

Restoring Watercourses, Wetlands & Coastal Lakes on the North Coast

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This multi-faceted, collaborative project between Clarence Valley, Greater Taree City, Kempsey Shire, Port Macquarie Hastings, Richmond River County and Tweed Shire Councils directly addresses four of the objectives of the NSW Environmental Trust's Urban Sustainability Program. (USP)

The project objectives are to address urban and rural impacts on wetlands, watercourses and coastal lakes and manage them in a more sustainable way by:

- improving water quality and passage for fish and other aquatic fauna on watercourses;
- improving wetland biodiversity through regeneration and protection of native riparian vegetation
- engaging stakeholders to achieve actual improvements in floodplain and estuary issues

Priority sites have been identified across the North Coast Region by the North Coast Floodplain Network, an inter-council network coordinated by I&I NSW, with many years of experience in addressing floodplain and estuarine issues. Other sites have been identified through the Northern Rivers CMA funded Priority Wetland Complexes program.

The following short case studies are examples of project sites which are being addressed under the USP collaborative project. To find out more about the project as a whole please contact Clarence Valley Council, to find out more about projects within each council region please contact the Council contact provided at the end of each case study.

TWEED SHIRE COUNCIL

Bray Park - Urban Wetland Rehabilitation



Nestled in the Mt Warning Caldera on the Tweed River, Murwillumbah has a population of nearly 8,000 people. Its urban areas are rapidly growing and encroaching into rich agricultural land and bushland with high biodiversity. The project site is located at Bray Park, a relatively new, still growing, suburb directly adjacent to the Tweed River and to the town main water supply intake. Concurrently Bray Park comprises major conflicting land uses:

1. Agriculture: to the south a dairy farm
2. Residential development: in the centre a housing estate

3. Bushland: to the north a *Melaleuca* wetland (Endangered Ecological Community) inhabited by a large colony of black flying foxes and endangered grey-headed fruit bat.

Bray Park proposed land rehabilitation sites



Most conflicts are related to storm water runoff, weed infestation, the presence of the bat colony and Tweed River water quality.

The aim of the USP Bray Park wetland rehabilitation project is to reduce the impacts of such conflicts on the environment and to highlight the value of sustainable development and preservation of urban bushland.

To date a lot of negotiation and planning have been undertaken to initiate the proposed project's actions including bush regeneration, stormwater runoff improvement, community education. As a result:

- A \$100K tender for the restoration of 3.5 ha of riparian vegetation acting as a buffer between land uses was recently awarded to a bush regeneration firm. Work will start late 2009;
- The concept plan for construction of a wetland recycling residential runoff to irrigate dairy farm pastures was abandoned due to developers withdrawal from the project;
- Planning / consultation for board walk, viewing platform and interpretative signage are underway.

For further information about this project, contact Sally Jacka, Community Support Officer, Tweed Shire Council on (02) 6670 2561 or email sjacka@tweed.nsw.gov.au

RICHMOND RIVER COUNTY COUNCIL



Seelim Creek - wetland repair

The Seelim Creek project is one of three projects that have been funded in the Richmond River Catchment under the USP. Seelim Creek is a peri-urban wetland located west of the township of Coraki, and consists of a 17.5 km linear wetland, traversing 16 agricultural properties.

The wetland contains important habitats for 44 native fauna including the black-necked stork, which is listed as endangered and 26 native plants of which three are state-listed endangered ecological communities.



In the first year (2008-2009) the project team liaised with the original custodians of the land, prepared a draft Seelim Creek Management Plan, conducted a landholder meeting and undertaken the removal and follow-up spraying of Water Hyacinth and Salvinia.

Water hyacinth and Salvinia are by far the most important environmental problem in Seelim which, in the absence of adequate control, blanket the wetland, suppressing native plants and rendering dysfunctional all animal habitats. Extensive and prolonged infestations of both weeds are often beyond the capacity of landholders to control. A contract weed harvester has been used to remove 2,000 cubic metres of the weed, which is then trucked to a nearby worm farm.



A sausage sizzle and information session was held in August 2009 at Coraki to provide an opportunity for landholders and the management teams to discuss future directions for on-ground works and other issues. Future maintenance of the wetland is reliant on landholder adoption of a management plan.

Issues such as planting of riparian vegetation and stock exclusion are seen by the management teams as a priority for the site to protect the waterway from sedimentation and nutrient loads entering the system. Feral and introduced species have been identified by landholders as ongoing problems at this site, and they include fox, wild dogs, feral pig, carp, cane toad, and mosquito fish.

Wollongbar TAFE Certificate IV Conservation and Land Management students have prepared and distributed a video of the wetland system and poster sized map of each individual property to the landholders to enable them to consider what on-ground works that they would like to consider as part of this project. The students are using this project as a practical learning exercise in co-operation with the Richmond River County Council.

For further information about this project, contact Graham Robertson, Richmond River County Council, Floodplain Project Officer on 6621 8314.

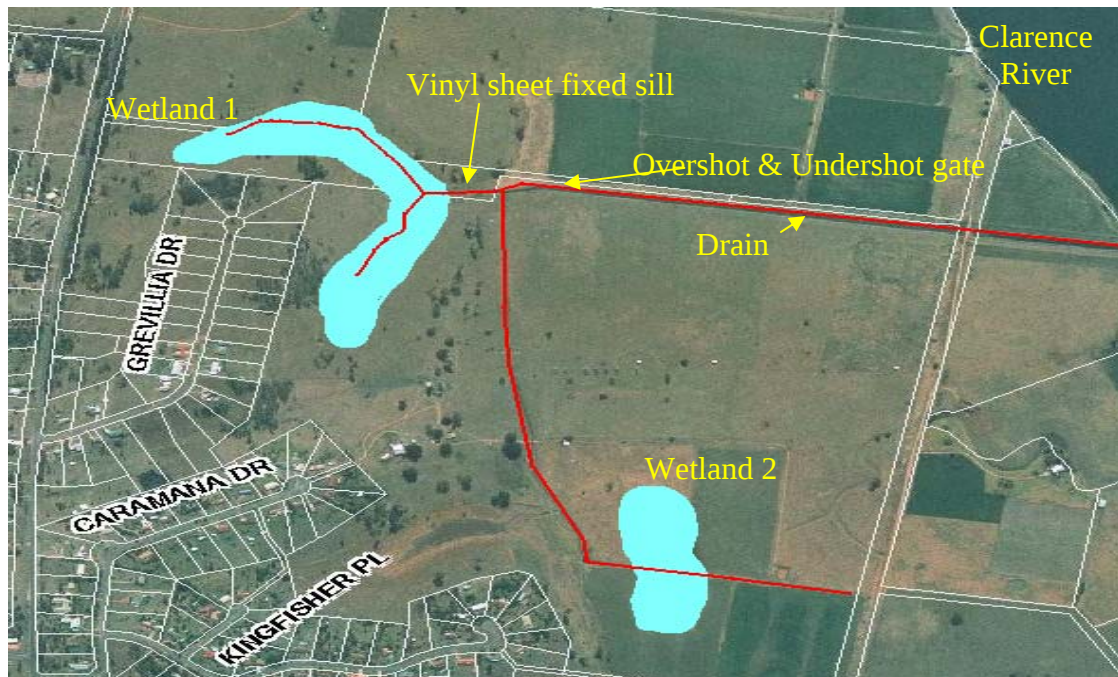
CLARENCE VALLEY COUNCIL



Waterview wetlands improved

Works to reinstate wetland values at Waterview Heights on the Clarence River have been successfully completed. This wetland area has suffered from poor soil moisture retention, deteriorating pasture quality which rots during rainfall events causing poor quality water to be transported quickly from the surrounding agricultural and urban land to the Clarence River. These problems were the unintentional results from the large drainage system that was constructed around forty years ago to drain the adjoining wetlands to encourage dry pasture.

The landholders and Clarence Valley Council have worked together to improve the management of this drainage system and surrounding land by constructing two water retention structures to maintain water at suitable levels. Including a fixed sill of vinyl sheet piling and crushed rock. This structure also serves as a new cattle crossing, which the landholders have found very useful during floods when stock have to be moved quickly to higher ground.



Aerial view of the Waterview-Freemans drainage system and the water retention structures.

Wet conditions delayed the works, however, the construction of the Overshot / Undershot Gate has now been completed and the landholders have been trained to operate the gate safely (see image below).



The landholders have reported positive results, with some important wetland values such as improved soil moisture and fauna habitat restored. The landholders also predict that the structures will increase the quality of pasture, provide wet pasture grazing opportunities and improve the water quality reaching the Clarence River.

For further information on these projects, please contact Fiona Ensbey, Clarence Valley Council, NRM Project Officer on 6641 7350.

BOYTERS LAND REHABILITATION PROJECT

Stormwater wetland buffers Teal Lagoon

To address the issue of stormwater overflow from proposed playing fields to service the town of South West Rocks, two stormwater retention sites have been constructed to buffer the sensitive Teal Lagoon. Both retention areas and their wetland vegetation buffers are now well established.

Observations over the last months confirm their successful performance in extremes of weather – from drought-like conditions to bank-full water levels (after the coastal flood events in 2009). The wetland is now home to a range of aquatic fauna including freshwater turtle, native fish, frogs and a host of water invertebrates such as water striding insects. Freshwater rushes and fringing waterway plants provide a range of habitat options and play a vital role in nutrient absorption.

Rare bird resighted

To the delight of many visitors to the Boyters Lane Wetland Rehabilitation site, the rarely sighted lesser yellowlegs (*Tringa flavipes*) has returned on his 'new' southern migration to Teal Lagoon. This is perhaps only the fourth time this bird has been authentically confirmed sighted in Australia. Lesser yellowlegs is a migratory wader from the Americas who would normally spend summer in northern Canada and Alaska and winter in the southern USA and Central America.



Initial planting areas – in place and growing!

The first two staged areas of planting of native flora species have been undertaken successfully at the Boyters Lane Wetland rehabilitation site. Several areas have been targeted by careful selection of the planting stock, to re-introduce the diversity of species suggested to have been formally found at the site (or in similar localities nearby). At the time of writing approximately 6,000 trees have been planted with another 3,500 on the way.

Weed Control – an ongoing operation

A major weed management operation is underway at Boyters Lane to combat exotic introductions and control the 'introduced pasture' species planted and promoted under the former dairy farms pastoral activity regime.

A local Bush Regenerator (Valley Horticultural Services) has been actively assisting the Kempsey Shire Council with the ongoing maintenance program and also in the preparation and planting of the rehabilitation areas.

In the future as the Boyters Lane Wetlands re-afforested areas further mature and begin to dominate the site once more (for example by shading and competition for soil nutrients etc) the need for such intensive weed control will diminish.

For further information about this project, please contact Alister Gee, Kempsey Shire Council, Environmental project Officer on 6566 3200.

PORT MACQUARIE HASTINGS COUNCIL

Rock Fillet Bank Protection Work, Maria River

This project is one of nine which Port Macquarie Hastings Council is implementing under the USP.



Background

The property was one of the first dairy supplying milk and cream to the penal colony of Port Macquarie. Thus, the riverbank has been degraded by cattle access to the river for some time, which has led to the grazing and removal of mangroves. Subsequent flooding and erosion from boat wash and wind chop has seen several meters of river bank eroded from the property.

Project Aim and Achievements.

The aim of this project was to protect the remaining intact riparian zone and to restore the mangrove interface utilising rock fillets to provide a long-term, cost efficient bank protection.

The works are now completed and 0.6 km of riparian zone has been fenced off from stock, regenerated with native species and protected through the construction of rock fillets. Amazingly, mangrove recruitment behind the rock fillets has already begun.

Rock fillets are far more cost effective than rock revetment. Where the toe of the bank is still intact rock fillets provide the necessary conditions for mangroves to naturally recolonise behind. This method marries together a "hard engineering" solution for bank protection whilst enabling natural vegetative regrowth which will provide fish habitat and uptake nutrients. This work costs between \$80 and \$120 per lineal meter to construct and is a lot quicker to complete with little or no bank reshaping required.

Before works



After works



For more information on this project please contact PMHC NRM officer Thor Aaso on (02) 6581 8692.

GREATER TAREE CITY COUNCIL

Council has identified two sites near the village of Coopernook which were considered to be of strategic importance for acid sulfate soil restoration and wetland rehabilitation due to their hydraulic linkage to the Cattai Wetlands and the Great Swamp through to Crowdy Bay National Park.



Initial planning works commenced in late 2008 and early 2009, including stock exclusion fencing, drain redesign and bush regeneration activities however with significant rainfall in early 2009, both sites were inundated numerous times, making site inspections, even for planning purposes, difficult.

One of a number of periods of inundation across the floodplain in 2009

Initial bush regeneration works were undertaken on one site prior to the wet weather, with draft management plans being prepared for structural works such as fencing and drain modification. Following drier weather in late 2009, planning and

works at the second site progressed with soil property investigations recently completed and a draft works schedule discussed with the landholder. Final planning and on-ground works in accordance with the finalised management plans were commenced late 2009.

Once completed, these 2 sites will contribute to over 340,000 m² of wetland habitat being protected / enhanced to reduce acid export to the Manning River.

For further information about this project, please contact Brett Curie, NRM Planner GTCC, on (02) 6952 5246.