

Barratta Creek wetlands

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 Barratta Creek wetlands Pilot Program has produced the *Freshwater wetlands of the Barratta Creek catchment management investment strategy*, using:

- GIS analysis and literature review
- field surveys
- community and stakeholder consultation.

This investment strategy will make it possible to prioritise future work at the site, attract funding and carry out longer-term planning. Most importantly, it will also contribute towards securing and improving the functional, habitat and biodiversity conservation values of the nationally important floodplain wetlands that lie within the Barratta Creek catchment.

About the site

The Barratta Creek floodplain lies approximately 50 km to the south-east of the city of Townsville in north Queensland and is surrounded by the broader floodplains of the lower Burdekin and Haughton Rivers. The remnant wetlands of the Barratta Creek catchment include two freshwater wetland aggregations (Barratta Channels and Jerona), listed in the *Directory of nationally important wetlands in Australia*. The primary land use for the Barratta catchment is sugarcane agriculture, but there is also beef cattle grazing, and smaller areas of fruit and vegetable horticulture.

The wetlands and waterways associated with the Barratta Creek catchment have exceptionally high ecological and functional values. The area includes some endangered regional ecosystems, as well as fauna and flora listed under the *Nature Conservation Act 1992* (Qld) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth). There is a diverse range of adult and nursery fish habitats, including deepwater lagoons and ephemeral brackish swamps.



Photo 1: The Barratta Creek catchment retains some of the most unspoilt deepwater lagoons left in the region (photo: Jim Tait)



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The deepwater lagoons of the Barratta Creek system provide perennial aquatic habitats within a seasonally dry environment. The catchment also provides a buffer between areas of intensive land uses and the receiving coastal ecosystems, with the wetlands providing a sink for contaminants (such as elevated loads of sediment and nutrients) and moderating the rate of runoff to the lower estuary.



Photo 2: Healthy riparian vegetation within Jerona Wetland aggregation (photo: Jim Tait)

Challenges

The main challenges facing the project were associated with a lack of **formal and active management** of the catchment, which has created a public perception that a large proportion of the site is a no-man's-land. This has led to illegal fishing (netting), hunting (crocodile, waterfowl and macropod shooting) and dumping of waste.

Historically, Barratta Creek catchment has been grazing land, but more recently there has been **land-use intensification** towards sugarcane production. The associated nutrient and tailwater inputs, along with lack of grazing, have resulted in infestations of **invasive grasses** (hymenachne and para grass) and **woody weeds** (particularly chinee apple) within riparian and woodland habitats. The absence of managed **fire and grazing regimes** has resulted in hot annual fires that damage native vegetation and diversity. Much of the irrigation area surrounding the Barratta Creek catchment is affected by rising groundwater, which, combined with tailwater releases, has changed the hydrology of the Creek system from seasonal to almost perennial. Nutrient loads in tailwater also damage **water quality** and encourage **aquatic weeds** such as salvinia, which to date has been partially managed by biological control.



Photo 3: Irrigation tailwater discharge to high-value remnant lagoon in upper Barratta Creek catchment (photo: Jim Tait)



Photo 4: In the absence of grazing, 'protected' areas of Barratta Creek are being invaded by hymenachne, highlighting the role of controlled grazing for floodplain wetland management (photo: Jim Tait).

Rehabilitation actions

The project included a **literature review** to determine the level of existing knowledge about the Barratta Creek catchment. Published management plans, commercial studies and ecological surveys were consulted.

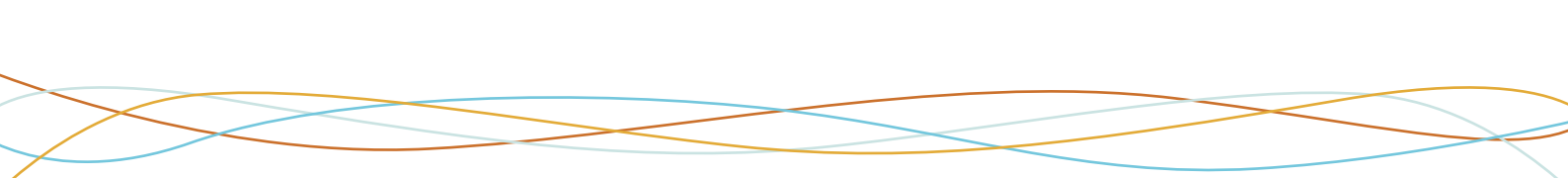
A **remote sensing review** of the wetlands within the Barratta Creek catchment was conducted, using satellite imagery and aerial photography. It was followed up by a two-day field trip to complement the review and verify data. Twelve wetland sites were assessed on their condition, problems and management needs. For areas that were harder to access, an aerial survey was carried out. Digital images were taken to record important selected sites for potential on-ground works.

Using regional and state agency data, nine **GIS-based maps** of the catchment were produced. The Barratta Creek catchment was then divided into five sub-catchment management units based on land management and drainage divides, using these maps and the field investigations.

The information collected, including input from landholders and stakeholders during consultation, was then used to prepare the *Freshwater wetlands of the Barratta Creek Catchment management investment strategy*. The strategy covers catchment-wide management needs and recommended strategies, along with sub-catchment wetland values and recommended management investments.

Working together

The cooperation of stakeholders, and particularly local land managers, is vital for the successful long-term management of the Barratta Creek catchment. A **consultation meeting** was therefore conducted to discuss the issues and management strategies. This workshop was well attended by over 40 participants, most of whom were catchment landholders. In cropping areas the biggest concerns were in-stream and riparian weeds, the establishment of fire regimes, and potential crop and flood damage. In rangelands, woody weeds were of high concern. Some proposed management actions included aquatic and riparian weed control, the possible use of grazing to reduce grass weeds and fire hazards, and the need to have a top-down approach for woody weed management.



Further reading

Veitch, V et al. 2007, *Freshwater wetlands of the Barratta Creek catchment management investment strategy*.

Veitch, V et al. 2007, *Aquatic ecosystems of Barratta Creek: review of existing knowledge*, Australian Centre for Tropical Freshwater Research, Report no. 07/17, June 2007.

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