

Step 3

Assess plant composition and identify vegetation communities

Differences in vegetation communities are a result of natural features and processes such as landform, soil depth, soil type and drainage. Former disturbance also influences which species are present and which will dominate a site.

To decide whether an area should be conserved, it is important to identify the species on a site, how many of each species there are and how these species are distributed.

Less disturbed areas are usually characterised by a greater diversity of native plants than extensively altered sites. Less disturbed native grasslands support a mix of native grasses, wildflowers, lichen, fungi and mosses. Less disturbed woodlands contain a similar groundlayer, and also a mix of native trees and shrubs.

Grassy ecosystems may be distinguished from one another by their dominant species. These species reflect the structure and likely plant and animal composition of each grassy community.

Diversity varies with former disturbances, whether human induced or natural, but some vegetation types are naturally more diverse than others. For example, low-lying areas that support communities dominated by River Tussock are naturally less diverse than some grassland types that occur on shallower soil, or those in rocky sites.

Grassy vegetation communities include:

- **Native Grasslands** in which native grasses are dominant and are interspersed with native wildflowers and in which trees are scattered or absent.
- **Grassy Woodlands** which contain a groundlayer similar to native grasslands but have a low to moderate tree cover and sometimes shrubs or mid-layer trees such as wattles.
- **Secondary Grasslands** which result from the clearing of trees from either woodlands or forests with usually a groundlayer that resembles that of the community from which they derive.
- **Native Pastures** in which native grasses are dominant but there are few other native species as a result of significant modification.

The relationships between different types of grassy ecosystems are shown in Figure 1 (p. 16). The types of grassy ecosystems are illustrated in photos in Figure 2 (p.17).

Lists of native and introduced plant species identified in each management unit are useful because they enable comparison between management units. Comparison can show:

- More or less variety of plant species for each management unit.
- Changes in species richness over time, if the vegetation is monitored.

Of all the steps in this workbook, this step is the most difficult to undertake, if the user has minimal experience in identifying plant species. Two alternative methods are presented, one requiring no knowledge of species other than some idea of which species are introduced. Botanists from the regional conservation agency may be able to help with identification, especially if it is believed that the area may be quite diverse in native species.

Aims

- Identify the native and introduced plant species in each management unit.
- Assess species richness in each management unit.
- Identify the dominant species in the management units.
- Recognise problem weeds on the site.
- Identify the major vegetation types and ecological communities present on the site.

A group of species

A group of species includes two or more species that are related in some way.

Examples include: all wallaby grass species or all spear grass species; all eucalypt trees; all native grasses; all native species; all annual introduced species.

Materials

Sheet 3a

Sheet 3b

Field guide or species list



Method

1. Survey for the presence of plant species and their abundance in each management unit.

Choose a 'typical' area in each management unit to walk 100 steps. Do not start too close to fences or roads, as these are likely to contain different vegetation. Record the number of 'hits' for each species or group on Sheet 3a either as:

(i) Groups of native and introduced species:

- In each management unit, record as a tally the times that each group of species is 'hit' in the 100 step transects. Each step counts as a 'hit'. More than one species may be 'hit' at each step.
- Record also the number of 'hits' of rocks and bare ground or litter.
- Total up the number of 'hits' of each group of species, rocks and bare ground in each management unit.

(ii) Species:

- In each management unit, record as a tally the times that each species is 'hit' in the 100 step transects. Each step counts as a 'hit'. More than one species may be 'hit' at each step.
- Record also the number of 'hits' of rocks and bare ground or litter.
- Total up the number of 'hits' of each species, rocks and bare ground in each management unit.
- Note the growth form (grass, wildflower, shrub, tree)
- Using your knowledge or a field guide, indicate whether the species is native or introduced.

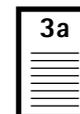
2. Collate the survey results on Sheet 3b.

(i) For groups of native and introduced species:

- Summarise the abundance of the plants identified in the land units from Sheet 3a. Indicate if the species is common, occasional or uncommon.
- Record the tree and shrub cover.
- Use Figures 1 and 2 to identify the ecological community present in each management unit.

(ii) For species:

- Summarise the abundance of the plants identified in the land units from Sheet 3a. Indicate if the species is common, occasional or uncommon.
- Indicate which are the dominant species (D) in each management unit.
- Add up the number of native and introduced species for each growth form.
- Record the tree and shrub cover.
- Use Figures 1 and 2 to identify the ecological community present in each management unit.



Method for assessing the abundance of plant species

The assessment of approximate abundance of plant species involves walking one or more transects 100 steps long in each management unit.

Either make a mark on the toe of the boot, or use a fine straight wire and record what is touching the point of the boot or wire (a 'hit').

For each transect, identify and record the plant species (or native and introduced group), bare ground, rocks, litter or lichen is being 'hit'. More than one species or feature may be 'hit' at each step. If several species are 'hit', record each of them. Keep a tally of the scores on Sheet 3a.

Convert the tally to a score (number of hits) and record the abundance as common, occasional or uncommon on Sheet 3b.

more than 20 'hits' in 100 steps	common	C
5 to 20 'hits' in 100 steps	occasional	O
less than 5 'hits' in 100 steps	uncommon	U

Identify the growth form of each species as grass, wildflower, shrub or tree.

Example

Step 3a: Vegetation composition field sheet: (i) groups of native and introduced species

Species name	A	Growth form	Native/introduced
	Tally		
Introduced grasses	+++ +++ +++ +++ +++ +++ +++ III		
Native grasses	+++		
Introduced broadleaved plants	II		
Native wildflowers	III		
Native indigenous trees (%)		T	N
Introduced shrubs		S	I

Timing for effective identification and assessment of plant species

Plants are most easily recognised when they are flowering.

Many species flower in late spring to early summer. Some species such as orchids and lilies flower in early spring. Many native grasses flower in mid summer.

Grazing can prevent flowering

Stock may need to be removed from a site being assessed to allow plants to flower.

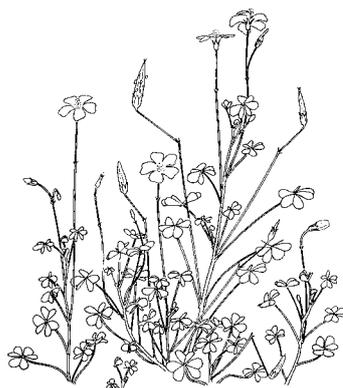
Repeat the survey

If a site is surveyed when conditions are not best for identification, repeat the survey in spring or when grazing is removed and plants have been allowed to flower. This will result in a more accurate species list.

Example

Step 3b: Vegetation composition summary sheet: (i) groups of native and introduced species

Vegetation composition	A
Native grasses	U
Native wildflowers	U
Introduced grasses	C
Introduced broadleaved plants	U
Native indigenous trees (% cover)	
Native non-indigenous trees (% cover)	
Introduced trees (% cover)	
Introduced shrubs (% cover)	
Vegetation community (from Figures 1, 2)	IP



Oxalis perannans



Indigofera australis

Example

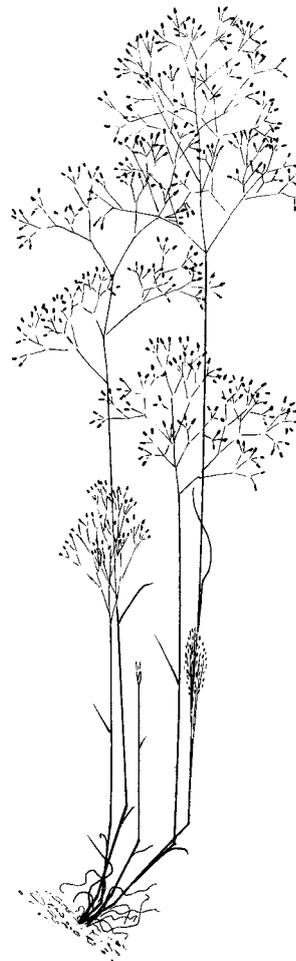
Step 3a: Vegetation composition field sheet: (ii) all species identified

Species name	A	Growth form	Native/introduced
	Tally		
Bare ground or litter	lll		
Rocks			
Lichen or fungi			
Phalaris	+++ +++ +++ +++ +++ +++ ll	G	I
Perennial Ryegrass	+++ l	G	I
Tall Spear Grass	+++	G	N
Button Wrinklewort		W	N
Blakely's Red Gum		T	N
Introduced shrubs		S	I

Example

Step 3b: Vegetation composition summary sheet (ii) all species identified

Vegetation composition	A
Tall Spear Grass	0
River Tussock	U
Common Everlasting	U
Onion Orchid	
Phalaris	D
Shivery Grass	
Common Centaury	U
Ribwort Plantain	U
Native indigenous trees (% cover)	
Yellow Box	
Native non-indigenous trees	
Introduced trees	
Introduced shrubs	
Total indigenous native species	8
Total introduced species	13
Vegetation community (from Figures 1, 2)	IP



Aira elegantissima

Figure 1: Flowchart of different types of grassy systems

The number of mature trees per hectare is based on a tree crown diameter of 15 metres

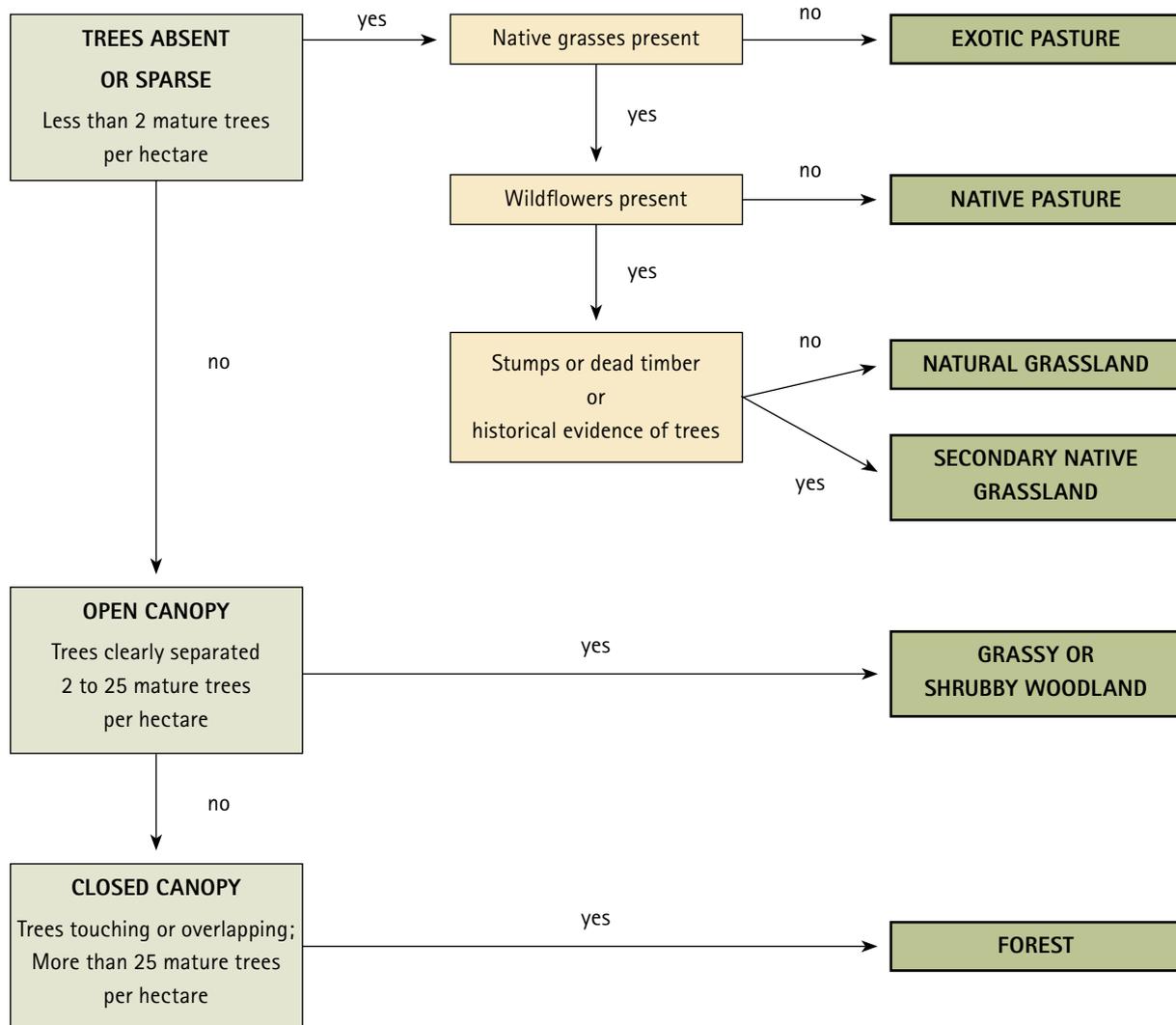


Figure 2: Examples of different types of grassy ecosystems



Native pasture (no wildflowers present)



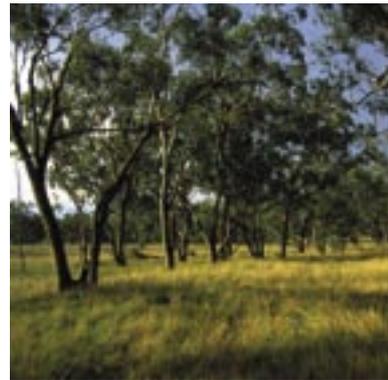
Natural grassland



Natural grassland



Natural grassland



Grassy Whitebox woodland



Shrubby woodland



Wetland and grassy woodland