

Swamp Oak Floodplain Forest

Introduction

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



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Trail bike and 4WD tracks reduce species diversity and expose large areas of edge to weed invasion



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Many remnants of Swamp Oak Floodplain Forest are restricted to small areas surrounded by parkland with exotic grasses invading the understorey.

the level of salinity in the groundwater the understorey will be composed of salt tolerant grasses and herbs and in more saline areas by sedges and reeds. See 'Identifying Swamp Oak Floodplain Forest' below for further assistance.

The Scientific Committees final determination of the Swamp Oak Floodplain 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 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).

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 Oak Floodplain Forest?

Swamp Oak Floodplain Forest is a community of plants that is generally dominated by the tree/s Swamp Oak (*Casuarina glauca*) and/or Swamp Paperbark (*Melaleuca ericifolia*). The community is found in close proximity to rivers and estuaries and is generally found on soils with a saline influence. The soils of the community may be quite wet and as such the composition of species present will vary markedly from site to site. Depending on



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In the past, areas of Swamp Oak Floodplain Forest were cleared for grazing and have been converted to grass paddocks with no overstorey.



Natural Heritage Trust

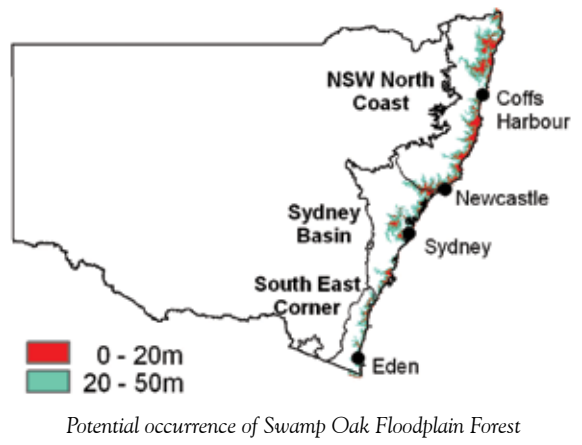
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Where is Swamp Oak Floodplain Forest found?

Swamp Oak Floodplain 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 and drainage lines 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 as mapped below.



Description of the community

Characteristic species

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

The tree layer

The tree layer of Swamp Oak Floodplain Forest is most commonly made up of Swamp Oak (*Casuarina glauca*), but will also include other trees such as Lilly Pilly (*Acmena smithii*), Cheese Tree (*Glochidion ferdinandi*) and Paperbarks (*Melaleuca* spp.). South from Bermagui, Swamp Paperbark (*Melaleuca ericifolia*) is the only abundant tree in this community. The density of tree

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 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.



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Swamp Oak Floodplain Forest can be seen here intergrading with Coastal Saltmarsh.

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 (grazing, clearing etc).

Shrubs and Groundlayer plants

The understorey of this community is characterised by frequent occurrences of vines such as: Common Silkpod (*Parsonsia straminea*), Scrambling Lily (*Geitonoplesium cymosum*) and Snake Vine (*Stephania japonica*). There may be a sparse layer of shrubs and a number of small herbs such as Indian Pennywort (*Centella asiatica*), Commelina (*Commelina cyanea*), Slender Knotweed (*Persicaria decipiens*) and Viola spp.. Grasses and grass type plants also occur like Tussock Sedge (*Carex appressa*), Tall Saw Sedge (*Gahnia clarkei*) and Basket Grass (*Oplismenus imbecillis*). On the fringes of coastal estuaries where soils are more saline the groundcover moves towards Common Reed (*Phragmites australis*), Sea Rush (*Juncus kraussii*) and saltmarsh type species.

How can I identify areas of Swamp Oak Forest?

The following are 'Key Indicators' to look for when determining whether Swamp Oak Floodplain Forest exists on a site:

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. Is the site dominated by Swamp Oak or Swamp Paperbark? (check with local botanist, consult reference books or see plantnet.rbgsvd.nsw.gov.au)
5. Are any characteristic shrub and/or groundlayer species present (see table)?

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

Characteristic Species List

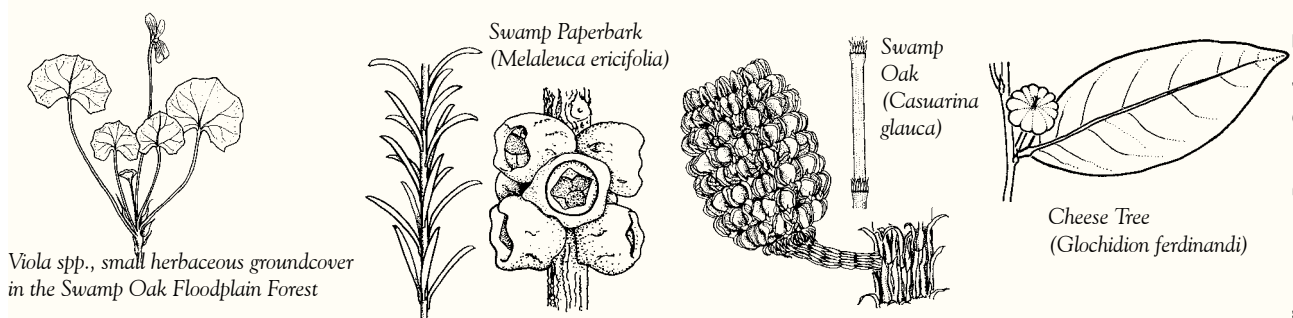
Swamp Oak Floodplain Forest is characterised by the species listed below. The species present at any site will be influenced by the size of the site, recent rainfall or drought conditions and by its disturbance (including fire and logging) history. Note that NOT ALL the species listed below need to be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

Scientific Name	Common Name (Range)
Tree Canopy Species (>6m)	
<i>Alphitonia excelsa</i>	Red Ash (N-Sho)
<i>Casuarina glauca</i>	Swamp Oak +
<i>Cupaniopsis anacardioides</i>	Tuckeroo (N-Sho)
<i>Lophostemon suaveolens</i>	Swamp Turpentine (N-Coffs)
<i>Melaleuca ericifolia</i>	Swamp Paperbark + (S-P-Mac)
<i>Melaleuca quinquenervia</i>	Broad leaved Paperbark (N-Syd)
<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree (N-Sho)
Small Trees / Shrub Species (1.5-6m)	
<i>Acmena smithii</i>	Lilly Pilly
<i>Callistemon salignus</i>	Sweet Willow Bottlebrush
<i>Glochidion ferdinandi</i>	Cheese Tree +
<i>Glochidion sumatranum</i>	Umbrella Cheese Tree (N-Coffs)
<i>Homalanthus populifolius</i>	Bleeding Heart
<i>Melaleuca alternifolia</i>	Narrow-leaved paperbark (N-Gra)
<i>Myoporum acuminatum</i>	Boobialla
Groundcover Species (0-1.5m) & Vines/Scramblers	
Herbs / Ferns	
<i>Alternanthera denticulata</i>	Lesser Joyweed
<i>Blechnum indicum</i>	Swamp Water-fern (N-J-Bay)
<i>Centella asiatica</i>	Indian Pennywort + N-Illa)
<i>Commelina cyanea</i>	Commelina + (N-Nar)
<i>Enydra fluctuans</i>	An Enydra (N-Syd)
<i>Hypolepis muelleri</i>	Harsh Ground Fern
<i>Lobelia anceps</i> (formerly <i>L. alata</i>)	Angled Lobelia
<i>Persicaria decipiens</i>	Slender Knotweed
<i>Persicaria strigosa</i>	Prickly Smartweed
<i>Selliera radicans</i>	Swamp Weed (S-Gos)
<i>Viola banksii</i>	A Violet

Scientific Name	Common Name (Range)
Rushes / Grasses	
<i>Baumea juncea</i>	Bare Twig Rush
<i>Carex appressa</i>	Tall Sedge +
<i>Cynodon dactylon</i>	Sand Couch +
<i>Crinum pedunculatum</i>	Swamp Lily (N-J-Bay)
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Entolasia marginata</i>	Bordered Panic
<i>Gahnia clarkei</i>	Tall Saw-sedge
<i>Imperata cylindrica</i> var. <i>major</i>	Blady Grass
<i>Isolepis inundata</i>	Swamp Club-sedge
<i>Juncus kraussii</i> subsp. <i>australiensis</i>	Sea Rush +
<i>Juncus planifolius</i>	A Rush
<i>Juncus usitatus</i>	Common Rush
<i>Lomandra longifolia</i>	Ribbon Grass
<i>Maunderia triglochoides</i>	Water Ribbons (N-Gos)
<i>Oplismenus imbecillis</i>	Basket Grass
<i>Phragmites australis</i>	Common Reed +
Vines	
<i>Parsonsia straminea</i>	Common Silkpod + (N-Sho)
<i>Stephania japonica</i> var. <i>discolor</i>	Snake Vine
<i>Flagellaria indica</i>	Whip Vine (N-Illa)

+ = Key indicator species; N = North of; S = South of; Coffs = Coffs Harbour; Gos = Gosford; Gra = Grafton; Illa = Illawarra; J-Bay = Jervis Bay; Nar = Narooma; P-Mac = Port Macquarie; Sho = Shoalhaven; Syd = Sydney.

For further help with plant identification see: plantNET.rbgsvd.nsw.gov.au/search/simple.htm



Sand Couch (*Cynodon dactylon*)



Common Silkpod (*Parsonsia straminea*)



Commelina (*Commelina cyanea*)

EECs that may adjoin or intergrade with Swamp Oak Floodplain Forest

This community occurs with or would have previously occurred in association with 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. *Coastal Saltmarsh* with increasing estuarine influence;
2. *Swamp Sclerophyll Forest on Coastal Floodplains* with decreasing estuarine influence;
3. *River-Flat Eucalypt Forest* or north of Port Stephens, *Sub-tropical Coastal Floodplain Forest*, on higher ground and where soils become less waterlogged;
4. *Freshwater Wetlands on Coastal Floodplains* where they adjoin more permanent standing water; and
5. *Lowland Rainforest on Floodplains* on more basaltic type soils north from Taree.

For further details on these communities please refer to other I.D. Guidelines or the Scientific Committee Final Determinations at: threatenedspecies.environment.nsw.gov.au

Determining the conservation value of remnants

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

1. Dense regrowth stand after disturbance with limited understorey;
2. Tree canopy intact with an understorey of introduced weed species and few natives due to disturbance;
3. Recolonised patches of Swamp Oak in areas that may not have previously supported the community due to changes in drainage regime;

4. Tree canopy absent due to prior clearing, grazing or fire, occurrence of regrowth of native understorey species along with herbaceous and/or woody weeds; or
5. Open sedge land with scattered immature Swamp Oak where grazing has recently been removed.

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 landscape; and/or
4. Maintaining a healthy native seed bank, very important in highly cleared landscapes.

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/information/about_plants/botanical_info/plant_identification
- Botanic Gardens Trust PlantNET: plantnet.rbgsyd.nsw.gov.au/search/simple.htm
- 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
- Robinson, L (2003) *Field guide to native plants of Sydney revised 3rd edition*. Kangaroo Press.
- Swamp Oak Floodplain Forest species profile: threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10945
- Thackway, R, and Cresswell, I. (1995) (eds) *'An interim biogeographic regionalisation of Australia: a framework for establishing the national system of reserves.'* (Australian Nature Conservation Agency: Canberra).

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