



Water notes



ADVISORY NOTES FOR LAND MANAGERS ON RIVER AND WETLAND RESTORATION



Wetlands as waterbird habitat

Why are wetlands important to waterbirds?

Waterbirds depend on wetlands for a variety of activities which include feeding, breeding, nesting and moulting. The highest number of waterbirds is often found in wetlands which have the greatest diversity of plant species and vegetation types, or where there is permanent water (Balla, 1994). During the hot summer months the larger permanent wetlands on the Swan Coastal Plain play an important role in providing a drought-refuge for several species of waterbird. Seasonal wetlands also provide important waterbird habitat. A number of species of waterbird are only found in seasonal wetlands such as swamps.

Wetlands are biologically very productive and provide feeding grounds for a diverse range of resident and migratory waterbirds. Herons stalk the shallows, snipe feed in the long grass at the waters edge while grebes, ducks and cormorants feed in the open water. The provision of feeding and roosting habitat is very important for migratory species which in some cases migrate many thousands of kilometres. In recognition of the significance of wetlands for many trans-equatorial species of migratory waterbird, several wetlands in the State have been identified as being internationally significant under the Ramsar Convention¹.

¹ The Ramsar Convention (Convention on Wetlands of International Importance, especially as Waterfowl Habitat) is an international treaty that was adopted in Ramsar, Iran in 1971 to provide for international support and cooperation to protect and conserve wetland habitats.

The loss of waterbird habitat

Traditionally wetlands have been viewed as wastelands, breeding grounds for mosquitoes and opportunities for land reclamation and tip sites. It is estimated that between 70 and 80 percent of wetlands on the Swan Coastal Plain alone have already been lost or degraded through activities such as draining, filling and clearing. This has resulted in a dramatic decline in both the availability and quality of habitat available to waterbirds.

The destruction of historical nesting and feeding grounds has forced waterbirds to compete for diminishing resources. Clearing and degradation of fringing and littoral wetland vegetation reduces waterbird breeding success as a consequence of the loss of habitat and increased vulnerability to predation by a range of species, including cats and foxes.



A range of waterbird habitats - openwater, rushes and melaleucas.

Identifying waterbird habitats in your wetland

Waterbirds have specific adaptations which enable them to exploit particular niches within a wetland and limit direct competition with each other. For example, certain waterbirds feed on shallow flooded areas and mudflats, while others graze upon submerged and floating plants or dive to catch aquatic invertebrates in deeper water. A summary of each of the different habitat types utilised by waterbird species is listed on the next page:



- **Islands** are used as breeding sites for a number of species that nest on the ground. Waders and terns also commonly use these areas as roosts for 'loafing'.
- **Mudflats and shallow water** are rich feeding areas for a range of migratory waders such as the Red-necked Stint, Curlew Sandpiper and the Sharp-tailed Sandpiper who probe the water and flats for tiny animals. Larger waterbirds with long legs and bills such as the egret, pelican, spoonbill, avocet, stilt, heron, curlew and the oystercatcher can be found in the shallows probing, spearing, sieving and scooping for food. Whiskered and Fairy Terns fly over the water and pluck their prey from above, while the Grey Teal and Shelduck dive for their food in the shallows.
- **Emergent sedges, rushes and grassy bank areas** attract many wading birds. Vegetation of this type provides cover for waterbirds such as the Spotless Crake and Buff-banded Rail and nesting sites for the Blue-billed Duck and the predatory Marsh Harrier. Crakes, rails and various song birds, such as the Little Grassbird and Reed Warbler are attracted to the rushes in freshwater swamps near estuaries. Ducks, swans, moorhens and coots will use open water for loafing and feed in emergent vegetation and grassy bank areas. Ibis, herons and swampheens are also attracted to fringing bulrushes as feeding areas.
- **Deep open water** attracts diving waterbirds such as swans, coots, cormorants, grebes and some ducks such as the Musk Duck which dive for bottom-dwelling animals or aquatic vegetation. Other waterbirds such as terns feed on fish close to the surface.



Stilts feeding in shallow water.

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How can you help?

The ecological requirements of waterbirds include the need for wetland habitat for a range of activities including feeding, breeding, nesting and protection from predators. It is therefore important to have a good understanding of the

ecological requirements of the waterbirds which use the wetland, or may be attracted to the wetland in order to provide suitable habitat for these species.

Encouraging waterbirds

A good knowledge of waterbird habitat requirements will enable you to encourage waterbirds in urban or rural areas. If you are interested in restoring a wetland or you wish to construct a wetland and you would like to encourage waterbird usage, the following management practices could be considered for inclusion in your wetland management plan:

- Stack rocks underwater to provide habitat for small animals and fish that provide food for birds.
- Leave some logs and rocks protruding from the water for waterbirds to roost on.
- Place branches and large logs around the edge of the wetland at varying heights, to provide roosting and nesting sites.
- Provide for a range of water depths. Link shallow mudflats to an island rather than the shore to provide secure habitat for waders.
- Use natural edges with slopes of between 1:4 and 1:15, rather than steep banks. The provision of vegetated banks and some bare areas will provide birds with access in and out of the wetland and will allow them to see predators.
- Eradicate weeds as they can spread rapidly in and around wetlands and have the potential to degrade waterbird habitat and reduce food resources¹.
- Maintain wetland water quality to prevent the formation of algal blooms which can lead to anoxia and outbreaks of botulism leading to paralysis and death of waterbirds.
- Revegetate the wetland area to restore waterbird habitat by replanting existing vegetation types that are found around the wetland.
- Fencing can be used to limit access to livestock, and thus reduce bank erosion and disturbance to fringing vegetation. This will also allow natural regeneration in disturbed areas.
- Maintain mature trees around your wetland to provide habitat for birds and small animals. A number of waterbirds such as the Pacific Black Duck, the Australian Shelduck and the Grey teal utilise tree hollows or forks for nests.



Recreational activities

- If boats are permitted to be used on the wetland concerned, minimise damage to fringing vegetation by only launching boats at established launch sites.
- Minimise damage to fringing vegetation from off-road vehicles, bikes or horses by only using existing tracks.
- Be careful not to disturb feeding and nesting birds. Watch from a distance and keep dogs under control.
- Avoid feeding waterbirds by hand as they may become dependent on the artificial food source and it may affect their migration habits. This may also lead to waterbird numbers in excess of what the wetland can support and impact upon the health of the system. For example, wetland water quality may be degraded as a result of the increased nutrient inputs from the faeces of large populations of waterbirds.
- Only passive recreational activities should be permitted in spring when most waterbirds breed.

Further reading

Available from Water and Rivers Commission

Water note WN1 *Wetlands and weeds*

Water note WN2 *Wetlands and fire*

Water note WN3 *Wetland vegetation*

Water note WN4 *Wetland buffers*

Available from other sources

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For more information contact



WATER AND RIVERS
COMMISSION

Level 2, Hyatt Centre
3 Plain Street

East Perth Western Australia 6004

Telephone: (08) 9278 0300

Facsimile: (08) 9278 0301

or your regional office

Website: <http://www.wrc.wa.gov.au>

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Text by Mike Allen and Cathy Walker. Water note project coordination by Jodie Oates and Heidi Oswald.

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For further information on any particular issue please contact the Restoration & Management Section at the Water and Rivers Commission.