

Southern Fitzroy floodplain wetland complex

The Great Barrier Reef Coastal Wetlands Protection Program Pilot Program was commissioned by the Australian Government to deliver on-ground actions for the sustainable management of 22 priority wetlands in the Great Barrier Reef catchment. The \$2 million program was delivered over two years by a consortium led by Conservation Volunteers Australia and involved partnerships between government, community and landowners to identify and protect these wetlands.

Project summary

The southern Fitzroy floodplain project was the largest of the Pilot Program projects in terms of scope and geographic extent. It delivered a coordinated program of wetland habitat restoration in some strategically targeted sites within the southern Fitzroy floodplain. Achievements of the project include successful examples of:

- the use of strategic grazing and controlled fires to manage invasive grasses
- targeted herbicide spraying to control weeds
- revegetation
- restoration of connectivity
- installation of 'snag fixtures' to enhance fish habitat
- incentives for site maintenance
- monitoring, including photo monitoring, electro-fishing and cast net sampling.

About the site

The southern Fitzroy floodplain wetland aggregation is just south of Rockhampton. It includes a diverse mix of freshwater wetland types, including seasonal swamps, stream channels and lagoons, and is listed in the *Directory of important wetlands in Australia*.

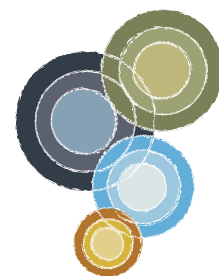
The wetlands included in the project were:

- Gracemere Lagoon
- Duck Pond
- Meura Plains
- Springers Lagoon
- Toonda Lagoon (in the 12 Mile Creek system)
- Blacks Waterhole on Raglan Creek
- Larcom Vale Creek Reserve.

They were targeted on the basis of their habitat conservation and functional values, tenure, site profile, and potential to demonstrate rehabilitation effectively.



Photo 1: High-value wetland habitat of Gracemere Lagoon (photo: FRCC)



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Photo 2: Aerial photo of Raglan Creek and Larcom Vale Creek (photo: FRCC)



Photo 3: Hymenachne weed raft (now removed) on Springers Lagoon (photo: FRCC)

Challenges

Much of the southern Fitzroy floodplain is dominated by **invasive grasses** such as para grass, hymenachne and guinea grass. **Riparian weeds** include rubber vine, parkinsonia and prickly acacia. Weeds affect native vegetation through competitive exclusion, reduction in biodiversity and alteration of habitat values.

Past **clearing** has been detrimental to riparian and floodplain vegetation communities. Clearing has reduced catchment vegetation cover and contributed to increased soil erosion, elevated sediment and nutrient loads, and decreased water quality.

Heavy **grazing pressure** in some wetland areas has contributed to soil erosion. In areas where grazing is moderate or non-existent, exotic pastures such as guinea grass create large fuel loads, which are a **hot fire risk**.

Loss of connectivity between freshwater and marine habitats is a problem across the wider Fitzroy basin, particularly for marine breeding species such as barramundi, mangrove jack, mullet and tarpon.

Rehabilitation actions

At **Blacks Waterhole, on Raglan Creek**, the project team developed a property plan for the site in collaboration with the landholder. Riparian **fencing** of the waterhole was undertaken, to protect the native vegetation, reduce erosion, allow **controlled grazing** of guinea grass and reduce hot fire risk.

Basal barking of dense rubber vine in the riparian zone of the waterhole was carried out and **monitoring** sites were established to record changes in vegetation as a result of the control measures. Project **incentives** encouraged the landholder to maintain a controlled grazing regime and undertake revegetation. However, due to the failure of the season, the proposed revegetation had to be postponed.

Targeted spraying of hymenachne infestations were conducted, with follow-up treatments to control regrowth. A **photo monitoring** site was established to monitor the success of hymenachne control. Early indications suggest that site habitat conditions have improved markedly, and monitoring after the wet season should confirm this. At this site, **electro-fisher and cast-net sampling** was conducted during the dry season and after the wet season to survey the current composition of the fish community and access by migratory fish species.



Photo 4: Larcom Vale Creek infested with hymenachne before herbicide treatment (photo: FRCC)



Photo 5: Larcom Vale Creek after herbicide spraying of hymenachne (photo: FRCC)

Under the Pilot Program, the Fitzroy River and Coastal Catchments (FRCC) developed **site management plans** for three of the locations that are Rockhampton Regional Council (formerly Fitzroy Shire Council) reserves: **Toonda Lagoon (on 12 Mile Creek), Springers Lagoon and Gracemere Lagoon**. The site management actions included:

- fencing to allow **controlled grazing** of guinea grass and para grass, and to reduce the associated hot fire risk; **grazing management plans** developed and a grazing lease negotiated with a local grazier, after receipt of many expressions of interest from other graziers to graze the reserves in the area
- **herbicide spraying** of riparian weeds (including rubber vine, chinee apple, prickly acacia) at two of the sites (Toonda and Springers); spraying of a raft of hymenachne at Springers Lagoon

- **revegetation**, including planting of over 2300 native trees across the three sites by the Conservation Volunteers Australia (CVA) 'Better Earth' team and 400 trees at Springers Lagoon by local community members and school groups
- trial, with neighbouring landholder agreement, of a post-grazing dry season **fuel reduction burn** at Gracemere Lagoon to encourage regrowth of native wetland species.

At the **Meura Plains** reaches of Tea Tree Creek, exotic grass infestations were initially suspected of presenting a barrier to fish passage from the Gavial Creek system to Springers Lagoon. However, this was discovered not to be the case; instead, a nearby private causeway was found to be a seasonal barrier to fish passage. The Department of Primary Industries and Fisheries (DPI&F) Northern Fish Community and Fishway Monitoring Team was engaged to design and install a fishway for the causeway. Installation was completed in 2008. A follow-up fish survey of Springers Lagoon is planned after a significant wet season flow event to establish whether these works have been successful in re-establishing connectivity.

The riparian zone of **Duck Pond** was fenced to allow seasonal controlled grazing and reduce fire fuel loads. Monitoring suggests a general improvement in ground cover and grass cover over the first six months of the trial. The eroded outlet of this perennial lagoon was to be rock armoured to reinstate wet season full water level. However, after consultation with DPI&F fishways staff and Department of Natural Resources and Water (DNRW) water staff, it was judged to be unnecessary. Cast-net dry season sampling was conducted at this site to assess fish populations. Six '**snag fixtures**' were installed in the channel of the wetland to provide habitat for waterbirds, turtles, fish and crustaceans.

Spreading the word

A set of six educational **information bulletins**, providing further detail on the management of the southern Fitzroy floodplain wetland, was produced as part of the Pilot Program (see 'Further reading'). Interpretive signs erected at both Springers Lagoon and Toonda Lagoon contribute to community education about the values and functions of these wetlands.

Working together

This project has been one of the most successful in the Pilot Program in terms of **collaboration** with local project partners.

The success of the Southern Fitzroy Floodplain project is fundamentally due to the dedication of the project partners and the project officers involved, including Fitzroy River Coastal Catchments (FRCC) and the Fitzroy Basin Association (FBA), and their ability to work in **partnership** with local government and industry bodies.

Lessons learnt

Although the placement of snags in the stream channels of Duck Pond was innovative and successful, the design required more engineering input than was available within the capacity of the Pilot Program. This was necessary to ensure that the placement of the snags was correct to change the morphology of the channel in the desired way and improve habitats. At present, availability of the necessary technical expertise in Queensland is limited. Additionally, although the placement of snags was approved, the DNRW had to decide whether snag placement required a riverine protection permit, because there were no precedents for this type of riparian repair work.

Innovations

One of the successful features of the project was the way it tackled a large-scale floodplain system by selecting sites strategically. In this way, outcomes were achieved that could serve the whole system by either:

- improving specific sites, or
- trialling approaches that are applicable to the whole system (e.g. the FBA Wetland Grazing Strategy for the Dry Tropics, which was developed as a result of the grazing trials under the CWPP Pilot Program see 'Further reading', below).

Further reading

Fitzroy River and Coastal Catchments 2006, *Helping wetlands in the southern Fitzroy floodplain*, information bulletin no. 1.

Fitzroy River and Coastal Catchments (2006), *Southern Fitzroy floodplain fish habitat management issues*, information bulletin no. 2.

Fitzroy River and Coastal Catchments (2006), *Southern Fitzroy floodplain fire management issues*, information bulletin no. 3.

Fitzroy River and Coastal Catchments (2006), *Getting involved in wetland management: community engagement on the Southern Fitzroy floodplain*, information bulletin no. 4.

Fitzroy River and Coastal Catchments (2006), *Southern Fitzroy floodplain wetland grazing management*, information bulletin no. 5.

Fitzroy River and Coastal Catchments (2006), *Southern Fitzroy floodplain waterbird habitat management*, information bulletin no. 6.

Tait, J 2006, *Fitzroy Basin Association wetland grazing strategy: dry tropics*.

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