



Australian Government

Department of the Environment and Water Resources

EPBC Act Policy Statement 3.7

Nationally Threatened Species and Ecological Communities



Peppermint Box (*Eucalyptus odorata*) Grassy Woodland
of South Australia and Iron-grass Natural Temperate
Grassland of South Australia

June 2007

GUIDE TO LISTING

What is the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia?

The Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia ecological community extends from the southern Flinders Ranges to Lake Alexandrina. It is mostly found in the Flinders–Lofty Block Bioregion but patches also extend into the Murray–Darling Depression, Kanmantoo, Eyre–Yorke Block and Gawler Bioregions. Its general distribution is illustrated on the general area map (opposite).

Remaining patches of this ecological community typically occur on gentle to moderate slopes, hilltops and adjacent plains. The soil types range from sandy-loam to clay-loam. The annual rainfall is between 310 and 610 millimetres a year.

Peppermint Box (*Eucalyptus odorata*) is the dominant species of the tree canopy. The woodland tree form (a single main trunk at the base with low branches) of Peppermint Box characterises this ecological community.

Other tree species that may be present in the canopy but are not as abundant as Peppermint Box include: Grey Box (*E. microcarpa*); South Australian Blue Gum (*E. leucoxydon*); Sugar Gum (*E. cladocalyx*); Mallee Box (*E. porosa*); Drooping Sheoak (*Allocasuarina verticillata*); White Cypress-pine (*Callitris glaucophylla*); and Southern Cypress-pine (*C. gracilis*).

The vegetation structure is an open to dense woodland. The tree canopy comprises low trees, generally 5–10 metres tall but sometimes up to 15 metres tall, with a typical canopy cover of 5–40 per cent which can occasionally reach 70 per cent (Hyde 1996; Robertson 1998).

The ground layer mainly comprises grasses and herbs which can vary from a relatively dense and diverse layer, in more open sites, to a sparse layer under more densely wooded sites. The grasses and herbs that most often occur include Wallaby Grasses (*Austrodanthonia* spp.), Spear Grasses (*Austrostipa* spp.), Iron-grasses (*Lomandra* spp.) and Black-anther Flax Lily (*Dianella revoluta*). Shrubs are sparse in the understorey with cover up to 30 per cent. The most common shrub species present are Sweet Bursaria (*Bursaria spinosa*) and Golden Wattle (*Acacia pycnantha*).

A list of the main plant species known to occur in the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia ecological community is at Table 1.

Shrubs can occur naturally in grassy woodlands, and can form an important part of the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia ecological community. Where they occur, they provide important habitat for many bird and insect species. Accordingly, a patch that has a significant ground layer of tussock grasses, and where the distribution of shrubs is scattered or patchy, is this ecological community. A remnant with a continuous shrub layer, in which the shrub cover is greater than 30 per cent, is excluded. As the shrub cover in this ecological community is naturally patchy, shrubs may be dominant over a very localised area.



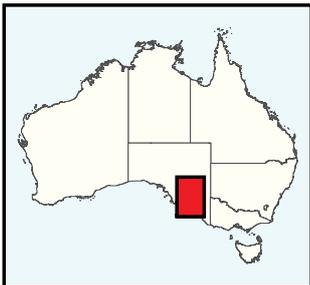
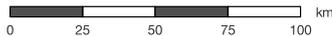
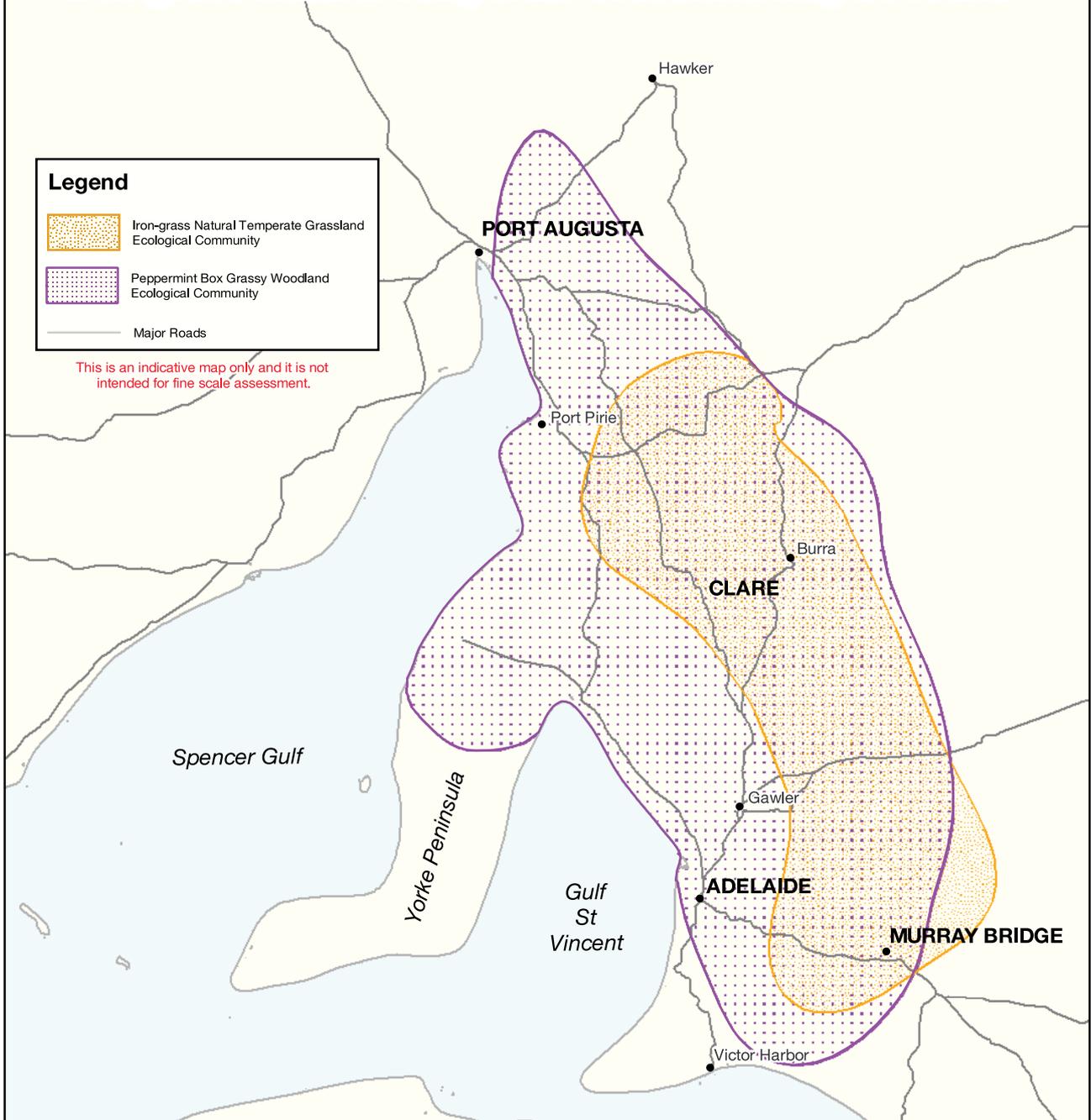
Peppermint Box (*Eucalyptus odorata*) Grassy Woodland
(Peter Komidar)

General area in which patches of Peppermint Box Grassy Woodland and Iron-grass Natural Temperate Grassland may be found

Legend

-  Iron-grass Natural Temperate Grassland Ecological Community
-  Peppermint Box Grassy Woodland Ecological Community
-  Major Roads

This is an indicative map only and it is not intended for fine scale assessment.



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Australian Government
Department of the Environment
and Water Resources

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Table 1. Characteristic flora of the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia ecological community, based on Hyde (1996) and Robertson (1998)

Layer	Species	Common name(s)
Dominant tree canopy	<i>Eucalyptus odorata</i>	Peppermint Box
Tree canopy	<i>Allocasuarina verticillata</i>	Drooping Sheoak
	<i>Callitris glaucophylla</i>	White Cypress-pine, White Cypress, White Pine,
	<i>Callitris gracilis</i>	Murray Pine, Mallee Pine, Slender Cypress-pine, Southern Cypress-pine
	<i>Eucalyptus cladocalyx</i>	Sugar Gum
	<i>Eucalyptus goniocalyx</i>	Long-leaved Box, Bundy
	<i>Eucalyptus leucoxylon</i>	Blue Gum, Yellow Gum, South Australian Blue Gum, Water Gum, White Ironbark
	<i>Eucalyptus microcarpa</i>	Grey Box, Narrow-leaved Box, Inland Grey Box, Western Grey Box
	<i>Eucalyptus porosa</i>	Mallee Box, Black Mallee-box
	<i>Exocarpos cupressiformis</i>	Cherry Ballart, Native Cherry, Wild Cherry, Cherry Wood
Shrub layer	<i>Acacia pycnantha</i>	Golden Wattle, Broad-leaved Wattle
	<i>Beyeria lechenaulti</i>	Pale Turpentine Bush
	<i>Bursaria spinosa</i>	Australian Blackthorn, Bursaria, Blackthorn, Native Blackthorn, Sweet Bursaria, Whitethorn, Christmas Bush
	<i>Einadia nutans</i> ssp. <i>nutans</i>	Climbing Saltbush, Nodding Saltbush
	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush, Barrier Saltbush
	<i>Eutaxia microphylla</i> var. <i>microphylla</i>	Eutaxia, Mallee Bush-pea
	<i>Ozothamnus retusus</i>	Notched Bush-everlasting
	<i>Olearia decurrens</i>	
	<i>Rhagodia parabolica</i>	Fragrant Saltbush, Mealy Saltbush
Ground layer	<i>Aristida behriana</i>	Brush Wiregrass
	<i>Arthropodium strictus</i>	Chocolate Lily
	<i>Asperula conferta</i>	Common Woodruff
	<i>Austrodanthonia caespitosa</i>	Ringed Wallaby-grass, Common Wallaby-grass
	<i>Austrodanthonia setacea</i>	Small-flowered Wallaby-grass
	<i>Austrostipa blackii</i>	Crested Spear-grass
	<i>Austrostipa elegantissima</i>	Feather Spear-grass
	<i>Austrostipa eremophila</i>	Rusty Spear-grass
	<i>Austrostipa nitida</i>	Balcarra Spear-grass
	<i>Austrostipa scabra</i>	Rough Spear-grass, Rough Needle-grass
	<i>Calocephalus citreus</i>	Lemon Beauty-heads
	<i>Cheilanthes austrotenuifolia</i>	Rock-fern
	<i>Chrysocephalum apiculatum</i>	Yellow Buttons, Common Everlasting
	<i>Convolvulus augustissimus</i>	Australian Bindweed
	<i>Convolvulus remotus</i>	
	<i>Crassula colorata</i>	Annual Stonecrop, Dense Crassula, Dense Stonecrop
	<i>Crassula decumbens</i> var. <i>decumbens</i>	Spreading Crassula, Spreading Stonecrop
	<i>Crassula sieberiana</i>	Australian Stonecrop, Sieber Crassula
	<i>Cymbonotus preissianus</i>	
	<i>Daucus glochidiatus</i>	Australian Carrot, Native Carrot

Table 1. Characteristic flora of the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia ecological community, based on Hyde (1996) and Robertson (1998) *continued*

Layer	Species	Common name(s)
	<i>Dianella revoluta</i>	Blueberry Lily, Black-Anther Flax Lily
	<i>Elymus scaber</i> var. <i>scabrus</i>	Native Wheat-grass, Common Wheat-grass
	<i>Goodenia pinnatifida</i>	Cut-leaf Goodenia
	<i>Goodenia pusilliflora</i>	
	<i>Glycine rubiginosa</i>	Twining Glycine
	<i>Lepidosperma viscidum</i>	
	<i>Lomandra densiflora</i>	
	<i>Lomandra effusa</i>	Scented Mat-rush; Iron-grass
	<i>Lomandra micrantha</i>	
	<i>Lomandra multiflora</i> ssp. <i>dura</i>	Iron-grass
	<i>Oxalis perennans</i>	Grass Wood-sorrel
	<i>Maireana enchylaenoides</i>	Cotton-bush, Wingless fissure-weed, Wingdecs Bluebush
	<i>Plantago varia</i>	Small Plantain, Sago-weed
	<i>Ptilotus spathulatus</i>	Pussytails, Cat's Paws
	<i>Senecio quadridentatus</i>	Cotton Fireweed
	<i>Sida corrugata</i>	Corrugated Sida
	<i>Stackhousia</i> spp.	
	<i>Vittadinia cuneata</i>	Fuzzweed
	<i>Wahlenbergia luteola</i>	A Bluebell

What is the Iron-grass natural temperate grassland of South Australia?

The Iron-grass Natural Temperate Grassland of South Australia ecological community primarily occurs within the Flinders–Lofty Block Bioregion. The main extant patches lie in the area between Clare and Peterborough. However, patches extend into the Kanmantoo, Eyre–Yorke Block and Murray–Darling Depression Bioregions. Its general distribution is shown on the map on page 3.

The ecological community generally occurs on gentle slopes of low hills above 380 metres above sea level. The soils on which it occurs are predominantly loams to clay-loams with an estimated clay content of 30–35 per cent. Surface pebbles are common at some sites and shale or sandstone rocky outcrops may also be present. The mean annual rainfall ranges from 280 to 600 millimetres per year.

The structure of the vegetation is of a tussock grassland. Trees and tall shrubs are absent to sparse (cover less than 10 per cent) and tussock-

forming perennial grasses and Iron-grasses dominate the ground layer. A range of herbaceous plant species occurs in the inter-tussock spaces.

Iron-grasses (*Lomandra multiflora* ssp. *dura* and *Lomandra effusa*) are the dominant and most characteristic feature of the vegetation. About 10–70 per cent of the ground area is covered by *Lomandra* spp. Where the vegetative ground cover is minimal, *Lomandra* would still be expected to be one of the most common species. It must be noted that *Lomandra* may be absent in small areas (less than 1 hectare) of the listed ecological community, however if these patches sit within the context of other areas containing *Lomandra* then these small patches are still considered to be part of the listed ecological community.

Native plant species commonly recorded in Iron-grass Natural Temperate Grassland of South Australia ecological community is at Table 2.

Table 2. Common flora of the Iron-grass Natural Temperate Grassland of South Australia ecological community

The plant list is based on surveys by Hyde (1995) and Robertson (1998) in the Flinders–Lofty Ranges and Department for Environment and Heritage (2001a) at Mokota Conservation Reserve

	Species	Common name/s
Perennial native grasses	<i>Aristida behriana</i> *	Brush Wiregrass
	<i>Austrodanthonia auriculata</i>	Lobed Wallaby-grass
	<i>Austrodanthonia caespitosa</i> *	Ringed Wallaby-grass, Common Wallaby-grass
	<i>Austrodanthonia carphoides</i>	Short Wallaby-grass
	<i>Austrostipa acrociliata</i>	Graceful Spear-grass
	<i>Austrostipa blackii</i> *	Crested Spear-grass
	<i>Austrostipa elegantissima</i>	Feather Spear-grass
	<i>Austrostipa eremophila</i> *	Rusty Spear-grass
	<i>Austrostipa nitida</i> *	Balcarra Spear-grass
	<i>Austrostipa nodosa</i>	
	<i>Austrostipa scabra</i>	Rough Spear-grass, Rough Needle-grass
	<i>Enneapogon nigricans</i>	Black-head Grass
	<i>Themeda triandra</i> *	Kangaroo Grass
Grass-like plants	<i>Arthropodium strictus</i>	Chocolate Lily
	<i>Bulbine bulbosa</i>	Bulbine Lily, Native Onion, Native Leek
	<i>Dianella revoluta</i>	Blueberry Lily, Black-Anther Flax Lily
	<i>Lepidosperma viscidum</i>	
	<i>Lomandra effusa</i> *	Scented Mat-rush
	<i>Lomandra multiflora</i> ssp. <i>dura</i> *	Many-flowered Mat-rush, Hard Mat-rush, Stiff Iron-grass
	<i>Wurmbea dioica</i> ssp. <i>dioica</i>	Early Nancy
Broad-leaved herbaceous species	<i>Asperula conferta</i>	Common Woodruff
	<i>Brachyscome lineariloba</i>	Hard-headed Daisy
	<i>Calocephalus citreus</i>	Lemon Beauty-heads
	<i>Chrysocephalum apiculatum</i>	Yellow Buttons, Common Everlasting
	<i>Chrysocephalum semipapposum</i>	Clustered Everlasting, Yellow Buttons
	<i>Convolvulus augustissimus</i>	Australian Bindweed
	<i>Convolvulus remotus</i>	
	<i>Crassula colorata</i>	Annual Stonecrop, Dense Crassula, Dense Stonecrop
	<i>Crassula sieberana</i> ssp. <i>tetramera</i>	Australian Stonecrop, Sieber Crassula
	<i>Eryngium ovinum/rostratum</i>	Blue Devil
	<i>Euphorbia drummondii</i>	Caustic-weed, Red Soldier, Flat Spurge, Cuastic Creeper, Creeping Caustic, Mat-spurge, Milkweed
	<i>Glycine rubiginosa</i>	Twining Glycine
	<i>Goodenia pinnatifida</i>	Cut-leaf Goodenia
	<i>Goodenia pusilliflora</i>	
	<i>Hyalosperma semisterile</i>	
	<i>Isoetopsis graminifolia</i>	Grass Cushion
	<i>Leptorhynchos squamatus</i>	Scaly Buttons
	<i>Leptorhynchos tetrachaetus</i>	Little Buttons

* Indicates co-dominant species

Table 2. Common flora of the Iron-grass Natural Temperate Grassland of South Australia ecological community *continued*

	Species	Common name/s
Broad-leaved herbaceous species <i>continued</i>	<i>Minuria leptophylla</i>	Minnie Daisy
	<i>Oxalis perennans</i>	Grass Wood-sorrel
	<i>Plantago varia</i>	Small Plantain, Sago-weed
	<i>Podolepis tepperi</i>	
	<i>Ptilotus spathulatus</i>	Pussytails, Cat's Paws
	<i>Rhodanthe pygmaea</i>	Pygmy Sunray
	<i>Rumex dumosus</i>	Wiry Dock
	<i>Sida corrugata.</i>	Corrugated Sida
	<i>Stackhousia monogyna</i>	Creamy Candles, Creamy Stackhousia
	<i>Swainsona behriana</i>	
	<i>Thysanotus baueri</i>	Mallee Fringe-lily
	<i>Velleia arguta</i>	
	<i>Velleia paradoxa</i>	Spur Velleia
	<i>Vittadinia cuneata</i>	Fuzzweed
	<i>Vittadinia gracilis</i>	
	<i>Vittadinia megacephala</i>	
<i>Wahlenbergia luteola</i>	A Bluebell	
Shrubs	<i>Bursaria spinosa</i>	Australian Blackthorn, Bursaria, Blackthorn, Native Blackthorn, Sweet Bursaria, Whitethorn, Christmas Bush
	<i>Cryptandra amara</i> ssp. <i>longiflora</i>	Long-flower Cryptandra
	<i>Enchylaena tomentosa</i>	Ruby Saltbush, Barrier Saltbush
	<i>Maireana enchylaenoides</i>	Cotton-bush, Wingless Fissure-weed, Wingless Bluebush
	<i>Maireana excavata</i>	Bottle Bluebush, Bottle Fissure-weed
	<i>Pimelea micrantha</i>	

Why were the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia and Iron-grass Natural Temperate Grassland of South Australia listed as critically endangered?

These ecological communities were listed as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) because of a severe decline in distribution and ongoing loss of integrity. The decision by the Australian Minister for the Environment and Water Resources to list the communities followed careful consideration of advice from the Threatened Species Scientific Committee—an independent scientific body that advises the Minister on the conservation status of native species and ecological communities.

National listing of these ecological communities recognises that their long-term survival is under threat. The listing aims to prevent their further decline, and assist community and landholder efforts toward the recovery of these ecological communities.

Both of these ecological communities have been heavily cleared and face similar threats across their range. In most of the areas that remain, grazing and pasture-improvement have effectively removed the characteristic native, perennial tussock grasses, herbs and shrubs, leaving many areas dominated by exotic weeds. Grazing has also prevented the regeneration of the overstorey species in the Peppermint Box Grassy Woodland of South Australia, to the extent that large areas of healthy, regenerating trees are rare.

Threats

The key threats to the survival of both ecological communities include clearing, grazing and weed invasion. Other threats include road and rail maintenance activities and the effects of fragmentation.

Clearing for cropping and cultivated pasture eliminates native species, including any soil-stored seed, preventing their re-establishment without assistance.

Grazing has reduced the diversity of the native species across most remaining sites of both ecological communities. As many grasses and forbs do not form persistent soil seed banks, once plants have been eliminated from the standing vegetation, they are unable to re-establish naturally, even if grazing pressure is removed.

As well as direct impacts on individual plants, grazing can have indirect effects upon other native species through soil disturbance and physical changes to the soil such as compaction, nutrient enrichment, reduced water infiltration and erosion. These changes to the soil can facilitate and maintain weed invasion and make soil conditions unsuitable for native species regeneration.

The degree of degradation of a patch varies with the grazing regime history. Constant grazing pressure throughout the year is more likely to eliminate grazing sensitive species than intermittent or seasonal stocking. This is why areas such as road sides which have only had intermittent grazing, often contain some of the best remnants.



Calostemma purpurea (Garland lily): Iron-grass Natural Temperate Grassland of South Australia (Rosemary Purdie)



Austrostipa spp. (Speargrass) (John Vranjic)

Weed invasion is a major threatening process for both ecological communities. Patches that have been heavily invaded by annual weeds such as Squirrel Tail Fescue and Rats Tail Fescue (*Vulpia* spp.) and Bearded Oats (*Avena barbata*) may still have a good cover of native species outside of spring. Annual weeds can be controlled through appropriate grazing and fire regimes. Perennial weeds such as Salvation Jane/Patterson's Curse (*Echium plantagineum*) and Wild Sage (*Salvia verbenaca*) represent a more intractable problem.

Persistent and intensive weed management using a variety of techniques is required to bring some weeds to a manageable threshold. Techniques include strategic mowing, slashing and clipping exotic grasses (to reduce their seed set and promote native regeneration) and the spot spraying or weed brushing of broadleaf weeds and perennial grasses with herbicide. Weeds growing in close proximity to native species should be removed by hand clipping. The aim in managing weeds is to reduce competition and assist natural regeneration and recovery of native plant communities.

The Iron-grass Natural Temperate Grassland of South Australia is also threatened by inappropriate tree planting and agricultural snails.



Left to right:
Austrostipa spp. (Speargrass),
Minuria leptophylla (Minnie daisy),
Lomandra multiflora ssp. *dura* (Iron-grass)
 (John Vranjic)

Condition

A condition class describes areas of an ecological community that have a similar conservation value. Condition can be determined by factors such as: numbers and types of native plants and animals present; the level of weed invasion; the size of the area; and distance to the next area of native vegetation.

Significantly degraded (low condition) areas are not part of a listed ecological community. This means that protection provisions of the EPBC Act are focused on the most valuable elements of Australia’s natural environment, while degraded areas, which do not trigger the ‘significance test’ of the EPBC Act, are largely excluded.

In order for an area to be included in either of the listed ecological communities, a patch must have a good diversity of native species and contain a good selection and cover of perennial native grasses. Table 3 (below) outlines the two condition classes that are considered to be part of the listed Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia.

Table 4 (page 10) outlines the two condition classes that are considered to be part of the listed Iron-grass Natural Temperate Grassland of South Australia. In both of these tables a third condition class is provided that describes areas considered to be suitable for rehabilitation but which are not considered part of the listed ecological communities.

Table 3. Condition classes for the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia

Classes A and B are indicative of the listed ecological community. Class C is indicative of patches that are degraded but could be rehabilitated to the listed ecological community. For a patch of vegetation to fall within a condition class it must meet or exceed each of the thresholds. For example, to meet condition class A a patch must be at least 0.1 ha in size **and** have more than 30 native species **and** at least 10 native broad-leaved herbaceous species not on the disturbance resistant list **and** have at least five native perennial grass species.

Condition class	Minimum size	Diversity of native plant species ¹	No. of broad-leaved herbaceous species ¹ in addition to identified disturbance resistant species ²	No. of native perennial grass species ¹
Listed ecological community				
A	≥ 0.1 ha	> 30	≥ 10	≥ 5
B	≥ 1 ha	> 15	≥ 3	≥ 2
Degraded patches amenable to rehabilitation				
C		> 5	No minimum	≥ 1

Legend:

¹ As measured in a 50 m x 50 m quadrat (or equivalent).

² The following species are identified as disturbance resistant species: *Ptilotus spathulatus* forma *spathulatus*; *Sida corrugata*; *Oxalis perennans*; *Convolvulus augustissimus*; *Euphorbia drummondii*; and *Maireana enchylaenoides*.

Table 4. Condition classes for the Iron-Grass Natural Temperate Grassland of South Australia

Classes A and B are indicative of the listed ecological community. Class C is indicative of patches that are degraded but could be rehabilitated to become the listed ecological community. For a patch of vegetation to fall within a condition class it must meet or exceed the relevant threshold. For example to meet condition class A a patch must be at least 0.1 ha in size **and** have more than 30 native species **and** at least 10 native broad-leaved forb species not on the disturbance resistant list **and** have at least five native perennial grass species (excluding *Lomandra*) **and** have at least one native perennial tussock (including *Lomandra*) per linear metre.

Condition class	Minimum size	Diversity of native plant species ¹	No. of broad-leaved herbaceous species ¹ in addition to identified disturbance resistant species ²	No. of native perennial grass species ¹	Tussock count ³
Listed ecological community					
A	≥ 0.1 ha	> 30	≥ 10	≥ 5	≥ 1/m
B	≥ 0.25 ha	> 15	≥ 3	≥ 4	≥ 1/m
Degraded patches amenable to rehabilitation					
C		> 5	No minimum	≥ 1	No minimum

Legend:

- ¹ As measured in a 50 m x 50 m quadrat (or equivalent).
- ² The following species are identified as disturbance resistant species: *Ptilotus spathulatus* forma *spathulatus*; *Sida corrugata*; *Oxalis perennans*; *Convolvulus augustissimus*; *Euphorbia drummondii*; and *Maireana enchylaenoides*.
- ³ As measured along a 50m transect.

The Condition Class A and B outlined above for both ecological communities are the minimum level at which a patch is considered to be part of the listed ecological community. However, this does not represent the ideal state of the ecological community. The larger and more diverse a patch is, the more important it is. Additionally, patches that link remnants in the landscape, patches that occur in regions in which the ecological community is extremely uncommon, and patches that contain rare, declining or threatened species are important to the continuing viability of the ecological community into the future.

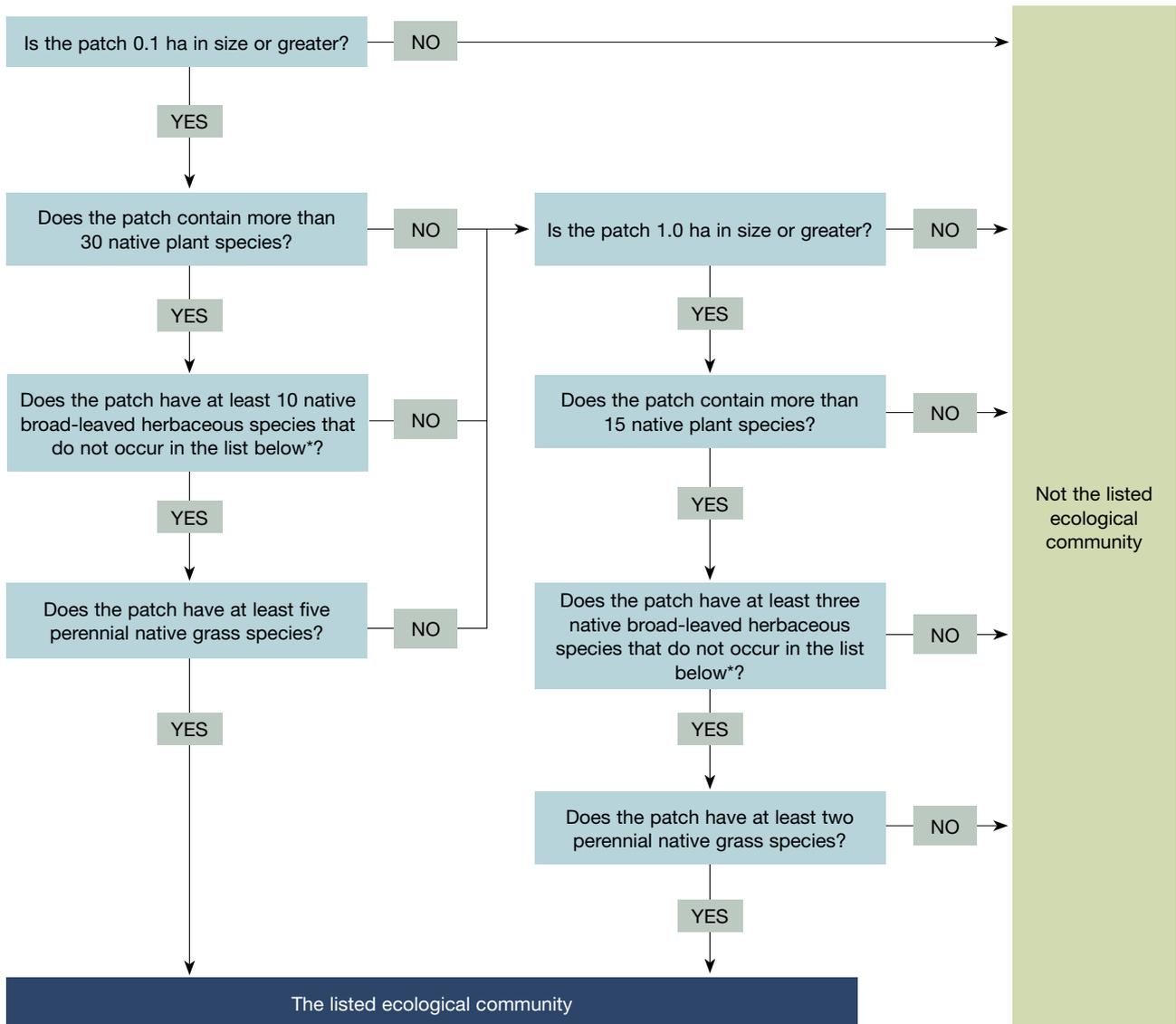
How do I know if I have either of these ecological communities on my land?

You can use the condition class information above and the following flowcharts (on pages 11 and 12) to determine whether or not you have either of the listed ecological communities on land you manage.

If the vegetation on your property was formerly Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia or Iron-Grass Natural Temperate Grasslands of South Australia but no longer meets either of the definitions above, you may be able to work towards restoring this vegetation using the conservation actions outlined below.

Areas that do not meet the condition criteria for inclusion in the listed ecological community, but should be given priority for regeneration include: large remnants; remnants containing mature trees, especially those with hollows; areas that link remnants in the landscape; remnants that occur in those areas in which the ecological community has been most heavily cleared and degraded; and those that contain rare, declining or threatened species.

Flowchart 1. Peppermint Box Grassy Woodland of South Australia

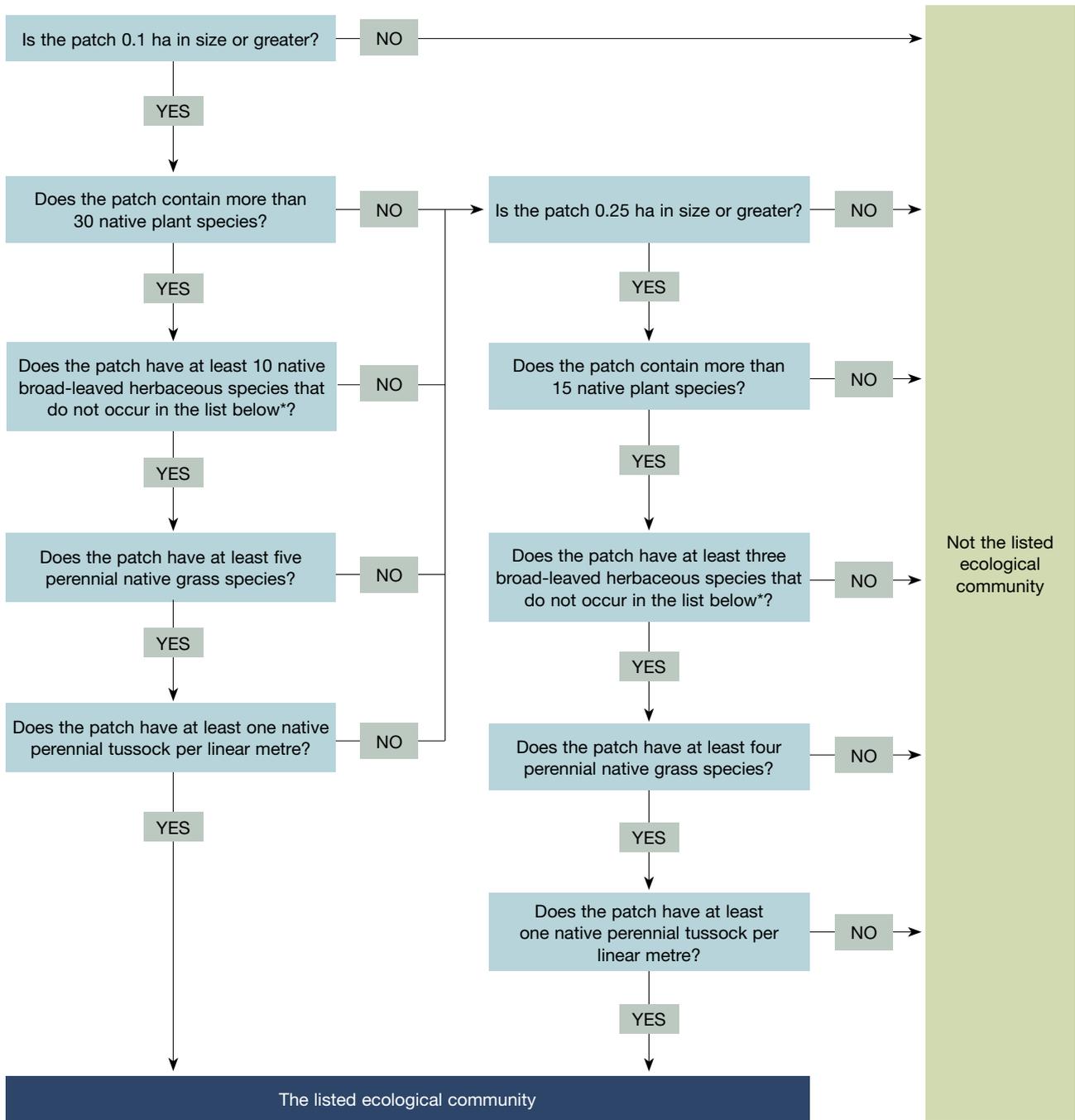


* *Ptilotus spathulatus* forma *spathulatus*; *Sida corrugata*; *Oxalis perennans*; *Convolvulus augustissimus*; *Euphorbia drummondii*; and *Maireana enchylaenoides*.



Eucalyptus odorata buds
(Brooker & Kleinig © Australian National Botanic Gardens)

Flowchart 2. Iron-grass Natural Temperate Grassland of South Australia



* *Ptilotus spathulatus* forma *spathulatus*; *Sida corrugata*; *Oxalis perennans*; *Convolvulus augustissimus*; *Euphorbia drummondii*; and *Maireana enchylaenoides*.

What does the listing of these ecological communities mean for land managers?

Protection under the EPBC Act applies to all components of the listed Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia and Iron-grass Natural Temperate Grassland of South Australia ecological communities. However, listing of these ecological communities under the EPBC Act will not prevent landholders from continuing to use their land in the same way they were before, providing they do not change or intensify their activities.

National protection means any new or intensified activities that may be likely to have a significant impact upon either of the listed ecological communities should be referred to the Australian Minister for the Environment and Water Resources for assessment and approval (unless they are subject to an exemption under the EPBC Act). Activities that may have a significant impact include, but are not restricted to, clearing of remnants or supporting vegetation, grazing, introducing excessive nutrients to remnants and introducing potentially invasive pasture species into the proximity of remnants.

The process for making a referral under the EPBC Act is easy and without charge. More information is available from the Department's web site at www.environment.gov.au/epbc/index.html.

Based on your referral, the Minister will determine if assessment and approval is required. If approval is not required, then you are free to take action in accordance with your referral. If approval is required, strict timeframes in the EPBC Act ensure the assessment and approval process is conducted in a timely manner.

The EPBC Act allows for some exemptions to the requirement for assessment and approval. This means that some activities may not need an assessment or approval if you meet certain requirements. Information on exemptions is available online at: www.environment.gov.au/epbc/publications/exemptions.

What are the conservation priorities for the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia and Iron-grass Natural Temperate Grassland of South Australia?

As part of its advice to the Minister, the Threatened Species Scientific Committee also provides recommendations on priority conservation actions that can assist in the recovery of these ecological communities.

The priority actions identified for the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia are:

- protection of remnants of the listed ecological community through the development of conservation agreements and covenants
- control of existing weeds in remnants, particularly Squirrel Tail and Rats Tail Fescue (*Vulpia* spp.), Bearded Oats (*Avena barbata*) and Salvation Jane/Patterson's Curse (*Echium plantagineum*)
- exclusion of continuous grazing from remnants
- use of strategic grazing (incorporating rest at appropriate times) in areas with larger numbers of native species
- protection of remnants from new weeds by preventing soil disturbance in and around remnants, and the speedy eradication of any new invasions *and*
- expansion and connection of existing remnants.

The priority actions identified for the Iron-grass Natural Temperate Grassland of South Australia are:

- protection of remnants of the listed ecological community through the development of conservation agreements and covenants
- exclusion of continuous grazing from remnants, coupled with weed management and control and use of strategic grazing (incorporating rest at appropriate times)
- protection of remnants from weeds by preventing soil disturbance in and around remnants, and the speedy eradication of any new invasions *and*
- expansion and connection of existing remnants.

These lists do not encompass all actions that may be of benefit to these ecological communities, but highlights those that are considered to be of the highest priority at the time of listing.

Restoration and management of temperate grasslands in South Australia: Efforts of the Threatened Plant Action Group

Since 1994, the Threatened Plant Action Group (TPAG) has been working to protect and restore remnants of temperate grasslands in the mid-north of South Australia. TPAG have initiated work at three sites containing important grassland habitat.

The work undertaken on these sites includes intensive weed management with up to 12 site visits annually. The techniques used include: strategic mowing, slashing and clipping of exotic grasses (to reduce their seed set and promote native regeneration), spot spraying or weed brushing broadleaf weeds and perennial grasses with herbicide. Weeds growing in close proximity to native species are removed by hand clipping.

Before the TPAG began working on the sites not many people had given them much thought as they were small and in poor condition. Weeds, including exotic annual and perennial grasses (eg Wild Oats, Phalaris and Tall Wheat-grass) and broadleaf plants (eg Salvation Jane, thistles, Scabious and Wild Sage), dominated the sites and few native species were abundant.

After many years of hard work, native species diversity and abundance has increased substantially with lilies, daisies, other herbs, grasses and sedges appearing or increasing at the sites. Although some weed species are still present, they fill much less of the available space.

Some native shrubs, herbs and grasses (grown from locally collected seed) have also been planted at the sites, locally collected seeds have been scattered in slashed areas and rubbish has also been removed. Fencing has been erected at some sites to preclude harmful land use activities.

These actions aim to aid the in-situ recovery of threatened grassland species and are guided by a recovery team.

TPAG's work has been supported by: the local community; Northern Areas Council; Clare and Gilbert Valley Council; South Australian Department for Transport, Energy and

Infrastructure; Australian Southern Rail; and the South Australian Department for Environment and Heritage.

The Australian Government, South Australian Department of Transport, Energy and Infrastructure and the Northern and Yorke Natural Resource Management Group have provided funding for a range of recovery actions.

For more information, or to get involved in threatened plant recovery in South Australia contact the Threatened Plant Action Group:

Tel: 08 8232 4088

Email: tpag@ncssa.asn.au.

Funding is available for projects to recover threatened species and ecological communities. This includes work on rehabilitating areas that were formerly part of a listed ecological community, but are now degraded.

- For information about the Threatened Species Network Community grants visit: www.wwf.org.au/tsn
- For information about Envirofund grants visit: www.nht.gov.au/envirofund

You may also wish to participate in the development and implementation of your region's Natural Resource Management Plan. In this case, contact your local land management agency.



Peppermint Box (*Eucalyptus odorata*) Grassy Woodland
(Peter Komidar)

Where can I go for further information?

The Threatened Plant Action Group of the Nature Conservation Society of South Australia can provide information on the management of land containing both the Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia and Iron-grass Natural Temperate Grassland of South Australia:

Tel: 08 8223 6301

Email: tpag@ncssa.asn.au

Useful web sites

- EPBC Act web site: www.environment.gov.au/epbc
- EPBC Act Administrative Guidelines on Significance: www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html
- Referral form: www.environment.gov.au/epbc/assessmentsapprovals/referrals/form.html

Further information is also available from the Department of the Environment and Water Resources Community Information Unit:

Email: ciu@environment.gov.au

Freecall: 1800 803 772



Top to bottom:
E. odorata (Brooker & Kleinig
© Australian National Botanic
Gardens), *Austrostipa* spp.
(Speargrass) (John Vranjic),
female pygmy blue-tongue
lizard (Peter Robertson),
grassland flowers (John Vranjic)



Australian Government
**Department of the Environment
and Water Resources**

Cover images (clockwise from left): *E. odorata* (Brooker & Kleinig © Australian National Botanic Gardens), female pygmy blue-tongue lizard (Mark Hutchinson), *Austrostipa* spp. (Speargrass) (John Vranjic), *Minuria leptophylla* (Minnie daisy) (John Vranjic)