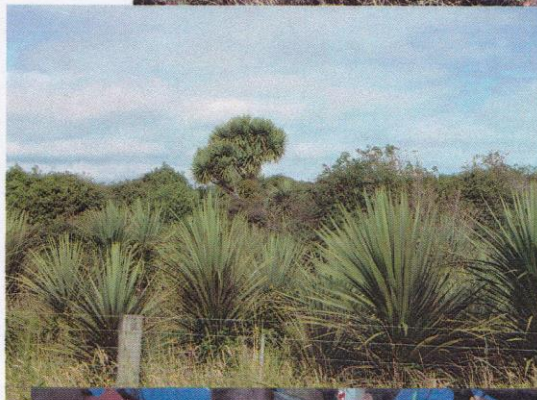




Bushy Point Restoration Project

Management Plan

2006-2016



22 September 2006



Summary

Purpose of this document

This Management Plan is a 10 year strategy document that contains detailed background information and visions for the project. Operational policy documents provide the detail for carrying out the visions. The management Plan can only be altered by majority vote of the Otatara Landcare Group Committee.

Aim of the Bushy Point Restoration Project

The aim of the Bushy Point Restoration Project is to restore a 14 hectare area of rough exotic pasture between two remnants of nationally significant totara forest to provide habitat linkage for native birds and to enhance existing forest remnants and other ecosystems. Also, to raise the public awareness of the importance of native forest remnants and to provide a practical long term ecological project for residents of Otatara and Otatara and Invercargill School children to be involved in.

The Mission Statement of the Otatara Landcare group is:

- To focus attention of Otatara residents and others on the natural features and ecological values of the Otatara environment, especially native forest and wetland flora and fauna.
- To promote and, where possible, facilitate the protection, restoration and creation of such features in the interests of scientific appreciation and intrinsic worth and to encourage community appreciation of these values.

Purpose of the Project

A detailed analysis of remnant vegetation was undertaken by Dr David Norton for the Invercargill City Council in 1996. The ensuing report recommended that because of the national significance of remaining forest remnants and the fragmentation issues “urgent attention be given to a restoration programme to link the isolated forest remnant at the northern end of the Bushy Point conservation area with the larger forested area in private ownership adjacent to Bushy Point itself”. The Bushy Point Restoration project is situated between the estuary fringe and sand dune totara remnants and will link those ecosystems. The project will benefit the wide range of native birds, most notably kereru (native pigeon), tui and bellbird, estuary edge populations of the rare fernbird and birttern, wading birds, lizards, native fish and threatened mistletoe plants and the rare grass *Deschampsia cespitosa*.

The Otatara Landcare Group has taken up this challenge by negotiating a 30 year lease over the 14 hectare area from the Department of Conservation and commencing restoration from grazing land to native forest and wetland. The Otatara Landcare Group is using this project with a pragmatic approach to raise awareness about natural values and provide a practical experience and interpretation for individuals, groups and schools.

How the Project will be carried out

1. The management of grazing is continuing (to manage the grass and weeds until the re-vegetation with suitable native species is done) with subdivision fencing commencing to enable grazing and planting to continue in different areas of the project. The fencing will continue with funding and the subdivided areas will be planted in a priority order.
2. Purchase and planting of locally sourced native plants has commenced and 13 public working days have been held. School groups have been encouraged to help. The project is gaining momentum as an ecological and educational project for residents and school children. It is intended as a “best practice” example of a restoration project for the public to follow.
3. Animal Pest and Weed control has commenced with large areas of gorse removed and possums trapped. This will continue with a focus on protection and maintenance of new plantings with herbicide and further mechanical gorse removal and animal control.
4. An access sign has been erected and 3 public walks have been held but interpretation signs (explaining the ecological restoration project and human history) and tracks are planned as funding allows.
5. A wetland area has been defined and construction will commence as funding allows. This is designed to enhance an existing wet area and provide additional wildlife habitat and educational and interpretation opportunities.
6. Advocacy opportunities such as more public planting days, field days, school visits and a booklet and information leaflet for residents and visitors are planned. Funding is required for advertising, printing and distribution.

The Outcomes

- **A measurable ecological restoration project**

Forest and wetland areas will link the estuary with existing isolated forest remnants providing corridors and increased habitats for native birds. The area that is currently grazed exotic grass will be transformed into a functioning ecosystem in a sequence of planned events through the planting of appropriate local native species and creation of different habitats.

- **An educational tool**

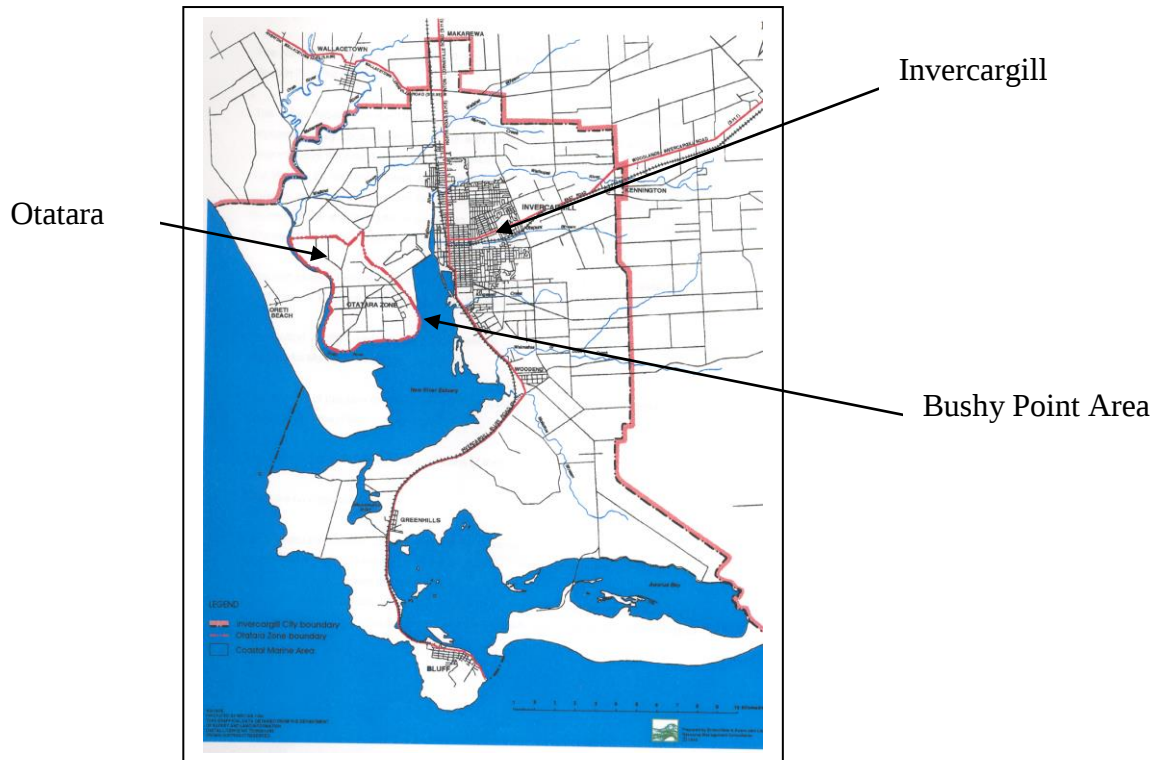
The area will become an attractive place to enjoy and learn about nature and will provide learning opportunities for the local school and community. It will provide working examples of good practice in ecological restoration. Many residents of Otatara have remnant native vegetation on their properties but are looking for advice on the best ways of enhancing it. It will complement the Invercargill City Councils track system for the public, linking areas of ecological interest.

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The Bushy Point Restoration Area

1. Description

1.1 Location



1.2 Land History and Protected Status

In 1865 the whole of Otatara was forested. From that time forest clearance for timber, agriculture and later residential development has occurred.

In 1979 the Bushy Point area was declared Crown Land subject to the Land Act 1948. Being land acquired for a government work and not required for that purpose it was declared crown land in the City of Invercargill to be managed as a Local Purpose Reserve. This land was transferred to the Department of Conservation in 1987 in recognition of its ecological values to be managed as a Conservation Area under section 65 of the Conservation Act.

The Bushy Point Restoration Area is a 14ha part of a larger 60ha Conservation Area managed by the Department of Conservation, Southland Conservancy. The Restoration Area was previously leased for grazing by the Department of Conservation and in 2002 a 30 year lease was negotiated and taken over by the Otatara Landcare Group for the purpose of restoring the area from grazing land back to native vegetation.

1.3 Legal Situation

The **legal description** of the land is Lots 90, 91 and 92, DP 1045, parts section 8-13 and 52, Block XX, Invercargill Hundred.

1.4 Invercargill City Council District Plan

The Bushy Point Conservation Area has been declared a significant natural area in the Invercargill City District Plan (2005), a statutory requirement under the Resource management Act (1991), Section 6.

The significance of areas in Otatara was assessed by Dr David Norton and Amber Bill in the following reports:

Development and Forest Sustainability, Otatara, Invercargill – Report prepared for Invercargill City Council by Dr David A. Norton (1996)

Areas of Significant Indigenous Vegetation and significant habitats of indigenous fauna in the Invercargill City District – Amber Bill (1999).

1.5 Historical Background Otatara Landcare Group

The Otatara Landcare Group was formed in 1999 and became an Incorporated Society in the year 2000. The groups achievements include:

- Management of the Bushy Point Restoration Project since the year 2000 including 15 community planting days to 2006
- Publishing a quarterly newsletter, the “Otatara Pigeon Post” which features natural history articles (attached) since 1999.
- Restoration plantings around the new Otatara hall site
- Organising monthly trips, including a very popular “spotlighting for geckos” trip
- Earth Day activities including an Open Day at the Community Nursery and slide talk by Colin Meurk,
- Voluntary staffing of a local information centre,
- Working with Guides of Southland on kereru for their “Save It” campaign
- Annual Conservation week activities with the local school and kindergarten
- Organising the annual Otatara Forest Festival
- Organising an Otatara History Day 2004
- Publishing a guide to Otatara for residents (attached)
- Working with Invercargill City Council on issues relating to natural heritage

Otatara Landcare Group’s Bushy Point Restoration project

In 2002 the Otatara Landcare Group went into negotiation with the Department of Conservation, Southland Conservancy to take over the 14 hectare grazing lease within the Bushy Point Conservation Area with the aim of gradually restoring the area back to native vegetation. The Concession agreement was signed in August 2002 and is for 30 years.

The Concession Activity in the agreement is stated as – “Progressive restoration for the purpose of enhancing the Bushy Point area and grazing the land (allowing grazing by third parties subject to special conditions in Schedule 3) to fund replanting of native vegetation and general restoration activities”.

Summary of Activity to 2000 - 2005

After negotiating the grazing lease with the Department of Conservation, the Otatara Landcare Group had an official Opening Ceremony on 12 October 2002 with Southland Conservator Kevin O'Connor, local iwi and the public of Otatara.

Since the year 2000 the Otatara Landcare Group has organised 13 community planting days, initially within the Conservation Area, and has managed weed and pest control and since 2002 has also managed the grazing lease area and commenced subdivision fencing and removed extensive areas of gorse.

Public access to the site has been encouraged with a style and direction sign at the entrance and a number of organised guided walks have been held.

The area is targeted for educational use involving the Otatara School and Southern Institute of Technology.

The Committee of the Otatara Landcare Group managing this project includes a professional botanist, ecologist, entomologist and environmental teacher.

2000 – March 2001

Community planting days, 900 native plants grown (Community Nursery) and planted, weed control, plant maintenance.

Community Trust Grant \$600

2 Community planting days held (20 May 2000, 17 March 2001)

April 2001 – March 2002

Community planting days, 500 native plants grown (Community Nursery) and planted, weed control, plant maintenance.

1 Community Planting Day held (5 May 2001),

1 Public Walk at Bushy Point (28 October 2001).

April 2002 – March 2003

Lease negotiation, grazing management, 500 native plants grown (Community Nursery) and planted, community planting days, weed control, plant maintenance.

3 Community Planting days held (4 May 2002, 15 June 2002, 19 October 2002).

Official Opening Ceremony Bushy Point Grazing Lease October 2002.

Community potting up day for Bushy Point at Southland Community Nursery (30 January 2003).

April 2003 – March 2004

Community planting day, 622 native plants grown (ONASS and Otatara School) and planted, weed control, plant maintenance, grazing management, possum control, gorse control, liaison with landowners, entrance sign negotiated with DOC (544 hours spent at Bushy Point).

2 Community Planting Days (3 May 2003, 24 May 2003).

Transpower Grant \$2500

April 2004 - March 2005

Community planting days, 572 plants purchased from ONASS and Otatara School) and planted, weed control (major gorse removal), plant maintenance, possum control, grazing management, 270 metres of fencing erected, movement of concrete structures.

2 Community Planting Days (1 May 2004, 8 May 2004).

1 Public Walk at Bushy Point (2 May 2004).

1 Public visit by National Planning Conference members.

Community Trust of Southland Grant \$3900

April 2005 – March 2006

Community planting days, 646 plants purchased (ONASS and Otatara School), weed control, plant maintenance, possum control, grazing management, 400 metres of fencing erected, proposed pond marked out.

3 Community Planting Days (14 May 2005, 28 May 2005, 10 October 2005)

2 Public Visits - by New Zealand Ecological Restoration Network Field trip and Southland Landcare groups Networking Day (110 people).

100 school pupils on site helping with planting and weed control.

Future Plans

Future plans include continued planting using locally sourced native plants, plant maintenance, weed and pest control, more fencing and wetland creation. An interpretation panel explaining the project will be erected at the public entrance to the reserve and a “Natural Otatara” Booklet will be produced. Further plans include the development of interpretation signs, a self-guided walk brochure to viewpoints and tracks to encourage wider use and appreciation of the Otatara area.

2. Physical Environment Bushy Point

2.1 Climate

Climate information is available from Invercargill airport, adjacent to Otatara. The prevailing wind is from the west although during winter there is a higher proportion of winds from the northeast and north. Wind speeds are high, with 28% of days per year experiencing gusts more than 63 km per hour, usually from the northwest-southwest. Mean annual rainfall is 1042mm with a slight late-winter minimum and rainfall occurs on approximately 45% of days. Mean annual temperature is 9.6 degrees C with a January mean daily maximum of 18.4 degrees C and a July mean daily minimum of 0.8 degrees C. The absolute maximum recorded temperature is 32.2 degrees C and the absolute minimum is -7.4 degrees C. Screen frosts occur on average 46.3 days per year and ground frosts 111.1 days per year. Invercargill airport experiences snow on an average of 7.3 days per year. Bright sunshine hours are 1621 per annum, with sunshine experienced 42% of the possible time in summer and 35% in winter.

2.2 Soils and geology

Soils are mapped as Otatara and Riverton yellow-brown sands. These soils have developed under forest and form a chronosequence of increasing age from Riverton to Otatara soils. Most soils have distinct topsoils and subsoils with definite structure and staining of sand grains. These soils have higher organic matter and cation-exchange capacity than yellow-brown sands in drier areas (Otago, Canterbury, Nelson). Soil ph is typically around 6.

2.3 Topography and landforms

The Otatara/Sandy Point area is generally flat, comprising sand dune systems of various ages but no more than 6000 years old. The youngest dunes are at Sandy Point where regular sand blowouts still occur, while Otatara dunes are older and there is little evidence of recent sand blowouts. Most of Otatara is comprised of a much more subdued dune system than Sandy point with individual dunes rarely rising more than 5 metre above the surrounding and plains which are themselves quite extensive.

2.4 Adjacent Land

Bushy Point Conservation Area has a range of natural habitats from estuary margin, fringing scrub and second growth bush on low lying moist sandy flat ground, some pasture, and some dunes with native forest. The Bushy Point Restoration Area within this conservation area is situated between the estuary on the eastern boundary and forested areas to the south with a forested “island” on the west side. To the east the conservation area is buffered by the New River Estuary. To the north and west housing development means that adjacent land is predominantly private houses and gardens (see map).

Because of the national significance of remaining forest remnants and the fragmentation issues Dr David Norton recommended that “urgent attention be given to a restoration programme to link the isolated forest remnant at the northern end of the Bushy Point conservation area with the larger forested area in private ownership adjacent to Bushy Point itself”. This is the area that the Otatara Landcare Group is restoring.

Reference - Invercargill City Council – Invercargill City Transitional District Plan – proposed Plan Change No 34 – Otatara Peninsula (Enrest New and Associates) (1996)

3. Biological Environment Bushy Point

3.1 Background

Significance of native vegetation at Otatara and Bushy Point

Taken from “Development and Forest Sustainability, Otatara, Invercargill – Report prepared for Invercargill City Council by Dr David A. Norton (1996)”.

“Otatara Peninsula is situated on the western side of Invercargill and is separated from Invercargill by the New River Estuary and Invercargill Airport. The landscape in Otatara is comprised of a series of undulating sand dune and sand plain systems, which in part are covered by nationally significant vegetation and significant habitats of indigenous fauna, or pasture. The peninsula has riverine and estuarine coastlines around its western and southern edges respectively.

The indigenous vegetation and habitats of indigenous fauna in Otatara are of national significance because:

- They are the best remaining example of formerly more widespread coastal sand dune totara and totara – matai forests in New Zealand; and
- They are the only example of a sequence of totara, totara-matai and mixed podocarp remnants on different aged sand dunes and sand plain surfaces in New Zealand; and
- There is still sufficient connectivity between the remnants, and adjacent ecosystems to suggest that with appropriate management their long term viability can be assured; and
- They support good populations of endemic forest birds including nationally threatened species that are strongly dependent on the forest remnants.

The forests have been substantially affected by forest fragmentation, which occurred in two phases. Between 1865 and 1947, and perhaps until 1967, fragmentation through forest clearing primarily resulted in the reduction of total forest area, with remnants forming discrete patches of forest separated mainly by agricultural land. However, since 1947 and especially 1967, the boundaries of these major forest areas have not changed substantially. Instead fragmentation has occurred primarily as a result of residential development...forest in 1996 only covering 21% of the area covered in 1865 and 56% of the area covered in 1947.”

In 1865 the whole Otatara area was mapped as entirely forest covered (Heale survey)

The main main areas of native forest left in Otatara are:

- a) Marama Avenue North/Otatara Scenic Reserve
- b) Ariki-Ruru Avenue
- c) Marama Avenue South/Bushy Point

The greatest loss of forest was in the Marama Avenue South/Bushy Point area (26% remaining)”

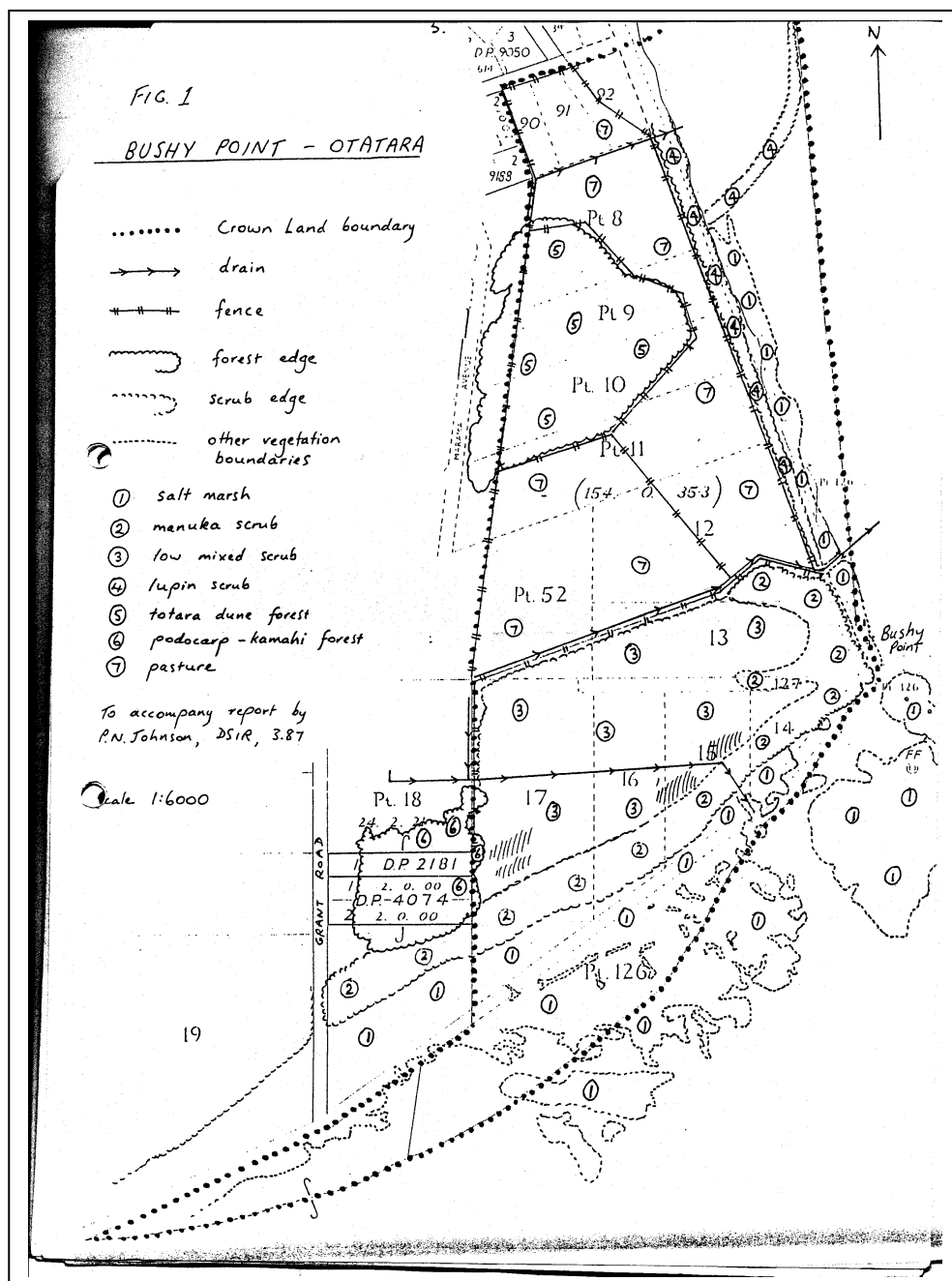
Because of the national significance of remaining forest remnants and the fragmentation issues Dr Norton also recommended that “urgent attention be given to a restoration programme to link the isolated forest remnant at the northern end of the Bushy Point conservation area with the larger forested area in private ownership adjacent to Bushy Point itself”.

3.2 Vegetation Description Bushy Point

Bushy Point, Otatara: Botanical Report, P.N.Johnson, Botany Division, DSIR, Dunedin, 1987).

Peter Johnson in 1987 described the crown land beside the New River Estuary at Bushy Point as follows:

“the land comprises estuary margin, fringing scrub and second growth bush on low lying moist sandy flat ground, some pasture, and some dunes with native forest – see map below.



A summary of the zones on the map are as follows:

1. Salt marsh/Leptocarpus zone on the gently sloping muddy margin of the estuary
2. Manuka scrub 4-6 metres tall with regenerating kohuhu, totara and Melicytus lanceolatus (with scattered scrub weeds broom and blackberry).
3. Low mixed scrub – extensive between the manuka zone and pasture representing regrowth after former forest was cleared. Scattered cabbage trees 5 m tall emerge above a canopy of Coprosma propinqua, kohuhu, scattered maunka (some blackberry
4. Lupin scrub narrow fringe between the estuary and pasture
5. Totara forest – northern portion of bush on hummocky dune crests, a remnant of scattered true totara with kohuhu, peppertree and marginal broom scrub.
6. Podocarp-kamahi forest – only a small portion of decent forest lies on the crown land, the major part of this type of forest being on adjacent freehold sections to the west (now the Gamble and Rance covenanted properties). Rimu and kahikatea 18-20metres tall, 30-50 cm in diameter. Kamahi and pokaka also occur as poles to 30cm diameter. There is a varied shrub and small tree layer of mapou, peppertree, *Coprosma areolata*, *C. rotundifolia* and tree finger as well as ground cover fern species and bush lily (*Astelia fragrans*)
7. Pasture

The Otatara Landcare Group Bushy Point Restoration project aims to restore the pasture areas numbered 7 back into native vegetation.

This pasture area contains some diversity which reflects the soils and the topography of the site. Low lying wet areas to the south-west have developed into a wetland community. This low lying wet area combined with a less intensive grazing regime is dominated by a mixture of native and exotic rushes, sedges and exotic grasses. Part of this area has surface water after heavy rain particularly in winter. Within this wetland area are some minor open areas containing low, herbaceous vegetation.

This wetland area could be enhanced by pond creation and planting of a wider range of wetland plants. This area has had fernbird recorded in it and the fernbird habitat could be enhanced through planting of some shrubs.

Most of the pasture area is dominated by exotic grasses that will continue to be grazed until restoration commences.

3.3 Birds of Bushy Point

The close proximity to the estuary and wide range of habitats (from estuary rushland, manuka shrubland, totara forest, podocarp forest, pasture, ponds and gardens) makes the Bushy Point area rich in native and introduced birdlife. Fifty six bird species have been recorded with 44 being native. Of particular note are native pigeon, tui, tomtit and bellbird, NZ fernbird and bittern.

One of the main aims of the Bushy Point Restoration project is to provide a corridor of native vegetation through the grazed area between two existing forest remnants and to enhance existing forest remnants and other ecosystems. This enhancement will benefit native bird species of the area.

A full list of birds found at Bushy Point and their preferred habitats is given at Appendix 2.

3.4 Other Native Fauna

Native skinks

Oligosoma sp are present. Further investigation has potential for a tertiary student project.

Freshwater Fish

No formal studies of freshwater species have been undertaken within the reserve but Banded kokopu and inanga have been found in ditches near the restoration area. Further investigation has potential for a tertiary student project.

Invertebrates

No formal studies of invertebrates have been undertaken within the reserve but this work is desirable and has potential for a tertiary student project.

3.5 Weeds

Bushy Point Conservation Area

The forested areas of Bushy Point Reserve in general have good tree canopy cover and though they contain some pest plants of concern, the control of these is the responsibility of the Department of Conservation. Of particular concern is the presence of Old mans beard, Chilean flame creeper and elderberry in light gaps and around the edges of the forested areas.

Bushy Point Restoration Area

The Bushy Point Restoration Area consists mainly of exotic grasses, exotic rushes and gorse.

In one particularly wet area *Carex coriacea* (cutty grass) dominates with exotic rushes and flax. This area lends itself to ephemeral wetland interpretation with some pond creation to enhance wetland bird habitat.

A large area of gorse has been cleared and will be returned to the grazing lease area.

Much of the area will continue to be grazed while restoration will occur in defined fenced off areas. The restoration, using native colonising plants, will concentrate on the shading of exotic grasses and management of exotic herbs.

The Restoration area is surrounded by gardens containing exotic plants some of which have the potential to spread into Bushy Point. The Otatara Landcare Group should establish and maintain potential relationships with neighbouring residents to discuss garden plants and their potential risk to Bushy Point and Otatara in general. The Landcare Group will suggest suitable alternative species and establish a “swap a weed for a native” programme.

3.6 Animal Pests

Bushy Point Reserve

The forested areas of Bushy Point Reserve probably have the usual suite of exotic animal pests such as possums, rats, stoats, ferrets, hedgehogs but no formal study has been undertaken – this has the potential for a tertiary student project.

Possum control using timms traps is being undertaken by the OLG with a possum trap line through the totara forest being serviced twice monthly. Approximately 75 possums and 1 ferret have been removed from the reserve from 2000 to 2005.

A whole of Bushy Point Pest Plan has been developed with the aim of creating an environment at Bushy Point where native flora and fauna can thrive by controlling predators to low levels.

The goals of this plan are:

- to progressively assist in the protection of forest nesting birds such as kereru, tui and bellbird and estuary edge nesting birds such as fernbird and bittern.
- to protect restoration plantings from animal damage
- to protect rare plant species such as mistletoes (*Illeostylus micranthus* and *Korthalsella salicornioides*) and rare grass *Deschampsia cespitosa*.
- To aid growth and regeneration of native seedlings
- To protect skink populations from predators

Bushy Point Restoration Area

Restoration planting is vulnerable mainly to rabbit or hare damage. Although no control is currently undertaken it is anticipated that this will be required once plantings are near to grazed pasture.

While the OLG is managing the area for horse and sheep grazing it will be important that the fences protecting the restoration plantings are well maintained.

A detailed animal pest plan has been developed.

3.7 Ecological Restoration

The primary purpose of the restoration will be to join the northern and southern forest remnants. However, the opportunity to create additional communities and so increase the diversity of vegetation is also part of the project.

The existing forest is of two primary types, these being totara forest on sand dune or sand flats and kahikatea forest on low lying areas of peaty soils.

Restoration of forest using locally sourced native plants will occur progressively into fenced off areas. Colonising native species (such as cabbage tree, mingimingi, manuka, kohuhu, lemonwood, koromiko, fuchsia, wineberry and broadleaf) would be used extensively to shade out the grass, providing food and perching for native birds and providing habitat for other native seedlings to be brought in by birds. Different forest types such as totara on dunes and kahikatea swamp forest would naturally regenerate once the conditions for natural seed germination and survival are provided.

Restoration of other habitat types such as ponds and wetland areas would take advantage of naturally wet areas with appropriate planting where required. Such wetland planting would include flax, toetoe, *Coprosma* and *Carex* species. Some areas will be left semi-open to encourage skinks.

Restoration planting would continue to be a community effort and the Otatara school would be encouraged to adopt a small area to plant and maintain.

An effort will be made to enhance any features, such as drains, that may provide habitat for native. Drain clearing will be discouraged while allowing for drainage of adjoining properties (this will be at their cost as it will be of no advantage to the restoration project. The adjacent ICC effluent pond also provides habitat for waterfowl and there may be ways to enhance this feature or the land surrounding the pond.

An area designated for trials of restoration techniques using both exotic and native species will be set aside to monitor the effectiveness of those techniques in order to minimise future restoration effort.

A detailed ecological restoration plan has been developed.

3.8 Research/monitoring

Research – a number of potential research requirements have been listed in this document.

Operational (or Output) Monitoring – to measure how the project has been carried out

- Number of hours spent on project
- Number of native plants and species planted per year
- Length of fencing erected
- Number of pests killed
- Details of expenditure
- Income generated

Outcome Monitoring – to measure what the impacts of operations have been

- Photo monitoring points will be established and project monitoring techniques could be the subject of a student project.
- 20 minute bird count stations have been established and will be counted 4 times a year by an experienced bird expert
- Tracking tunnels will be established for animal pests
- Vegetation monitoring will be undertaken (10x10 plots)

3.9 Viability of the Bushy point Restoration Area

The location of the Bushy Point Restoration Area situated between areas of native forest and adjacent to the estuary makes it an important restoration site. However, it is a large project for a community group to undertake and initially considerable management and funding are necessary.

If the restoration area had remained under Department of Conservation management the best case scenario would have been continued grazing of the entire area, the worst case scenario possible sale and conversion to housing sections with total loss of habitat potential. Any restoration work that the Otatara Landcare Group undertakes will improve the natural values and as it stands open space and landscape values are being preserved.

4. Access and Use

4.1 Community Benefits

The Bushy Point project gives an opportunity to the Otatara community to learn about the local environment in which they live, to become practically involved in a long term conservation project; to enjoy walking in a wild place; to observe the wealth of native birds that frequent the Bushy Point area; to sustainable use the area for grazing their livestock and walking their dogs.

The area will be a focus for local schools, guides and scouts to achieve their conservation badges. An education activity kit is being developed to encourage schools to take advantage of the potential of the area.

The Otatara Landcare Group propose to install on-site interpretation signs which will provide details of the history of Otatara and the cultural and historical and ecological significance of the area to enhance peoples appreciation of it.

4.2 Public Access and interpretation

The public walking access to Bushy Point Restoration Area is from Bryson Road, Otatara where a stile and location sign have been placed. The main gate is locked for the security of stock being grazed on the land. Horses and sheep are currently grazed on the site. Stock owners and two members of the Landcare Group have keys to the gate. Signs indicate that dogs are allowed on a lead, but are not allowed into the area at lambing time.

Publicity for the project to date has been through the quarterly Otatara Landcare Group newsletter the Pigeon Post to members and public walks organised by the OLG. As a priority there is a need to provide an interpretation panel informing the wider public of the purpose of the restoration area, the natural features of the area and information about the Otatara Landcare Group.

There is potential for tracks and interpretation signs within the Restoration Area – in particular a self-guided walk leading up to viewpoints over the estuary, through the totara forest to a trig point and round the estuary edge to the restoration area and wetland. There is also a vision for a high grade track to wheelchair or bike standard and other tracks through forest areas if funding becomes available.

The area has potential to link to other city walkways at Invercargill Estuary (Stead Street Wharf). Sandy Point and Otatara and could in time have tourism potential. The view point from the sand dune gives great panoramic views back to the city and lends itself to interpretation of the Otatara tramway, and history of estuary reclamation as well as being a good vantage point for watching estuary wading birds.

An education package linked to the school curriculum is being developed.

A detailed Interpretation Plan has been developed.

4.3 Vehicles and parking

There is a locked gate preventing access to stock. Motorised vehicles are allowed in the restoration area for management purposes. At present there is no designated off road parking, but parking on the road verge for one or two cars is possible. There is potential for a car parking area but this is not a priority at the present time.

4.4 Facilities and structures

At present the only structure is a locked equipment shed located at the southern end of the restoration area.

At this stage no facilities are planned but an improved style at the access and seats and interpretation panels at the entrance and on the sand dune viewpoint are being considered.

An effluent pipeline easement through the lease area to and from the sewage ponds is held by Invercargill City Council. This easement must be maintained as per conditions provided for in schedule 3 of the lease.

4.5 Fencing

Fencing is an important aspect for managing the Bushy Point Restoration Project so that planting and grazing can both occur. The Otatara Landcare Group must maintain stock proof fences in the restoration area. This is important to maintain the goodwill of adjoining landowners to the Bushy Point Restoration Area.

The main objective is to subdivide with permanent fencing the Bushy Point Restoration Area to allow grazing in certain parts (for income generation) while allowing restoration planting and wetland creation and recreation to occur in other parts as defined on maps. The fencing will continue with funding and the subdivided areas will be planted in a priority order. As the project progresses fences will be moved and fencing materials re-used.

Neighbouring properties will be protected from stock encroachment and fencing may be required to protect interpretation signs from stock damage.

A prioritised fencing map has been produced.

4.6 Grazing

Grazing rules for the restoration area are defined in the lease agreement – grazing by sheep and horses only at stocking rates no greater than 9su/ha.

The restoration area will be subdivided with permanent fencing to allow grazing in certain parts (for income generation) while allowing restoration planting, wetland creation and recreation to occur in other parts as defined on maps. In time grazing will decrease as the restoration areas increase.

Written agreements will be in place between the Otatara landcare group and the grazing operators.

4.7 Management and Reporting

A subcommittee of the Otatara Landcare Group overseas this project. The full committee receives monthly updates from the project manager and subcommittee on progress in the form of a spreadsheet listing tasks undertaken and a map showing areas worked on. Monitoring will be reported on at the end of each financial year.

Financial statements and a Bushy Point Report are presented at each monthly committee meeting and site inspections occur at regular intervals. Financial accounts are audited annually.

The Bushy Point Restoration project is managed by the committee of the Otatara Landcare Group.

Chairperson	Barry Smith (2131500)
Secretary	Chris Rance (2131161)
Treasurer	Tracey Langmuir (2130790)
Committee Members	Brian Rance (2131161)
	Randall Milne (2130851)
	Jill Warhurst (2131499)
	Lloyd Esler (2130404)
	Chris Morison (2131258)
	Cathy MacFie (2131267)
	Eric Edwards (2130533)
	Clair Leith (2131148)
	Bala Tikkisetty (Environment Southland) (2115115)

4.8 Liaison

Ongoing liaison will occur between Otatara Landcare Group and neighbouring landowners and partner organisations Department of Conservation, Environment Southland and Invercargill City Council.

Indigenous plants of the Bushy Point area

Bushy Point – Plant list

- 1 Botanical inspection of the Gamble property, B D Rance
- 2 Plant species list Rance property, B D Rance
- 3 Bushy Point, Otatara : Botanical Report, P N Johnson
- 4 New River at Otatara : Botanical Report, P N Johnson
- 5 Bushy Point Conservation Area (southern portion), by B. D. Rance

Ferns

<i>Asplenium bulbiferum</i> var <i>bulbiferum</i>	1,2,3,4,5
<i>Asplenium flaccidum</i>	1,2,3
<i>Asplenium terrestre</i>	4
<i>Blechnum capense</i>	1,2
<i>Blechnum discolor</i>	1,2,3,4
<i>Blechnum minus</i>	1,2,3,4,5
<i>Blechnum penna-marina</i>	4,5
<i>Blechnum procerum</i>	2,3,4
<i>Dicksonia fibrosa</i>	1,2
<i>Dicksonia squarosa</i>	3
<i>Histopteris incisa</i>	1,2,4,5
<i>Hymenophyllum demissum</i>	1
<i>Hymenophyllum sanguinolentum</i>	1,2,3
<i>Hypolepis ambigua</i>	2,4,5
<i>Hypolepis millefolium</i>	1
<i>Phymatosorus diversifolius</i>	1,2,3,4,5
<i>Polystichum richardii</i>	4
<i>Polystichum vestitum</i>	2,3,5
<i>Pteridium esculentum</i>	3,4,5
<i>Pyrrosia serpens</i>	1,2

Podocarps

<i>Dacrycarpus dacrydioides</i>	1,2,3,4,5
<i>Dacrydium cupressinum</i>	1,2,3,4
<i>Podocarpus hallii</i>	1,2,5
<i>Podocarpus totara</i>	1,3,4
<i>Prumnopitys ferruginea</i>	1,3
<i>Prumnopitys taxifolia</i>	1,2,3

Trees & shrubs

<i>Aristotelia serrata</i>	1,2,3,4,5
* <i>Berberis darwinii</i>	4
<i>Carpodetus serratus</i>	1,2,4,5
<i>Coprosma areolata</i>	1,2,3,5
<i>Coprosma foetidissima</i>	1,2,3,4,5
<i>Coprosma lucida</i>	1,3,4,5
<i>Coprosma</i> sp. aff <i>parviflora</i>	4,5
<i>Coprosma propinqua</i>	1,2,3,4,5
<i>Coprosma rhamnoides</i>	1,2,3,4
<i>Coprosma rigida</i>	5

<i>Coprosma rotundifolia</i>	1,2,3,4,5
<i>Cyathodes juniperina</i>	1
* <i>Cytisus scoparius</i>	1,2,3,4,5
<i>Elaeocarpus hookerianum</i>	1,2,3,4,5
<i>Fuchsia x colensoi</i>	1,5
<i>Fuchsia excorticata</i>	1,2,3,4,5
<i>Griselinia littoralis</i>	1,2,3,4,5
<i>Hebe salicifolia</i>	1,2,3,4,5
* <i>Hypericum androsaemum</i>	2
<i>Ileostylis micranthus</i>	1,3,5
<i>Korthalsella salicornioides</i>	1
<i>Leptospermum scoparium</i>	1,2,3,4,5
* <i>Lupinus arboreus</i>	1,3,5
<i>Melicytus lanceolatus</i>	1,2,3,4,5
<i>Myrsine australis</i>	1,2,3,4,5
<i>Myrsine divaricata</i>	1,2,3,4,5
<i>Neomyrtis pedunculata</i>	1,2,3
* <i>Pinus radiata</i>	4
<i>Pittosporum eugenoides</i>	2,4,5
<i>Pittospermum tenuifolium</i>	1,2,3,4,5
<i>Plagianthus divaricatus</i>	1,3,4,5
<i>Pseudopanax colensoi</i> var. <i>ternatus</i>	1,2,3,4,5
<i>Pseudopanax crassifolius</i>	1,2,3,4,5
<i>Pseudowintera colorata</i>	1,2,3,4
* <i>Rosa rubiginosa</i>	3
* <i>Sambucus nigra</i>	1,2,3,4
<i>Schefflera digitata</i>	1,2,3,5
<i>Schizeilema trifoliolatum</i>	1,5
<i>Ulex europaeus</i>	3,4,5
<i>Urtica ferrox</i>	4
<i>Weinmania racemosa</i>	1,2,3,4

Climbers & vines

<i>Clematis paniculata</i>	1,2,4,5
<i>Fuchsia perscandens</i>	5
<i>Muehlenbeckia australis</i>	1,2,3,4,5
<i>Muehlenbeckia complexa</i>	1,3,4,5
<i>Parsonsoa heterophylla</i>	1,2,3,4,5
<i>Rubus australis</i>	1,2,3,4
* <i>Rubus fruticosus</i>	1,2,3,4,5
* <i>Solanum dulcamera</i>	2,3,4,5
* <i>Tropaeolum speciosum</i>	2,3

Herbs

<i>Acaena anserinifolia</i>	5
<i>Apium prostratum</i>	1,3,4
* <i>Arctium minus</i>	4
* <i>Atriplex prostrata</i>	3
<i>Callitriche petriei</i>	4
* <i>Callitriche stagnalis</i>	4
* <i>Capsella bursa-pastoris</i>	4
<i>Cardamine corymbosa</i>	4

Cardamine debilis	4
*Cerastium fontanum	3,4
*Cirsium arvense	3,4
Cirsium vulgare	4
*Conium maculatum	3,4
*Digitalis purpurata	2,3
*Epilobium billardieranum	3,4
Crassula moschata	3
*Galium palustre	4
*Galium trilobum	4
*Geranium molle	4
Gnaphalium audax ssp. ruahinicum	4
Gnaphalium luteo-album	3
Hydrocotyle heteromeria	2,4,5
Hydrocotyle novae-zelandiae ssp.	3,4,5
*Hypochaeris radicata	4,5
Lemna minor	4
Leptinella coronopifolia	1,3,4
Leptinella dioica	1,3,4
Liliopsis novae-zelandiae	4
*Lotus pedunculatus	1,2,3,4,5
*Mimulus guttatus	4
Montia fontanum	4
*Myosotis caespitosa	4
Nertera depressa	4,5
*Plantago austalis	3,4
*Plantago coronopus	3,4
*Plantago lanceolata	4
Potentilla anserina	1
Ranunculus glabrifolius	1
Ranunculus membranifolius	1
*Ranunculus repens	5
*Rumex crispus	3,4
*Rumex obtusifolius	4
*Sagina procumbens	3,4
Samolus repens	3,4,5
Selliera radicata	3,4
*Senecio biserratus	3
Senecio glomeratus	3
*Senecio jacobaea	2,3,4,5
Senecio minimus	2,4,5
*Sonchus asper	3,4
*Sonchus oleraceus	3
*Stellaria alsine	4
*Stellaria media	2,4,5
Stellaria parviflora	1,2
*Taraxicum officinale	4
*Trifolium repens	4
*Urtica urens	4
*Veronica arvensis	4

Monocots

Grasses

*Agropyron repen	4
*Agrostis stolonifera	1,3,4,5
*Anthoxanthum odoratum	3
Cortadieria richardii	4
*Dactylis glomerta	2,4
Deschampsia caespitosa	1
*Festuca arundinacea	1,3,4,5
*Glyceria declinata	3,4
Hierochloe redolens	1
*Holcus lanatus	1,2,3,4,5
*Lolium perenne	4
Microlaena avenacea	1,2,3,4
*Poa annua	4
Poa cita	3,4,5
Puccinella sp.	3,4
*Spartina anglica	3,4

Sedges

Baumea tenax	5
Carex appressa	1
Carex dissita	1,2,4,5
Carex coriacea (include. C. geminata)	1,2,3,5
Carex flagellifera	4
Carex gaudichaudiana?	5
Carex littorosa	3
Carex secta	2,3,4
Carex virgata	4,5
Eleocharis acuta	5
Isolepis cernuua	3,4
Isolepis reticularis	4
Schoenus nitens	4
Schoenoplectus pungens	3,4,5
Uncinia uncinata	1,2,4

Other monocots

Astelia fragrans	1,2,3,4,5
Cordyline australis	1,2,3,4,5
Earina autumnalis	1
Earina mucronata	2,3
*Juncus articulatus	3,4
*Juncus geraldii	1,3,4,5
Juncus gregiflorus	4
Juncus pallidus	3,4
*Juncus procerus	5
Leptocarpus similis	1,3,4,5
Phormium tenax	1,3,4,5
Pterostylis australis	2,3
Triglochin striatum	3
Zostera novae-zelandica	4

Indigenous Fauna of the Bushy Point Area

Bird Species List – Lloyd Esler

Black shag Often seen at ponds
Little shag Often seen at ponds
White-faced heron Frequent in wet pasture. Nests in tall trees in the area
White heron Occasional visitor to estuary adjacent to Bushy Point
Cattle egret Rare visitor to wet pasture and estuary at Bushy Point
Bittern Occasionally seen in ditches and swamps
Spoonbill Common on the estuary adjacent to Bushy Point
Black swan Common on estuary
Canada goose Frequently flies overhead and probably visits estuary and ponds
Paradise duck Resident around ponds
Mallard Resident at ponds
Shoveller Visitor to ponds
Harrier Common over estuary and pasture. Breeds in rushes in the area
Marsh crake Occasionally observed on the edge of the estuary
Spotless crake Not recorded but almost certain to live in swampy areas
Pukeko Common resident
South Island pied oystercatcher Common on estuary and paddocks
Black oystercatcher Common in estuary
Spur-winged plover Common resident. Breeds in pasture and on estuary shore
Pied stilt Common at ponds and on estuary
Banded dotterel Seen sometimes along the edge of the estuary
Turnstone Sometimes seen along estuary shore
Godwit Common on estuary
Knot Common on estuary
Black-backed gull Very common on estuary and overhead. Has bred at Bushy Point
Red-billed gull Common in estuary
Black-billed gull Common in estuary
Caspian tern Sometimes see in the estuary
White-fronted tern Common in estuary
Black-fronted tern Present in estuary
Native pigeon Common in bush
 Feral pigeon Occasional visitor to pasture and buildings
Red-crowned parakeet Occasional visitor from a captive-bred population
Shining cuckoo summer visitor to bush
Little owl Small population in the area
Morepork Rarely heard
Kingfisher Uncommon in the area
Swallow Common around buildings and over water
Silvereye Common in bush and shrubbery
Grey warbler Common in bush and gardens
Blackbird Very common in gardens and paddocks
Thrush Very common in gardens and paddocks
Starling Very common in gardens and around buildings
Skylark Common in pasture
Hedge sparrow Very common in shrubbery
Fernbird Small population along estuary margin

Fantail Common in bush and gardens
Tomtit Occasionally seen in bush
Tui Common in bush
Bellbird Common in bush and gardens
Sparrow Common around dwellings
Chaffinch Very common throughout
Redpoll Very common throughout
Goldfinch Common in grassland
Greenfinch Common in gardens and pasture
Yellowhammer Common in pasture
Magpie Common in pasture and tall trees.

Department of Conservation Concession Agreement

Legal Situation

In 2002 the Otatara Landcare Group went into negotiation with the Department of Conservation, Southland Conservancy to take over the grazing lease with the aim of gradually restoring the area back to native vegetation. (Concession Agreement Appendix ?)

The **legal description** of the land is Lots 90, 91 and 92, DP 1045, parts section 8-13 and 52, Block XX, Invercargill Hundred (see map Appendix ?)

Size – Total permitted area 13.9ha

Concession Activity – “Progressive restoration for the purpose of enhancing the Bushy Point area and grazing the land (allowing grazing by third parties subject to special conditions in Schedule 3) to fund replanting of native vegetation and general restoration activities”.

Term - 30 years

Concession Fee – Nil

Public Liability Insurance required

Schedule 3 includes:

- Grazing by sheep and horses at stocking no greater than 9su/ha
- Animal and pest control
- Acknowledge ICC rights of easement and maintain 1.5 metre margin either side of easement
- Collection of seed from reserve
- Create a wetland with prior written approval from DOC
- Not light fires without written permission
- Not erect any structures

Note planning restrictions

No building within 300 metres of Water treatment plant

References

Invercargill City District Plan (2005)

Sawdust and Schollars

Development and Forest Sustainability, Otatara, Invercargill – Report prepared for Invercargill City Council by Dr David A. Norton (1996)

Areas of Significant Indigenous Vegetation and significant habitats of indigenous fauna in the Invercargill City District – Amber Bill (1999).

Bushy Point, Otatara: Botanical Report, P.N.Johnson, Botany Division, DSIR, Dunedin, 1987).

Invercargill City Council – Invercargill City Transitional District Plan – proposed Plan Change No 34 – Otatara Peninsula (Enrest New and Associates) (1996)