

# Te Kakau Stream Management Plan



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## **PREFACE**

The small, springfed Te Kakau Stream, which flows behind Takaka's Commercial Street before eventually joining the Takaka River, was once a small Maori eel fishery area and an outdoor playground for local children to boat, fish and swim in. Since then, it has suffered from some of the problems that many streams face, such as weed invasion, pollution and neglect.

This plan strives to facilitate increased public use and enjoyment of the stream environment through a combination of actions, including reserve revegetation, rubbish prevention, minimisation of run-off, and weed control. Local community participation in the management plan process and on-the-ground work at Te Kakau Stream is actively sought and welcomed.

## **1 INTRODUCTION**

This is the final draft of a management plan for Te Kakau Stream, near Takaka in Golden Bay. The management plan covers the stretch of stream from Roses Road to Haldane Road.

A management plan for this area is needed to:

- Work towards a cleaner, more natural and attractive stream environment
- Co-ordinate Tasman District Council (TDC) management of the stream
- Work on stream improvements with interested neighbours and landowners
- Involve the community in the management of the stream.

### **1.1 Te Kakau Stream Management Plan Process**

The Te Kakau Stream Management Plan has gone through a public consultation process. This included:

- October 2004: A draft plan sent out to neighbours and other interested individuals, agencies and groups.
- November 2004: A public meeting held in Takaka. At this meeting an extension to the submission period (from November 2004 to March 2005) and an onsite landowners meeting were requested.
- January 2005: Two separate onsite meetings with neighbouring landowners and other interested parties respectively.
- November 2004 to March 2005: 11 submissions received on the draft plan (a summary of issues raised in the submissions is attached as appendix 2).
- April to May 2005: Submissions analysed and changes made to the draft plan.

This final version of the Te Kakau Stream Management Plan will be presented for sign-off to the Golden Bay Community Board in June 2005. The life of a management plan is usually 10 years, unless reviewed during that period.

## **1.2 The Management Planning Context**

Within the current TDC Golden Bay reserve classification system, the Te Kakau stream reserves are managed as “urban open space” or “amenity” areas. More detailed background on reserve management principles and the basic management objectives for all Golden Bay reserves managed by TDC can be found in the detailed “Golden Bay Ward Reserves Management Plan” (June 2003), available at the TDC Service Centre in Takaka.

This plan reflects the general principles encompassed in the Golden Bay Ward Reserves Management Plan as well as providing additional specific information and a suggested management direction for Te Kakau Stream. Also, any further reserve land acquired at Te Kakau Stream in the next 10 years will automatically be covered by this management plan.

## **2 TE KAKAU STREAM LAND TENURE**

TDC currently manage four small reserves adjacent to the true right of the stream (please refer to the attached map). From north to south, these are the:

- Te Kakau Stream Reserve, a local purpose reserve (.6 ha, Lot 7, DP 10418)
- Two unnamed small reserve areas to the north of Feary Crescent Reserve (.133 ha, Lot 2, DP 9178 and .086 ha, Lot 17, DP 8351)
- Feary Crescent Reserve, a recreation reserve (.3 ha, Lot 16, DP 8351)
- Te Kakau Stream Esplanade Reserve, a local purpose reserve. NB: This reserve is split into two different sections, the northern section is .06 ha, Lot 4, DP 9107, the southern section is .038 ha, Lot 2, DP 19872.

The remainder of the land is in private ownership, with residential sections of various sizes on the true right and farmland, divided into two properties, on the true left.

## **3 MAORI HISTORY**

### **3.1 Introduction**

The Nelson/Marlborough region of the South Island is known to Maori as Te Tau Ihu o Te Waka Maui – the prow of Maui’s canoe. This name refers to the legend of demi-god Maui, who, along with his brothers, used a magic hook to fish up the North Island from his canoe, which represented the South Island.

### **3.2 Mohua (Golden Bay) Maori History**

Mohua (Golden Bay), along with the wider Nelson region, has been occupied by Maori for up to 1200 years. With its fertile soils, good climate and easy access to the coastal, estuarine and forested areas, it is not surprising the

story of Mohua's Maori history is laced with many invasion and displacements events. In addition to the rich food resources, whoever had tribal authority in Mohua also controlled some of the major routes south, in particular to Te Tai Poutini (Westland), where pounamu and other valuable resources were found.

Pa were situated on many Golden Bay headlands, including Taupo Point, Puramahoi, Pa Kawau (Pakawau) and Puponga Point. Other areas of importance include the Aorere, Motupipi, Tukurua, Parapara, Waitapu and Te Tai Tapu (the West Coast portion of Golden Bay, encompassing Whanganui Inlet and beyond).

The very earliest tribal occupants in Mohua possibly included Waitaha and Ngati Wairangi, who were followed by Ngai Tara and Ngati Tumatakokiri. Ngati Tumatakokiri are thought to be the tribe who Abel Tasman encountered when he anchored off Wainui Bay in December 1642. Hoping to obtain fresh water and food, an open boat was sent out and was met by a Maori waka. Almost immediately, Abel Tasman's crew were overpowered, three men were killed and another mortally wounded, while the remaining three had to swim for their lives.

Ngati Tumatakokiri were eventually succeeded by Ngati Apa, who were subsequently displaced in 1828 by Ngati Tama, Ngati Rarua and Teatiawa, all of whom were allied to Te Rauparaha. Together, Ngati Tama, Ngati Rarua and Teatiawa hold tangata whenua status in Golden Bay today, and are collectively known as Manawhenua ki Mohua. Manawhenua ki Mohua's home marae in Golden Bay is Onetahua, which was opened in January 2001.

### **3.3 Maori Use of Te Kakau Stream**

Maori occupation, fishing and eeling sites in Golden Bay were mainly focused on the extensive coastal and estuarine areas, and the larger local streams and rivers. Te Kakau Stream featured as a mahinga kai (food gathering place) for tuna (eels), and possible inanga (whitebait). The tuna would have been caught in woven traps called hinaki. However, compared with the rich pickings easily available elsewhere and because of the stream's relatively small size, it is thought that Te Kakau Stream would have only been a mahinga kai of minor scale.

## **4 GOLDEN BAY EUROPEAN HISTORY**

Golden Bay's isolation and the presence of gold, iron ore and coal meant the European settlement of the area took a slightly different tact to other places.

Wakefield explored the Bay in 1842, (then called "Massacre Bay") and was positive about the area. In 1843, an article in the Nelson Examiner described the forest in the Takaka Valley as presenting a "noble appearance" with "thickly wooded and luxuriant forest growth and remarkably fine timber." John Wallis Barnicoat, an early Nelson surveyor who authored the article, also noted the valley's generous rainfall and fertile

land. Apart from the promise of abundant timber, the initial glowing reports of soil fertility dimmed somewhat when further investigation revealed only the river flats and flood plains of the Takaka and Aorere contained the rich alluvial soils so desirable for farming, and poor, infertile pakihi soils made up much of the remaining land. The other major factor was the difficulty posed by Golden Bay's isolation, which hindered settlement, transport and the flow of goods in and out of the bay.

Despite the challenges, European settlement began in earnest in 1844. Initially people settled in and around Motupipi and Waitapu, and then started to spread elsewhere. George Sparrow, his wife Harriet and their three sons, (Arthur, Eric and Frederick) were one of the first European settler farming families and lived in Craigeburn, near Upper Takaka. In an excerpt from a letter dated 1857, 13 year old Eric described his new home environment saying:

*"The country about us is bounded by mountains covered with bush which makes it very pretty. We have a very nice place here and we like it very much. It is a large plain surrounded with bush which is very thick about here consisting of large trees and thick under brush... we have a great many curious birds here, two or three kinds of parrots which are very good eating some are red and green and other colours and are very handsome and we have one tame. There are plenty of pigeons which are very fat and a bird like pheasant called a weka but it cannot fly."* (Original letter transcript, with permission from the Sparrow Family Collection, Golden Bay).

The quality and abundance of the virgin podocarp forest in the Takaka Valley soon attracted sawmillers. The first timber mill was set up in 1857 at Motupipi to cut and process the huge matai, totara, kahikatea and rimu trees found then in the valley. Soon after, there were sawmills scattered all over the Takaka district. Agriculture developed after sawmillers cleared away enough bush, with cropping, sheep and dairy farming becoming established.



**Baigent Sawmill, East Takaka, 1889**

Tasman Bays Heritage Trust/Nelson Provincial Museum, Tyree Collection 178966-3

In addition to other important minerals, gold was discovered in 1857 by two thirsty cattlemen, who noticed a glitter when stopping for a drink at a creek. Massacre Bay became known as Golden Bay, and the ensuing “rush” lured most labour away from other, less charismatic industries like timber-milling, which were often just starting up. Apart from a dearth of labour, the gold rush helped break the Golden Bay’s isolation by improvements made to the track over the Takaka Hill.

#### 4.1 European History of Te Kakau Stream

Many descendants of Golden Bay’s earliest European settlers still live in the area. The key families who historically lived and farmed near Te Kakau Stream include the Page, Reilly and Rose families.

The Pages were one of the first European families to settle in the vicinity of Te Kakau Stream; they purchased the block of land that extended from Waitapu Estuary back to Takaka. In 1856, William Page cut through “heavy timber” to make what is now known as Commercial Street.



**Main Street, (Commercial Street), Takaka, 1876**

Tasman Bays Heritage Trust/Nelson Provincial Museum Copy Collection C316

Bernal Reilly, present-day owner of one of the two farms which border the streams’ true left bank, is the great grandson of Irishman James Reilly. James ran the Shamrock Hotel at Waitapu Estuary in the 1860’s. Another important pioneer family who still own the second farm beside Te Kakau Stream was the Rose family. Their ancestor, Mr J F Rose, was an enterprising and industrious man; in 1876, he completed the roading contract that took the Takaka Hill Road to within two miles of the summit; and in the 1880’s, after refrigeration was developed, he sent a shipment of milled butter from his farm to England.

## **4.2 Recent Times**

During this plan preparation's research phase, several well-known Golden Bay residents have recounted childhood memories of swimming, eeling and boating at Te Kakau Stream. The stream they describe is different to what is found there today – the volume of water was higher (it could easily be navigated in canoe or raft up to the Roses Road bridge), it was flanked by mostly grassy banks, there were several deep swimming holes, and the eels were large and abundant.

# **5 RESOURCE DESCRIPTION**

## **5.1 Geology**

The geology of Golden Bay and the Takaka Valley is interesting and complex. The valley itself was formed by a geological fault which was first uplifted, then pulled downwards. The Takaka River then cut a trench through the valley and deposited a layer of river gravels over the underlying bedrock. Due to the gravels being porous, some of the river water percolates down through it and is pushed to either side of the main river, creating what's called a "gravel aquifer". The flow of water contained within the gravel aquifer is sometimes forced to the surface, and wells up as a spring.

## **5.2 Water Flow and Quality**

Te Kakau Stream had been created by several of these small gravel aquifer springs, and in the past, may have also served as a flood overflow channel of the Takaka River. The stream's catchment begins near the Masonic Hall at the south end of Commercial Street. However, water only begins to appear in the vicinity of Reilly Street and then flows in a north-westerly direction for several kilometres until it reaches the Takaka River (please refer to map).

Like all spring-fed streams, Te Kakau Stream has good basic water quality and clear, cold water. These features of spring-fed systems are due to the water's underground origins and the filtering effect of the gravel the water moves through before coming to the surface.

Water flow at Te Kakau Stream was recorded at the spring located beside Roses Road Bridge on a quarterly basis from September 1984 to September 1986. Records indicate a high flow variability ranging from a base flow of 400 mm to 1500 mm, (a flow ratio of 3.75 to 4.3). Water flow at Te Kakau Stream was not monitored again until an ongoing quarterly water quality and flow monitoring programme was implemented in November 2004.

Water quality monitoring was undertaken at Roses Road and Haldane Road in January 2005. Results from these water quality tests show a marked decrease in water quality at the Haldane Road site compared with Roses Road. It is expected the deterioration of water quality comes from several



sources including farm runoff, vehicle and stock use of the Haldane Road ford and stormwater. Water quality will continue to be monitored on a quarterly basis. This monitoring is expected to show improvements in water quality once this plan is implemented.

### **5.3 Soils**

Te Kakau Stream runs through an area of rich fertile alluvial river soils. The specific soil type is known as Karamea silt loam, which varies in depth and has good moisture-retaining properties.

### **5.4 Ecology**

The natural ecology of the stream and surrounding area has been modified since European settlement. Changes include: the widespread removal of the native vegetation and the replacement with willows; changes to the stream bank shape caused in part by stock access and subdivision; and the accidental and deliberate introduction of animal pests and weeds.

### **5.5 Vegetation**

By the end of the 19<sup>th</sup> century, most of the original native forest in the Takaka Valley had been removed (see Section 4). Today, there is only one small pocket of pukatea trees in the Te Kakau Stream Reserve that remains as a remnant of earlier vegetation cover. These pukatea trees are over 100 years old and are protected under the Tasman Resource Management Plan (TRMP).

Currently, the true left bank of the stream is mostly in pasture, while the true right is a mixture of private garden sections and reserve areas. The vegetation within the three reserves is a mixture of grass and planted trees and shrubs.

Exotic species established at Te Kakau include bitter willow and invasive weeds such as “wandering willy” (*Tradescantia flumensis*). There are aquatic weeds also within the stream, including the invasive Lagarosiphon (*Lagarosiphon major*), which is commonly known as “curly oxygen weed”. Lagarosiphon forms dense stands, which in time can choke the entire waterway.

Over the last two years, bitter willow species have been removed from some of the true left streambank and the Lagarosiphon weed has been sprayed to improve water flow. However, ongoing spraying will be needed to control it in the short term and shading of the waterway in the longer term.

### **5.6 Wildlife Values**

In earlier days, Te Kakau contained New Zealand’s largest native freshwater fish, the giant kokopu (*Galaxias argenteus*). The stream is currently home to

eels (*Gnuguilla spp.*) and possible inanga (*Galaxis maculates*), bullies (*Gobiomorphus spp.*) and koura (*Paranephrops planifrons*). Native birds found at the stream include wetland species such as paradise shelduck (*Tadorna variegata*), pukekos (*Porphyrio porphyrio*) and kingfishers (*halcyon sancta*), as well the more common native and exotic birds generally found in semi-rural areas.

## **5.7 Scenic Values**

With some of the willow trees and much of the Lagarosiphon weed removed, the stream environment now provides a pleasant vista of water and rural open space.

## **6 CURRENT WORK AT TE KAKAU STREAM**

Two community plantings have been held at Te Kakau Stream Reserve. Native species chosen for the site are types of plants that would have been found there naturally. These include trees such as: northern rata, kahikatea, rimu, kowhai, miro and cabbage trees, small trees and shrubs such as ngaio, mahoe, kohuhu and akeake. Small carex grasses and a variety of flaxes for weaving have also been planted there. Native trees and plants have also been planted at Feary Crescent Reserve.

The full list of native plant species for Golden Bay (which covers the botanical names of the species planted at Te Kakau Stream Reserve as above), is attached at Appendix 1. This list is also available from the TDC Service Centre in Takaka and from the TDC website.

## **7 MANAGEMENT ISSUES**

The following issues need to be addressed during this plan and implementation process.

- On-going control of the invasive Lagarosiphon and other aquatic weed species
- On-going monitoring and control of willows
- Reducing stock access to stream
- Prevention of rubbish dumping, including garden waste
- Types of vegetation for planting
- Possible stream reconfiguration

## **8 VISION FOR TE KAKAU STREAM**

*The clean, clear waters of Te Kakau Stream and adjoining reserves provide a natural restful haven close to Takaka township. Te Kakau Stream neighbours are proud of this natural asset that is their backyard, and families and individuals use and enjoy*

*the stream environment and reserve network to relax, play and exercise. Wildlife return to the cool, clean weed-free stream water, and trees provide shade and birds with food and habitat.*

## 9 MANAGEMENT OBJECTIVES AND POLICIES

### 9.1 Introduction

The following objective and policy section sets out a proposed framework of actions for Te Kakau Stream and associated reserve areas. The proposed objectives and policies seek both to address the management issues stated in section 7 and make progress towards Te Kakau Stream “vision” encapsulated in Section 8.

There are three parts to each subsection, each with a specific purpose. They “roll-out” as follows:

- **Objective:** Objectives come first and are bullet-pointed in **bold** font. They state specific goals.
- **Explanation:** These are sandwiched in between the objectives and policies are in *italics*. They provide background information and explain the need for both the objective and corresponding policy/ies.
- **Policies:** Policies come last and state the action/s that need to be taken to fulfil the objective.

### 9.2 Objective

**Involvement of the community in the day to day management of the streamside reserve through the implementation of this plan.**

*Explanation*

*The two main reasons for writing this place are to make Te Kakau Stream a more attractive place and to encourage people to use and enjoy it. Suggestions and comments from the community are therefore sought and welcomed. Neighbours and others are encouraged to assist with the implementation of the plan where they are interested and able.*

#### 9.2.1 Policy

To encourage the community to become involved in the revegetation and ongoing management of Te Kakau Stream.

#### 9.2.2 Policy

To provide native plants to neighbouring landowners upon request for use on their properties adjoining Te Kakau Stream.

### **9.2.3 Policy**

To seek funding in order to assist neighbours with weed control advice and assistance.

## **9.3 Objective**

**Improved aquatic and streamside habitat and recreational opportunities and amenity at Te Kakau Stream.**

### *Explanation*

*Being the original plants of that place, native plants have the natural “edge” over an above many other species. Native vegetation also provides both terrestrial and aquatic wildlife with many of their food and habitat requirements. Developing a close network of natural areas (eg reserve areas in close proximity such as proposed in this plan) provides corridors for wildlife to use and move around in.*

*In addition to natives, some species of exotic trees can greatly assist in revegetation and restoration because of their ability to grow rapidly, and in this instance, help create partial shade. Some exotics are also great sources of food for birds. In some re-vegetation projects, exotic species are used to establish primary shelter or shade and then are taken out once the natives species successfully come through.*

### **9.3.1 Policy**

To continue to use and plant primarily local native species at the Te Kakau Stream reserves.

### **9.3.2 Policy**

To consider the use of some exotic species:

- At Feary Crescent Reserve if there is general preference for exotic species there. (Exotics that provide food for native birds are preferred over purely ornamental species.)
- Where it can be shown exotics have an advantage over native species eg as a “nursery crop” or to provide quick growing species that can become established in a shorter timeframe.

## **9.4 Objective**

**Extension of the Te Kakau Stream reserve areas if suitable land becomes available for acquisition.**

### *Explanation*

*In the future there may be an opportunity for the Council to purchase additional sections of Te Kakau streambank or nearby land. If and when this is the case, options such as potentially linking up the current Tasman District Council reserves and further streambank planting could be considered.*

#### **9.4.1 Policy**

To consider landowners views, ideas and suggestions if more streambank or nearby land at Te Kakau becomes available.

### **9.5 Objective**

#### **Improved water quality in the Te Kakau Stream.**

### *Explanation*

*Water quality can be degraded by stock access, run-off from land, stormwater, other discharges and rubbish dumping. Fencing to prevent stock access is a recommended future option where possible and practicable. (Rubbish dumping is discussed in Objective 9.7).*

#### **9.5.1 Policy**

To consult with landowners about reducing stock access to the stream.

#### **9.5.2 Policy**

To continue with water quality monitoring undertaken on a quarterly basis.

#### **9.5.3 Policy**

To provide assistance to landowners with fencing and planting of riparian margins, where practicable.

### **9.6 Objective**

#### **Improved natural water flow in Te Kakau Stream.**

### *Explanation*

*The natural water flow in Te Kakau Stream has been modified by a variety of “unnatural” changes. It is impeded by willow trees growing in the streambed, aquatic weed growth and the Haldane Road ford. The Haldane Road ford is at a level where water backs up behind it and the natural downstream flow is impeded. An alternative means of vehicle and stock crossing at the Haldane*

*Road ford site is therefore recommended to improve both water quality and natural stream flow. In addition, it is recommended willow trees growing in the streambed should be poisoned, trimmed and/or removed where practicable. Monitoring to ensure further invasive willows do not re-establish is also recommended.*

#### **9.6.1 Policy**

To seek funding and contributions towards the construction of a concrete “splash” or similar for the Haldane Road ford site.

#### **9.6.2 Policy**

To poison, trim and/or remove invasive willows growing in the streambed.

#### **9.6.3 Policy**

To monitor willow growth at Te Kakau Stream on a regular basis to ensure invasive water species do not re-establish.

### **9.7 Objective**

#### **The stream environment to remain free of rubbish.**

##### *Explanation*

*Past dumping of garden waste and unwanted aquatic weeds has created many of Te Kakau Stream’s current weed problems. Given the resources and effort required to control weeds once established, work needs to be carried out to ensure further dumping does not occur. The same applies to general rubbish dumping. Neglected areas considered by the community as “wasteland” often end up being the places people dump rubbish because they figure other people won’t know or care. However, with increased attention and interest focused on the stream, it is hoped blatant rubbish dumping will decrease, or cease altogether.*

#### **9.7.1 Policy**

To publicise the adverse effects of dumping invasive weeds and general rubbish into reserve areas and waterways and the alternative means of disposal.

#### **9.7.2 Policy**

To encourage community volunteers to monitor their “patch” of stream or reserve and report any dumping that occurs.

### 9.7.3 Policy

To encourage local primary and secondary schools to “adopt” Te Kakau Stream and undertake regular stream clean-ups etc.

## 9.8 Objective

### **Te Kakau Stream is free from invasive aquatic weeds.**

#### *Explanation*

*Te Kakau Stream has an aquatic weed problem. One of the most serious weeds found there is called Lagarosiphon or curly “oxygen weed”. This weed has become established in many New Zealand waterways. It forms dense stands that eventually choke the whole waterway, out-competes native vegetation and causes problems for both recreational users and native wildlife. Once Lagarosiphon has infested a stream, an ongoing control programme is required as complete eradication may be impossible. Although Lagarosiphon is recognised as a major aquatic weed problem, there has been no official funding or structured programme for its control at Te Kakau Stream. Instead, up until now, Tasman District Council Biosecurity staff have stretched their schedule and resources to include aquatic weed control work at Te Kakau. This, however, was only ever intended to be a temporary stop-gap measure and a regular general aquatic weed and Lagarosiphon control programme needs to be established.*

*In addition, revegetation of some of the streambank area will assist any aquatic weed control programme. (Most aquatic weeds thrive in full sun and using trees and shrubs on the streambanks to provide partial shade helps to stem their growth.)*

*A further suggestion has been made as a solution to the serious aquatic weed issues at the stream. This is to possibly reconfigure the wider parts of the stream and streambanks to make the stream deeper and narrower. The idea to use a digger to dig out some of the material from current streambed and use that to line the sides, with a retaining wall or similar to prevent the material from slipping back into the stream. If this proposal were to be carried out, the stream would become narrower, making it potentially easier to treat and control aquatic weeds within the stream. Also, any planting up of the adjacent streambank/s would assist to suppress aquatic weeds by providing partial shade to the waterway in a shorter timeframe, because there would be basically less stream width to throw a shadow over. However, this idea would be very expensive to implement, inevitably involve a lot of heavy machinery in and around the stream and would require a resource consent.*

*There may be an alternative to regular spraying and/or reconfiguration for Lagarosiphon control. Marlborough District Council have successfully controlled Lagarosiphon in two different streams in the District by suspending weedmat above the stream surface and leaving it there for a number of*

*months. In order for their approach to be successful, weedmat needs to be placed 10 metres above the first Lagarosiphon infestation and moved gradually downstream. This option could possibly be trialled at Te Kakau with permission from landowners.*

#### **9.8.1 Policy**

To investigate funding for the implementation of a general structured and ongoing Te Kakau Stream aquatic weed control programme.

#### **9.8.2 Policy**

To consider the suitability of the weedmat shading option for Te Kakau Lagarosiphon control.

#### **9.8.3 Policy**

To consider the costs/benefits of stream reconfiguration to narrow and deepen Te Kakau Stream.

#### **9.8.4 Policy**

To plant trees and shrubs in streamside plantings that will shade the waters of Te Kakau Stream, where practicable.

### **9.9 Objective**

**Te Kakau Stream again provides habitat to a variety of native fish and eels.**

*Explanation*

*As explained in sections 3.3 and 5.6, historically Te Kakau Stream has been home to several different native fish species including the rare native fish Giant Kokopu and large eels.*

#### **9.9.1 Policy**

To enhance the aquatic habitat of Te Kakau Stream specifically to encourage native fish and eels.

## **10 REFERENCES**

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Sparrow Family History - with permission from the Sparrow Family Collection.

Personal Communication with:

John Mitchell, Barry Cashman, Paul Sangster, Bob Papps, Lorelei Duff, Nobby Clark, Anne Fletcher, Simon Walls and Jane McDonald.