



Mitchell's Road Mudfish Restoration Project

This project is a great example of collaboration between several parties, with slightly different but complementary aims. An opportunity arose in 2008 to restore a reserve managed by Selwyn District Council (SDC) located adjacent to the Hororata River, enhancing a damaged area with plantings of native vegetation, while protecting an established mudfish habitat.

The restoration project was initiated by Selwyn District Council as land owner with Waihora Ellesmere Trust (WET) taking the lead in seeking funding to implement a truly visionary plan for this 6 hectare area in the upper catchment of the Selwyn/Waikiriri River system.



Mitchell's Rd Reserve is off the Hororata Dunsandel Rd, around 18km NE of Dunsandel.

Aims of the project

It is hoped many things can be achieved by restoring this site, with the most urgent being to protect the mudfish habitat from any further disturbance or erosion. The area also provides an ideal canvas for re-establishing indigenous flora and fauna in an area of Canterbury which has very little indigenous biodiversity remaining. The nature of the site means that there is great potential for involvement of the wider community, both in restoring the area and as a place for learning more about biodiversity in general, and mudfish in particular.

For WET, involvement in the upper catchment is a great way of raising awareness of the issues and links to Te Waihora/Lake Ellesmere and riparian management of the tributaries. The site has also provided an opportunity to learn more about successful establishment techniques and to showcase the riparian restoration programme.

Planting the site

Work got underway in autumn 2009 and, over the course of two planting seasons, around 13,000 plants were installed. Lessons were learned along the way, with one area in particular succumbing to damage, most likely from a mix of herbicides used by one of the contractors with the intention of suppressing weeds. Most gaps were replanted during the 2010 planting season, with some more blanketing (replacing missing plants) planned for 2011.

Planting has been supervised by WET, and has involved volunteers, contractors and a dedicated biodiversity crew of inmates from the Department of Corrections.



Volunteer planting day, May 2009

Getting started

In 2008 an adjoining landowner, assuming the whole area was in his ownership, cleared the land of willows with the intention of establishing an additional area of grazing. In fact, around 6 hectares of the land is unformed legal road and owned by SDC. The area is on the Hororata flood plain and a part of the site remains wet for much of year, providing an ideal habitat for the endangered Canterbury mudfish. The Department of Conservation (DOC) have been monitoring mudfish numbers at this site for several years.

With the willows removed, shelter for the mudfish decreased and topsoil began to erode during flood events. WET, having secured some funding for a programme of riparian restoration throughout the Te Waihora/Lake Ellesmere catchment, were seeking potential sites and had identified the Hororata as a priority catchment – Mitchell's Road was an ideal site to focus on.

WET's restoration expert Stephen Brailsford, in consultation with others, wrote a restoration management plan for the area and WET looked for additional funding for an extensive planting programme with indigenous species.

What has worked well?

This is not an easy site, being prone to heavy inland frosts, flooding and drying nor'west gales. Plants have been selected carefully to suit the different parts of the site, with its varying soil types and microclimates.

The wet edges of the water body have been planted with *Carex* (sedge) species and *Phormium tenax* (flax).

The upper 'tidal' area, where water comes and goes over the year, has been planted with a mixture of *Coprosma* species, *Cortaderia richardii* (toetoe), *Dacrydium dacrydioides* (kahikatea), *Leptospermum scoparium* (manuka), *Phormium tenax* (flax) and *Plagianthus regius* (ribbonwood).

The drier terrace areas have a mix of understory and canopy plants, including good numbers of *Prumnopitys taxifolia* (matai), *Olearia* species, *Griselinia littoralis* (kapuka), *Hebe salicifolia* (koromiko), *Hoheria angustifolia* (lacebark), *Kunzea ericoides* (kanuka), *Pittosporum tenuifolium* (kohuhu) and *Podocarpus totara* (totara). Smaller numbers of several other species have been included in the mix. Where possible the plants have been ecosourced.*



Best results have been achieved using the combiguard restoration system, where the planting site is cleared of competing weeds first, and the plants installed with a wool mulch mat and protected by a plastic sleeve. The sleeve allows regular weed control to be undertaken efficiently and effectively by spraying as the lower parts of the plants are protected. This system also allows smaller grade seedlings to be used as it provides an ideal establishment environment. With the addition of a fertiliser tablet during planting, they establish well and grow vigorously.

The partners and funders

With WET leading the implementation of this project in conjunction with SDC, DOC have been closely involved and Ngāi Tahu and Environment Canterbury (ECan) have provided advice and support.

Funding from the Sustainable Farming Fund (MAF) and the Sustainable Management Fund (MfE) for WET's riparian restoration programme provided a sound basis for getting work started. This was supplemented by significant contributions from the Community Conservation Fund (DOC), the Habitat Protection Fund (WWF), and the Environmental Enhancement Fund (ECan), specifically for this site. Local planning consultants GHD also contributed 1000 plants and volunteer labour, and SDC assists with maintenance and additional plants as needed.

To date, just over \$80,000 has been spent at Mitchell's Road restoration site in preparing the site for planting, installing over 13,000 natives and carrying out weed control and maintenance.

*Ecosourced plants are plants grown from seeds collected from naturally occurring plant communities as close as possible to the area to be planted.

Canterbury mudfish

Canterbury mudfish (*Neochanna burrowsius*) are endangered, with their threat of extinction rated as 'nationally critical', the same ranking as the kakapo and the takahe! Across Canterbury the mudfish habitat continues to be destroyed at an alarming rate. They are a galaxiid, a family which includes whitebait, and are found only between the Ashley River to the north and the Waitaki to the south.

The fish are mainly nocturnal, so are not often seen. They do best in clean water and feed on worms, snails and insect larvae. Mudfish are eaten by many other species, including herons and trout, and prefer areas with plenty of cover. Although they will not fare well if their habitat completely dries out, mudfish are able to survive in seasonally stagnant sites with low oxygen levels. More information is available from www.mudfish.org.nz

Mitchell's Road has been an important monitoring site for Canterbury mudfish for a number of years. Monitoring undertaken by DOC in 2011 caught 85 mudfish, including many that were the right size to have been born the previous spring. These numbers are the highest in the last 5 years of monitoring, which suggests that the population of Canterbury mudfish has successfully survived the upheaval of the last few years and is going from strength to strength.



Where to from here?

The indigenous plants are thriving and regular maintenance will be carried out over the first two growing seasons, with the assistance of some funding from the Immediate Steps Biodiversity Programme (Selwyn-Waihora Zone Committee). SDC will continue to maintain the area as the plants grow and form a self-sustaining community.

In spring 2011 a community planting event, coordinated by Te Ara Kākāriki will add a further 1000 plants in a drier, slightly elevated area on the edge of the site, and it is hoped that the planting can be extended even further in years to come.

With this in mind, later in 2011 WET, in consultation with partner organisations, will begin work on updating and extending the site management plan, setting out the vision for the next 10 – 20 years.

As the plants mature this will be an ideal spot for educating people about the need for restoring indigenous biodiversity in Canterbury, the Canterbury mudfish, and the linkages between what happens on the land and the downstream effects, including those on Te Waihora/Lake Ellesmere.

Photos courtesy of A. Spencer (DOC), M. Kwant (SDC) and A. Lomax (WET)



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