

Sandhill Pine Woodland in the Riverina, Murray Darling Depression and NSW South Western Slopes Bioregions

Introduction

These guidelines provide background information to assist landholders to identify remnants of Sandhill Pine Woodland in the Riverina, Murray–Darling Depression and NSW South Western Slopes Bioregions (known here as Sandhill Pine Woodland). For more detailed information, refer to the NSW Scientific Committee’s Determination Advice at www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=20083

What is an endangered ecological community?

An ecological community is a unique and naturally occurring assemblage of plants and animals. The presence of an ecological community can be determined by factors such as soil type, position in the landscape, climate and water availability, all of which influence species composition.. An endangered ecological community (EEC) is an ecological community listed under the *Threatened Species Conservation Act 1995* as being at risk of extinction unless threats affecting these areas are managed and reduced.

What is Sandhill Pine Woodland?

Sandhill Pine Woodland is an open woodland, or a derived grassland with no or scattered trees, that typically occupies red-brown loamy sands with alkaline sub-soils on prior streams, rises, source-bordering dunes, sandhills and lunettes of the alluvial plain of the Murray River and its tributaries, and on parts of the sandplain in south-western NSW. It is characterised by an open tree canopy up to 15 m high, although it may be less tall or even absent in sites where there has been past clearing or thinning. The dominant tree species, when a tree layer is present, is white cypress pine (*Callitris glaucophylla*), either in pure stands or with a range of other less abundant trees or tall shrubs. It sometimes has scattered to frequent smaller shrubs and a sparse to moderately dense and variable ground layer dominated by grasses and herbs. The structure of the community varies depending on past and current disturbances, particularly clearing, logging/silvicultural practices, grazing and soil erosion, as well as variability in rainfall over time. Sandhill Pine



Sandhill Pine Woodland–Millewa State Forest
Image from NSWVCA database, courtesy of Botanic Gardens Trust, Sydney. Photograph: Jaime Plaza



Potential occurrence of Sandhill Pine Woodland

Woodland may occur adjacent to, and mix with, the *Allocasuarina luehmannii* (Buloke) Woodland in the Riverina and Murray–Darling Depression bioregions EEC. Vegetation with characteristics that are intermediate between Sandhill Pine Woodland and Buloke Woodland are covered collectively under the two communities.

Where is Sandhill Pine Woodland found?

Sandhill Pine Woodland is found in the far south-western portion of the NSW South Western Slopes Bioregion near Urana, extending through the Riverina Bioregion, from the Urana – Narranderra district in the east, into the southern part of the Murray–Darling Depression Bioregion, as far west as the South Australian border. It is known from the Balranald, Berrigan, Carrathool, Central Darling, Conargo, Corowa, Deniliquin, Hay, Murray, Narranderra, Urana, Wakool and Wentworth local government areas, but may occur elsewhere in the Riverina, Murray–Darling Depression and NSW South Western Slopes bioregions.

Why is it important?

From 25–60% of the original distribution of Sandhill Pine Woodland remains, and most of this is in very poor condition. A large proportion of the remainder of this community is threatened by small-scale clearing, loss of large old trees due to logging, thinning or total elimination of palatable trees and shrubs through grazing by domestic livestock and feral herbivores (chiefly rabbits and goats), soil erosion and weed invasion.

Description of the community

The tree layer

The tree layer, when present, is dominated by white cypress pine (*Callitris glaucophylla*), either in pure stands or with a range of other less abundant trees or tall shrubs such as yarran (*Acacia melvillei*), *Acacia oswaldii*, buloke (*Allocasuarina luehmannii*), slender cypress pine (*C. gracilis* subsp. *murrayensis*), drooping sheoak (*A. verticillata*), needlewood (*Hakea leucoptera*), hooked needlewood (*H. tephrosperma*), sugarwood (*Myoporum platycarpum*), western rosewood (*Alectryon oleifolius* subsp. *canescens*), emu bush (*Eremophila longifolia*), wilga (*Geijera parviflora*) and butterbush or berrigan (*Pittosporum angustifolium*).

The shrub layer

A scattered shrub layer is sometimes present and may include *Dodonaea viscosa* subsp. *angustifolia*, ruby saltbush (*Enchylaena tomentosa*), black rolypoly (*Sclerolaena muricata*) and/or bluebush (*Maireana enchylaenoides*), black bluebush (*M. pyramidata*), thorny saltbush (*Rhagodia spinescens*), copperburr (*Sclerolaena diacantha* and *S. obliquicuspis*) *Calytrix tetragona* and *Banksia marginata*.



Sandhill Pine Woodland–Millewa State Forest
Image from NSWVCA database, courtesy of Botanic Gardens Trust, Sydney. Photograph: Jaime Plaza



Sandhill Pine Woodland–west of Moulamein
Image from NSWVCA database, courtesy of Botanic Gardens Trust, Sydney. Photograph: Jaime Plaza

The ground layer

The ground cover is highly variable in structure and composition. It may be sparse or more continuous, depending on the history of disturbance, grazing and rainfall events. It comprises grasses, such as ringed wallaby grass (*Austrodanthonia caespitosa*), small-flowered wallaby grass (*A. setacea*), a speargrass (*Austrostipa nodosa*), rough speargrass (*A. scabra*), curly windmill grass (*Enteropogon acicularis*), *Panicum effusum* and *Paspalidium constrictum*; and forbs including creeping saltbush (*Atriplex semibaccata*), climbing saltbush (*Einadia nutans*), blue storksbill (*Erodium crinitum*), *Oxalis perennans*, corrugated sida (*Sida corrugata*) and bluebells (*Wahlenbergia* species).

Characteristic species

A list of canopy trees and shrub-layer plants that characterise a patch of Sandhill Pine Woodland is provided in Table 1 below. An additional table (Table 2) lists species that are infrequently recorded in the Sandhill Pine Woodland. Not all the species listed need to occur at any one site for it to be considered Sandhill Pine Woodland, and there may also be additional species that are not included in the tables.

Scientific Name	Common Name
Trees	
<i>Acacia melvillei</i>	Yarran
<i>Acacia oswaldii</i>	Umbrella Wattle
<i>Acacia victoriae</i> subsp. <i>arida</i>	Elegant Wattle
<i>Alectryon oleifolius</i> subsp. <i>canescens</i>	Western Rosewood
<i>Allocasuarina luehmannii</i>	Buloke
<i>Allocasuarina verticillata</i>	Drooping Sheoak
<i>Callitris glaucophylla</i>	White Cypress Pine
<i>Callitris gracilis</i> subsp. <i>murrayensis</i>	Slender Cypress Pine
<i>Eremophila longifolia</i>	Emu Bush
<i>Geijera parviflora</i>	Wilga
<i>Hakea leucoptera</i> subsp. <i>leucoptera</i>	Needlewood
<i>Hakea tephrosperma</i>	Hooked Needlewood
<i>Myoporum platycarpum</i> subsp. <i>platycarpum</i>	Sugarwood
<i>Pittosporum angustifolium</i>	Butterbush or Berrigan
Shrubs	
<i>Banksia marginata</i>	Silver Banksia
<i>Calytrix tetragona</i>	Common Fringe-myrtle
<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>	Narrow-leaved Hopbush
<i>Enchylaena tomentosa</i>	Ruby Saltbush
<i>Maireana enchylaenoides</i>	Bluebush
<i>Maireana pyramidata</i>	Black Bluebush
<i>Rhagodia spinescens</i>	Thorny Saltbush
<i>Sclerolaena muricata</i>	Black Rolypoly
<i>Sclerolaena obliquicuspis</i>	Copperburr

Scientific Name	Common Name
Ground Layer	
<i>Actinobole uliginosum</i>	Flannel Cudweed
<i>Atriplex semibaccata</i>	Creeping Saltbush
<i>Austrodanthonia caespitosa</i>	Ringed Wallaby Grass
<i>Austrodanthonia setacea</i>	Small-flowered Wallaby Grass
<i>Austrostipa nodosa</i>	Speargrass
<i>Austrostipa scabra</i>	Rough Speargrass
<i>Boerhavia dominii</i>	Tarvine
<i>Calandrinia eremaea</i>	-
<i>Cotula australis</i>	Carrot Weed
<i>Crassula colorata</i>	-
<i>Crassula decumbens</i> var. <i>decumbens</i>	-
<i>Crassula sieberiana</i>	Australian Stonecrop
<i>Dissocarpus paradoxus</i>	Cannonball Burr
<i>Einadia nutans</i>	Climbing Saltbush
<i>Enteropogon acicularis</i>	Curly Windmill Grass
<i>Erodium crinitum</i>	Blue Storksbill
<i>Glycine clandestina</i>	-
<i>Oxalis perennans</i>	-
<i>Panicum effusum</i>	-
<i>Paspalidium constrictum</i>	-
<i>Salsola tragus</i> subsp. <i>tragus</i>	-
<i>Senecio quadridentatus</i>	Cotton Fireweed
<i>Sida corrugata</i>	Corrugated Sida
<i>Stuartina muelleri</i>	Spoon Cudweed
<i>Wahlenbergia gracilentia</i>	Annual Bluebell



Atriplex semibaccata Photograph: L Copeland



Slender cypress pine (*Callitris gracilis* subsp. *murrayensis*) cones & foliage
Image from NSWVCA database, courtesy of Botanic Gardens Trust, Sydney. Photograph: Jaime Plaza

Variation in the community

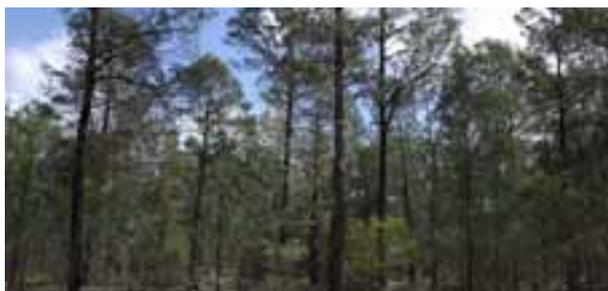
At heavily disturbed sites only some of the species which characterise the community may be present. The tree stratum in Sandhill Pine Woodland may be reduced to isolated individuals or may be absent as a result of past clearing. In addition, above ground plants of some species may not be present, but may be represented below ground in the soil seed banks or as bulbs, corms, rhizomes or rootstocks. The ground cover is highly variable in structure and composition, depending on the history of disturbance, grazing and rainfall events.

How can I identify an area of Sandhill Pine Woodland?

The following are key characteristics to help identify areas of Sandhill Pine Woodland.

- Is the site in the Riverina, Murray–Darling Depression or NSW South Western Slopes bioregions?
- Is the vegetation an open woodland, or a derived grassland with scattered or no trees?
- Does the tree layer, if present, contain any of the following: white cypress pine, slender cypress pine?
- Does a small tree or tall shrub layer, if present, contain any of the following: sugarwood, western rosewood, buloke, drooping sheoak, needlewood, hooked needlewood, berrigan (also called butterbush)?
- Does a shrub layer, if present, contain any of the following: *Dodonaea viscosa* subsp. *angustifolia*, ruby saltbush, black rolypoly, black bluebush, thorny saltbush, *Calytrix tetragona*, *Banksia marginata*?

If you answer yes to the above questions, the area is likely to consist of Sandhill Pine Woodland. Where difficulties arise with decisions on whether particular sites are Sandhill Pine Woodland, expert advice may be needed.



Sandhill Pine Woodland–Wahgunyah State Forest
Photograph: David Parker



Sandhill Pine Woodland–derived grassland (foreground) with remnant *Allocasuarina verticillata* and *Callitris glaucophylla* (background).
1 km west of Lake Urana. Image from NSWVCA database, courtesy of Botanic Gardens Trust, Sydney.
Photograph: Marianne Porteners

What does this mean for my property?

As a listed EEC under the *Threatened Species Conservation Act 1995*, Sandhill Pine Woodland has significant conservation value and some activities may require consent or approval. Please contact the Department of Environment, Climate Change and Water for further information.

Determining the conservation value of remnants

The degree of disturbance (i.e. condition) of many remnants can vary, from almost pristine to highly modified. It is important to note that even small patches or areas that have had past disturbance such as selective logging, fire or grazing may still be important remnants of Sandhill Pine Woodland and be considered the EEC. Where difficulties arise with decisions on whether particular sites are Sandhill Pine Woodland, expert advice may be needed.

Retaining mature native vegetation or EECs for conservation purposes may attract incentive funding. Funding is allocated to landholders by the local Catchment Management Authority (CMA) according to the priorities set out in their Catchment Action Plan and strategies. For more information contact your local CMA or email: info@nativevegetation.nsw.gov.au

For further assistance

This and other EEC guidelines are available on the DECCW website at threatenedspecies.environment.nsw.gov.au/tsprofile/home_tec.aspx or www.environment.nsw.gov.au/pnf/eecfieldidguidelines.htm

The resources listed below also provide information on NSW plants, native vegetation and EECs.

- Botanic Gardens Trust plant identification assistance: www.rbgsyd.nsw.gov.au/plant_info/identifying_plants/
- Department of Environment, Climate Change and Water threatened species profiles: www.threatenedspecies.environment.nsw.gov.au/tsprofile/home_species.aspx
- Information on bioregions of New South Wales: www.environment.nsw.gov.au/bioregions/Bioregions.htm
- NSW Scientific Committee Determinations: www.environment.nsw.gov.au/committee/ListofScientificCommitteeDeterminations.htm
- Benson, JS, Allen, CB, Togher, C and Lemmon, J (2006) 'New South Wales vegetation classification and assessment. Part 1: Plant communities of the NSW western plains'. *Cunninghamia* 9: 383–450. This paper refers to the NSW Vegetation Classification and Assessment database (NSWVCA). Communities 19, 21, 28 and 48 of the NSWVCA refer to the Sandhill Pine Woodland EEC.
- Harden, G (ed.) (1990–2002) *Flora of NSW, volumes 1–4*. University of NSW Press, Kensington NSW.
- Keith, DA (2004) *Ocean shores to desert dunes: the native vegetation of New South Wales and the ACT*. NSW Department of Environment and Conservation, Sydney.



Sandhill Pine Woodland—Ugobit State Forest
Photograph: David Parker



Cleared Sandhill Pine Woodland near Deniliquin
Image from NSWVCA database, courtesy of Botanic Gardens Trust, Sydney. Photograph: Jaime Plaza



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Sandhill Pine Woodland—40 kms north of Wentworth

Image from NSWVCA database, courtesy of Botanic Gardens Trust, Sydney. Photograph: Jaime Plaza



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