

Pasturage Reserve

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 at Pasturage Reserve provided a much-needed impetus to the *Pasturage Reserve management plan* (2003) by undertaking baseline studies in:

- fire and grazing management
- hydrology
- access and interpretation opportunities
- weed control.

The project has helped to make local community groups and Burnett Shire Council (BSC) more aware of the area's wetland values and opportunities. This will influence future decisions regarding grazing, fire, weeds, drainage, effluent reuse, landfill leachate and urban stormwater runoff. In addition, Bundaberg Landcare is now much better placed to work with BSC to promote elevating the conservation status of Pasturage Reserve to 'Reserve for Environmental Purposes'. The raised profile of the area should also help to attract further funding.

About the site

'Pasturage Reserve' comprises 312 hectares of remnant wetland. The reserve adjoins the coastal village of Bargara, and is bordered by sugarcane agriculture, cleared land used for grazing, and landfill. The area is of high conservation value because it contains one of the few remnant *melaleuca* swamp forest stands in coastal parts of the shire; it also adjoins the Queensland Parks and Wildlife Service (QPWS) Mon Repos Turtle Nesting Reserve.



Photo 1: *Melaleuca* swamp forest on Pasturage Reserve (photo: Jim Tait)

There is strong local community support for protecting the area's conservation, recreational and educational values, as outlined in the BSC Pasturage Reserve management plan. The site is currently a reserve for pasturage purposes, with BSC acting as trustee.



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Challenges

While there was already strong local support for protecting and managing the Pasturage Reserve for its conservation values, there needed to be broader **community understanding** of the values and associated management needs of the area. This would not only strengthen the implementation of the management plan but would also prevent the site from being used for purposes that could have adverse environmental impacts.

Several major drains constructed through the site have altered the surface and groundwater hydrology and consequently the quality of the water entering and leaving the wetland. The water quality has also been affected by discharge from caneland catchment drains.

Alterations to pre-European **fire regimes** (predominantly fire suppression), combined with continuous stocking with cattle, have significantly affected the wetland flora and fauna of Pasturage Reserve. This is indicated in the vegetation by a lack of diversity in ground cover, remnants of fire-mediated vegetation types, overstorey age, classes and staggered recruitment patterns.

Another problem facing Pasturage Reserve, like wetlands in many other parts of coastal Queensland, is infestation with **invasive weeds**, both woody and herbaceous.

Without an ongoing intervention program, woody weeds can seriously undermine the habitat values and condition of the wetland, particularly in swamp forests with open canopies.

Exotic grasses, such as guinea and para grass, pose a hot fire risk and have invaded habitat remnants outside and immediately adjacent to the reserve. Exotic grasses have so far been controlled within the reserve by grazing.

A carefully controlled grazing and fire regime is essential for the ongoing management of exotic grasses in the reserve. Complete removal of grazing pressure and fire events would be detrimental to the biodiversity of the site, because the dominant vegetation is a mosaic of fire-mediated dry sclerophyll communities. Fire control is important for the fire-sensitive rainforest remnants within the reserve, however.

Rehabilitation actions

To examine the role of grazing and fire control in the long-term management of the reserve's biodiversity, **grazing and burning management trials** were developed and implemented (see Tait 2006, *under* 'Further reading').

Various combinations of controlled grazing and exclusion, and fire reintroduction, were trialed under the supervision of Bundaberg Landcare. The number of plots was increased from 3 to 12 for a long-term scientific assessment of the management needs of the area. The results from these trials:

- provided a better understanding of the likely effects of altered fire and grazing regimes
- assisted in deciding whether grazing should or should not continue in the reserve
- supported the Vegetation Management Plan being developed by BSC.

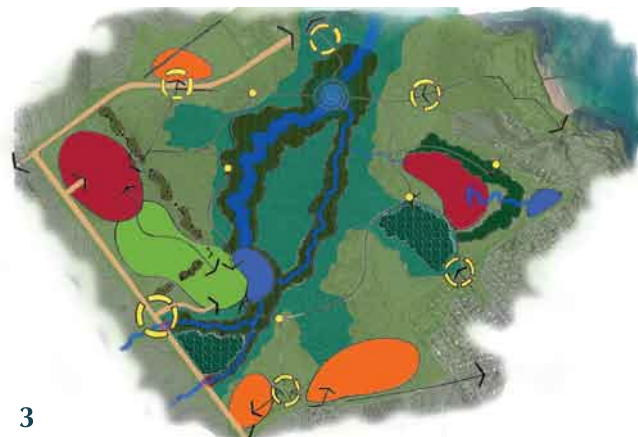
A Pasturage Reserve **hydrological review** workshop was conducted and the findings discussed with the Pasturage Reserve Steering Committee, which included both staff and elected members (see Smith 2006, *under* 'Further reading'). A works plan was prepared for BSC, with the following works recommended as priorities to repair the hydrology of Pasturage Reserve:

- recycling of cane farm tailwater
- redesign and progressive modification of constructed drainage
- removal and management of obstructions.

Funding for these projects was subsequently received from the Burnett Mary Regional Group.



Photo 2: Poor-quality water entering Pasturage Reserve from cane land—to be improved through hydrological works (photo: Jim Tait)



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Photo 3: Example of an 'access and interpretation' plan developed by QUT students

Two **workshops** were conducted to provide local people (Green Corps and community volunteers) with an understanding of vegetation communities. Volunteers gained skills in scientific monitoring, identifying vegetation changes, risks and management needs. The results from these workshops helped provide the baseline data for the grazing and fire trials.

To address the problem of **woody weed invasion** BSC entered into an agreement with the Burnett Mary Regional Group to carry out weed management in the Pasturage Reserve in 2008. Pest-plant control measures were implemented across 30 hectares of the site. This commitment to long-term funding for weed reinfestation control programs is a key requirement in controlling invasive weeds in wetlands.

A partnership with the Queensland University of Technology (QUT) and Bundaberg Landcare resulted in an access and interpretation project for Pasturage Reserve. Students from QUT visited the site and were given verbal accounts of the history, hydrology, flora and fauna by members of the Pasturage Reserve Steering Committee. The students developed and displayed concept '**access and interpretation**' plans, using a range of visual representation methods. The plans were well received by BSC and the local community.

To facilitate broader understanding, the community of Bargara were informed of the visit by the students and invited to participate. Bundaberg Landcare took part in several radio interviews and submitted newspaper articles to local papers. Two articles were published in local community newsletters and one presentation was made to the Bargara Ratepayers Association. The 'access and interpretation' plans and information were displayed during Australia Day celebrations at Burnett Heads and at the AgroTrend Agricultural fair.

Lessons learnt

External expertise and assessment are often required to help communities recognise and appreciate the value of their local wetland assets. Nevertheless, it is important to involve the local community in management trials, thus giving them ownership of the results and building their capacity to manage the wetlands into the future

Despite fire and grazing being perceived as threats to wetlands, they can be important broadacre tools for the recovery and maintenance of wetland biodiversity.

Further reading

Burnett Shire Council 2006, *Summary of pasturage reserve lease for or steering committee and management planning*.

Queensland University of Technology 2007, Access and interpretive plans, prepared by QUT postgraduate students for Burnett Shire Council.

Smith, R 2006, *Review of Pasturage Reserve hydrology: report from meeting held Wednesday 18 October 2006*, prepared by WetlandCare Australia for Burnett Shire Council.

Tait, J 2006, *Pasturage Reserve grazing and burning regime management trials*, report by WetlandCare Australia.

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Photos courtesy of WetlandCare Australia



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