambs and young bulls.

**Situation:** The farm is located on the Holmes Bay Valley Road on a gravel road 3kms north west of the Pigeon Bay settlement. Holmes Bay is an inlet to the west of the settlement and part of Pigeon Bay. Christchurch is the main service centre, it is 78kms from the Pigeon Bay settlement.

**Climate:** Rainfall is within a range of 875mm to 1125mm and is generally well distributed. The area is not often subject to the desiccating effects of the Canterbury nor'wester to the same degree as the plains.

Although the farm is subject to southerly winds, the north-easterly aspect of the Bay provides a more mild winter than many other Canterbury farmers face. It enjoys an extended season of pasture growth and an earlier spring. Areas of the property are virtually frost free, providing excellent opportunities to develop new pastures and assist in facing climatic challenges. The cold southerly winds can be a hazard to farming but because of the excellent bush cover, stock is well protected.

**Soils:** These are classified by the NZ Soil Bureau's "Soils of the South Island, New Zealand" as Akaroa steep lands, Stewart steep lands and Stewart-Akaroa steep lands soils. There is little practical difference between the soils for farming purposes.

Pockets of native bush throughout all the hill blocks provide superb shelter during the hot  
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drier summers and the cold winters and snowfalls.

**Water supply:** This property has good reliable springs and streams. Stock have a piped water supply, to keep them well away from the stream and the trough's often at the top of the hill to encourage them to utilise the whole paddock. A community piped stock water scheme involving ourselves and three neighbouring properties runs from the mountain to the sea, down ridge lines involving water storage in dams and tanks. This gravity fed system keeps stock out of the gullies and away from the streams and dry creek beds.

**Weeds and Pests:** The property has the expected weeds for this class of land. It is relatively free from problem weeds. A small patch of gorse requires control regularly. Other weeds, such as Nassella are looked for as this poses a threat to the eastern bays areas. Environment Canterbury's Pest Management Strategy is complied with. Possum control has been under the Animal Health Board Tb Management Plan.

**Shelter:** Good stock shelter is important and is provided by the natural contours, the rocks, the remaining logs, native growth and tussock cover. Dwellings and farm buildings are very well sheltered with mature shelter trees that will need to be replaced.

**Stock information:** Total stock units have been increased with the recent addition of the further 83 hectares of land carrying 4772 stock units stocking rate of 7su per ha with a 70 sheep to 30% cattle ratio. Sheep are Romney's and we use North Island rams. These sheep are good at performing on steep topography and are used instead of the traditional Romney breed. Poll Dorset /Texel terminal sires are used in the older age group sheep. Options for the early sale of stock is considered when appropriate.

The property has 120 Hereford breeding cows mated to a Hereford bull, the first calving heifers to a Hereford and the first cross cows to a Charolais bull. There is useful trading stock on the property. Carrying heavy cattle on the property over winter is avoided so as to avoid tramping and pugging of the land which often becomes very wet. All the stock carried is designed to allow flexibility with policy and gives opportunities to shed stock quickly in times of extreme pressure.

*Note : The last three years have been challenging for the Richardson family as a result of the earthquakes . The homestead was damaged in the September 4<sup>th</sup> quake and has since had a major repair - almost \$500 000 repair with a pay out by Tower Insurance and the repair managed and worked on by the Richardson family . Both families moved to other accommodation throughout the repair. Andrew and Jo have since moved back in.*

*Another adjoining property 8ha was purchased in April 2012 to assist with the farm succession programme already underway. This property will be managed as part of the home block. The house on this property also required earthquake repairs that have since been completed – EQC Opt out programme*

*The farming seasons during the earthquake period 'were kind'. Both returns and the seasons were favourable. 2012/13 has seen a rapid deterioration in the financial returns and the dry conditions being experienced. Some stock is being sold early to protect the coming seasons breeding stock and progeny.*

## **Our Future**

### ***Short term direction 1-2 years 2012-***

1. Stay in business.
2. Work with a focus of the status quo with some flexibility - stock policies and numbers.
3. Improve management with the utilisation of developed improved pasture and the subdivision of the property.
4. Improve overall profitability.
5. Continue with monitoring programmes, includes water testing, soil tests, stock performance and faecal egg counts to determine drench requirements.
6. Consider further environmental protection, amenity and shelterbelt planting.
7. Production levels to be achieved:
  - 150% lambs tailed/ ewes mated
  - 80% lambs tailed/hoggets mated
  - Herford yearling bulls to be sold to dairy industry
8. Maintain house and buildings and 'look after ourselves'
9. Celebrate successes and take every opportunity to find better ways of doing things.

### ***Medium- term direction 3-5years***

1. Reduce debt, repay some of the loans to ensure that our two families can continue to be employed in the partnership.
2. Sell two sections of approximately 7 hectare each to assist with debt reduction.
3. Align business structure with a medium term business strategy.
4. Continue to increase the profitability of the property.
5. Increase GFI and EFS.
6. Work smarter not harder.

### ***Long-term direction 5 years plus***

1. \$500,000 gross farm income.
2. Look at an off farm investment if opportune
3. Andrew the owner of the property and Ian the boy around the farm.
4. Tax paid return on capital of?
5. A number of fenced covenanted areas.
6. Good time management and resource allocation to keep all parties well rested and enjoying the lifestyle and the working environment on 'Balcarres'.

### ***How are we going to get there?***

- Improve overall monitoring of all aspects of the business.
- Upskill the Richardson team, business and farm management skills
- Continue networking and talking with key people.
- Use top performers as a benchmark.
- Keep up with/ahead of technology.
- Plan ahead for further development.
- Keep involved with the issues of the day.
- Look for new opportunities (maybe based on the attributes of the property e.g. the Conservation areas, walking and climbing activities etc.).
- Ask questions and push the boundaries but with a clear understanding of sustainability.
- Have time out and holidays.
- Celebrate achievements.



# **Farm Environment Plan focusing on ecological areas and an action plan for each area**

## **Introducing Banks Peninsula including the Holmes Bay catchment**

### **A snapshot of its formation and history**

“Banks Peninsula was once a volcanic island which started to emerge from the Pacific Ocean about 10 to 15 million years ago. In much more recent geological times perhaps within the last 20,000 years, the island became tied to the eastern edge of the mainland as the Canterbury Plains formed. Over time the basalt rock of the ancient lava flows have been eroded by stream action to form deep valleys in a radial pattern from the centre. More recently a mantle of fertile loess soil has softened the landscape in all but the steepest places.”<sup>1</sup>

Banks Peninsula was once clothed in a dense Podocarp forest. It was subjected to many catastrophic events with the first period of destruction being carried out by humans 7 to 800 years ago. In the centuries between the Polynesian landfall and the arrival of the first Europeans in the 1800's, one third of the Peninsula forest was lost through burning. Those first Europeans found a still largely forested landscape teeming with birds. The agricultural history is one of bush and forest clearance in order to create land to cultivate crops and establish pastures to graze animals. Holmes Bay was part of this story.

At the lowest period of indigenous vegetation cover, in 1920 the majority of Banks Peninsula and including the Holmes Bay catchment the vegetation would have been removed or destroyed by fire. It is said that very little of Banks Peninsula- less than 1% of its area – has been untouched by fire during the last few centuries.<sup>2</sup> Today, evidence can still be seen of the horrific fires of the 1850's onwards with naked logs lying on the hillsides and you can turn over the fragments of the wood and see the scorch marks.

The mature trees were recognised as valuable timber for building, boat building and other infrastructure necessary at those times. The logs were dragged down the slopes to the railway line running down the Holmes Bay Valley, to the Holmes Bay wharf to be barged to the first city of New Zealand, Christchurch. This timber was used to build the city and in particular the Lyttelton railway tunnel. Mr Holmes after which the Bay is named was the engineer involved.

### **The Catchment of Holmes Bay**

Holmes Bay Valley is the smaller of two valleys making up Pigeon Bay. It sweeps gently around Mount Sinclair's northern spur, visually isolating the head of the valley from the mouth and separated from the head of Pigeon Bay by a small point. A gravel beach extends out to mudflats.

Looking up the valley the overall impression is of a picturesque balance of pasture and vegetation. On the lower slopes we have improved pasture. The second growth indigenous vegetation is widespread and covers many gullies and slopes. In a report carried out by Hugh Wilson in 1999 he

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<sup>1</sup> Magazine of the Queen Elizabeth II National Trust

<sup>2</sup> Banks Peninsula Plants -Threats and Rescues by Hugh D Wilson .Canterbury Botanical Society Journal 36 2002.

says that 'continuation of present farming practices would not see the disappearance of the bush canopy and open treeland and shrubland which contribute to the landscape and biodiversity of the Holmes Bay district. The trees and shrubs dominating now have regenerated under the present farming conditions and will continue to do so.'

Hugh Wilson, a botanist, who carried out the botanical surveys of the whole of Banks Peninsula, traversed the property in 1987/88 and made a return visit in 1999. On these visits Hugh has taken extensive notes and these have been recorded on a card file.(Appendix I). It is evident that the 'Balcarres' home block has areas that are highly valued. The Wroxton block has considerable indigenous vegetation cover but it has not been ranked. The recently purchased Currie block also has reasonable cover and in many gullies with the less intensive grazing, regeneration is underway.

Stock have free access to all the land area except where access is prevented because of the terrain, where areas are being fenced as a result of subdivision to improve pasture management or where the special values of the area are being acknowledged by fencing. As was done in Maori Gully, areas of special value will be fenced and covenanted to protect in perpetuity as funds become available. It is also an opportunity for improved management of the pasture adjoining the area and stock movement.

Hugh Wilson continues in the report<sup>3</sup> with further comments that "the present composition and condition of the bush areas in some of the areas represents a depleted and depauperate state in which a good proportion of plant species would form a significant part of the bush under more 'natural conditions' are absent or rare because of their palatability and vulnerability to cattle and sheep. Such species include tree ferns ground ferns palatable under storey shrubs such as kawakawa and seven finger and palatable canopy species such as five finger mahoe and fushia. Of the Podocarps the [the dominant tall trees of the original forest], totara and matai will regenerate under moderate grazing".

Hugh continues "fencing of areas and exclusion of farm stock would greatly enhance their natural value, the diversity of plant species within them, and their suitability as habitat for birds and other native fauna. Even in droughty conditions at the time of one of my visits seedlings of a wide range of species palatable and not, were abundant, and a considerable range of ferns persisted". This is where the opportunity to renew fence lines or when placing new ones it is important to have a plan in place to assist with the decision making process.

Following Hugh's visit, the areas were categorised and ranked from B through to E and a management plan developed. It was noted by Hugh in the report, that some of the areas may not be as worthy of protection if it jeopardises protection of areas more highly valued. As a result, the highest ranked area of indigenous vegetation has been fenced and a Banks Peninsula Covenant used to ensure that stock are excluded from the area and a management plan developed. This area of 27 hectares is the Maori Gully Conservation area.

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<sup>3</sup> Botanical notes on three bush area as at 'Balcarres', Richardson's Property, Holmes Bay

## Ecosystems Present

'Balcarres' comprises a number of ecosystems. Each type of ecosystem will be explained and our action plan outlined.

*Note: The environmental section of the Farm Plan is part of a learning process and additional information and management programmes etc. will be included as our knowledge and skills improve.*

### ***Ranked Indigenous Vegetation***

One of the many very special aspects of our property are the extensive areas of indigenous vegetation. When earlier farm photographs are referred to the property looks quite different. The overall picture today is of a much better 'treed landscape'.

**B C D and E ranked areas.** Refer to the map over the page to identify the areas involved.

The property has been very carefully traversed by Hugh Wilson when the ecological surveys of the Herbert Ecological district were being carried out in the late 1980's. A 'cards system' highlights the vegetation existing on the property. Hugh has since been back to compile reports to support the subdivision of a smaller area off the property and in resource consents applied for and has written a report as a result.

The Department of Conservation also released a summary in the late 1980's based on Hugh Wilson's work of what has been identified on the property. It shows that almost the whole area has wild life values and significant vegetation. The department has 'collected' all the ranked areas as one.

Hugh's card system has been of considerable value and has allowed us to understand and appreciate what we have on our property. The ecological notes written by Hugh are included in the appendix. We have a special place and we need to build on the qualities that are present.

#### **The areas identified on our property:**

- **Herbert 562 C**

Head of Holmes Stream under trig FF, scrubby, regenerating upland slopes.

- **Herbert 595 D**

Bush and scrub alongside of ridge west of Holmes Bay Valley where there is a small patch of bush at head of the valley.

- **Herbert 557 B**

Trig J [621m] north of Wild Cattle Hill and steep bushy ground on Pigeon bay side. A view can

be had from Coopers Knob to Stony Bay Peak. Christchurch can also be seen along with Purple Peak

- **Herbert 556 D**

Holmes Bay, slopes between Fraser's Road and Port Levy Road with a mosaic of numerous bushy gullies with pasture and treeland.

- **Herbert 476 B**

Wild Cattle Hill, tussocky summit area, and bushy bluffs on Holmes bay side. Wild Cattle Hill is 600m.

- **Herbert 555 E**

Holmes bay Valley. Bush gully south of Frasers Road.

Of note the criteria for ranking categories are attached along with an explanation of the categories in the appendix.

<b><i>Ranked Indigenous Vegetation</i></b>
<b><i>Action Plan</i></b>
<ul style="list-style-type: none"><li>• Identify further areas of value for exclusion of stock or other management considerations.</li><li>• Carry out further subdivision with a view to fencing off areas</li><li>• Review funding options for fencing of areas.</li><li>• Covenant areas with a Banks Peninsula Conservation Trust Conservation Covenant.</li><li>• Implement weed and pest control plans in conjunction with catchment programmes undertaken on Banks Peninsula including Possum Management strategy and a Goat Strategy. Look at implementing an onsite programme.</li><li>• Monitor regeneration of indigenous vegetation using photography or other appropriate medium including the Formak Kit. Set up photo points in covenanted area and in other selected sites</li><li>• Celebrate success.</li></ul>



### **A project to be celebrated - Maori Gully Conservation Covenant**

In 2004 an area of B ranked indigenous vegetation was identified as an area that could be quite easily fenced and stock excluded. The first step is to sign an agreement and then the Projects Officer leads the process including the legal requirements. A trust member acts as the supporter through out all the steps necessary. The covenanting process has many steps to reaching the final outcome and took two years to complete.

Update on the Covenanted Area

The Covenanted area of 27ha has a management plan signed off at the Trusts Management meeting

Prepared by Pam Richardson April 2013

9<sup>th</sup> February 2007. This plan has been reviewed by an Environment Canterbury ecologist. The next step is for all the parties involved, to sign the Management Plan. This will take place 13<sup>th</sup> February. On the 21<sup>st</sup> February 2007 the Trusts monitoring team, including the ecologist from Environment Canterbury used the Formak Kit to assess the area and install sites to be used as on-going photo points to monitor the progress of restoration..

All the documents involved in this process are included in the Appendix

## *Silver tussock grasslands*

At a Banks Peninsula Conservation Trust tussock workshop held October 2006, Brian Molloy<sup>4</sup> said "The spread of silver tussock resulted from the Peninsula's bi-cultural heritage. Tussocks grew on rocky areas and high bluffs when forest cover predominated on the Peninsula. After fires set by the Maoris, the spread of native grasses and tussocks took off. Tussock spread on to the areas cleared by the Maoris. The fires could be carbon-dated from the remains of burnt totara giving a date for the burning of about 600 years ago.

There was a little snow tussock on higher parts of the Peninsula, but the dominant species was silver tussock, fescue tussock and little blue tussock. These tussocks migrated from the hilltops after the fires, but did not spread very far. No native grasses were strong enough to form a sword between the tussock heads, a feature noted by Mrs Charlotte Godley in a letter as long ago as 1851.

The vigour of silver tussock is due to it having 112 chromosomes, compared with only 28 chromosomes, in the little blue tussock. New growth builds up internally so that it forms a tight tussock. Its presence generally indicated the high fertility of many Banks Peninsula soils. Silver tussock can survive some moisture stress and gradually built up a distinctive pedestal. If shrubs were allowed to build up on silver tussock hillsides, cocksfoot as being more shade resistant could overcome the tussock. So a mix was needed of introduced grasses and native tussocks. Sheep wouldn't normally graze the tussock except when there was little alternative feed. Cattle could destroy tussock country if it was grazed too hard, especially by pulling out the 'tillers of foliage'.

Brian Molloy continued to say at the workshop that

"Silver tussock had a fast growth rate compared with other tussock and that its seed is light responsive. It responded well to fertiliser and sometimes grew too well. Its tops outpaced its root system, making it vulnerable to damage by grazing. However, in general, *you couldn't have a better plant for Banks Peninsula. It is made for Banks Peninsula*."

The silver tussock grassland areas on 'Balcarres' are of tremendous value for productive and for their conservation values.

These values include:

- a grass of grazing value for cattle

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<sup>4</sup> Brian Molloy Botanist.

- Shelter and shade for stock
- Assists with slow down of run off from pasture.
- Tremendous 'seeders'

### ***Silver Tussock***

#### ***Action Plan***

- To maintain and manage the tussock grassland. In some areas it may be necessary to remove plants to keep gateways, laneways etc freely accessible for moving stock.
- Take part in opportunities to highlight the value of tussocks, attend workshops etc
- Monitor silver tussock communities using photography or other appropriate medium. Set up photo points in selected sites

### ***Rocky outcrop, scarp and cliff communities***

A survey of the higher rocky outcrops by a Landcare Research scientist was reported in 2001. We are not entirely sure that a survey was carried out on our property but as a result of reviewing the report findings we believe that our tops may have been included. It is hoped that at some stage a workshop may be held and we will be involved. [A copy of the report is available.

In the report Susan Wiser discusses the threats to these areas, goats grazing the vegetation, the risk of fire, spray drift and weed invasion including wilding pines. Some of the outcrops on our property have their own natural protection because of the steepness and inaccessibility. These outcrops are important natural habitats and as we become aware of the extent of the areas further protection work maybe appropriate.

When looking across the property the exposed scarp and cliff communities quite clearly show that they are areas where there is little soil cover. They dry out once reliable rainfall ceases and we understand that covering plants have adapted to these conditions. Stock as a result tends not to camp on these areas and move to better quality pasture. There is very little invasion by exotic weeds and these areas will need to be managed and monitored closely. To respect these areas it is necessary to keep heavy stock away from these areas. The recently covenanted area is part of a rocky montane area.

***Rocky outcrop, scarp and cliff communities.***

***Action Plan***

- Identify rocky outcrops, scarp and cliff communities on 'Balcarres'
- Improve our understanding of what vegetation cover is present on our rocky outcrops.
- Where natural protection exists explore possibility of extending the area and if appropriate include in a covenanted area
- Manage the areas and carry out appropriate weed and pest control.
- Remove the wilding pines in the area above the Port Levy Rd.
- Monitor impact of rock climbing activities and restrict access if appropriate
- Monitor the vegetation cover and set up photo points.
- Celebrate achievements.

***Wetland areas***

There are a number of wetland areas on the property. These areas are not always wet and are often only identified by the vegetation on the site. The value of these areas is clearly understood. They not only trap sediment and reduce silt build up in streams, bacteria also breaks down nitrogen in farm runoff. Wetlands also act as store houses [sinks] of carbon.

In the Soil and Conservation plan of the late 1980's, areas where protection planting was required were identified. These were erosion prone sites where slumping was already occurring. Areas were planted out with the support of subsidies but the planting programme was not continued when subsidies were phased out in the early 1990's. The plantings today continue to grow at great speed and provide for erosion control and shade for our stock. There is scope for further work to be carried out. A trial plot of poplars exists on the Wroxton block. Documentation relating to this trial is not currently available.

***Wetland Areas***

***Action Plan***

- Identify and document wetland areas on 'Balcarres'
- A wetland area in the home block, in a recently developed area, to be planted with indigenous vegetation appropriate to the site. This is a small area and will be fenced to exclude stock.
- Manage already planted small wetland area of flax and other native grasses adjacent to the Port Levy Rd. This very small area is the result of a replacement fence and a waste area has been created.
- Locate information on trial plot of poplars on Wroxton block.
- Ensure that the wetland areas are kept free of gorse and blackberry and consider other weeds for control if necessary.
- Celebrate the successes.

## ***Riparian communities.***

The Holmes Bay catchment runs from the mountains to the sea. Because of the shape of the valley and the steepness runoff from the hills has to drain through pasture into the Holmes Bay Valley stream. The area has many gullies and stream sides which only have water following a heavy rainfall. The intensity of the rainfall varies annually and the occasional 50 or 100year floods occur. The Wahine storm of the 1970's caused the most recent significant damage followed by the storm that demolished the Lyttelton marina in early 2000.

'Balcarres' has many dry stream beds with vegetation cover running almost along the entire length of the stream bed. Some of these are bounded by kanuka, manuka and other indigenous vegetation while others are clothed with exotic grasses. Some areas also contain plants appropriate to wetter areas including rushes etc.

### **Plantings:**

- Increase water absorption and reduces runoff.
- Reduces soil loss off steep slopes.
- Reduces flooding and damage to stream banks.
- Filters out nutrients and pollutants.
- Increase habitat value and diversity.

<b><i>Riparian Communities</i></b>
<b><i>Action Plan</i></b>
<ul style="list-style-type: none"><li>• Identify and document Riparian borders</li></ul>
<ul style="list-style-type: none"><li>• Continue with the water quality testing being monitored in the Holmes Bay Stream. Refer to the paper dealing with Stream Testing in the Holmes Bay Stream included.</li></ul>
<ul style="list-style-type: none"><li>• Look at excluding stock from appropriate areas to allow regeneration</li></ul>
<ul style="list-style-type: none"><li>• Monitor the state of the vegetation.</li></ul>

## ***Amenity plantings using exotics and indigenous vegetation - Ecological Corridors.***

The health of an environment is greatly enhanced by the ease at which our fauna can move through out the catchment . The whole eco system contributes to the overall health of the environment and our healthy stock and ultimately our production outcomes. The vegetation covers whether indigenous or exotic has an important role to play.

Holmes Bay when viewed from photographs taken in the 1920's had a clean open landscape. Over time the amenity planting and regrowth of the indigenous vegetation have contributed the now very pleasing landscape and healthy environment. The vegetation is well connected and providing healthy ecosystems and corridors for fauna within. The amenity plantings on the property have been added for a number of reasons and go beyond aesthetic values. They are a vital part of the overall health of the catchment.

Shelter belts are provided for stock and wind protection generally. The aspect of the property and the altitude requires protection from the elements for stock and buildings on the property.



Small areas of forestry have been planted to assist with timber requirements on the property. These areas have been prone to wind damage and may be of little value other than firewood.

With the recent purchase of Curries block and the development of new areas of pasture by the previous owner clearing all woody vegetation, the issue of runoff needs to be addressed urgently. The paddocks have been fenced with deer netting. Shelter belts and plantings to minimise the impact of runoff will need to be designed, planted and managed. The loss of soil into the water ways from this area is a real threat and needs to be addressed as soon as possible.

### *Amenity plantings using exotics and indigenous vegetation*

#### *Action Plan*

- Identify planted areas on the property.
- Double fence the deer fences and plant appropriate indigenous vegetation sourced locally.
- Review shelter belt plantings and replace where appropriate
- Plant indigenous vegetation in waste areas

### *Threatened species*

As a result of continued interest in the protection of threatened species, surveys have been followed up to check on sites where some of the known species are located e.g. Olearia Fragmantissima. It may be that we have other special flora and fauna and it is hoped that as these are found the information can be shared with us and we can work together to explore ways of adding to there survival and protection.

A report carried out in 2001 by Geoff Walls for the Department of Conservation identified 9 trees of Olearia fragrantissima plants in a localised distribution on the coastal hillside behind Holmes Bay. It is noted that regeneration of the fragrant tree may be impeded by stock and other wildlife.

### *Threatened species*

#### *Action Plan*

- Identify and document any new threatened plants on the property.
- Formulate a plan to manage the Olearia fragrantissima
- Source funds for the threatened plants protection
- Monitor each sites condition including photo points
- Undertake site specific pest control

## ***Banks Peninsula fauna***

The ecosystems on Banks Peninsula are rich and diversified and include a great variety of invertebrates, birds, lizards etc. If we have a healthy eco system we will produce magnificent stock. Our bird life is just superb. We have taken part in bird surveys with the ornithological society and I believe that this is a simple way to observe the state of the environment

As we begin to learn more about those species unique to Banks Peninsula we are interested in becoming involved with surveys. We are particularly interested in contributing to the Banks Peninsula tree weta survey and have ten weta motels at present.

The Banks Peninsula tree weta *Hemideina ricta* is only found in the eastern parts of Banks Peninsula. It is usually found living above 400 metres in live trees [manuka, mahoe, fuchsia, ribbon wood etc.] old fence posts and under rock stacks. The weta is vulnerable to rodents and hedgehogs in particular. The more common Canterbury tree weta *Hemideina femorata* which is not unique to Banks Peninsula can be found at lower levels mostly below 450m.

In October 2005, along with Alison Evans and Wayne Bowie of Landcare Research, we traversed some of our higher habitat areas where tree weta would be found. Weta motels were nailed to the tree trunks and plotted on a map. 10 motels were installed within a grove of *Plagianthus*. These sites need to be checked for residents.

Many other surveys could be undertaken as we are surrounded by an incredible range of invertebrates. , including moths, butterflies, spiders, stick insects, beetles, worms ,slugs and so on . Many of the insects are not seen as they are nocturnal and hide during the day to avoid desiccation and predation. The old totara logs provide a refuge for many of our invertebrates. We treat the environment with care allowing us all to live together.

<b><i>Banks Peninsula fauna</i></b>
<b><i>Action Plan</i></b>
• Identify and document any new findings
• Continue to improve knowledge
• Manage species if appropriate
• Carry out pest management controls to improve the bird life

### **Updates:**

- **The Banks Peninsula Tree Weta Survey**

All the sites have been inspected. Weta were found and a number of motels were inhabited by native slugs and spiders including . An adjoining landowner's property motels were inspected and four Canterbury tree weta were found. DNA samples were taken to confirm.

- **The Kereru survey**

Banks Peninsula wide Kereru surveys have been undertaken and we have a grid to survey when they are undertaken. Kereru are found in the Holmes Bay catchment and inhabit our property year round with a number in the garden that can be seen daily.

- **A Brown Creeper survey**

A survey by Canterbury University has just taken place with a number of birds being found.

- **Pest control work**

As part of the Banks peninsula Possum Management control Programme the Holmes Bay Catchment has this year had pest control carried out as part of the community initiated programme on Banks Peninsula. This is a programme managed by Environment Canterbury with a contract awarded to Pest Services North Canterbury. The funding for this programme comes from a targeted rate over rural land 50/50 on land value / capital value.

Note: No deer or goats have been seen on the property. Rabbit numbers are at low levels with considerable numbers of hares being seen. Night shoots for possums and rabbits/hares are carried out at times.



## **The Holmes Stream**

### **A description of the catchment and stream classification.**

Holmes Stream is situated in a mountainous catchment, originating from a number of small springs [three to four] near the Mount Sinclair Scenic Reserve at 841m and flowing down to sea level. The Holmes Stream is a fast flowing single channel stream with a rocky river bed.

Near the top of the catchment the stream is more densely surrounded by a mixture of native and exotic trees, scrubland consisting of small densely growing native manuka and gorse. The riparian banks in the upper catchment are steep sloping.

As the stream flows into the mid-catchment area, the surrounding native and exotics are less apparent with evidence of wider riparian banks predominantly covered with grasses, budliars, kanuka and scrub.

In the lower catchment area the stream flows through flatter land predominantly in pasture, with mainly grasses on the riparian verges.

As the stream flows out into the estuary and into Pigeon Bay the stream is surrounded by large flat grassed riparian areas.

A number of tributaries enter the Holmes Stream, at least eight tributaries which do not include the source tributaries at the top of the catchment. The stream can be described as predominantly unmodified, running through a rural landscape.

### **Looking at water quality in the Holmes Stream Catchment**

In 2002 when the Central Canterbury monitor farm was on the 'Craigforth' property in Pigeon Bay a water quality subcommittee was set up. In conjunction with Ecan and Lincoln University, the group decided to monitor the Holmes Stream. Sue Cumberworth and I along with a group of landowners developed and proceeded with a programme.

Three sites along the stream were monitored on 6 occasions taking physical, chemical and biological measurements at each. We were unable to gain access to sites in a neighbour's property but since buying this land along with two other neighbours in 2005 we now have access to the whole catchment.

The objectives were to establish some baseline levels and gather a reliable data base.

From the interim results of the students work water quality was significantly affected by heavy rain but because of the steep terrain the impact drops away quickly after the event.

The final report from the study was never completed by the student and it was found that several of the samples collected never reached the final destination and so the report to date remains only in draft form. Kelvin Nicolle from Lincoln University was unable to further the report.

A paper was put together following the incomplete study for the Monitor Farm programme and is attached. The recommendations that were identified at the time could be uplifted and proceeded with today.

Our interest in water quality continues and we started to test the stream water flowing through our property. It is hoped that with this testing we will be able to pick up any changes. Three sites have been chosen. Water samples are about to be collected and we look forward to the results. One of the major constraints to more frequent testing is the cost of the tests at \$350. The results are available.

The Holmes Stream over recent years has seen some protection work carried out in the lower reaches by a neighbour. This area of the stream has been fenced to exclude stock and the landowner has said that the area will need considerable work to keep the vegetation under control.

In the middle section of the stream we have an absentee owner. Over the last 15 odd years very little stock has grazed this area and we see an increasing number of growthy willows establishing along the stream edge.

The riparian section running through our property shows some alteration from its natural state but offers moderate habitat and stable bank. The strips are wide and extensive, extending beyond ten meters both sides, consisting of predominantly native grasses with mixed scrub and kanuka scattered intermittently.

The top section is part of a steep and in places narrow riparian strip and extensively covered. It has good habitat conditions and has extensive vegetation of exotic and native trees and scrubland consisting of mixed native scrub-kanuka and manuka, koromiko and native grasses.

<b><i>Quality of water in the Holmes Bay stream</i></b> <b><i>Our plan</i></b>
<ul style="list-style-type: none"><li>• To identify if there is a water quality issue and gain an understanding of seasonal variations and impacts of other influences e.g. stock, runoff from the roads, soil erosion etc .</li></ul>
<ul style="list-style-type: none"><li>• To establish baseline levels including setting of minimum flow and trends in the water quality /quantity</li></ul>
<ul style="list-style-type: none"><li>• A desire to maintain the water quality of the stream and to work with the Banks Peninsula Zone Implementation Programme to find appropriate standards</li></ul>
<ul style="list-style-type: none"><li>• To explore methods to maintain and where possible improve the water quality</li></ul>
<ul style="list-style-type: none"><li>• To compile the results of stream testing in graphs</li></ul>
<ul style="list-style-type: none"><li>• To continue with water testing</li></ul>
<ul style="list-style-type: none"><li>• In stream values to be monitored</li></ul>

## Fertilizer Policy

### Aim on:

**The hill country:** To maintain our P levels at somewhere between 20 to 25 and Ph 5.3 to 5.5. We have begun a liming programme to raise the ph level to 5.6 to 5.9. The fertilizer and lime in these areas can only be flown on with appropriate guidelines including flying conditions being meet. The same certified flying operator is used each time and is aware of where to fly .

**Down lands:** Soils classified as class IV are being utilized for growing out and finishing young stock. P levels in these areas are raised and hopefully will be maintained between 30 to 35 and the ph 5.9 to 6. Split applications are made each year, at the rate of 125kg Dairy King per application. 250kg per ha and depending on the season 30 units of sustain at a rate of 75kgs per ha. The fertilizer and lime can be applied by a tractor and spreader and applied at an appropriate time and when all conditions can be meet.

Soil testing is carried out on a two yearly basis. Clover herbage tests are taken. Decisions are made in consultation with an Agronomist from PGG Wrightson and the field reps from Summit Quinphos. Overseer has not been seen as an appropriate tool for use on Banks Peninsula.

Understanding soil health is a vital component in our striving for sustainability. Information is gained from a range of sources

- the Southern Bay Farm discussion group has a focus day on issues relating to fertilizer
- the Central Canterbury Monitor Farm in Little River was involved in nitrogen trials and provided best practice for Banks Peninsula land.
- Read the many rural newspapers ,Meat and Wool reports etc
- Become involved in any workshops to gain an improved understanding of soil structure, biological life etc
- Set up a system to bring together all our records
- Be an active member involving input and discussions with the Banks Peninsula Zone Implementation Programme Committee.

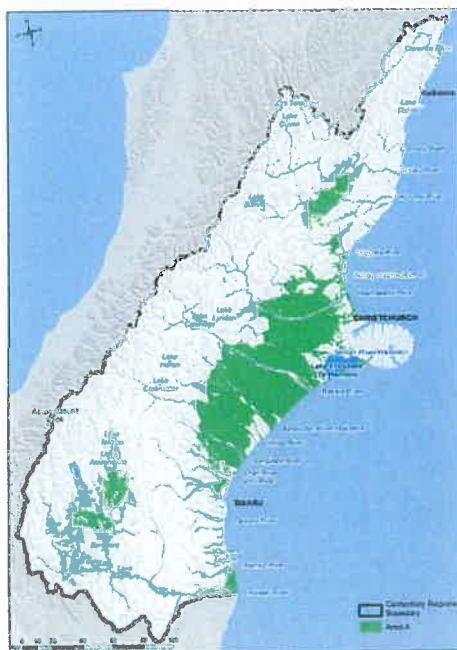
Reviewed by Pam Richardson April 2013

## Septic Tank Suitability Map

- Provides a mapped area of Canterbury which is suitable for septic tanks.
  - Systems inside this mapped area are permitted activities provided they comply with all the other conditions of the rule.
  - Outside of this mapped area, they require a resource consent.
- This mapped area has been determined by:
  - Groundwater Depth
  - Drainage Capability of the Soil
  - Slope of the land



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## What does this mean for Banks Peninsula

- Most of Banks Peninsula is outside of the mapped "Septic Tank Suitability" area.
  - A resource consent is required to discharge from an onsite wastewater system in Banks Peninsula.
  - Site specific wastewater system are required in Banks Peninsula.
  - An assessment of the environmental effects of the wastewater discharge must be carried out for all systems in Banks Peninsula.

## Stormwater Discharges

- Stormwater
  - Runoff that has been channelled, diverted, intensified or accelerated by human modification of the land surface or runoff from the external surface of any structure as a result of precipitation ***and includes entrained contaminants and sediment including that generated during construction or earthworks – pCLWRP definition***

## CANTERBURY-KAIKOURA—continued.

	No. of Sheep on	
	April 30, 1899.	April 30, 1900.
Wilson, W. M., Sefton	Nil	30
Winekill, Mrs. A., Amberley	120	208
Winter, Alfred, Bennett's	252	196
Winter, George, West Oxford	227	200
Winter, John, Swannanoa	296	336
Winter, Michael, Bennett's	298	384
Wolff, J. R., Oust	1070	1087
Woodfield, T., Bennett's	197	403
Wornall, G. A., Broomfield	6	9
Wornall, R. E., Amberley	65	188
Wornell, William, Amberley	36	41
Wotherspoon, A. J. F., Oust	100	98
Wotherspoon, Archibald, Oxford	2576	2268
Wotherspoon, Robert, Oust	200	377
Wratt, R., West Oxford	8	153
Wright, Amos, Oxford	300	133
Wright, Arthur, View Hill	93	76
Wright, H., Bennett's	501	306
Wright, William, Burnt Hill, Oxford	51	275
Wright, James, Ountie's Island	200	357
Wright, James, jun., West Oxford	36	Nil
Winslow, John, Woodend	420	983
Wright, Peter, East Oxford	600	620
Wright, Richard, Hawarden	12	40
Wright, V. W., Knapoi	—	40
Wyllie Brothers, Sefton	90	83
Wyllie, Thomas, Sefton	886	235
Yates, Archibald, North Lohurn	—	100
Yaxley, Cornelius, Ohoka	9300	10034
York, Thomas, Macdonald Downs, Woolston	273	312
Young, G. A., Sefton	118	388
Young, James, jun., Sefton	13	30
Young, J. M., Knapoi	142	234
Young, R., Waikari	184	99
Youngman, H., West Oxford	18	17
Youngman, J. R., Oxford	747,148	744,405

## AKAROA COUNTY

(In Christchurch Subdivision).

Adams, Thomas (Trustees of), Akaroa	146	Nil
Aitken, R. H. M., Atahua	—	4081
Allan, James, Allondale	607	480
Allan, Mrs. M. H., c/o Robt. Allan, Ch'oh	420	1811
Anderson, R., Charteris Bay, Lyttelton	243	207
Anderson, W., Charteris Bay	255	254
Anning, Frederick, Akaroa	90	Nil
Anson, F. A., Wainui, Akaroa	4290	4313
Armstrong, G., Mount Vernon, Akaroa	4698	4549
Armstrong, G., jun., Akaroa	300	300
Bailey, Charles, Le Bon's Bay	15	34
Bailey, Henry, Le Bon's Bay	500	505
Bailey, H., jun., Le Bon's Bay	91	149
Bailey, W., Little Akaloa	28	38
Barker, R. H., Le Bon's	—	97
Barnett, Henry, Le Bon's Bay	696	878
Barnett, William, Le Bon's Bay	—	712
Barrett, W., Wainui	8	Nil
Bell, James, Graham Valley, Akaroa	—	10
Birdling, W., senr., Atahua	7090	7183
Birdling, W. and G. A., Atahua	3100	Nil
Black, G. J., Garfield, Akaroa	6946	7141
Blatchford, Agnes, Tuddington	350	527
Boleyn, J., Okain's Bay	1050	887
Bradley, R. O., Tuddington	2100	1811
Bridge H. W., Little Akaloa	778	782
Brown, Andrew, Gebbie's Flat	160	144
Brown, J. D., Akaroa	481	408
Buchanan, D., Tuddington	1245	972
Buchanan, H. and J., Kinloch, Little River	18080	15810
Butler, Mrs. M., Gebbie's Flat	86	88
Chatfield, Mary, Barry's Bay	260	209
Checkley, G., jun., Akaroa	741	402
Cholmondeley, H. H., Port Levy	49	20
Coffin Brothers, Okain's Bay	—	27
Cook, Brothers, Gollan's Bay, Lyttelton	65	97
Cook, William, Governor's Bay	600	498
Cooney, T., Gebbie's Valley	590	530
Coop, Mrs. M. J., Native Reserve, Little River	—	200
Coop, Mrs. M. J., Spring Vale, Little River	990	1651
Coope, J. and T., Waihora, Gebbie's Flat	1826	1742
Corrigall, Wm., Pigeon Bay	198	220

## CANTERBURY-KAIKOURA—continued.

	No. of Sheep on	
	April 30, 1899.	April 30, 1900.
Craw, R., Chorlton	117	75
Craw, W., Chorlton	255	356
Crotty, S. W., Le Bon's Bay	—	10
Currie, W., Long Bay, Akaroa	—	46
Dalglish, James, Le Bon's Bay	1790	1760
Dalglish, W., Le Bon's Bay	356	300
Davies, John S., Gebbie's Flat	71	77
Elliott, F., Le Bon's Bay	87	66
Elliott, H., Le Bon's Bay	75	62
Fahy, Patrick, Little River	30	Nil
Field, O. W., Atahua	—	317
Field Henry, Port Levy	—	98
Fleming, A. R., Port Levy	1300	1850
Fleming, G. S., Port Levy	7424	8000
Fleming, John, Port Levy	628	1069
Fleming, R. J., Port Levy	1670	1910
Fleming, W. O., Port Levy	2220	2930
Forrester, John, Lyttelton	87	70
Frazer, John, Atahua	60	Nil
Fyffe, D., Akaroa	21	11
Gardiner, F. R. H., Pura, Lyttelton	2207	3350
Gardiner, Harold, Pura	3809	3381
Gardiner, L. O., Pura, Christchurch	3348	3234
Gebbie, Bros., Newton, Gebbie's Flat	2196	2190
Gebbie, W. D., Tuddington	3619	3255
Gibb, W. W., Le Bon's Bay	303	357
Giddens, G., Barry's Bay	37	18
Giddens, W., Barry's Bay	100	100
Gilbert, Robert, Little Akaloa	5	Nil
Glynn, Wm., Akaroa	683	947
Goodwin Brothers, Pigeon Bay	700	125
Gracia, J., Long Bay Road	707	1200
Gray, W. A., Gebbie's Flat	1400	1500
Haines, M., Okain's Bay	88	54
Hall, R. E., Port Levy	885	455
Hammond, J., jun., German Bay	—	19
Harris, E. W., Okain's Bay	9	18
Harris, H. H., Okain's Bay	14	14
Harris, John, Okain's Bay	35	31
Harris, S., Little River	50	Nil
Harris, T. E., Governor's Bay	32	52
Harris, W. J., Okain's Bay	6	10
Hart, F. J., German Bay	98	97
Hay, James, Charteris Bay, Lyttelton	193	278
Hay, T. O., Pigeon Bay	9798	9345
Hay, William, Charteris Bay, Lyttelton	192	192
Haylock, A. W., Akaroa	1590	905
Haylock, H., Akaroa	50	92
Henderson, G., Lyttelton	547	574
Hielop, W., Gebbie's Flat	—	84
Holmes, G. G., Pigeon Bay	10671	11635
Hunt, J., Pigeon Bay	25	Nil
Hunt, Stephen, Barry's Bay	25	20
Hunter, A., Lyttelton	38	86
Innes, Henry, Pigeon Bay	—	117
Innes, W., Pigeon Bay	305	291
James, Misses C. M. and E., Okain's Bay	49	64
Jenson, Christopher, Little Akaloa	36	65
Judson, James, Rapaki, Woodend	—	400
Kay, O. P., Little Akaloa	1140	1239
Kay, C. H., Little River	30	108
Kay, T., Okain's Bay	28	Nil
Kenney, G., Gough's Bay, Long Bay Road	165	285
Keefo, Henry, Onuku, Akaroa	48	52
Kennedy, Duncan, Wainui	1293	1299
Knight, J. T., Le Bon's Bay	2747	2664
Knight, R. J., Le Bon's	—	25
Knox, G., Akaroa	88	Nil
Latter, Robert, Barry's Bay	4158	2444
Lazarotte, Alexander, Atahua	153	108
Le Lievre, Eugene, Akaroa	486	477
Le Lievre, H. H., Akaroa	3620	3004
Le Lievre, F., Akaroa	1000	997
Le Lievre, W. J., Long Bay Road	1018	1021
Leonardo, A. F., Le Bon's Bay	6	Nil
Leathwhite, Mrs. Harriet, Little River	856	882
Lines, John, Barry's Bay	8	Nil
Longoy, John, Little River	—	14
Lyall, O. and R., Pigeon Bay	180	424
MacKay, W., Duvauchelle	24	20
MacKay, W., Wainui	30	36
Macphail, A. A., Le Bon's Bay	508	600
Macphail, Archibald, Island Bay, Wainui	1700	1720
Macphail, Donald, Wainui	800	300