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Waterbird Habitats of the Southern Fitzroy Floodplain

This bulletin investigates water bird habitat management and examines trials conducted on wetland sites of the Southern Fitzroy Floodplain.

Waterbird Habitat Values

The Southern Fitzroy Floodplain wetland aggregation is listed in the National Directory of Important Wetlands in Australia. The wetlands provide important bird habitat consisting of:

- Diverse mosaics of wetlands ranging from permanent deepwater habitats through to ephemeral swamps that support migratory shore birds listed under the Japan Australia Migratory Bird Agreement and the China Australia Migratory Bird Agreement.
- Regionally significant breeding populations of waterfowl including cotton pygmy goose, swans, black-necked stork, magpie geese and brolga.
- A seasonally dry environment but includes a number of permanent freshwater lagoons with at least one perennial stream fed by groundwater.
- Provides habitat for a number of water bird species listed as 'rare' under the *Nature Conservation Act 1992 (Qld)* including the radjah shelduck (*Tadorna radjah*), black-necked stork (*Ephippiorhynchus asiaticus*) and cotton pygmy goose (*Nettapus coromandelianus*).

The brolga (Grus rubicunda) is an energetic dancer that inhabits large open wetlands. It feeds on both vegetable and animal material.
(Photo courtesy John McCabe, State of Queensland (EPA))

The magpie goose (Anseranas semipalmata) disappeared from some areas of Australia due to removal of wetland habitat. It prefers shallow wetlands and feeds on plants. Listen for honking sounds!
(Photo courtesy John McCabe, State of Queensland (EPA))

The pelican (Pelecanus conspicillatus) diet consists mostly of fish. On the floodplain, it can be found on both freshwater and marine wetlands.
(Photo courtesy Ken Rutherford)

Requiring 40 metres or more of clear water to take off, it is a pleasure to see black swans (Cygnus atratus) on the larger wetlands of the floodplain.
(Photo courtesy Ken Rutherford)

The sharp-tailed sandpiper (Calidris acuminate) is a migratory wader bird from Siberia. It prefers grassy edges of shallow freshwater wetlands. (Photo courtesy John McCabe, State of Queensland (EPA))

Plumed whistling-duck (Dendrocygna eytoni) also known as grass whistle duck, can often be seen congregating on the fringes of the water. Their whistle can be heard in flight.
(Photo courtesy Ken Rutherford)

Management Issues

Dominance of introduced pasture species

Perhaps the most significant issue confronting the maintenance of water bird habitat values on the Floodplain is the dominance of ponded pasture species within seasonal wetlands and drainage depressions. The dominant species is para grass however hymenachne and aleman grass are also significant in some areas. These introduced pastures competitively exclude native wetland plants that provide important nesting and feed resources.

Para grass (Brachiaria mutica) is a productive introduced ponded pasture grass that can quickly dominate seasonally dry or shallow wetlands as shown here at the Gracemere Lagoon Reserve.
(Photo courtesy FRCC)

Coastal bunding

Ponded pastures have been established near coastal areas by building barriers (bunds) on floodplain drainages. Prior to pondage development, many of these seasonally brackish wetlands supported bulkuru (*Eleocharis dulcis*) sedge swamps and other wetland plant communities. While artificial pondages do create additional freshwater wetland habitats the quality of the habitat can be variable at different sites.

Loss of feeding, nesting, moulting and roosting habitat

Introduced pasture species may exclude or shade out submerged and emergent fringing plant species such as nardoo, saw sedge, bulkuru, native pea, hornwort, waternymph, rice sedge and common spikerush. Loss of native aquatic plant diversity is greatest in shallow wetlands where introduced pastures can totally dominate during the wet season when the wetlands are spelled from grazing.

A natural waterbird habitat includes bare ground during the dry season and sparse or short ground covers. These areas are preferred roosting habitat for a host of waterfowl species, such as whistler-ducks.

Riparian over storey vegetation also provides key habitat with the trees being critical roosting and/or nesting habitat. Historical clearing, grazing pressure, weed invasion and modified fire regimes have impacted the condition of riparian vegetation fringing the wetlands.

In its natural state, this site would most probably have had sparse vegetation on the fringes which would have provided a more favourable environment for the waterbirds than the dense, matted para grass that is shown here. (Photo courtesy FRCC)

Management Opportunities

Grazing to manage pasture dominance

Grazing introduced pasture species is a simple management option however wetland and riparian areas are also vulnerable to impacts associated with the grazing of stock such as trampling, soil compaction and erosion. Grazing trials highlight the following options to improve bird habitat:

1. **Maintain native habitat condition through sustained light grazing pressure**. Where wetland condition is relatively good but is vulnerable to introduced pasture infestation, sustained light grazing pressure (horses or cattle) can be effective as ponded pasture species are often preferentially grazed.
2. **Reduce introduced ponded pasture dominance through high grazing pressure in the late dry season**. Where seasonal wetlands are totally dominated by ponded pasture species, heavy grazing pressure can be used to reduce plant material thereby diminishing plant energy reserves (particularly if integrated with burning) and can increase mortality rates should plants be inundated by early wet season rain that follows the grazing treatment.
3. **Protect riparian vegetation from hot fires and promote regeneration of riparian vegetation via seasonal grazing**. This tool applies to riparian areas where species such as green panic (*Panicum maximum*) dominate the understorey. Grazing is introduced for several months at the end of the wet season to reduce the fire fuel load leading into the dry season.

Burning to promote biodiversity

Wetland habitats of the Floodplain have been naturally exposed to lightning strike and many of the plant species have some dependence upon fire. Most introduced ponded pasture species are sensitive to fire which can reduce their dominance and increase recruitment of native wetland plant species that have food and habitat value for waterbirds.

Bring back the brackish

Waterbird and fishery habitat values of brackish (salty) wetland systems is well demonstrated and breached coastal bunds provide opportunities for creating significant waterbird habitat.

Riparian vegetation rehabilitation

Revegetation particularly by intensive approaches (i.e. tube stock planting) is costly and is not often a successful wetland rehabilitation strategy in the seasonally dry tropics unless significant resources are committed to dry season watering, weed management and protection from fire. Controlled burning and grazing can promote natural regeneration which offers a more cost effective option.

Ways Forward

There are a many aspects to managing waterbird habitat with the following items being worthy of consideration:

- Waterbirds attract a significant amount of public interest which provides the opportunity to engage volunteers in monitoring programs.
- Use adaptive grazing and burning regimes as tools to manage wetlands at a broad acre scale.
- Establish long term relationships with land managers to share knowledge and provide support to improve management.
- Develop and value add to wetland mapping, habitat assessment and waterbird monitoring data to aid decision making.
- Build the capacity of the community to participate in wetland management and increase their understanding and involvement in wetland management.

Australian Government

The Queensland Wetlands Programme - Great Barrier Reef Coastal Wetlands Protection Programme is funded by the Australian Government. The main objective of the Southern Fitzroy Floodplain project was to engage land managers in activities and practices to help manage and enhance the area's important wetland values.

Queensland Wetlands Programme

Further information

The information series is available on-line from the FRCC website or by request and includes Helping Wetlands, Fish, Fire, Grazing, Getting Involved and Waterbirds.

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