Degraded sites – conservation significance of remnants

The degree of disturbance (i.e. the site condition) of any remnant of Freshwater Wetlands may vary depending on past land use, management practices and/or natural disturbance and this should be considered at the time of assessment. Whilst not exhaustive, the following are a number of variations of Freshwater Wetlands you may encounter on your land:

1. Depressions no longer subject to regular flooding due to changed drainage regimes such as upstream dams or drainage ditches from irrigation;
2. Depressions with low grass structure due to grazing or slashing (wetland species will often recover if this disturbance is removed);
3. Water bodies invaded with floating weeds such as Water Hyacinth (Eichhornia crassipes);
4. Vegetated waterbodies enclosed by artificial earthwalls for water storage;
5. Dry cracked soil with low grass type species emerging (i.e. during drought or dry flushing phase);
6. Large monocultures of reed species such as Common Reed and/or Cumbungi.

Even where a remnant is considered to be heavily degraded and in poor condition, it may still have conservation value for a number of reasons including:

1. As part of a stream/wetland corridor that has connective importance for dispersal of native flora and aquatic organisms;
2. Providing important habitat and food source for freshwater fish and amphibian species;
3. Providing a water and food source for native mammal and bird species;
4. It may contain threatened species of flora such as Aldrovanda vesiculosa, Manunda triglochidioides and Praslinia elatior; and/or
5. Maintaining a healthy native seed bank and preserving local provenance (i.e. genetic integrity).

It is important to take these factors into account when determining the conservation significance of remnants.

For further assistance

This other and EEC guidelines are available on DECC Threatened Species website threatened.species.environment.nsw.gov.au/. The references listed below also provide further information to aid in identifying EECs.

- Botanic Gardens Trust plant identification assistance: rbgadelaide.aus/information/plants/botanical_info/plant_identification
- Botanic Gardens Trust PlantNET: planet.rbgadelaide.au/search/simple/

What is the Coastal Floodplain?

Floodplains are level landform patterns on which there may be active erosion and deposition by flooding where the average interval is 100 years or less. Coastal floodplains include coastal river valleys, alluvial flats and drainage lines below the escarpment of the Great Dividing Range. While most floodplains are below 25m in elevation, some may occur on localised river flats up to 250m elevation. However, there may be local variation associated with river channels, local depressions, natural levees and river terraces. The latter are areas that rarely flood anymore due to the deepening or widening of streams.

Where are Freshwater Wetlands?

Freshwater Wetlands on Coastal Floodplains (Freshwater Wetlands) are an ecological community assemblage of species which can include flora, fauna and other living organisms that occur together in a particular area. They are generally recognised by the trees, shrubs and groundcover plants that live there. An Endangered Ecological Community (EEC) is an ecological community listed as facing a very high risk of extinction in NSW under the Threatened Species Conservation Act 1995.

What is an Endangered Ecological Community?

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What is Freshwater Wetlands?

Freshwater Wetlands are an ecological community associated with periodic, semi-permanent or permanent inundation by freshwater, although there may be minor saline influence in some wetlands. Meadows of grasses, sedges and rushes occur where submergence is not prolonged, while aquatic herbs dominate where semi-permanent or permanent standing water is present. Under the influence of saline water tall reeds and rushes dominate. The boundaries of Freshwater Wetlands are dynamic, changing depending on rain and other climatic factors. A remnant may be considered part of the EEC even when the site is completely dry (see photos). The final determination of the NSW Scientific Committee for Freshwater Wetlands does not delineate between higher and lower quality remnants of this community. It specifically notes that the composition and structure of the vegetation found is influenced by grazing history, changes to drainage regime and soil salinity, catchment runoff and disturbance, and may have a substantial component of exotic grasses and herbs. These degraded states are still considered to be part of this ecological community.

Whilst artificial wetlands created on previously dry land for purposes such as sewage treatment, stormwater management and farm production, are not regarded as part of this community, they may still provide important habitat for threatened species.
Where are Freshwater Wetlands found?

Freshwater Wetlands typically occur on silts, made or humic hum soils in depressions, flats, drainage lines, floodplains, lagons and lakes associated with the Coastal Floodplain (see page 1) and are not influenced by tidal exchange. The community is usually found below 20m in elevation in the NSW North Coast, Sydney Basin and South East Corner regions as mapped above.

Description of the community

The The Tree and Shrub layer

Freshwater Wetlands typically have a scarcity to complete absence of woody species, but as they co-exist with other forested vegetation types (e.g. Swamp Oak (Casuarina), Swamp Sclerophyll Forest on Coastal Floodplains) or Common Reed (Phragmites australis). These reeds will often exceed 2m in height and can form large monocultures.

The Ground layer – Terrestrial and Aquatic Herbs

The structure and composition of the community varies throughout the year both in space and time depending on the water regime. The structure of the community may vary between years as well as between seasons (see photos).

Wetlands or parts of wetlands that lack standing water most of the time are usually dominated by dense grassland, sedgeland or rushland vegetation, often forming a turf less than 0.5m tall and dominated by amphibulous plants including Water Couch (Pontophyllum), Rice-grass (Ludwigia hexandra), Spiny Mud Grass (Penduncularia) and Tall Sedge (Carex atra). Wetlands or parts of wetlands subject to regular inundation and drying may include large emergent sedges / rushes over 1m tall, such as Jointed Twist-rush (Bamiaea articulata), Spike sedges (Eleocharis species), Juncus, Sedge species, fruits such as Swamp Sedges and Schoenoplectus species and Leptosiphon (Phragmites articularis), as well as emergent or floating herbs such as Frogbit (Hydrocharis), Frogsmouth, Pondweeds (Potamogeton spp.) and Water Couch (Rumex crispus). This community is distinct from Freshwater Wetlands on Coastal Floodplains.

Collectively, these communities encompass the full range of intermediate native vegetation assemblages on the Coastal Floodplain.

How can I identify areas of Freshwater Wetlands?

The following are ‘Key Indicators’ to look for when identifying Freshwater Wetlands:

1. Is the site on the coastal floodplain of the NSW North Coast, Sydney Basin or South East Corner bioregion (see map and box)?
2. Is the site periodically inundated with or does it maintain a body of semi-permanent or permanent freshwater?
3. Does the site consist of relatively few woody plants?
4. Are more than a few of the species present at the site listed as characteristic of Freshwater Wetlands in the table (check with local botanist, consult reference books or see plantnet.rbgsyd.nsw.gov.au)?
5. If you answered yes to the above questions your site is likely to consist of Freshwater Wetlands and you should seek expert advice.

Characteristic Species List

Freshwater Wetlands are characterised by the species listed in the table below. They have been identified by the NSW Scientific Committee and from the scientific literature. The species present at any site will be influenced by the site of the site, recent rainfall or drought conditions and by its disturbance (including grazing and drainage changes) history. Note that NOT ALL the species listed below need to be present at any one site for it to constitute Freshwater Wetlands.

**Scientific Name** | **Common Name (range)**
--- | ---
**Grasses**
Hemarthria oolionota | Margrass
Leersia hexandra | Swamp Ricegrass (N - Syd)
Panax japonicus | White Water Panic
**Sedges**
Bolboschoenus fluviatilis | Water Couch
Eleocharis minuta | Pale Knotweed
Eleocharis striata | Prickly Smartweed
**Reeds**
Phragmites australis | Common Reed
Typha orientalis | Broad-leaved Cumbungi
**Sedges & Rushes**
Bamiaea articulata | Jointed Twist-rush
Bamiaea rugosa | Twist-rush
**Bog and Shrub species**
Booxbonosus fluitans | Marsh Club-rush
Carex atroperata | Tall Sedge
Cypres acutus | Leafy Flat Sedge
Eleocharis acutica | Common Spike Sedge
Eleocharis capricornua | A Spike Sedge (N - B-Bay)
**Aquatic Species**
Juncus compruptus | A Spike Sedge (N - J-Bay)
Leersia hexandra | Prickly Smartweed
Phragmites australis | Common Reed
*Scientific Name* | **Common Name**
--- | ---
Fimbriariella dichotoma | Common Fringe-sedge
Juncus polyanthemos | A Sharp Rush (N - W'Gong)
Juncus simulans | Common Rush
Legronia articulata | Leptonia (N - Pic)
Schoenoplectus tabulatus | Shore Club-sedge
Schoenoplectus maritimus | A Club Sedge (N - Syd)
Schoenoplectus vulgata | River Club-sedge
**Aeratic Herbs**
Alisma plantago-aquatica | Water Plantain
Azolla filiculoides var. rubra | Red Azolla
Azolla pinnata | Azolla
Brassonias scheerii | Watershield
Ceratophyllum demersum | Hornwort
Hydrocharis montevidensis | Water-thyme
Hydrocharis dalu | Frogbit (N - Clar)
Lemna spp. (L. deltaica & L. trisulca) | Duckweed
Marrania macrospora | Nardoo
Najas marina | Prickly Watermilfoil
Najas subulata | Watermilfoil
Nymphaea gigantea | Giant Waterlily (N - Coffs)
Onelka oolionota | Swamp Lily
Philydrum larnigerum | Woolly Waterily
Potamogeton crispi | Curly Pondweed
Potamogeton obtusatus | Blunt Pondweed
Potamogeton perfoliatus | Clasped Pondweed
Potamogeton tricirratus | Floating Pondweed
Sprintella spp. (S. polyphyta & S. lunata) | Thin Duckweed
Triglochin procera | Water Ribbons
Valencia gigantea | Ribwortpondweed
Wolofia spp. | Wolofia

N = North of; B-Bay = Batemans Bay; Clar = Clarence River; Cofts = Coffs Harbour; J-Bay = Jervis Bay; Pic = Picton; Syd = Sydney; W'Gong = Wollongong; (T) = threatened species. For further help with identification see: plantnet.rbgsyd.nsw.gov.au/search/simple.htm

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Ashola filiculoides var. rubra, Azolla filiculoides, Thallus Sedge herb, species in Freshwater Wetlands. Photo: Lucas McMinn

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