

# Wet & Wild!



NEWSLETTER OF THE NATIONAL WETLAND TRUST

No. 5, Autumn 2002

## Reflections on the year...

During this year I am pleased to report the progress that has been made and the giant step forward that the purchase of the site in Rangiriri provides. It should also be noted however that the Trust has commenced actions across a broad field of activities and the benefits of those will become obvious in future years.

I wish to acknowledge the work and commitment of all the Trustees who have willingly taken on tasks and so freely give of their time and expertise.

It is heartening to see the growing interest in wetlands at local and central Government level but this message needs to be taken to the general public. We believe that we will be the vehicle to achieve that task and we have accepted the challenge.

I am reminded of the words of the address of Tony Reiger at the annual meeting in 2001 when he said *"the more we can have the public experience wetlands, to open all of their senses to the wonder of wetlands, the more we will be heard and the more wetlands will be understood and appreciated. Nothing can compare to a dedicated mentor working in a dynamic, alive, interactive classroom like a wetland itself, with people that are open to experience and learn."*

*Would we rather have generations of New Zealanders fill their senses with the totality of an interactive wetland, or doom them to sit inside a tour bus glimpsing bits and pieces of wetland, or worse yet, have them sit in front of a computer reading about what a New Zealand native wetland once was".*

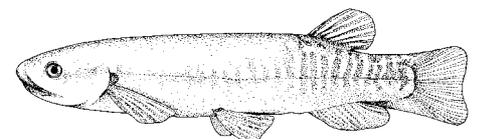
And that surely sums up the goals of the National Wetland Trust and gives us all the incentive to keep working to fulfil our dream.

David Lawrie  
Chairperson  
National Wetland Trust

## ANNUAL GENERAL MEETING

The annual general meeting of the National Wetland Trust will be held at 7pm on Wednesday 12 June at the Mighty River Power Social Hall, 160 Peachgrove Road.

Our guest speaker this year is Barry Harris, the Chief Executive at Environment Waikato. Barry will be speaking about wetlands in the Waikato. In addition, Gordon Stephenson from the Trust will be giving a presentation on the plans for the National Wetland Education Centre.



NATIONAL WETLAND TRUST OF NEW ZEALAND

## Protecting the Mangarakau Wetland

Geoff Davidson

The NZ Native Forest Restoration Trust has been acquiring reserves for nearly 20 years and their latest purchase is their first in the South Island and their first that is

predominantly wetland. It was in 1994 they resolved that it should be on their priority list and it has been several years in the negotiating stage to reach agreements with all the landowners involved.

The wetland covers 350 hectares with DoC owning half of it. The balance is in several titles with four landowners, each with some areas of dry land as well as portions of the swamp. It was this complex situation that has taken time to resolve and now with agreements in place it is time to start the fund raising. Already the first purchase has been completed and together with a portion of the wetland, the Trust now has a house and community hall from which to base its operations. The total cost of the project is expected to be \$500,000.00 and the Trust is calling for assistance from all wetland enthusiasts to help meet the target.

The Mangarakau wetland in North-West Nelson lies south of the Whanganui Inlet (Westhaven) Marine Reserve, and west of the northern part of Kahurangi National Park. To the west of the wetland the Department of Conservation has several prominent reserves featuring outstanding rocky limestone bluffs. It is an area where the existing ecosystems still represent the full range of natural diversity originally found there. Being so strategically placed the wetland has extremely high environmental values in an area that is noted for its unspoilt character.

Regionally Mangarakau is the largest remaining wetland in Nelson/Marlborough Ecological Area and although greatly modified its existing plant and animal communities are distinctive and rare within the ecological area. It is almost as big as all the other Nelson freshwater swamps combined. It supports a diverse and extensive range of vegetation communities, from relatively dry pakihi *Gleichenia* fern, infertile *Baumea* rushland, and *Typha* (Raupo) reedland. The western side of the wetland has features not represented in the DoC owned land, particularly the Raupo dominated associations, presumably more fertile due to the limestone bluffs draining into the western reedlands.

The wetland is a key area in several sequences, most particularly the continuum from the heights of the Kahurangi National Park to the tidal mudflats of the Whanganui Inlet Marine Reserve. It holds a pivotal position in the catchment and is central to a comprehensive planning approach for the whole area.

The several large areas of open water contain the Category B threatened aquatic plant *Myriophyllum robustum*. The small remnant of original kahikatea/pukatea forest that remains is one of the few regional examples left. Although modified the wetland appears perfectly natural and is functioning as an integral part of the wider ecosystem. There are many endangered species such as the globally threatened Australasian Bittern, regionally threatened South Island Fern bird, the Brown Mud Fish, *Giant* Kokopu, and the Ladies Tresses Orchid, which will be targeted with recovery programmes.

Attempts in the past have been made to drain the swamp and develop pasture. The drainage ditches still exist but are largely non-functional. The natural outflow of the wetland was to the south into the Patarau River. The threat remains that future owners might again attempt to drain it. By purchase and covenanting the long term integrity of the wetland is assured.

As NZ NFRT is able to complete the purchase of each of the three properties, they will progressively put Q.E.II National Trust covenants in place, and undertake to actively restore areas.

#### **Acknowledgements**

NZ NFRT acknowledges the considerable and helpful assistance we have received from many agencies during our research and negotiations. Particularly helpful was the experience of George McMillan seconded from the Forest Heritage Fund. The Conservation Department in Nelson has also been of assistance with expert advice from Jack Hayward, Shannel Courtney, and in Takaka, Simon Walls.

# The challenge of restoring a Waikato Peat Bog

Bev Clarkson and Shannon Fergie

Restoration of a cutover peat bog is currently underway at Torehape in the Hauraki Plains. The bog is being mined for horticultural peat, and the miners are required to restore the area to original bog vegetation after the permitted depth of peat has been removed. Once mining has been completed, 4-5 m of peat will remain.

The Torehape project is a rare example of attempted 'sustainable' mining by creating peat after a small proportion has been harvested. It also provides an opportunity to develop restoration techniques for maintaining the biodiversity of a nationally threatened bog ecosystem.

Landcare Research, in association with Russell Gamman Mining, The University of Waikato, and Department of Conservation, initiated experimental trials about 4 years ago to determine suitable techniques for bog restoration. These involved various combinations of water table, nutrients (nitrogen, phosphorus), and plant species (manuka, *Sporadanthus ferrugineus*) characteristic of both early and late successional stages of bog development. The most successful combinations were islands of 'milled' peat raised about 30 cm above the bare peat surface, and seeded with one or two branches of manuka slash laden with ripe capsules. These resulted in 100% vegetation cover within 2-3 years. The island approach is now being extended to restore a larger area (200 ha) in which mining has been completed.



Rachel Kelleher (DOC) and Shannon Fergie (UOW) remeasuring vegetation in plots set up 4 years ago. *Sporadanthus ferrugineus* is in the foreground, and 'islands' of manuka are in the background.

Shannon Fergie is currently undertaking a M.Sc thesis that is focused on developing a method to assess wetland restoration success and conducting peatland vegetation restoration trials following disturbances such as peat mining and fire.

Shannon has an experiment under way at the Torehape peat mine that follows on from the work of Bev Clarkson and others (mentioned above) that involve quantifying and refining the restoration techniques that have been used to re-vegetate the mined peat surface.

A portion of the mine has been set aside where she is conducting an experiment that is aimed at discovering how altering the surface of the peat can affect vegetation establishment. There are 3 different surface treatments for the experiment; the 'island' treatment mentioned above, a 'disturbed' treatment that involves removing 30 cm of peat from the surface and replacing that peat with fresh milled peat, and a 'flat' treatment that simply involves leaving the surface as it is.

Because manuka has proven to be the most successful 'natural' vegetation type to re-establish on the mine, Shannon has quantified the average amount of seed produced with the manuka slash technique (mentioned above), and have applied that same quantity of seed to a selection of plots marked out with one of the three surface treatments assigned to them. By doing this, she hopes to discover which surface type best supports the establishment of manuka seedlings and hence is the best surface type for restoring natural vegetation cover to the mined surface.

Shannon has another restoration trial under way at Lake Maratoto near Hamilton that involves attempting to re-establish the natural peat forming vegetation to the lake's edge. Lake Maratoto is a peat lake that once supported the peat forming plant *Empodisma minus* until a fire destroyed much of the lake's natural vegetation, including the entire *Empodisma* population. *Empodisma* has been planted amongst two different vegetation types (Manuka and Gorse/Blackberry) around the lake's edge to see whether it can survive varying nutrient regimes, light levels and weed competition. The results to date are indicating that although the *Empodisma* plants survived their transplantation to the wild, they are not able to withstand the competition from the aggressive weedy species that have colonised the plots in the higher nutrient gorse/blackberry vegetation type. They are however, managing to survive amongst the manuka as the lower nutrient and light levels.

# Banrock Station Wetland Education Centre

*David Lawrie*

Banrock Station is a 1700ha property at the junction of Banrock Creek and the Murray River in South Australia. The property contains 250ha of premium grape varieties. The remaining land is being returned to its natural state, which includes 12kms of river frontage and contains adjoining wetlands and flood plain of over 400ha.

Situated on the property is a wine and wetland centre, which serves a dual purpose. Firstly it is a venue in which to taste the wines of Banrock Station. Secondly it provides an interpretative experience telling the compelling story of the wetlands and the wildlife that depend on that environment.

From the wine and wetland centre leads a series of walking trails that extend for 7kms. Included within these trails are a number of boardwalk sections that run over and through the wetland area with interpretative panels. There is also the opportunity to see interesting Australian flora and wildlife such as Kangaroos, water birds and frogs.



The building itself has been designed to blend with the environment and to use as little energy as possible. It was

designed to catch cool breezes from the lagoon and the roof has double the usual amount of insulation. The walls are made of rammed earth from local soils and solar panels provide much of the power with gauges inside advising visitors how much power is being used and how much is being generated.

My visit to the Centre was not organised in advance although I deliberately drove in that vicinity to visit the building. However I arrived at 4.30pm shortly before the Centre closed. It was therefore not possible for me to walk the trails but I did have discussions with the site manager and looked around the Centre itself. From the vantage point at the Centre it was possible to view over some of the close lagoons and I estimated that there were at least 2000 waterfowl visible from the Centre.

As well as the environmental work on the property part of the proceeds from the sales of Banrock Station wines are donated for wetland conservation projects throughout the world. A major association has been formed with Wetland Care Australia and Land Care Australia for projects within Australia. An association has also been formed with Wetland Care New Zealand to sponsor wetland restoration projects within New Zealand. Funding from this source was used to help develop the wetland within the Karori sanctuary in Wellington.

For more information regarding this winery and wetland visit the website [www.banrockstation.com.au](http://www.banrockstation.com.au). The trail complex that has been developed is a good indication of what the National Wetland Trust are striving to achieve in New Zealand wetlands.



# Wetland snippets

## Bedtime reading...

Interested in learning more about wetlands in NZ. We recommend the following books.

**New Zealand wetlands: a management guide** by Robert Buxton, 1991 for info on dams, ponds, weed control and planting advice.

**Wetland plants in New Zealand** by Peter Johnson and Pat Brooke, 1989. A field book with over 500 line drawings of wetland plants.

**Guidelines for constructed wetland treatment of dairy wastewaters in New Zealand** by Chris Tanner and Vivian Kloosterman, 1997. Info on constructed ponds and planting advice.

**New Zealand Wetlands** By the Open Polytech of NZ, 1994. Info on wetland types, plants, animals, management, creation and restoration.

**Wetlands. Discovering New Zealand's shy places.** by Gordon Stephenson, 1986. Descriptions of wetlands around NZ, photos.

**Management practices for marginal zones of wetlands and lakes.** by Paul Champion and Willie Shaw, 2000. How marginal zones function and management advice.

## Strange sighting

A grey duck was witnessed eating a medium-sized salmon at a salmon farm in the South Island. No mean feat with the birds taking quite a while to swallow the fish. We wonder if this is normal for grey duck which normally eat small invertebrates.

## Golden Plover Awards

Thanks to the generous support of Tony Reiger and Mighty River Power we have been able to award two Golden Plover awards this year. The recipients are Shannon Fergie of the University of Waikato and Anthony Keen from the University of Auckland. Shannon's research is on assessing wetland restoration success and restoring peatlands. Anthony is investigating the successional ecology of freshwater wetlands in the Auckland Region.

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## Dear Dr Bog...

We thought it might be useful to include in the newsletter a restoration advice column. So if you have any questions send them in and we'll do our best to find an answer. In the meantime here are some common queries...

**Has anyone had any success planting native wetland plants in clay banks of artificial ponds? I'd be interested in knowing what native plants are ideal for these situations.**

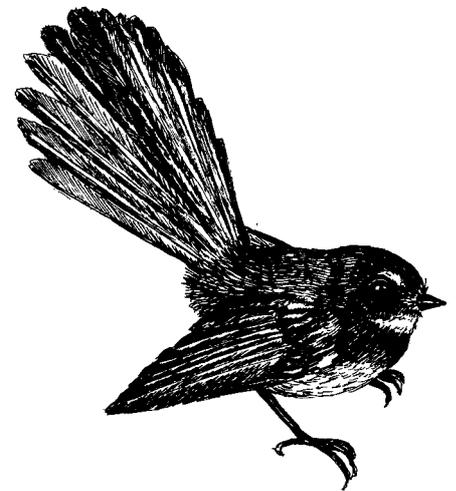
Nothing particularly likes clay banks and I try and avoid this situation, however I know where you're coming from, we don't always have a choice. As well as that it very much depends on the type of clay. Some clays are quite fertile, others are mildly toxic.

So with those qualifications I'll try and answer your question. The *Baumeas* seem to handle infertility/clays better than most such as *Baumea articulata*, *B. juncea*, and *B. teretifolia*.

On wetland margins (usually moist) better than most other species particularly

*Juncus* species usually handle clays such as *J. sarophorus*, *J. australis* and *J. pallidus*. Also *Carex geminata* or *lessoniana*. Both *Eleocharis acuta* and *Bolboschoenus fluviatilis* can be good and are very fast spreading (to the point where they can be considered invasive in some situations) *J. gregiflorus* is best on a drier bank.  
*Bob Corker, Wetland Services.*

**We have floating sweetgrass (*Glyceria declinata*) growing all through an area of a wetland we are trying to restore. What's the best way to get rid of this without damaging the native sedges?**



A grass specific herbicide such as Gallant® is recommended and shouldn't affect native sedges. It should also be effective on other *Glyceria* species, such as the aggressive reed sweetgrass (*Glyceria maxima*). A follow-up application will probably be needed.

**Any ideas what would make swamp maire die back? It doesn't appear to be drying out.**

Possibly heavy possum browsing as swamp maire is a possum favourite being in the same family as pohutakawa and rata, another couple of preferred foods.

## KEEPING IN TOUCH WITH THE TRUST

To submit a contribution for the next newsletter please contact:

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HAMILTON.

All the wonderful images contained in the newsletter are by Sonia Frimmel. We thank Environment Waikato for making these images available to us.



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