

Goorganga Plain wetlands 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 Pilot Program project at Goorganga Plain wetland complex aimed to achieve long-term improvements through:

- a coordinated feral pig control program
- integrated control of riparian weeds and invasive grasses.

The results were significant, and included the formation of a coordinated Feral Pig Control Group, which will continue to operate after the project finishes. Trapping and baiting was conducted over a vast area surrounding the wetland complex; and weed control trials tested methods for controlling riparian and aquatic weeds.

About the site

The Goorganga Plain wetlands complex extends south from Proserpine in central coastal Queensland. It is a vast area, consisting of approximately 16 850 hectares of seasonal wetlands, and recognised in the *Directory of important wetlands in Australia*. It is particularly significant because it consists of a diverse range of wetland ecosystems graduating from marine to freshwater environments.

This wetlands complex has important ecological functions including floodwater detention, nutrient assimilation and sediment trapping. It provides habitats for rare and endangered plant and animal species, as well as valuable nursery habitats for many fish species.

It also hosts migratory bird species and large numbers of resident waterbirds.

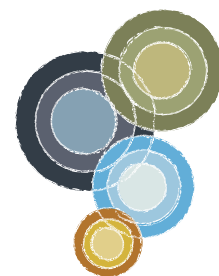
The area is both environmentally and economically valuable to the local community. The wetlands and surrounding areas support beef cattle, sugarcane and forestry as well as nearby residential land use.



Photo 1: The Goorganga Plain wetland complex provides valuable waterbird and waterfowl habitats (photo: Jim Tait)

Challenges

Large populations of **feral pigs**, which are a 'declared pest' under the *Land Protection (Pest and Stock Route Management) Act 2002*, subsist within the Goorganga Plain wetland complex. Feral pigs disturb soil, damage vegetation, prey on native fauna (e.g. bird and crocodile nests), disturb waterfowl nesting and feeding habitats (e.g. bulkuru sedge communities), damage crops, and pose disease threats to livestock industries. Before the project began, the only feral pig control that occurred was carried out on an ad hoc basis, due to limited resources and the consequent difficulties of running a coordinated program.



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Weeds, including devil's fig, sickle pod and urena burr, are a significant problem in this wetlands complex and affect the habitat quality of riparian vegetation. In the past, the use of herbicides has usually been the only method of weed control; and this alone has not been enough to control riparian weed infestations.



Photo 2: The riparian weed sicklepod (photo: Jim Tait)

The invasive grass **hymenachne** is threatening the wetland ecosystems of the Goorganga Plain wetlands complex. Hymenachne can have many adverse effects on wetland ecosystems, including:

- choking and infilling shallow waterbodies
- displacing the native submerged and emergent aquatic plant communities
- providing additional habitat for feral pigs.

Changes to fire and grazing regimes have caused some native species, particularly melaleucas, eucalypts and acacias, to develop into dense stands—in some cases probably denser than in pre-European times. This **native regrowth thickening** reduces habitat diversity by excluding other species, and can diminish production of associated pastures.

Rehabilitation actions

Feral pig control

The need for a coordinated approach to controlling feral pigs in the Goorganga Plain wetlands complex led to the formation of the **Feral Pig Control Group**, consisting of Whitsunday Catchment Landcare, Whitsunday Regional Council, WetlandCare Australia, Queensland Parks and Wildlife Service (QPWS), Natural Resource Management and Water, the Department of Primary Industries and Fisheries, Canegrowers Proserpine, landholders/graziers and forestry.

A survey was conducted, with assistance from Canegrowers Proserpine, to ascertain landholders' perceptions of pig damage. Almost 300 landholders received project information, and 72 of them responded to the survey. Some landholders expressed concern about having agency people enter their property to control pigs. These landholders were therefore encouraged to carry out project works and monitoring themselves.

The Feral Pig Control Group developed a program that focuses on intercepting pigs before they enter the wetland complex. Thirteen landholders (managing nearly 127 000 hectares), participated in a coordinated **baiting program** in which they:

- erected 31 baited pig traps on private properties covering approximately 47 400 hectares in the catchment area surrounding the wetland complex
- laid 1080 baits on participant properties covering over 30 000 hectares
- in conjunction with QPWS, carried out ground baiting using 1000 kg of baits and aerial baiting using another 1000 kg of baits (a total of 4000 half-kilogram baits) on areas adjoining state forest, as well as Conway and Dryander National Parks.

The coordinated pig control program has reduced the impact of feral pigs on both biodiversity and production, and has informed and involved landholders in the ecological management of the Goorganga Plain. This integrated management approach to feral pig control provides the basis for long-term success. The Pilot Program provided funding to support the group for three years, and the Feral Pig Control Group will be coordinated by Whitsunday Regional Council.

Weed control trials

In preparation for weed control trials, hymenachne distribution was mapped across almost half of the floodplain (9000 hectares), using a combination of high-resolution aerial maps, low-altitude flyovers and field investigations. This is the first known quantification of exotic grass domination within a tropical wetland complex. Additionally, **ecological surveys** of waterbird and fish habitat were conducted (see 'Further reading' below) to provide baseline data.

The project team approached key landholders, and one of whom agreed to the planned trial. This property includes approximately 100 hectares of one of the highest-integrity (though weed-infested) native biodiversity wetland remnants within the broader floodplain. The area was divided into plots to investigate the most successful long-term methods of controlling weed and reversing the thickening of native regrowth. The results of the trials were summarised in a series of information bulletins (see 'Weed control trial results' and 'Further reading' below).

A CD of weed trial and floodplain habitat images was produced and made available to participating landholders. It is hoped that the concerns of those landholders who did not participate in the trials will be alleviated by seeing the results.

Weed control trial results

The trials showed that each weed species responded differently to the various control techniques, indicating that management should be tailored to specific situations. In general, the most effective way of controlling the three main problem weed species in the Goorganga Plain wetlands (sicklepod, devil's fig and urena burr) was to use a combination of herbicide, fire and mechanical treatment.

As a result of the riparian weed treatments, some native species, particularly melaleucas, eucalypts and acacias, are regenerating. The trials highlighted that developing an appropriate fire regime is a key way of controlling the riparian weed infestations that affect the Goorganga Plain wetlands complex.

For hymenachne control, grazing was found to be least damaging to the wetland in the dry season. In order to achieve best results, however, it was important to keep grazing pressure to a minimum.

See 'Further reading' below for reference to the full results of the weed control trials.



Photo 3: Grazing to control weeds (photo: Jim Tait)



Photo 4: Fire proved to be an important wetland habitat management tool for the control of fire-sensitive woody weeds, exotic pastures and native regrowth thickening (photo: Jim Tait).

Further reading

Goorganga Plain integrated weed control trials, Whitsunday Catchment Landcare information bulletins 1 (August 2006), 2 (June 2007), 3 (June 2007) and 4 (June 2007).

Contacts

Whitsunday Catchment Landcare

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Photos courtesy of WetlandCare Australia

Innovations

Stock with uncontrolled access to wetlands can cause degradation of vegetation, bank instability and water quality problems. However, grazing as a wetland management tool can have environmental benefits, including weed control and improved habitat values. Design of grazing management and integrated fire management strategies needs to be sensitive to the particular features of a wetland.



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