Swamp Sclerophyll Forest on Coastal Floodplains

Introduction

These guidelines provide background information to assist land managers and approval authorities to identify remnants of Swamp Sclerophyll Forest on Coastal Floodplains (hereafter referred to as Swamp Sclerophyll Forest), an Endangered Ecological Community (EEC). For more detailed information refer to the Swamp Sclerophyll Forest Profile and the NSW Scientific Committee Final Determination at: threatenedspecies.environment.nsw.gov.au

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Paperbark Forest on the NSW North Coast, a component of Swamp Sclerophyll Forest

What is an Endangered Ecological Community?

An ecological community is an 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 is an ecological community listed as facing a very high risk of extinction in NSW under the *Threatened Species Conservation Act* 1995.

What is Swamp Sclerophyll Forest?

Swamp Sclerophyll Forest is a community that generally has several layers of vegetation, including trees, shrubs, groundcovers and wetland plants such as reeds and sedges. It is a community of plants that are generally found close to standing water on soils that are either waterlogged or subject to periodic flooding or inundation. It is usually an open to closed forest with a shrubby or reedy/ferny understorey, although in some areas the tree layer is low and dense and the community takes on the structure of scrub. A particular site may only include some of these vegetation structures such as the reedland or a paperbark forest but should still be considered as the community. See 'Identifying Swamp Sclerophyll Forest' below for further assistance.

The Scientific Committee's final determination of the Swamp Sclerophyll Forest does not delineate between higher and lower quality remnants of this community. It specifically notes that partial clearing and disturbance, in some instances, may have reduced this community's canopy to scattered trees and this disturbed type is still considered part of the EEC. Relatively few examples of this community would be unaffected by weedy taxa, including noxious species, such as those listed in a variety of key threatening processes (e.g. Lantana, introduced perennial grasses and exotic vines / creepers).

Clearing on the edge of Swamp Sclerophyll Forest. This introduces the community to edge effects such as weed invasion.

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An area of Swamp Sclerophyll Forest cleared for grazing with scattered paddock trees.

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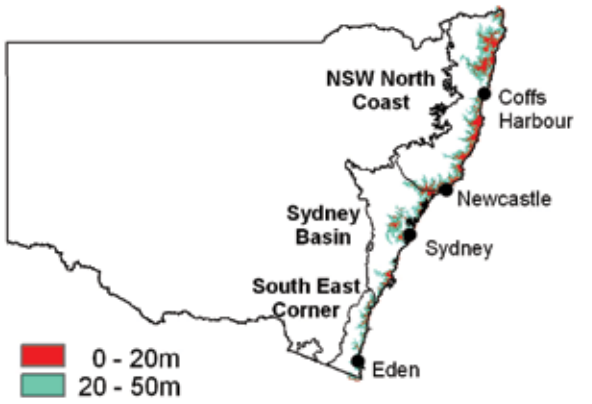
Identification Guidelines for Endangered Ecological Communities

Where is Swamp Sclerophyll Forest found?

Swamp Sclerophyll Forest is associated with humic clay and sandy loam soils on waterlogged or periodically flooded areas. These soils are generally deposited during flood events and occur on the flats, drainage lines and river terraces of the Coastal Floodplain. The community is usually found below 20m in elevation although sometimes up to 50 m elevation on small floodplains or where the larger floodplains adjoin lithic (rocky) substrates or coastal sand plains. It is found in the NSW North Coast, Sydney Basin and South East Corner bioregions (see map).



Potential occurrence of Swamp Sclerophyll Forest

Description of the community

Characteristic species

A list of trees, shrubs and ground cover species that characterise Swamp Sclerophyll Forest have been identified by the NSW Scientifc Committee (see table).

The tree layer

The most common trees in Swamp Sclerophyll Forest include Swamp Mahogany (*Eucalyptus robusta*), Broad-leaved paperbark (*Melaleuca quinquenervia*) and, south from Sydney, Bangalay (*Eucalyptus botryoides*) and Woollybutt (*Eucalyptus longifolia*). Other trees occur less frequently or may be locally common at some sites, including Sweet Willow Bottlebrush (*Callistemon salignus*), Swamp Oak (*Casuarina glauca*), Red Mahogany (*Eucalyptus resinifera* subsp. *hemilampra*), Cabbage Tree Palm (*Livistona australis*) and Swamp Turpentine (*Lophostemon suaveolens*). The density of tree species (i.e. the number of any particular species at any one site), is not a critical factor in determining the presence or absence of this community as this will vary depending on site history.

Shrubs and Groundlayer plants

The understorey of this community is characterised by a layer of shrubs including tea-trees, paperbarks and wattles, and the groundcover may consist of ferns, grass, sedges and reeds. Most commonly a site will have a combination of these plant types. See table for typical species of the understorey.

What is the Coastal Floodplain?

Floodplains are level landform patterns on which there may be active erosion and deposition of sediment 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 20m 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.

How can I identify areas of Swamp Sclerophyll Forest?

The following are 'Key Indicators' to look for when identifying Swamp Sclerophyll Forest:

1. Is the site on the coastal floodplain of the NSW North Coast, Sydney Basin or South East Corner bioregion (see map)?
2. Is the site associated with humic clay or sandy loams soils (refer to soil maps)?
3. Is the site subject to waterlogging and/or below the highest flood level (check with Local Government or Catchment Management Authority to determine highest flood mark)?
4. Are any of the tree species present at the site listed as characteristic of Swamp Sclerophyll Forest in the table (check with local botanist, consult reference books or see plantnet.rbgsyd.nsw.gov.au)?
5. Are any of the shrub and/or groundlayer species listed as characteristic in the table present?

If you answered yes to the above questions your site is likely to be Swamp Sclerophyll Forest.

EECs that may adjoin or intergrade with Swamp Sclerophyll Forest

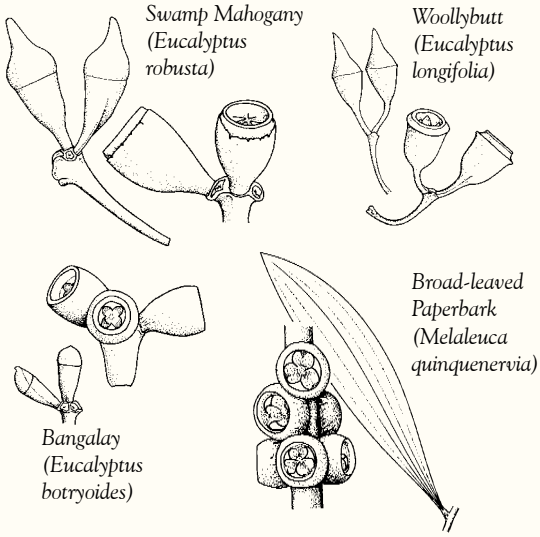
This community occurs with, would have previously occurred with or closely resembles other coastal floodplain vegetation types which are also listed as EECs. Collectively, these EECs cover all remaining native vegetation on the coastal floodplains of NSW. These EECs are:

1. *Swamp Oak Floodplain Forest* where there is increasing estuarine influence;
2. *River-Flat Eucalypt Forest* and *Sub-tropical Coastal Floodplain Forest* (north of Port Stephens) where soils become less waterlogged;
3. *Freshwater Wetlands on Coastal Floodplains* where they adjoin more permanent standing water;
4. *Coastal Saltmarsh*; and
5. *Bangalay Sand Forest* closer to coastal sand dunes.

Characteristic Species List

Swamp Sclerophyll Forest is characterised by the species listed below. The species present at any site will be influenced by the size of the site, recent rainfall or drought conditions and by its disturbance (including fire and logging) history. Note that NOT ALL the species listed below need to be present at any one site for it to constitute Swamp Sclerophyll Forest.

+ = Key indicator species; N = North of; S = South of; B-Bay = Batemans Bay; Gos = Gosford; Illa = Illawarra; J-Bay = Jervis Bay; Sho = Shoalhaven; Syd = Sydney; Ulla = Ulladulla
For further help with identification see: plantnet.rbgsyd.nsw.gov.au/search/simple.htm



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Blue Flax-lily (Dianella caerulea)

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Saw sedge (Gahnia spp.)

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Glochidion ferdinandi; a species common to Swamp Sclerophyll Forest and Swamp Oak Floodplain Forest

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Scientific Name	Common Name (Range)
Tree Canopy Species (>6m)	
Allocasuarina littoralis	Black She-Oak
Casuarina glauca	Swamp Oak +
Eucalyptus botryoides	Bangalay + (S-Gos)
Eucalyptus longifolia	Woollybutt (S-Syd)
Eucalyptus resinifera subsp. *hemilampra*	Red Mahogany (N-J-Bay)
Eucalyptus robusta	Swamp Mahogany + (N-Ulla)
Ficus coronata	Sandpaper Fig
Livistona australis	Cabbage Tree Palm +
Lophostemon suaveolens	Swamp Turpentine
Melaleuca ericifolia	Swamp Paperbark
Melaleuca linariifolia	Flax-leaved Paperbark +
Melaleuca quinquenervia	Broad-leaved Paperbark +
Melaleuca styphelioides	Prickly-leaved Tea Tree (N-Now)
Shrub Species (~1.5-6m)	
Acacia irrorata	Green Wattle
Acacia longifolia	Coastal Wattle +
Acmena smithii	Lilly Pilly
Banksia oblongifolia	Fern leaved Banksia (N-Ulla)
Banksia spinulosa	Hairpin Banksia
Breynia oblongifolia	Coffee Bush
Callistemon salignus	Crimson Bottlebrush
Dodonaea triquetra	Large leaf Hop-bush
Elaeocarpus reticulatus	Blueberry Ash
Glochidion ferdinandi	Cheese Tree +
Homalanthus populifolius	Bleeding Heart
Leptospermum polygalifolium subsp. *polygalifolium*	Tantoon +
Melaleuca sieberi	Sieber's Paperbark (N-Gos)
Morinda jasminoides	Sweet Morinda
Polyscias sambucifolia	Elderberry Ash
Groundcover Species (~0-1.5m) & Vines/Scramblers	
Adiantum aethiopicum	Maiden Hair Fern
Baumea articulata	Jointed Twig Rush
Baumea juncea	Bare Twig Rush
Blechnum camfieldii	Lance Water-fern (N-B-Bay)
Blechnum indicum	Swamp Water-fern (N-J-Bay)
Calochlaena dubia	False Bracken
Carex appressa	Tall Sedge
Centella asiatica	Indian Pennywort + (N-Illa)
Dianella caerulea	Blue Flax Lily +
Entolasia marginata	Bordered Panic
Entolasia stricta	Wiry Panic
Gahnia clarkei	Tall Saw-sedge +
Gahnia sieberiana	Red-fruit Saw-sedge +
Glycine clandestina	Twining Glycine
Gonocarpus tetragynus	A Raspwort
Hydrocotyle peduncularis	A Pennywort
Hypolepis muelleri	Harsh Ground Fern
Imperata cylindrica var. major	Blady Grass +
Isachne globosa	Swamp Millet
Lomandra longifolia	Ribbon Grass
Oplismenus aemulus	Basket Grass
Oplismenus imbecillis	Basket Grass
Pteridium esculentum	Bracken +
Parsonsia straminea	Common Silkpod (N-Sho)
Phragmites australis	Common Reed +
Pratia purpurascens	Whiteroot
Stephania japonica var. *discolor*	Snake Vine
Themeda australis	Kangaroo Grass
Villarsia exaltata	Yellow Marsh Flower
Viola banksii	A Violet
Viola hederacea	Ivy-leaved Violet +

Where fire has been excluded for long periods in Swamp Sclerophyll Forest, it may contain many species typical of the EEC, *Littoral Rainforest*, and on the NSW North Coast where substrates are volcanically derived it may adjoin with the EEC, *Lowland Rainforest on Floodplains*.

Determining the conservation value of remnants

The degree of disturbance (i.e. the site condition) of any remnant of Swamp Sclerophyll Forest may vary dependant 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 Swamp Sclerophyll Forest you may encounter:

1. Tree canopy intact with limited native vegetation in the understorey due to underscrubbing, stock grazing pressure or too frequent fire;
2. Tree canopy intact (+/– reduced cover) with limited native vegetation in the understorey due to lack of fire or weed infestation (e.g. dense Lantana incursion or Carpet Grass (*Axonopus* spp.) invasion in areas partially cleared for agriculture);
3. Tree canopy absent due to prior clearing or fire, occurrence of regrowth of native understorey species along with herbaceous and/or woody weeds; or
4. Some characteristic tree canopy species not present due to past selective clearing.

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 wildlife corridor that has connective importance at local and/or regional scales;
2. Providing important winter feed trees for arboreal mammals and birds;
3. Providing a 'stepping stone' for fauna in an otherwise cleared / fragmented landscape;
4. Providing significant habitat components such as hollow bearing trees important to the life cycle of migratory, non-migratory and/or nomadic species;
5. It may contain threatened species of flora in its own right; and/or
6. Maintaining a healthy native seed bank, very important in highly cleared landscapes.

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Swamp Sclerophyll Forest in Wollongong LGA, showing the transition between 3 components of the community, reedland, shrubland and sclerophyll forest.

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

For further assistance

This and other EEC guidelines are available on DECC Threatened Species website: threatenedspecies.environment.nsw.gov.au

The references listed below also provide further information to aid in identifying EECs.

- Botanic Gardens Trust plant identification assistance: rbgsyd.nsw.gov.au/plant_info/botanical_info/plant_identification
- Botanic Gardens Trust PlantNET: plantNET.rbgsyd.nsw.gov.au/search/simple.htm
- Brooker, M. and Kleinig, D. (1990) *Field Guide to Eucalypts of South-eastern Australia, Vol 2.* Inkata, Melbourne.
- Harden, G. (ed) *Flora of NSW Vols 1 – 4* (1990-2002). NSW University Press.
- NSW Scientific Committee Determinations: nationalparks.nsw.gov.au/npws.nsf/Content/Final+determinations
- River-flat Eucalypt Forest on Coastal Floodplains species profile: threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10786
- Robinson, L (2003) *Field guide to native plants of Sydney revised 3rd edition.* Kangaroo Press.
- Thackway, R, and Cresswell, I. (1995) (eds) *'An interim biogeogeographic regionalisation of Australia: a framework for establishing the national system of reserves.'* (Australian Nature Conservation Agency: Canberra)

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