

# Tully River and Murray River floodplain

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 Pilot Program project for the Tully–Murray floodplain incorporated the trialling of a decision support system (DSS). This was used to prioritise wetland ‘management investment areas’ on the basis of local wetland values, threats, management capacity and objectives. The DSS provided an excellent means of engaging landholders and other stakeholders in determining wetland management priorities. The results of the DSS formed the basis for a plan of management, as a result of which the following work took place during the first year covered by the plan:

- hymenachne control, using an all-terrain vehicle
- lagoon desilting (after removal of hymenachne)
- fencing to exclude cattle.

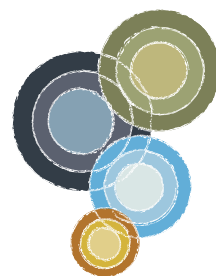
Another major success of the project was collaboration between Girringun Aboriginal Corporation, Gumbudda Community Development Employment Projects (CDEP) and Cardwell Shire Council (Cassowary Coast Regional Council after amalgamation) in carrying out on-ground work.

## About the site

The Murray floodplain is midway between Cairns and Townsville in north Queensland. The Tully and Murray rivers, along with numerous tributary creeks, lagoons, melaleuca swamp forests, seasonally inundated plains and palm forests, form a floodplain wetland aggregation. This aggregation is distributed among agricultural land used to produce sugar, bananas and beef cattle. Due to the high rainfall of the area (up to 4.5 m annual average) and a short overall catchment length (80 km) the Tully River has one of the highest river outputs for its catchment length in Australia.

The Tully–Murray floodplain is listed in the *Directory of important wetlands in Australia* (DIWA) for its high ecological, social and economic values, which include:

- fisheries habitat
- waterbird and shorebird habitat
- aquatic refugia
- flora and fauna of conservation interest
- catchment functional values (i.e. water quality and flood detention)
- social and cultural values, including Aboriginal and European heritage and contemporary recreational uses.



Queensland  
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Photo 1: Kyambul Lagoon (photo: Jim Tait)



Photo 2: Hymenachne encroaching on Warrami Waterhole (photo: Jim Tait)

## Challenges

A range of weeds affect the Tully–Murray floodplain system, the most significant of which are invasive introduced hymenachne and para grass. Other key weed species affecting the integrity of riparian systems include pond apple, sickle pod, siam weed, flannel and tobacco weeds. The spread of these weeds has been influenced by past clearing practices, altered fire regimes and unmanaged grazing.

The resulting impacts on wetland ecology include:

- smothering and eventual replacement of native submerged and emergent macrophytes, including important feeding and breeding resources for waterfowl and fish
- organic loading and oxygen depletion in shallow waterbodies
- creation of physical and water-quality barriers to fish passage
- trapping of sediment, and siltation of floodplain flow paths and waterholes
- prevention of native vegetation recruitment around waterbodies.

### Rapid assessment and prioritisation— decision support system (DSS)

The Tully–Murray pilot project trialed a DSS to prioritise floodplain wetlands for investment and rehabilitation. Sites were initially selected on the basis of the Environmental Protection Authority’s wetland inventory mapping. This mapping was adapted for local purposes (by combining wetland inventory mapping, tenure, connectivity, land use, boundaries etc.), and wetland ‘management investment areas’ were created.

Two WetlandCare Australia specialists and two local wetland project officers scored 30 wetlands over two days using DSS criteria related to wetland values, threats and management capacity. In consultation with local stakeholders, they applied a weighting to each criterion to reflect local values and management objectives.

In the final prioritisation of wetlands for rehabilitation, key attributes included:

- size
- water quality
- habitat condition
- catchment location
- biodiversity and fisheries value
- evidence of potential from previous works carried out
- involvement and land tenure of landholders and traditional owners.

## Rehabilitation actions

After the DSS had been applied, a plan was developed for the first year of high-priority works. These focused on the Kyambul Lagoon, Warrami Waterhole and Cherrin Creek systems, in consultation with neighbouring landholders and the Giringun Aboriginal Corporation. The first step was to develop a **hymenachne control plan**, including contracts with landholders and local council pest control programs.

An 'Argo' all-terrain vehicle was used to spray the hymenachne with **herbicide** over 50 hectares of wetlands. The Argo is a specialised amphibious vehicle that travels on low-pressure tyres when on land (thus reducing environmental impact) and allows access to otherwise inaccessible areas.

The priority rehabilitation works also targeted Cherrin Creek and Warrami Waterhole, which are upstream from Kyambul Lagoon.

Consultation with Indigenous landholders resulted in a contract to carry out lagoon **desilting** by removing hymenachne and associated sediment build-up in Warrami Waterhole.

Strategic **fencing** along Cherrin Creek was initially delayed by an extended wet season, but 8 hectares of native riparian vegetation and creek banks are now fenced off and protected from further degradation by cattle.



Photo 3: Cherrin Creek (photo: Jim Tait)

A **monitoring program** was developed for the rehabilitation works. Two plots were selected for ongoing monitoring, and the data is being entered into the regional database as it is collected.

The Pilot Program funding provided the impetus for obtaining **co-investment** to ensure long-term management of the high-priority sites and implementation of the management plan. Sources of funding include Cardwell Shire Floodplain Program, Environfund, Great Barrier Reef Public Reserves Management Program, and Defeat the Weed Menace. These funds will enable the rehabilitation works to continue after the pilot project finishes.

## Innovations

### Partnerships: traditional owners

The Indigenous people of the area, the Girramay, maintain strong economic and cultural ties to wetlands within the Tully–Murray area. Sites of cultural and historical significance, including hunting, camping, mythological and ceremonial sites, occur on the floodplain and adjacent to major drainages.

The experience gained from the project has given local Indigenous people the impetus to develop a small business model for continued employment on country.

### Kookala Landscapes

Kookala Landscapes is a partnership of small Aboriginal and supporting businesses, specialising in conservation, maintenance, revegetation and management of 'country' in the Wet Tropics—Girringun Tribal Areas of Far North Queensland.

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## Further reading

HLA-Envirosciences Pty Ltd 2006, *Final DSS report, wetland prioritisation decision support system, Great Barrier Reef catchment*, October 2006.

## Contacts

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Photos courtesy of WetlandCare Australia

