COASTAL WETLANDS

ESTUARINE LAKES AND LAGOONS

A large body of saline or brackish water that has a relatively narrow permanent or intermittent connection to the sea. They are usually separated from the ocean by a large sand dune, and many are only open to the sea during floods or at very high tides.

They occur all along the NSW coast, but are most extensive on the south coast.

Management issues:

- waterbird habitat
- fish habitat and nursery areas
- commercial fishing
- recreation (boating, fishing and camping)
- urban development (urban runoff and catchment clearing)
- sand mining and dredging
- planning controls (SEPP 14)

COASTAL FLOODPLAIN FOREST

A wetland located on the floodplain of a coastal river that is dominated by trees (usually paperbarks).

Coastal forests are generally found on sandy sediments on the lower reaches of the floodplain and are subject to brief seasonal flooding. Typically they have an understorey of sedges, grasses and aquatic herbs.

Management issues:

- urban development (clearing and draining)
- acid-sulfate soils
- floodplain structures (levees and floodgates)
- fauna habitat (specific food source for some bird and bat species)
- planning controls (SEPP 14)

Melaleuca quinquenervia
Broad-leaved Paperbark

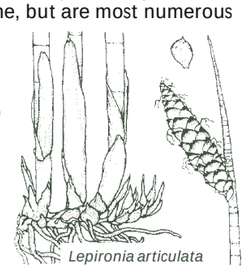
DUNE SWAMPS AND LAGOONS

Any freshwater wetland that occurs on coastal sand dunes or plains. They are usually found on prior dune systems that occur behind the present beach and sand dunes.

Dunal wetlands may include lakes, lagoons, shallow swamps, heaths and forests. They may be permanent or filled by seasonal rainfall. Dune swamps and lagoons occur all along the NSW coastline, but are most numerous on the north coast.

Management issues:

- Urban development (urban runoff, draining and clearing)
- waterbird habitat
- groundwater extraction
- grazing
- sand mining
- recreation (boating, fishing, camping)
- planning controls (SEPP 14)



Lepironia articulata
A sedge found in dune swamps

MANGROVE AND SALTMARSH SWAMPS

Estuarine areas subject to tidal flooding that support mangrove and saltmarsh vegetation. Depressions, mudflats and creeks within or next to the mangroves or saltmarsh can also be included.

Mangroves and saltmarsh are often found in association with one another (saltmarsh communities occurring on the landward side of mangroves). Mangroves tend to dominate areas that are inundated daily, whereas saltmarshes occur in less frequently flooded areas.

Management issues :

- urban development (clearing, sedimentation)
- fisheries habitat and nursery area
- waterbird habitat
- nutrient cycling
- planning controls (SEPP 14)
- recreation (boating and fishing)

Juncus kraussii
Salt rush

Sarcocornia quinqueflora
Samphire

Salt rush and samphire are common saltmarsh plants

COASTAL FLOODPLAIN SWAMPS AND LAGOONS

Any wetland that is located on the floodplain of a coastal river, including shallow marshes and meadows and deeper ponds and billabongs.

Coastal floodplain swamps and lagoons may occur where the floodplain abuts an adjacent terrace or hill; where the natural river levee has blocked a smaller tributary, as a billabong next to the river; or as a floodway that is above normal river flows. They may be permanent, or may flood on a seasonal or intermittent basis.

Management issues:

- waterbird habitat (drought refuge and feeding areas)
- fish habitat
- recreation (boating, fishing, camping)
- river regulation
- clearing and drainage
- floodplain structures (levees and floodgates)
- grazing
- acid sulfate soils
- planning controls (SEPP 14)

For more information on wetlands, contact your local office of the Department of Land and Water Conservation

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Wetland Management

LAND & WATER CONSERVATION

WETLAND CLASSIFICATION

A wetland is very simply land that is wet for all or some of the time. Wetlands support a large variety of plant and animal species that are adapted to fluctuating water levels.

Wetlands can be found on the coast and inland. This pamphlet will help you identify your local wetland.

HOW TO IDENTIFY WETLAND TYPES

What is your geographic region? **1 Inland** **2 Tableland** **3 Coastal**

Main Source of Water	Description		Wetland Type
1 INLAND WETLANDS			
River	Filled by regulated flows or impounded	→	**Permanent inland wetlands**
	Filled by seasonal or intermittent flooding		
	• Mostly open water (when flooded)	→	**Inland floodplain lakes and lagoons**
	• Mostly lignum shrubland	→	**Lignum swamps**
	• Mostly trees	→	**Inland floodplain forest**
	• Mostly reeds	→	**Reed swamp**
	• Mostly grass, herbs, rushes or sedges	→	**Inland floodplain meadows**
Groundwater, rainfall or runoff	Located in far western NSW	→	**Arid wetlands**
	Not located in far western NSW		
	• Mostly open water	→	**Upland lakes and lagoons**
	• Mostly vegetation	→	**Upland swamp**
2 TABLELAND WETLANDS			
Groundwater, rainfall or runoff	• Mostly open water	→	**Upland lakes and lagoons**
	• Mostly vegetation	→	**Upland swamps**
3 COASTAL WETLANDS			
Estuarine	Saline waterbodies	→	**Estuarine lakes and lagoons**
	Tidal flats dominated by vegetation	→	**Mangrove and saltmarsh swamps**
Groundwater, rainfall or runoff	Located on sand dunes or plains	→	**Dune swamps and lagoons**
	Not located on sand dunes or plains		
	• Mostly open water	→	**Upland lakes and lagoon**
	• Mostly vegetation	→	**Upland swamp**
River	Mostly open water/aquatic vegetation	→	**Coastal floodplain swamps and lagoons**
	Mostly trees	→	**Coastal floodplain forests**

LEGEND

Main Water Source

groundwater, rainfall or runoff

rivers

marine waters

Distribution in NSW

INLAND WETLANDS

INLAND FLOODPLAIN LAKES AND LAGOONS

A wetland dominated by open water that is located on the floodplain of a river, and is subject to cycles of flooding and drying.

Inland floodplain lakes and lagoons may occur in a variety of situations including depressions filled by overbank flooding, oxbow lagoons (billabongs), large lakes filled by connecting channels and large wetlands that occur as terminal basins for a river or creek.

Management issues:

- river regulation
- water storage and extraction
- impact of floodplain structures
- nutrient cycling
- waterbird habitat (feeding and breeding)
- fish habitat (breeding and nursery areas)
- grazing

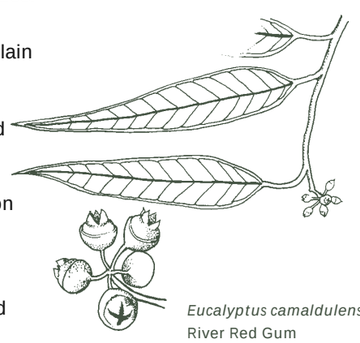
INLAND FLOODPLAIN FORESTS AND WOODLANDS

Wetlands located on the river floodplain that are dominated by trees. They include river red gum forests and coolibah and black box woodlands.

River red gum forests are typical of the southern rivers and occur extensively along the Murray, Murrumbidgee and Lachlan Rivers. Coolibah and black box woodlands occur on all western rivers, with coolibah generally found in the north and black box in the southern part of the state.

Management issues:

- river regulation
- impact of floodplain structures
- recreation and tourism (river red gum forests)
- forestry and timber production
- grazing
- fire
- fauna habitat (tree hollows and nesting sites)



Eucalyptus camaldulensis
River Red Gum

REED SWAMPS

A wetland located on the floodplain of a river that is dominated by reeds. This includes wetlands vegetated by common reed and cumbungi that do not have extensive areas of open water.

Reed swamps occur in relatively deep channels or depressions on the floodplains of major rivers. They usually occur most extensively at the end of the river system, such as the Macquarie Marshes (Macquarie River) and the Great Cumbung Swamp (Lachlan River).

Management issues:

- waterbird habitat
- river regulation
- grazing
- fire
- feral animals
- water quality (reed swamps are particularly effective in trapping nutrients)

Typha orientalis
Cumbungi

Phragmites australis
Common Reed

PERMANENT INLAND WETLANDS

Any wetland dominated by open water that is filled from a river under regulated flow conditions, or that is permanently impounded by a structure.

Permanent wetlands occur on most inland rivers where the natural water regime has been altered by river regulation. They include wetlands affected by weirpools, lakes used for water storage, wetlands that receive drainage or effluent water, and wetlands with very low connections to the river that remain permanently filled because of regulated flows.

Rehabilitation of some permanent wetlands by re-instating a more natural water regime will enhance their natural values.

Management issues:

- river regulation
- vegetation changes (for example, drowning of trees)
- waterbird habitat (drought refuge)
- recreation (boating)
- water quality (effluent and drainage disposal)
- rising groundwater tables and waterlogging of trees
- aquatic weeds
- rehabilitation

LIGNUM SWAMPS

Extensive wetlands located on inland floodplains that are filled by surplus or flood flows and dominated by lignum vegetation.

Lignum swamps are usually found at the end of the river system, often as extensive braided floodways, but also occur as smaller depressions and billabongs adjacent to the river channel. Extensive lignum swamps occur on the Paroo River, Darling River, at the end of the Warrego River, and in floodways of the Lachlan and Murrumbidgee Rivers.

Management issues:

- waterbird habitat (breeding sites)
- impact of floodplain structures
- river regulation
- feral animals
- grazing
- clearing and cropping

INLAND FLOODPLAIN MEADOWS

A shallow wetland located on the floodplain of an inland river that is dominated by grasses, herbs, sedges or rushes.

Floodplain meadows are found in association with riverine forests and woodlands, but may also occur in discrete shallow depressions on the floodplain.

Management issues:

- waterbird habitat (feeding)
- river regulation
- water extraction
- impact of floodplain structures
- grazing
- draining

Eleocharis acuta
Common Spike-rush

Juncus usitatus
Common Rush

Two plants commonly found in meadows

ARID WETLANDS

A wetland that is located on sandplains or dunefields in the arid parts of the State, that fills predominantly from rainfall, groundwater or a local catchment. This includes salt lakes, playa lakes (occurring at the end of an intermittent creek) and claypans that are located in depressions on sandplains and dunes.

Due to their highly intermittent nature, arid wetlands have generally retained a natural flooding and drying regime, and therefore represent some of the most "natural" wetlands in the state.

Management issues:

- waterbird habitat
- grazing
- groundwater
- lake bed cropping

TABLELAND WETLANDS

UPLAND LAKES AND LAGOONS

Large or small bodies of fresh water usually occurring in low hills or mountains. Vegetation is confined to the margins of the wetland.

Upland lakes and lagoons occur predominantly on the tablelands, but may also occur on coastal or inland plains. They occur as large basins formed by erosion of the underlying bedrock or by past faulting or glacial activity.

Most of the large tableland lakes are not permanent and are subject to large reductions in area and depth during drying periods. Glacial lakes, however, are permanently filled as a result of high inflows (snow melt and rainfall) and low evaporation.

Management issues:

- waterbird habitat (drought refuge)
- catchment erosion and runoff
- water extraction
- grazing
- lakebed cropping
- pesticide and fertilizer use
- rising groundwater tables and salinity

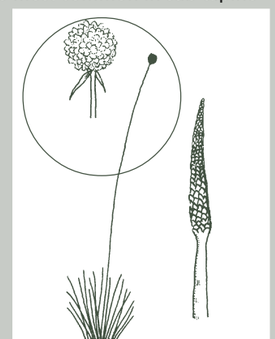
UPLAND SWAMPS

Vegetated freshwater wetlands occur in shallow basins in hills or mountains. Upland swamps occur mostly on the tablelands, however, they may also occur on coastal or inland plains. Upland swamps include shallow marshes, sedge swamps, hanging swamps, wet heaths and peat swamps.

On the plateaus surrounding Sydney and in the New England area, hanging swamps form on valley sides where groundwater seepage occurs. In other parts of the tablelands, swamps are found in shallow depressions eroded from the underlying bedrock. Peat swamps may occur at any height, but are most common in sub-alpine areas above 1000 metres.

Management issues:

- groundwater extraction
- peat mining
- grazing
- fire
- biodiversity (hanging swamps have been shown to have a very high plant species diversity)
- fauna habitat
- scientific research (carbon dating and pollen analysis provide information on climatic and ecological change)



Gymnoschoenus sphaerocephalus
Button Bog-rush

Eleocharis sphacelata
Tall Spikerush

Two plants commonly found in heath and sedge swamps