Office of Environment & Heritage

Native Vegetation on Cracking Clay Soils of the Liverpool Plains

Introduction

These guidelines provide background information to help landholders to identify remnants of the Endangered Ecological Community (EEC) Native Vegetation on Cracking Clay Soils of the Liverpool Plains (referred to here as Liverpool Plains Native Vegetation EEC). For more detailed information refer to the NSW Scientific Committee's Final Determination on the Office of Environment and Heritage (OEH) Threatened Species website:
www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10550

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 EEC is an ecological community listed under the *Threatened Species Conservation Act 1995* as being at risk of extinction unless threats affecting it are managed and reduced.

Although most ecological communities are recognised by their typical plant species, these communities include all the organisms that occur in that particular area. The survival of each species relies on complex interactions among all of the inhabitants of an ecological community, through biotic mechanisms such as food webs, mutualisms and pollination, and through abiotic mechanisms such as water, nitrogen and carbon cycles. Consequently, the loss of any species may have detrimental flow-on effects for the ecological functioning of the whole community.

What is Liverpool Plains Native Vegetation EEC?

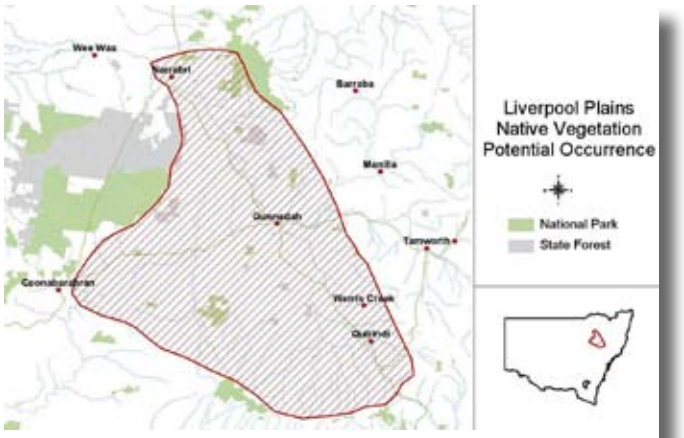
Liverpool Plains Native Vegetation EEC typically consists of grasslands, which are often dominated by plains grass (*Austrostipa aristiglumis*), yadbila or coolabah grass (*Panicum queenslandicum*) or Queensland blue grass (*Dichanthium sericeum*) but can include shrubs and trees, which are generally sparse but may be locally common. Liverpool Plains

Plains grass (Austrostipa aristiglumis) grassland, Gunnedah, Liverpool Plains.
Photo: John Benson. Image from NSWVCA database, courtesy of The Royal Botanic Gardens and Domain Trust.

Identification guidelines for Endangered Ecological Communities

Native Vegetation EEC occurs on flat expanses of cracking clay-loam soils that are known as Vertosols or black earths. See 'Identifying the Liverpool Plains Native Vegetation EEC' below for further help.

This community also forms part of the 'Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland' ecological community, which is listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.



Approximate boundaries of the region where Liverpool Plains Native Vegetation EEC exists.

Where is Liverpool Plains Native Vegetation EEC found?

Liverpool Plains Native Vegetation EEC occurs within the Brigalow Belt South and Nandewar bioregions of NSW. It is located within the Liverpool Plains catchment, which drains, via the Mooki River and Coxs Creek and their tributaries, into the Namoi River. Liverpool Plains Native Vegetation EEC is currently known to occur within the Coonabarabran, Gunnedah, Murrurundi, Narrabri, Parry and Quirindi Local Government Areas, but it may occur elsewhere in the Brigalow Belt South and Nandewar bioregions.

Why is it important?

It is estimated that between 85% and 95% of the original area of Liverpool Plains Native Vegetation EEC has been cleared for cultivation or other agricultural activities. Almost all of the remaining area of the community occurs on private land or on public easements, where it is threatened by cropping, grazing, weed infestation and alteration of natural disturbance regimes. Other impacts that are associated with clearing or cultivation and threaten this community include soil erosion and increasing salinity.

Description of the community

The tree layer

A tree layer is typically absent from many areas of Liverpool Plains Native Vegetation EEC, but tree species such as yellow box (*Eucalyptus melliodora*), poplar box (*Eucalyptus populnea* subsp. *bimbil*), fuzzy box (*Eucalyptus conica*), rough-barked apple (*Angophora floribunda*) and myall (*Acacia pendula*) may be scattered to locally common.

Austrostipa aristiglumis grassland, near Spring Ridge.
Photo: Jamie Plaza. Image from NSWVCA database, courtesy of The Royal Botanic Gardens and Domain Trust.

Characteristic species list

A list of canopy trees and understorey plants that characterise a patch of Liverpool Plains Native Vegetation EEC is provided in Table 1. Not all the species listed need to occur at any one site for it to be considered as the EEC, and there may also be additional species that are not included in the table. The species present at any site will be influenced by the size of the site, recent rainfall or drought conditions, and the site's disturbance history.

Table 1. Characteristic species recorded in the Liverpool Plains Native Vegetation EEC

Common name	Scientific name
Trees	
Myall	*Acacia pendula*
Rough-barked apple	*Angophora floribunda*
Fuzzy box	*Eucalyptus conica*
Yellow box	*Eucalyptus melliodora*
Poplar box	*Eucalyptus populnea* subsp. *bimbil*
Shrubs	
Wooly buttons	*Leiocarpa panaetioides (Leptorhynchos panaetioides)*
Black rolypoly	*Sclerolaena muricata*
Ground layer	
White speargrass	*Aristida leptopoda*
Common woodruff	*Asperula conferta*
Plains grass	*Austrostipa aristiglumis*
–	*Carex inversa*
Emufoot	*Cullen tenax*
Native carrot	*Daucus glochidiatus*
Queensland blue grass	*Dichanthium sericeum*
–	*Elymus plurinervis (Elymus scaber* var. *plurinervis)*
Curly windmill grass	*Enteropogon acicularis*
Silky browntop	*Eulalia aurea*
Native geranium	*Geranium solanderi*
–	*Glycine latifolia*
Rough raspwort	*Haloragis heterophylla/H. aspera* intergrades
–	*Juncus subglaucus*
Common nardoo	*Marsilea drummondii*
Creeping mint, native pennyroyal	*Mentha satureioides*
Wallaby grass	*Monachather paradoxus (Austrodanthonia bipartita)*
Sensitive plant	*Neptunia gracilis*
–	*Panicum buncei*
Yadbila grass, coolabah grass	*Panicum queenslandicum*
–	*Rhynchosia minima*
Hairy sida	*Sida trichopoda*
Native oatgrass	*Themeda avenacea*
Fuzzweed	*Vittadinia cuneata*
Tufted bluebell	*Wahlenbergia communis*

Eucalyptus conica (fuzzy box). Photo: Peter Richards

Dichanthium sericeum. Photo: Lachlan Copeland

The shrub layer

A shrub layer is typically absent from many areas of Liverpool Plains Native Vegetation EEC, but some shrub species such as black rolypoly (*Sclerolaena muricata*), wooly buttons (*Leiocarpa panaetioides*) and myall (*Acacia pendula*) may be scattered to locally common.

The ground layer

The ground layer is typically a tall tussock grassland usually dominated by plains grass (*A. aristiglumis*), Queensland blue grass (*D. sericeum*), yadbila or coolabah grass (*P. queenslandicum*) and wallaby grass (*Monachather paradoxus*). Other common grasses include native oat grass (*Themeda avenacea*), white speargrass (*Aristida leptopoda*), *Elymus plurinervis*, curly windmill grass (*Enteropogon acicularis*) and silky browntop (*Eulalia aurea*). Forbs and climbers include fuzzweed (*Vittadinia cuneata*), emufoot (*Cullen tenax*) and *Glycine latifolia*. In wetter places sedges (*Cyperus* and *Eleocharis* species), nardoo (*Marsilea drummondii*), docks (*Rumex* species), rushes (*Juncus* species) and *Lachnagrostis filiformis* (formerly *Agrostis avenacea*) also occur. Remaining remnants can vary in structure and species composition as a result of past and current management practices. At heavily disturbed sites only some of the species that characterise the community may be present. In addition, above-ground individuals of some species may not be present, but the species may be represented below ground in the soil seed bank or as bulbs, corms, rhizomes or rootstocks.

Identifying the Liverpool Plains Native Vegetation EEC

The following are key characteristics to help identify an area of Liverpool Plains Native Vegetation EEC.

1. Is the site in the Liverpool Plains catchment within the Brigalow Belt South or Nandewar bioregions of NSW?
2. Is the vegetation mainly grassland but does it sometimes support trees and shrubs?
3. Is the site on flat, heavy cracking clay soils (black earths)?
4. Does the ground layer contain plains grass, Queensland blue grass or yadbila or coolabah grass?
5. Are there any plant species present at the site from those listed as characteristic in Table 1? (See photos in this guideline, check with a local botanist, or consult reference books or NSW Flora Online: http://plantnet.rbgsyd.nsw.gov.au/).

If you answered yes to the above questions, your site is likely to consist of Liverpool Plains Native Vegetation EEC.

Austrostipa aristiglumis (Themeda australis) grassland near Mullaley. Photo: :Jamie Plaza. Image from NSWVCA database, courtesy of The Royal Botanic Gardens and Domain Trust.

Poplar box foliage and blossom (Eucalyptus populnea ssp bimbil) Photo: Lachlan Copeland

What does this mean for my property?

As an EEC listed under the *Threatened Species Conservation Act 1995*, Liverpool Plains Native Vegetation EEC has significant conservation value and some activities may require consent or approval. Please contact OEH or your local Catchment Management Authority (CMA) for further information.

Determining the conservation value of remnants

The degree of disturbance (i.e. site condition) of many remnants can vary, from good condition to highly modified. It is important to note that even small patches or areas that have had past disturbances such as clearing, fire or grazing are still considered to be important remnants of Liverpool Plains Native Vegetation and meet the criteria of being an EEC. Where difficulties arise in making a decision on whether particular sites are Liverpool Plains Native Vegetation EEC, expert advice may be needed.

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

For further help

This and other EEC guidelines are available on the OEH website at

threatenedspecies.environment.nsw.gov.au/tsprofile/home_tec.aspx or

www.environment.nsw.gov.au/pnf/eecfielddidguidelines.htm

For more information on the Commonwealth-listed threatened ecological community go to:

www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=88&status=Critically+Endangered

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

- Botanic Gardens Trust plant identification help: www.rbgsyd.nsw.gov.au/plant_info/identifying_plants/
- Office of Environment and Heritage threatened species profiles: www.threatenedspecies.environment.nsw.gov.au/tsprofile/home_species.aspx

Asperula conferta Photo: Peter Richards

(Austrostipa aristiglumis) plains grass community Photo: Lachlan Copeland

- Eco Logical Australia (2010) Regional Vegetation Communities of the Namoi Catchment Management Authority. Project 09COFNRM-0017 prepared for Namoi CMA. www.namoi.cma.nsw.gov.au/029_plains_grass___blue_grass_grasslands__brigalow_belt_sout.pdf
- Information on bioregions of New South Wales (determinations use IBRA version 4 boundaries): www.environment.nsw.gov.au/bioregions/Bioregions.htm
- NSW Scientific Committee Determinations: www.environment.nsw.gov.au/committee/ListofScientificCommitteeDeterminations.htm
- Harden, G. (ed) (1990–2002) *Flora of NSW Volumes 1–4*. (NSW University Press: Kensington).
- Lang, R.D. (2008) Defining the original extent and floristic composition of the naturally-treeless grasslands of the Liverpool Plains, North Western Slopes, New South Wales. *Cunninghamia* 10(3): 407–421.
- Sim, I. & Unwin, N. (1983) *The Natural Grasslands of the Liverpool Plains New South Wales.* Report based on research by J.A. Duggin and P.N. Allison. (Department of Environment and Planning, Sydney).

Liverpool Plains Photo: Phil Gilmour

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