

5. STYX MILL CONSERVATION RESERVE

Officer responsible
Parks and Waterways Manager

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The purpose of this report is to outline the long term vision for Styx Mill Conservation Reserve and to seek approval for its implementation as funds become available.

INTRODUCTION

Styx Mill Conservation Reserve, a unique reserve forming part of the Styx River corridor, was acquired by the former Waimairi County Council in the early 1970s for reserve purposes. Today it is recognised as an important ecological site and wilderness area that is coming under increasing pressure from urbanisation. Future management of this reserve is critical if it is to retain its existing and potential ecological values. This report highlights issues and values currently associated with Styx Mill Conservation Reserve, relevant policy, hearing decisions and a long term vision for its future management. It also outlines the results of the consultation process, implementation and sources of funding.

DESCRIPTION

Styx Mill Conservation Reserve consists of a large natural basin surrounded by river terraces that have been formed by the natural processes associated with the Styx River, a springfed river ecosystem, and the nearby Waimakariri River, a large braided river ecosystem. In 1856, a map of this area indicates that the reserve consisted of marshy land surrounded by grassland, flax, and toetoe. Today, Styx Mill Conservation Reserve, is the fourth most important wetland area within the Christchurch area¹.

The reserve covers an area of almost 60 hectares. In addition to the Styx River and its associated tributary waterways, wetlands and landforms, the reserve contains car parking, walking tracks, picnic areas, toilet block, bus stop and a dog park. Entrances from Styx Mill Road and Husseys Road provide access to the reserve.

To the north is Northwood residential development and lifestyle blocks. To the east is Main North Road, residential properties and a continuation of the Styx River corridor. To the south is the Styx Mill Transfer Station, Regents Park residential development and lifestyle blocks, and to the west is a continuation of the Styx River corridor, lifestyle blocks and Willowbank Wildlife Reserve.



¹ Andrew Crossland - ornithologist

Although the reserve is becoming increasingly important for recreation, particularly walking, as a place to picnic and for exercising the dog, the reserve also has very high ecological values due to its botany, instream habitat, and birdlife.

The low lying wetland areas within the reserve retain a significant remnant of native wetland and riparian vegetation. This area has been graded an "A" site by Dr Colin Meurk as part of an extensive survey of natural areas within the Christchurch area².

The vegetation type can be described as willow-rush-sedge wetland. It contains several locally uncommon species including *Baumea rubiginosa*, *Carex flagellifera*, *Carex flaviformis*, *Carex maorica*, *Carex sinclarii*, *Potentilla anserinoides*, *Schoenus apogon*, *Schoenus pauciflorus*, *Juncus planifolius*, *Sphagnum cristatum*. The sphagnum moss is of particular note. Although this species was recorded in this and other sites around Christchurch in 1927 by Dr Leonard Cockayne this is now the only known site in this part of the east coast.³



Sphagnum moss found within the reserve.



Natural regeneration of native ferns under the willow tree canopy.

The waterways within the reserve contain at least 5 native fish species (shortfin eel, longfin eel, lamprey upland bully and common bully). The reserve also forms the principal spawning region for brown trout in the Styx catchment and recent observations indicate that native bullies also spawn there, in particular good numbers of upland bullie on cobbles at the pond outlets into the main river. Freshwater crayfish (koura) are common in the mainstream.⁴

Following recent habitat enhancement, particularly the creation of ponds and the enhancement of wet grassland and swamp land habitats, the reserve has attracted a varied and expanding bird population. Forty-six bird species have now been recorded at Styx Mill Conservation Reserve, including 24 native species (52.2%). Peak numbers of wetland birds now reach 1000+.⁵

ISSUES

Over recent months, a large number of issues have arisen in this locality that directly impact on Styx Mill Conservation Reserve. These include -

- Widening of Main North Road (Transit)
- Proposed roading options through or near the reserve as part of the northern roading study
- Cell phone site
- Urban development along the northern boundary of Styx Mill Conservation Reserve
- Inconsistency within the City Plan relating to esplanade reserve requirements along this stretch of the Styx River.
- A greater number of people now using the reserve and the impact on wildlife values, including the presence of dogs within ecological areas.

The existing concept plan (1993) also needed to be revisited in terms of its 'conservation zoning' as outlined in the City Plan, the new approach to waterway and wetland management as outlined in the 'Waterways and Wetlands Asset Management Strategy' and the 'Styx Vision 2000 – 2040', strategies that have been adopted by the Council.

² Meurk CD, Ward JC, O'Connor KF (1993) Natural areas of Christchurch: Evaluation and recommendations for management as heritage. Report by the Centre for Resource Management, for the Christchurch City Council.

³ Kate McCombs, Botanist, Parks and Waterways Unit, Christchurch City Council

⁴ Mark Taylor, Applied Ecology Limited

⁵ Andrew Crossland, ornithologist Parks and Waterways Unit, Christchurch City Council

As part of the landuse consent, the developers of Northwood subdivision are required to install a predator proof fence at the base of the terrace within the reserve, plant the terrace slopes and provide a 5 metre wide planted buffer zone along the top of the terrace. The tight time-frames associated with the subdivision process has meant that the Christchurch City Council has had to make design decisions that related to the long term management of this interface in order that the developers could progress these stages of their development. It was vital that this strip of the reserve was not considered in isolation from the rest of the reserve and that this stretch of the Styx River is considered holistically as part of the much bigger Styx River corridor. This approach has ensured that ad hoc decisions that may be regretted later do not occur, as well as allow for opportunities to be maximised.

A long term vision for Styx Mill Conservation Reserve was developed in accordance with its zoning status of 'Conservation' in the City Plan and the long term vision for the Styx catchment that had been developed in accordance with the Waterways and Wetlands Asset Management Strategy. It also addresses the above issues, including resolving the boundary issues associated with the interface between Northwood and the Reserve.

DEVELOPMENT PROPOSAL

The long term vision for Styx Mill Conservation Reserve will achieve the following objectives. Please refer to Appendix 1 for concept plans showing the proposal in plan form.

1. *To provide opportunities for people to experience, appreciate and understand the natural values associated with this reserve.*

This will be achieved through –

the provision of innovative interpretation about the local environment and its relationship to the larger Styx River ecosystem.

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- providing opportunities to observe and experience nature including wildlife (eg viewing platforms, wilderness walks)
- the development of hands-on learning experiences (eg safe access to the river for observation and monitoring, wetland play areas)
- the provision of suitable spaces for large groups of people (eg classes, bus groups)

2. *To provide opportunities for passive recreation that complements the natural values associated with the reserve.*

This will be achieved through –

- upgrading existing walkways and the development of new walkways, including one that forms part of the Source to Sea experience.
- the development of children's natural play areas
- the upgrading of picnic areas.
Some existing picnic areas located in the low-lying areas are very wet during the winter months. Their relocation to the site of the dog park area would mean that they could be used continuously throughout the year.
- improved definition of vehicle entry and separation of vehicle movements from people areas through the development of a new vehicle access into the reserve.

3. *To enhance the ecological values of this reserve and greater Christchurch.*

This will be achieved through –

- developing a predator free area through predator eradication and the enclosure of a large part of the reserve within a predator-proof fence.
- developing the reserve as a core breeding and wintering site for both wetland birds and bush birds through habitat restoration.
- developing a partnership with Willowbank Wildlife Reserve
- reintroductions of locally extinct species, particularly birds but also lizards and invertebrates.
- ongoing monitoring and research.
- relocation of dog park in consultation with the community.

4. *To highlight and interpret the cultural values associated with this locality through the establishment of significant areas and structures within the reserve to “tell the stories of the land”.*

This will be achieved through the development of the –

- **Dilcoosha Garden**
The garden recognises Dr Leonard Cockayne (1855 – 1934), an internationally acclaimed botanist, who had a close association with this area through the research and experimentation that he undertook on his property known as Dilcoosha and located at 275 Highsted Road. His work in this area provided the inspiration for the Styx Living Laboratory, one of the long term visions for the Styx. Please refer to Appendix 2 for sketches of the proposal.
- **Godley Kowhai Grove**
The kowhai grove recognizes the work of Dr Eric Godley (1919 – present) who has also made a sustained and distinguished contribution to New Zealand botany. In 2001, Dr Godley’s special interest in the kowhai led scientists to name a previously unknown species of kowhai ‘*Sophora godleyi*’ as a mark of respect for his work.
- **Styx Mill**
Styx Mill Road and Styx Mill Conservation Reserve both owe their names to a number of mills located in this area during the mid 1800’s. The historical significance of mills in this locality will be highlighted through the construction of a façade reflecting a mill and containing information about mills that would have once operated in this area. It will be located near the western end of the reserve and the site of the original mill. Please refer to Appendix 2 for sketches of the proposal.
- **Artwork(s)**
This area was and continues to be important to Maori (eg mahinga kai, meeting place). To recognise and highlight this importance it is proposed to work in partnership with Maori in developing a structure or artwork that reflects this importance.

5. *To maximise learning and research opportunities through the development of partnerships with other organisations and learning institutions.*

This will be achieved through -

- the development of joint research programmes with organisations such as Willowbank Wildlife Reserve, the Styx Living Laboratory Trust, Guardians of the Styx Community Group, Crown Research Institutes and tertiary organisations.
- the development of learning programmes involving the community, schools and other learning organisations.



The predator-proof fence to be constructed at Styx Mill Conservation Reserve will be similar to the one built at the Department of Conservation Mt Bruce Wildlife Sanctuary in the Wairarapa.

CONSULTATION

The long term vision for Styx Mill Conservation Reserve has been presented to Community Board members, members of the Guardians of the Styx Community Group and the Styx Living Laboratory Trust. The vision was also launched to the wider community via a Summertime Event held at Styx Mill Conservation Reserve on the 26 January 2003. A publicity brochure outlining the proposal and asking for submissions has been widely distributed. The submissions resulting from this consultation process have been analysed by Opinions Market Research Ltd. A summary of the results are as follows –

- The consultation form requested information on aspects of the vision that were of most interest, positive aspects of the vision, aspects that could be improved and other suggestions.
- A total of 44 forms were returned from adults, in addition there was one letter from a member of the public, an annotated brochure and a response from Willowbank Wildlife Reserve. There were also 11 forms received from children in association with the WaterLink Kidz Club.
- Overall, adult opinion was positive towards the proposed vision for Styx Mill Conservation Reserve. The majority of those completing forms were supportive of the proposals, some had further suggestions or comments but viewed the concept positively.
- Overall, children focused on the wildlife aspect of the vision, of protecting the animals and providing a home for them. There were also comments on the fact it was a plan for the future and for future generations. It was also seen as fun.
- The primary area where negativity towards the plan was expressed related to the issue of the removal/ relocation of the present dog park, cited by six of those responding. Whilst this was seen as a major issue for these people, three also stated positive aspects of the plan as a whole. For the remaining three, comment focused almost solely on the issue of the relocation of the dog park.

Please refer to Appendix 3 for a more detailed analysis of the submissions.

DISCUSSION

Styx Mill Conservation reserve is the fourth most important wetland area within the Christchurch area. The long term vision for this reserve recognises this ecological importance through maximising its ecological potential. To achieve the vision the reserve has been divided into three distinct landscape management zones, each with a different focus. They have been described as 'nature', 'nature and people' and 'people' zones. Please refer to the plan in Appendix 1 for more detail. The different focus for each zone will ensure that the objectives, activities and management practices, particularly in the ecological areas, are easily and clearly understood.

The nature and nature/people areas are enclosed by a predator proof fence. This is the only technology currently available that offers the opportunity for permanent pest eradication on a mainland island site. The costs associated with maintaining very low pest numbers by trapping and poisoning are very high and effort must be continuous and on-going. Predator proof fencing offers a more permanent option and one that will cost considerably less in the way of resources in the medium to long term.⁶

Northwood developments as part of their landuse consent for residential development are required to construct a predator proof fence at the base of the terrace within the reserve at their cost. This equates to approximately a third of the overall cost to enclose the area identified in the concept plan.

The vision also recognises the large range of learning opportunities associated with the reserve through the development of innovative interpretation, wilderness experiences and joint programmes with Willowbank Wildlife Reserve (eg education, reintroductions of locally extinct birds). Willowbank are located very close to the reserve and are working closely with the Department of Conservation in the development of their New Zealand bird breeding programme. They support the vision for Styx Mill Conservation Reserve and look forward to working in partnership with the council in its implementation. Other groups who could also become actively involved in the programme include the Guardians of the Styx community group and the Styx Living Laboratory Trust.

⁶ Page 8 Proposal to construct an Xcluder Pest Proof Fence around the Styx Mill Conservation Reserve in Christchurch – analysis of practicality and an estimate of cost. Roger MacGibbon – Xcluder Pest Proof Fencing Company

Although there is a strong emphasis on the ecological values associated with the reserve, the vision does encourage recreational activities that are compatible with the reserve's ecological importance and conservation zoning status. These activities include walking, places for picnics and the enjoyment of natural areas. The plan does however, include the relocation of some picnic areas to a higher drier area that is currently used as a dog park in order that these picnic areas can be used all year round. Existing infrastructure and plantings such as the toilet block, tar sealed access, native plant restoration and the large number of exotic specimen trees towards the western end of the reserve have been retained and incorporated into the plan.

Overall there has been a very positive response towards the long term vision for Styx Mill Conservation Reserve. The main issue of concern for a small percentage of submitters is the relocation of the dog park to an alternative site. A report went to Council on the 21 November 2002 with a recommendation that the Christchurch City Council Bylaws be amended to include a list of ecological sensitive sites where dogs be prohibited or restrained. It included a recommendation that dogs be prohibited from Styx Mill Conservation Reserve and it was proposed that a better dog park facility be provided at the nearby Roto Kohatu Reserve. The Council agreed that a working party be set up to review the list of restrained and prohibited areas. It is proposed to work closely with this working party, the Shirley Papanui Community Board and dog owners in finding an alternative suitable site(s) of equal or greater standard than currently exists at Styx Mill Conservation Reserve. The existing dog park would stay in place until an alternative site had been identified and developed.

IMPLEMENTATION

Cost estimates for the different aspects of the long term vision are outlined in the table below.

STRUCTURES

Predator-proof fence	\$450,000
Viewing platforms (5 @ \$25,000 each)	\$125,000
Mill building and wheel	\$70,000
Dilcoosha Garden building façade <i>Wall (\$14,000) and pergola (\$6,000)</i>	\$20,000
Outdoor classroom and boardwalk (200 m2 @ \$1000/m2)	\$200,000
Play structures (5 @ \$10,000 each)	\$50,000
Road and car parking area (2450m2 @ \$65 per m2)	\$160,000
Bridge over Styx River	\$30,000
New paths <i>Crusher dust (\$22 per m2, 2m wide x 1680m long, 3360m2))</i>	\$74,000

PLANTING

Hussey Road Entrance 800,000 m2 <i>Cabbage tree, wetland and picnic areas 50,000 plants @ \$5.00 each</i>	\$250,000
Wildlife Sanctuary 250,000 m2 <i>49,000 plants @ \$5.00 per plant</i>	\$245,000
Styx Mill Road Entrance 20,800 m2 <i>20,000 plants @ \$5.00 per plant</i>	\$100,000

Estimated Total Cost is \$1,774,000

It is important to appreciate that the implementation of the vision will be staged over a number of years according to available funds and as part of the 40 year vision for the Styx. Funding for the project will come from existing council budgets, joint ventures, sponsorship and applications to environmental funding agencies. The development of volunteer programmes will also assist with planting, maintenance and on going monitoring. A funding application has been made to the Lottery Board for funding various aspects of the project. Funding within existing Council budgets specifically allocated to Styx Mill Conservation Reserve consists of \$28,000 for 2003 – 2004 financial year and \$50,000 a year for the following four financial years.

CONCLUSION

Although there is a strong emphasis on ecological values, the vision for Styx Mill Conservation Reserve also recognises the many other values associated with this locality.

The development of partnerships, particularly with Willowbank Wildlife Reserve, Guardians of the Styx Community Group, and the Styx Living Laboratory Trust are also essential for its long term success.

A dog park in this location is not compatible with the long term conservation objectives for this area. The Council does however, recognise the need for good dog parks in appropriate locations and will work with dog owners in finding an alternative site. The dog park at Styx Mill Conservation Reserve will be retained until an alternative site has been established.

Being able to experience wilderness areas within an urban setting will become more and more important as Christchurch City expands and these areas are lost to urban development. The long term vision for Styx Mill Conservation Reserve will achieve this through the development of a 'wildlife sanctuary'. It will pre-empt the potential loss of ecological values that are currently associated with Styx Mill Conservation Reserve and result in a significant ecological asset that existing communities and future generations can also enjoy within this part of the city and the greater Styx Catchment.

The above report was considered by the Shirley/Papanui Community Board at its meeting on 30 April 2003. The Board decided to support the following recommendation.

Staff

- Recommendation:**
1. That the long term vision for Styx Mill Conservation Reserve be supported.
 2. That representatives of the Shirley/Papanui Community Board, council officers, and the Council working party work with dog owners in the identification and development of alternative site(s) for the dog park currently located at Styx Mill Conservation Reserve.
 3. That the development of the reserve be staged according to available funds.
 4. That a range of funding sources be investigated.

Chairman's

- Recommendation:**
- That the above recommendation be adopted subject to 80% of the cost of the predator-proof fence being externally sourced.