A Method to Assess Grassy Ecosystem Sites:

Using floristic information to assess a site's quality

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Introduction

This document presents a quantitative method that enables the assessment of the relative values of sites containing any of the communities within the grassy ecosystems found in the Southern Tablelands of NSW. This method can be used in the following vegetation types:

- The grassy groundlayer of *White Box Yellow Box Blakely's Red Gum Woodland* (Box-Gum Woodland), a listed endangered ecological community (EEC) under the NSW *Threatened Species Conservation Act* (1995);
- Secondary grassland derived from Box-Gum Woodland EEC;
- Native grassland that falls under the definitions of *Natural Temperate Grassland of the Natural Temperate Grassland of the Southern Tablelands (NSW and ACT)*, a listed threatened ecological community under the Commonwealth's Environmental Protection and Biodiversity Conservation Act (1999); and
- The grassy groundlayers of Grassy Snow Gum Woodland and other regionally declining vegetation communities and the secondary grasslands derived from these.

The significant species concept

This method has been developed using data collected in site surveys of grassy ecosystems throughout the Southern Tablelands in NSW and ACT since the early 1990's (see *Acknowledgments*). The method is based upon the "significant species" concept, which relies on the application of a "significance score" to most of the roughly 650 species that have been recorded in grassy ecosystems within the region. Briefly, most grassy ecosystem species have been assigned a score based on their rarity in the regional data, with the rarest species assigned a score of 5, and the most common, a score of 1. A number of species, although apparently rare in the data, are thought to be "disturbance-tolerant", "disturbance responding" or "increaser" species. This is based on observations and expert opinion. Increasers respond positively to various disturbances and are thus most commonly recorded in disturbed sites. Increaser species have been arbitrarily given a score of 1. However, not all increasers are scored 1. There is a limited subset of disturbance responders that retain their high scores, because, while responding to particular disturbance regimes (e.g. soil disturbance), they may not persist under others (e.g. grazing). Examples in this subset include Button Wrinklewort (*Rutidosis leptorrhynchoides*), Hoary Sunray (*Leucochrysum albicans*) and Aromatic Peppercress (*Lepidium hyssopifolium*), all of which are listed as endangered in one or more jurisdictions.

This method relies on three groupings of species, referred to as:

1. Common or increaser species, which do not add much to the value of a site; these have a significance score of 1;
2. "Indicator species, level 1", which indicate that the site has value; and
3. "Indicator species, level 2", which are the highly significant species; these are the rarest of the grassy ecosystems species and have the highest significance scores.

The indicator species are also sometimes referred to as "grazing-intolerant" or "declining" species. It is thought that these species are rare for two reasons:

1. Some species have always been rare, particularly some species which are restricted in distribution; and
2. Many species are thought to have undergone serious declines since European settlement, from disturbances such as over-grazing and application of fertilisers. This is based upon analysis of the data and observations of where such species still occur; the sites with the greatest concentrations of significant species today include cemeteries, road and rail reserves and sites such as travelling stock reserves and private land sites where grazing has been either non-existent or light (e.g. Prober & Thiele, 1993; Lunt, 1995; McIntyre, McIvor & Heard, 2002; R. Rehwinkel, unpublished data).

Grassland assessment

Grasslands have been traditionally difficult to assess because of their inherent variability. Before the European settlement of the Southern Tablelands, there were extensive grassy plains as well as smaller areas of grassland within a mosaic of woodlands (Thomas *et al.* 2000). Now relatively few remnants of these communities remain in a state that resembles the former grasslands. The same applies to grassy woodland communities (Thomas *et al.*

2000). However, in some regions, large areas of grassland are retained that are variously described as native pasture, and degraded or highly modified native grassland (Environment ACT, 2005; Langford *et al.* 2004). Across the Southern Tablelands, these areas vary in their extent, according to the climate, soil types and land use history.

Within any particular area, remnant grasslands and grassy woodlands exist along a continuum. At one end of this continuum, there are the rare sites that retain a high degree of integrity (i.e. very high floristic diversity, varied structure that provides habitat for a diverse fauna, and low or absent exotic plant cover). At the other end of this continuum are the more extensive areas of native pasture, and degraded or highly modified grassland. Such grasslands usually have very low native plant diversity, limited fauna habitat values, and often a high cover and diversity of exotic plant species, many of which are either introduced pasture species or agricultural and environmental weeds.

Because grassland and woodland sites now exist in a continuum, with sites exhibiting all states between those with the highest integrity to those that are severely degraded, it has traditionally been difficult to draw a line between sites that could be described as of high flora conservation value and those which are less important for conservation. It was found necessary to develop guidelines to determine which sites should be considered to be of conservation significance. The approach presented in these guidelines provides a transparent and repeatable process that can be applied across the NSW portion of the Southern Tablelands to determine the conservation significance of any grassland and woodland site assessed. The value of these guidelines for use in the ACT needs to be further tested, though the general principles are likely to apply there too.

Secondary grasslands

Grasslands vary in their origin. This has the potential to create confusion, especially in parts of the landscape that are heavily cleared and it is difficult to determine whether a site is natural or "secondary" grassland (i.e. grassland that results in the clearing of trees in a woodland or forest). This document provides guidance in those cases where it is difficult to determine whether a grassland is natural or secondary.

Other grassland values

The method presented in this document provides a way to assess grasslands and woodland groundlayers primarily on their floristic values. It is important to remember that other values exist, including:

- Presence of fauna, particularly of threatened species;
- Presence of habitat attributes, including the presence of rocky outcrops, loose surface rocks, exposed banks, course woody debris, tree hollows, standing dead timber, or structural elements provided by certain plant species such as shrubs and tall tussocks;
- Extent or lack of cover of weed species, with sites with a high cover of perennial weed species generally of lesser value than those without weeds;
- The size of the remnant, with larger sites clearly being of greater value than smaller sites;
- The shape of the remnant, with a blocky or circular shaped site being considered to be more valuable than a long, narrow site; and
- The site's connectivity, with a site that adjoins, is adjacent to, or nearby to other sites of the same or even different vegetation types being intrinsically more valuable than an isolated site.

Sites thus need to be assessed for their other values, alongside the floristic values that can be assessed using this document.

Regionalisation

This document divides the Southern Tablelands into four broad regions, as recognised in the *National Recovery Plan for Natural Temperate Grassland of the Southern Tablelands (NSW & ACT)*(Environment ACT, 2005, p. 13). These regions are:

- **Monaro sub-region**: from the Victorian border to the south-eastern border of the ACT and west to Kosciuszko National Park (includes Michelago, Cooma, Jindabyne and Bombala);
- **Eastern sub-region**: the area east and north-east of the ACT covering the upper Wollondilly River, upper Shoalhaven River and Lake George catchments (includes Collector, Bungendore, Taralga, Crookwell, Goulburn and Braidwood);

- **North-western sub-region**: the area north of the ACT, covering part of the Murrumbidgee and Lachlan River catchments (includes Boorowa, Crookwell, Yass, Gunning, Gundaroo and Queanbeyan); and
- **ACT**: an area defined by the political boundary.

Each of these sub-regions have different floras, manifested in the differences in the forb, shrub and tree species that are found in each sub-region. Additionally, each region has distinctive land-use patterns. Much of the Monaro sub-region retains its native grassland and substantial areas of woodland also remain, though only relatively small areas retain moderate to high floristic values. In contrast, while there were formerly substantial areas of natural grassland and box-gum woodland in the North-western sub-region, very few areas remain, as grasslands and woodlands in this area have suffered extensive modification for "pasture improvement" and cropping. An intermediate picture emerges in the Eastern sub-region, where, while there has been extensive pasture modification and cropping, some large remnants of high value have been retained. The ACT has similarly lost much of its grassland and woodland to urban development, as well as to pasture modification and cropping, though, significantly, large areas have now been secured for conservation in this territory.

As stated previously, while the significance scores for all species were derived using data from both NSW and ACT, this assessment method has not been tested specifically on ACT sites. However, sites in the ACT could in all likelihood be assessed for their *relative* value using this method by applying the criteria and lists derived for the North-western sub-region (see *The analysis of data to derive a Significance Score*, below), being mindful of the fact that the ACT Government has developed specific methods to assess whether sites qualify as native grassland and woodland communities within the ACT (ACT Government, 2004; ACT Government, 2005).

The floristic and land-use differences expressed between the regions are reflected in the slight differences in species lists used for assessment in this method (see Appendices 1, 2 & 3.).

The floristic value score method

The method set out in this document allows assessment to be made of the following:

1. Is the site a natural or secondary grassland?;
2. If it is a natural grassland, does it have values consistent with those defined for the *Natural Temperate Grassland* EEC?; and
3. Regardless of which type of grassland or woodland groundlayer present, what is its floristic value?

Recently, an analysis has been undertaken to define the various associations found within natural grassland communities of the Southern Tablelands. Eight clearly defined associations have been identified using PATN analysis of a large dataset (Rehwinkel, in prep.). Previous analyses in the region (Thomas *et al.,* 2000; Tindall *et al.,* 2006) have defined a number of grassy woodland communities within the region. The method presented in this document treats all grassland and woodland communities of the Southern Tablelands as a single entity, with no reference to the differences found between the variously identified associations. To a large degree, however, the regional rarity of some of the forb, shrub and tree species in the regional data used to develop this method parallels the indicator species that help define some of the previously defined grassland or woodland associations. In reality, this method treats grassy ecosystems as three entities, as defined by the geographic boundaries defined in Environment ACT (2005). However, one of the associations of the natural grassland types is recognised in this method, namely the River Tussock Grassland dominated by *Poa labillardierii* that occurs along drainage lines or on flats associated with drainage features. Sites of this association in good condition are particularly rare and are often low in forb diversity. Most sites have a high cover of exotic perennial grasses, so sites in which the cover is dominated by a native species have conservation value, regardless of whether forbs are present or not.

Figure 1, below, enables identification of a site's broad vegetation type. Figure 2 enables assessment of some types within the *Natural Temperate Grassland* EEC. Following the steps outlined in Figures 1 & 2 will lead to the next step, which is the process of analysis to determine a site's "floristic value score".

Figure 1. Decision tree for assessing the vegetation type of a grassy site

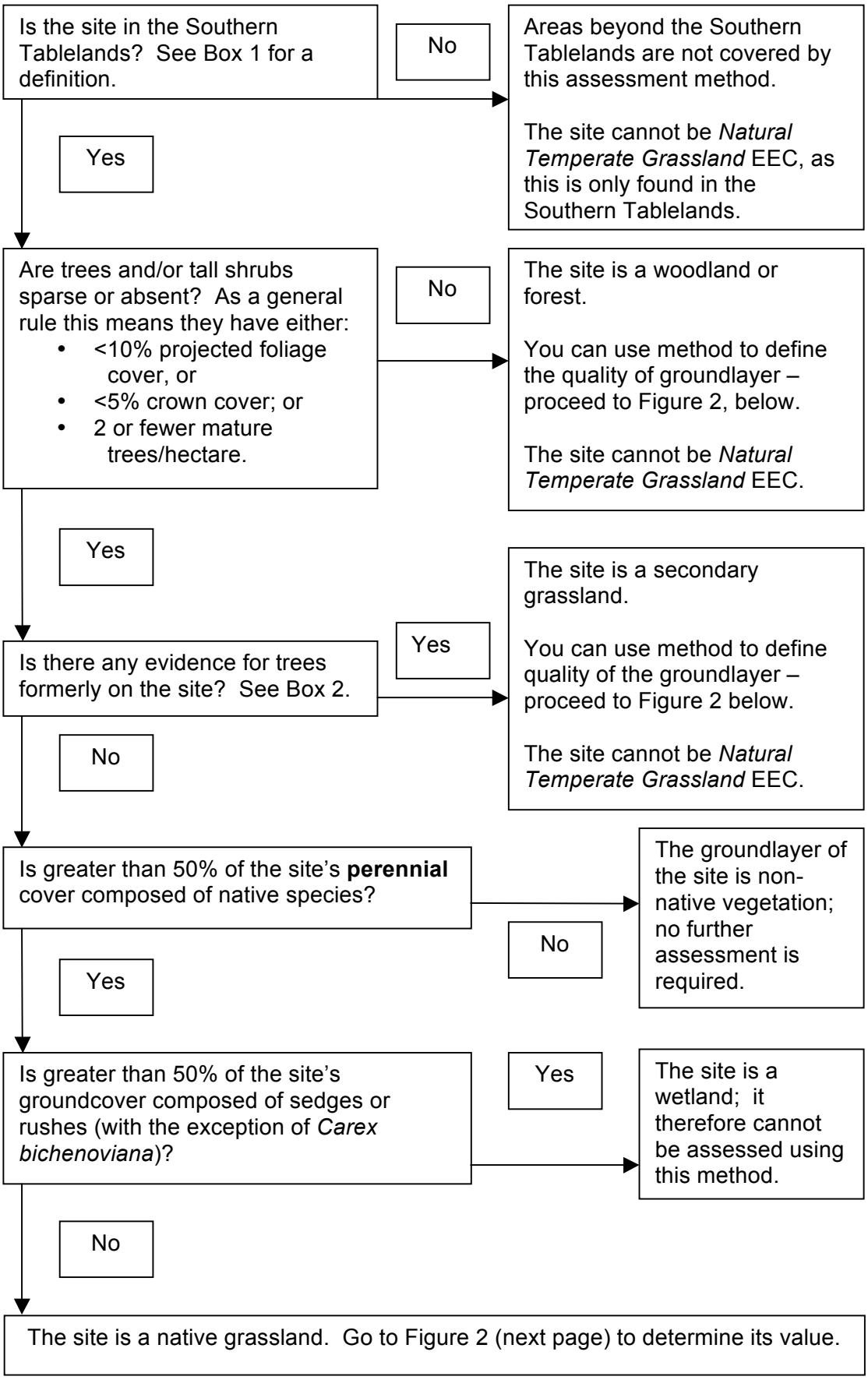
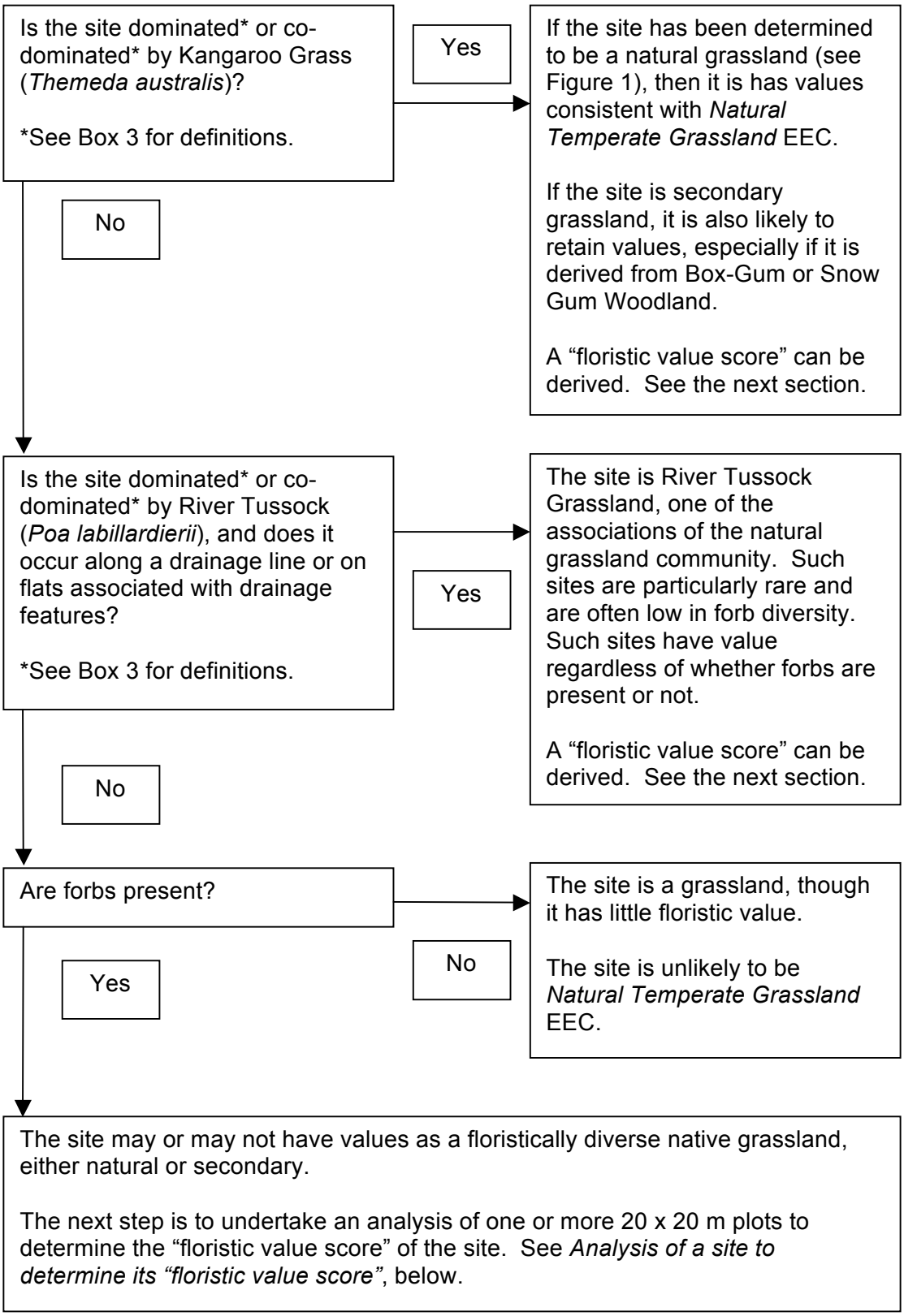


Figure 2. Decision tree for assessing conservation value of a grassy site



Box 1. Definition of the Southern Tablelands

This area is bounded by the Snowy Mountains and Brindabella Range in the south-west, coastal ranges (including the Kybeyan and Budawang Ranges and the escarpments to the east) and extends north to the Abercrombie River. The north-western boundary extends from Burrinjuck Dam to Boorowa, then east to the Lachlan River and north to Wyangala Dam (from Environment ACT, 2005).

Box 2. Identifying secondary grassland

Is there any evidence of trees formerly occurring on the site? For example, are there stumps, stump holes, or significant amounts of fallen timber, or are there trees of woodland or forest tree species in a woodland or forest formation adjacent to or near the site, on similar topographical positions and geological substrates?

If these signs are evident, then the site may be a "derived grassland", more commonly referred to as "secondary grassland" (i.e. a grassland that results from the clearing of woodland or forest trees).

However, where there is no or little or no evidence of the site being a secondary grassland, then the site should be given the benefit of the doubt and be accepted as natural grassland.

Box 3. Definitions of "dominated" and "co-dominated"

"Dominated" means that a species covers the majority of the site. "Co-dominated" means that a species covers a large part of the site with another species covering roughly an equal amount of the site.

Analysis of a site to determine its "floristic value score"

This analysis requires a number of steps:

1. Determine which sub-region you are in (see *Regionalisation*, above);
2. Determine how many plots are required (one plot may be enough for a small, uniform site, while several plots may be required in larger sites;
3. Set up the plot(s) and collect the required data;
4. Analyse the data using the method outlined below.

How to gather data: stratification, sampling effort and data collection

Stratification

A preliminary inspection of the site should be undertaken to assess the homogeneity of vegetation types and condition classes present. A map could be produced that clearly defines the boundaries of the different stratification units and brief notes could be made of each unit, outlining why it is regarded as distinct and homogenous.

A number of plots will be required in each stratification unit to calculate the "floristic value score" of each unit. The number of plots depends on the size of each stratification unit. The following levels of survey effort provide a guide as to how many plots could be defined:

1 plot per stratification unit of 2 hectares or less;
4 plots per stratification unit of between 2 and 50 hectares; and
10 plots per stratification unit of 51 and 250 hectares.

Field method

The predetermined number of 20 x 20 m plots should be located within each stratification unit. For linear-shaped units (e.g. road verges or other narrow sites) the shape of the plot may be varied (e.g. 10 x 40 m or even 5 x 80 m), but the area of the plots must remain the same (400 m^2). Plots should be placed away from environmental boundaries such as major soil and slope changes and changes in vegetation type or condition. They should be placed in

areas with homogenous, representative vegetation, with care being taken to sample at the highest quality (i.e. the most floristically rich) areas of each stratification unit. Plots should avoid areas of local disturbance (e.g. roads, tracks and dam edges).

Data collection

Data should be collected on a datasheet. For this assessment method, it is not necessary to provide cover-abundance scores for each species, though ideally this data should be collected if time permits, as it will be useful for further analysis. If time is restricted, then it is only necessary to record abundance for the "rarer" species at the site (i.e. those that occur in densities of fewer than four plants per plot), and for River Tussock (*Poa labillardierii*) where the grassland site is along a drainage line or on flats associated with drainage features, or Kangaroo Grass (*Themeda australis*). These two grass species require their cover to be noted.

If cover-abundance scores are to be collected, then the following scores, based on the Braun-Blanquet scale, should be used:

r	< 5 % cover and solitary (<4 individuals)
+	< 5 % cover and few (4-15 individuals)
1	< 5 % cover and numerous/scattered (>15 individuals)
2	5 % - 25 % cover
3	26 % - 50 % cover
4	51 % - 75 % cover
5	>75 % cover

The centre of each plot could be recorded on the site datasheet, preferably using a GPS, and the location of the plots could be marked on a map, showing the stratification units. Each plot could be given a unique plot number.

In the case of River Tussock (*Poa labillardierii*) where the grassland site is along a drainage line or on flats associated with drainage features, or Kangaroo Grass (*Themeda australis*), these species are regarded as "indicator species level 2" for the purposes of the determination of a site's "floristic value score", *but only if the density of these species is Braun-Blaunquet score of 3 or greater*. Conversely, if the cover of this species, or of River Tussock (*Poa labillardierii*) where the grassland site is along a drainage line or on flats associated with drainage features is in Braun-Blanquet cover classes of 2 or below, then these species are regarded as a common or increaser species. If River Tussock occurs in high cover classes in mid- or upper-slope situations, then it is not to be regarded as an "indicator species level 2".

As a general rule, grasslands and grassy groundlayers of woodlands should only be assessed using this method when the diversity is most evident. Ideally, for most sites this will be during the spring or early summer. This method is rendered somewhat ineffective if the site has been heavily grazed, as many species may be present, though the grazing animals will have targeted many of the forbs and they may not be detectable. Similarly, drought conditions will mask a site's diversity. Conversely, in years of heavy, late summer or early autumn rains, it may be possible to assess a site in late autumn, though, once again, not all species may have emerged.

The analysis of data to derive a "floristic value score"

The following is the analysis method, accompanied by a worked example, in this case a 20 x 20 m plot from Gundary Travelling Stock Reserve.

Step 1. List all native species in the plot and show their Braun-Blanquet scores. This is Table A. See p.9 for Braun-Blanquet scores.

Example Table A.

Species name	Braun-Blanquet score
Themeda australis	4
Chrysocephalum apiculatum	2
Austrodanthonia spp.	2
Goodenia pinnatifida	2
Lissanthe strigosa	2
Microlaena stipoides	2
Rutidosis leptorrhynchoides	2
Austrostipa densiflora	3
Cryptandra amara	+
Leptorhynchos squamatus	+
Calocephalus citreus	r
Cheilanthes sp.	r
Convolvulus angustissimus	r
Dianella revoluta	r
Euchiton sp.	r
Goodenia hederacea	r
Leucopogon fraseri	r
Lomandra multiflora	r
Pimelea curviflora	r
Velleia paradoxa	r
Wurmbea dioica	r

Step 2. As an aid in the analysis, add a type code for each species, noting whether the species is a common or increaser species (C), an indicator level 1 (I), or indicator level 2 (2). Refer to Appendices 1, 2 or 3 to define these codes, according to the sub-region in which the site occurs. In this case, Appendix 2 was used.

Example Table B.

Species name	Braun-Blanquet score	Species type code
Themeda australis	4	2*
Chrysocephalum apiculatum	2	I
Austrodanthonia spp.	2	C
Goodenia pinnatifida	2	2
Lissanthe strigosa	2	I
Microlaena stipoides	2	C
Rutidosis leptorrhynchoides	2	2
Austrostipa densiflora	3	C
Cryptandra amara	+	2
Leptorhynchos squamatus	+	I
Calocephalus citreus	R	I
Cheilanthes sp.	R	2
Convolvulus angustissimus	R	C
Dianella revoluta	r	I
Euchiton sp.	r	C
Goodenia hederacea	r	I
Leucopogon fraseri	r	2
Lomandra multiflora	r	I
Pimelea curviflora	r	I
Velleia paradoxa	r	2
Wurmbea dioica	r	2

*Note that as Kangaroo Grass (*Themeda australis*) occurs at the site in Braun-Blanquet cover classes of 3 or above, then this species is recorded as an "indicator species level 2". If the cover of this species, or of River Tussock (*Poa labillardierii*) where the grassland site is along a drainage line or on flats associated with drainage features is in Braun-Blanquet cover classes of 2 or below, then these species are regarded as a common or increaser species.

Step 3. Add another column and place the Braun-Blanquet scores for all Indicator species level 2 in this column. Then tally the number of Indicator species level 2. Note: do NOT add the numbers.

Example Table C.

Species name	Braun-Blanquet score	Species type code	Indicator species level 2
Themeda australis	4	2	4
Chrysocephalum apiculatum	2	I	
Austrodanthonia spp.	2	C	
Goodenia pinnatifida	2	2	2
Lissanthe strigosa	2	I	
Microlaena stipoides	2	C	
Rutidosis leptorrhynchoides	2	2	2
Austrostipa densiflora	3	C	
Cryptandra amara	+	2	+
Leptorhynchos squamatus	+	I	
Calocephalus citreus	r	I	
Cheilanthes sp.	r	2	r
Convolvulus angustissimus	r	C	
Dianella revoluta	r	I	
Euchiton sp.	r	C	
Goodenia hederacea	r	I	
Leucopogon fraseri	r	2	r
Lomandra multiflora	r	I	
Pimelea curviflora	r	I	
Velleia paradoxa	r	2	r
Wurmbea dioica	r	2	r
Tally			**8**

Step 4. Add another column and place the Braun-Blanquet scores for all Indicator species level 2 in this column with the exception of the "r" species (i.e. those that are rare in the plot). Then tally the number of Indicator species level 2 with the exception of those with scores of "r". Note: do NOT add the numbers.

Example Table D.

Species name	Braun-Blanquet score	Species type code	Indicator species level 2	Indicator species level 2 with the exception of those with scores of "r"
Themeda australis	4	2	4	4
Chrysocephalum apiculatum	2	I		
Austrodanthonia spp.	2	C		
Goodenia pinnatifida	2	2	2	2
Lissanthe strigosa	2	I		
Microlaena stipoides	2	C		
Rutidosis leptorrhynchoides	2	2	2	2
Austrostipa densiflora	3	C		
Cryptandra amara	+	2	+	+
Leptorhynchos squamatus	+	I		
Calocephalus citreus	r	I		
Cheilanthes sp.	r	2	r	
Convolvulus angustissimus	r	C		
Dianella revoluta	r	I		
Euchiton sp.	r	C		
Goodenia hederacea	r	I		
Leucopogon fraseri	r	2	r	
Lomandra multiflora	r	I		
Pimelea curviflora	r	I		
Velleia paradoxa	r	2	r	
Wurmbea dioica	r	2	r	
Tally			**8**	**4**

Step 5. Add another column and place the Braun-Blanquet scores for all indicator species (level 1 & 2) in this column. Do not tally this column.

Example Table E.

Species name	Braun-Blanquet score	Species type code	Indicator species level 2	Indicator species level 2 with the exception of those with scores of "r"	Indicator species (level 1 & 2)
Themeda australis	4	2	4	4	4
Chrysocephalum apiculatum	2	I			2
Austrodanthonia spp.	2	C			
Goodenia pinnatifida	2	2	2	2	2
Lissanthe strigosa	2	I			2
Microlaena stipoides	2	C			
Rutidosis leptorrhynchoides	2	2	2	2	2
Austrostipa densiflora	3	C			
Cryptandra amara	+	2	+	+	+
Leptorhynchos squamatus	+	I			+
Calocephalus citreus	r	I			r
Cheilanthes sp.	r	2	r		r
Convolvulus angustissimus	r	C			
Dianella revolute	r	I			r
Euchiton sp.	r	C			
Goodenia hederacea	r	I			r
Leucopogon fraseri	r	2	r		r
Lomandra multiflora	r	I			r
Pimelea curviflora	r	I			r
Velleia paradoxa	r	2	r		r
Wurmbea dioica	r	2	r		r
Tally			**8**	**4**	

Step 6. Add another column and place the Braun-Blanquet scores for all indicator species (level 1 & 2) species in this column BUT ONLY IF their scores are NOT "r". Then tally this column.

Example Table F.

Species name	Braun-Blanquet score	Species type code	Indicator species level 2	Indicator species level 2 with the exception of those with scores of "r"	Indicator species (level 1 & 2)	Indicator species levels 1 & 2 with the exception of those with scores of "r"
Themeda australis	4	2	4	4	4	4
Chrysocephalum apiculatum	2	I			2	2
Austrodanthonia spp.	2	C				
Goodenia pinnatifida	2	2	2	2	2	2
Lissanthe strigosa	2	I			2	2
Microlaena stipoides	2	C				
Rutidosis leptorrhynchoides	2	2	2	2	2	2
Austrostipa densiflora	3	C				
Cryptandra amara	+	2	+	+	+	+
Leptorhynchos squamatus	+	I			+	+
Calocephalus citreus	r	I			r	
Cheilanthes sp.	r	2	r		r	
Convolvulus angustissimus	r	C				
Dianella revoluta	r	I			r	
Euchiton sp.	r	C				
Goodenia hederacea	r	I			r	
Leucopogon fraseri	r	2	R		r	
Lomandra multiflora	r	I			r	
Pimelea curviflora	r	I			r	
Velleia paradoxa	r	2	R		r	
Wurmbea dioica	r	2	R		r	
Tally			**8**	**4**		**7**

Step 7. Calculation of the "floristic value score"

The final step is to total the three tally figures at the base of table in Table F. Totalling the *Indicator species level 2 with the exception of those with scores of "r"* column and the *Indicator species levels 1 & 2 with the exception of those with scores of "r"* column - **8 + 4 + 7** - gives a total of **19.** This is the "floristic value score" for this plot. A sample Table F is in Appendix 4. This can be photocopied for use in the field, and for calculation of "floristic value scores".

If the score derived using this method is 4 or above, then the site has moderate to high floristic value. Relative values can be compared by reference to this score, with clearly higher scores reflecting higher floristic values. Note that there may be an apparently high floristic diversity at the site. However, if many or most of the species are either common or increaser species, or alternatively, most are rare at the site (i.e. they occur in frequencies of three plants or fewer each in the plot), such species do not contribute anything to the total expressed in the "floristic value score" and as a result, the site has relatively low value.

If the site is a natural grassland and achieves a score of 4 or more, then it has values consistent with those defined for the Natural Temperate Grassland EEC.

Reporting

The following presents some suggested reporting formats.

The grassland has values consistent with those defined for the *Natural Temperate Grassland* EEC under the *Commonwealth EPBC Act, 1999*. if the sampled plot(s) satisfies the following criteria:

1. The site is in the Southern Tablelands; and
2. Trees are absent, or are present but only in densities of <10% projected foliage cover, <5% crown cover, or 2 or fewer mature trees per hectare;
3. It is not a secondary grassland; and
4. Greater than 50% of the site's perennial cover is native; and
5. The site is not a wetland; and
6. One of the following are satisfied:
    a. The site is dominated by Kangaroo Grass (*Themeda australis*), regardless of how much floristic diversity the site has; or
    b. The site is dominated or co-dominated by River Tussock (*Poa labillardierii*), and occurs along a drainage line or on flats associated with drainage features; or
    c. The site is dominated by grasses of other species and forbs are present such that its "floristic value score" is 4 or greater.

A site which is not natural grassland may be one of the following:

1. Groundlayer of Box-Gum Woodland EEC under the *NSW Threatened Species Conservation Act, 1995*;
2. Groundlayer of Snow Gum Woodland or other declining woodland communities; or
3. Secondary grassland derived from a woodland or forest community.

For these communities, if the "floristic value score" of the grassland plot is 4 or more, then the site can be considered to have a moderate to high conservation value. This score only applies to the site's floristic values and other values may be present.

If the grassland or woodland site is large and a number of plots have been analysed, then it is possible to present an average "floristic value score" by summing the totals of all scores and dividing by the number of plots taken. An alternative would be to present the range of values recorded from all the plots. Presentation of a combination of these approaches would be preferable. For example, a 55 ha site with five plots may be said to have an average "floristic value score" of 14, with the range of 5 to 23 (n = 5).

While this method enables the separation of sites of moderate to high floristic values from those of low floristic value, it would be purely arbitrary to draw a line that separates moderate from high values. The expression of the "floristic value score" provides an effective means to derive relative values for all grassy ecosystems sites, enabling the comparison of relative values of sites across the region.

Acknowledgments and disclaimer

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I thank the following people for the data which has enabled the "significance scores" to be applied to each of the grassy ecosystem species: Sarah Sharp, Isobel Crawford, Alison Rowell, John Benson, David Eddy and Greg Baines.

The ideas and concepts presented in this document are those of the author and not the opinions of the Director-General of the NSW Department of Environment and Climate Change.

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Appendix 1. List of species of the Monaro Sub-region.

C = common or increaser species;

I = indicator species level 1;

2 = indicator species level 2;

*** *Themeda australis* and *Poa labillardierii* need to be treated as indicator species level 2 if they dominate a site (see p. 9 in guidelines).**

Note that not all species found in grassy ecosystems of the sub-region are on this list. If other species are recorded in your plot, treat them as C species.

Acacia dawsonii	2
Acacia doratoxylon	2
Acacia gunnii	2
Acacia siculiformis	2
Acacia ulicifolia	2
Acacia uncinata	2
Acaena spp.	C
Acrotriche serrulata	2
Adiantum aethiopica	2
Agrostis spp.	C
Ajuga australis	I
Allocasuarina nana	2
Alternanthera sp.A	C
Ammobium alatum	2
Amphibromus spp.	C
Aphanes australiana	C
Aristida ramosa	C
Arthropodium milleflorum	2
Asperula ambleia	2
Asperula conferta	I
Asperula scoparia	I
Asplenium flabellifolium	2
Astroloma humifusum	2
Australopyrum pectinatum	C
Austrodanthonia spp.	C
Austrofestuca spp.	2
Austrostipa spp.	C
Baekia utilis	C
Banksia marginata	2
Billardiera scandens	2
Blechnum spp.	2
Bossiaea buxifolia	2
Bossiaea foliosa	C
Bossiaea prostrata	2
Bossiaea riparia	2
Bothriochloa macra	C
Botrichium australe	2
Brachycome aculeata	2
Brachycome decipiens	2
Brachycome diversifolia	2
Brachycome graminea	2
Brachycome heterodonta	I
Brachycome radicans	2
Brachycome rigidula	2
Brachycome scapigera	2
Brachycome spathulata	2
Brachyloma daphnoides	2
Bulbine bulbosa	2
Bulbine glauca	2
Caesia calliantha	2
Callistemon sieberi	2
Calocephalus citreus	2
Calochilus robertsonii	2
Calotis anthemoides	2
Calotis glandulosa	2
Calotis lappulacea	2
Calotis scabiosifolia var. *integrifolia*	2
Calotis scapigera	2
Calytrix tetragona	2
Cardamine spp.	2
Carex bichenoviana	2
Carex spp. (excluding *C. bichenoviana*)	C
Cassinia spp.	C
Centella spp.	2
Centipeda spp.	C
Chamaesyce drummondii	C
Cheilanthes spp.	2
Chenopodium pumilio	C
Chloris truncata	C
Chrysocephalum apiculatum	I
Chrysocephalum semipapposum	I
Clematis microphylla	2
Convolvulus angustissimus	C
Cotula alpina	2
Cotula australis	C
Craspedia spp.	2
Crassula spp.	C
Cryptandra amara	2
Cullen microcephalum	2
Cullen tenax	2
Cymbonotus spp.	C
Cymbonpogon refractus	2
Cynodon dactylis	C
Cynoglossum australe	2
Cynoglossum suaveolens	C
Cyperus spp.	C
Daucus glochidiatus	C
Daviesia genistifolia	2
Daviesia leptophylla	2
Daviesia mimosoides	2
Daviesia ulicifolia	C
Derwentia perfoliata	2
Desmodium brachypodium	2
Desmodium varians	2
Deyeuxia quadriseta	2
Dianella longifolia	2
Dianella revoluta	2
Dianella tasmanica	2
Dichanthium sericeum	2
Dichelachne spp.	C
Dichondra repens	C
Dichondra sp.A	C
Dichopogon fimbriatus	2
Dillwynia spp.	2
Diplarrena moraea	2
Dipodium punctatum	2
Discaria pubescens	2
Diuris spp.	2
Dodonaea procumbens	2
Dodonaea viscose	2
Drosera peltata	C
Einadia nutans	C
Einadia trigonos	2
Elymus scaber	C
Enneapogon nigricans	C
Epacris spp.	2
Epilolium spp.	C
Eragrostis spp.	C
Eriochilus cucullatus	2
Erodium crinitum	C
Eryngium ovinum	2
Eucalyptus aggregata	2
Eucalyptus lacrimans	2
Euchiton spp.	C
Galium gaudichaudii	2
Gentiana bredboensis	2
Geranium antrorsum	2
Geranium spp. (excluding *G. antrorsum*)	C
Gingidia harveyana	2
Glycine clandestina	2
Glycine tabacina	I
Gompholobium spp.	2
Gonocarpus micranthus	2
Gonocarpus tetragynus	2
Goodenia hederacea	2
Goodenia pinnatifida	2
Grevillea lanigera	2
Gynatrix pulchella	2
Gypsophylla tubulosa	C
Hakea microcarpa	2
Haloragis heterophylla	I
Hardenbergia violacea	2
Helichrysum rutidolepis	2
Helichrysum scorpioides	2
Hemarthria uncinata	2
Hovea linearis	2
Hydrocotyle algida	C
Hydrocotyle peduncularis	C
Hydrocotyle laxiflora	I
Hydrocotyle peduncularis	C
Hymenanthera dentata	C
Hypericum gramineum	2
Hypericum japonicum	2
Hypoxis spp.	2
Imperata cylindica	C
Indigofera australis	2
Isoetopsis graminifolia	2
Isolepis spp.	C
Isotoma fluviatilis	2
Joycea pallida	C
Juncus spp.	C
Kunzea ericoides	C
Kunzea parvifolia	C
Lagenifera stipitata	2
Laxmannia gracilis	2
Lepidosperma laterale	2
Leptorhynchos elongatus	2
Leptorhynchos squamatus	I
Leptospermum spp.	C
Lespedeza juncea	2
Leucochrysum albicans	2
Leucopogon fletcheri	2
Leucopogon fraseri	2
Leucopogon virgatus	2
Liliopsis polyantha	2
Linum marginale	2
Lissanthe strigosa	2
Lomandra bracteata	2
Lomandra filiformis	2
Lomandra longifolia	2
Lomandra multiflora	2
Lomatia myricoides	2
Lotus australis	2
Luzula spp.	2
Lythrum hyssopifolia	C
Melichrus urceolatus	2
Microlaena stipoides	C
Microseris lanceolata	2
Microtis spp.	2
Mitrasacme serpylifolia	2
Muelenbeckia axilaris	2
Neopaxia australasica	2
Opercularia hispida	2
Ophioglossum lusitaniacum	2
Oreomyrrhis argentea	2
Oreomyrrhis eriopoda	2
Oxalis spp.	C
Ozothamnus spp.	C
Panicum effusum	C
Pelargonium spp.	2
Pennisetum alopecuroides	2

Appendix 2. List of species of the Eastern Sub-region.

C = common or increaser species;

I = indicator species level 1;

2 = indicator species level 2;

*** *Themeda australis* and *Poa labillardierii* need to be treated as indicator species level 2 if they dominate a site (see p. 9 in guidelines).**

Note that not all species found in grassy ecosystems of the sub-region are on this list. If other species are recorded in your plot, treat them as C species.

Acacia armata (syn. *paradoxa*)	2
Acacia brownii	2
Acacia dawsonii	2
Acacia gunnii	2
Acacia siculiformis	2
Acacia ulicifolia	2
Acacia verniciflua	2
Acaena spp.	C
Acrotriche serrulata	2
Adiantum aethiopica	2
Agrostis spp.	C
Ajuga australis	2
Allocasuarina distyla	2
Allocasuarina luehmannii	2
Alternanthera sp.A	C
Ammobium alatum	2
Amphibromus spp.	C
Aphanes australiana	C
Aristida behriana	2
Aristida ramosa	C
Arthropodium milleflorum	2
Arthropodium minus	2
Asperula ambleia	2
Asperula conferta	I
Asperula scoparia	I
Asplenium flabellifolium	2
Astroloma humifusum	2
Astrotricha ledifolia	2
Austrodanthonia spp.	C
Austrofestuca spp.	2
Austrostipa spp.	C
Axonopus affinis	C
Baekia utilis	2
Banksia marginata	2
Billardiera scandens	2
Blechnum sp.	2
Bossiaea buxifolia	2
Bossiaea prostrata	2
Bossiaea riparia	2
Bothriochloa macra	C
Botrichium australe	2
Brachycome aculeata	2
Brachycome decipiens	2
Brachycome diversifolia	2
Brachycome graminea	2
Brachycome heterodonta	2
Brachycome ptychocarpa	2
Brachycome rigidula	2
Brachycome scapigera	2
Brachycome spathulata	2
Brachyloma daphnoides	2
Bulbine bulbosa	2
Burchardia umbellata	2
C. bichenoviana	2
Caesia callianthа	2
Caladenia spp.	2
Callistemon sieberi	2
Calocephalus citreus	I
Calochilus robertsonii	2
Calotis anthemoides	2
Calotis glandulosa	2
Calotis scabiosifolia var. integrifolia	2
Calytrix tetragona	2
Carex bichenoviana	2
Carex spp. (excluding *C. bichenoviana*)	C
Cassinia spp	C
Cassytha spp.	C
Centella spp.	2
Centipeda cunninghamiana	C
Centipeda minima	C
Centrolepis strigosa	2
Chamaesyce drummondii	C
Cheilanthes spp.	2
Cheiranthera cyanea	2
Chenopodium pumilio	C
Chloris truncata	C
Chrysocephalum apiculatum	I
Chrysocephalum semipapposum	2
Clematis microphylla	2
Comesperma ericinum	2
Convolvulus angustissimus	C
Cotula alpina	2
Cotula australis	C
Cotula coronopifolia	2
Craspedia spp.	2
Crassula helmsii	2
Crassula spp.	C
Cryptandra amara	2
Cullen microcephalum	2
Cullen tenax	2
Cymbonotus spp.	C
Cymbonpogon refractus	2
Cynodon dactylis	C
Cynoglossum australe	2
Cynoglossum suaveolens	C
Cyperus spp.	C
Dampiera stricta	2
Daucus glochidiatus	C
Daviesia genistifolia	2
Daviesia latifolia	2
Daviesia leptophylla	2
Daviesia mimosoides	2
Daviesia ulicifolia	2
Desmodium varians	2
Deyeuxia quadriseta	2
Dianella longifolia	2
Dianella revoluta	I
Dianella tasmanica	2
Dichelachne spp.	C
Dichondra repens	C
Dichondra sp.A	2
Dichopogon fimbriatus	2
Digitaria spp.	C
Dillwynia spp.	2
Dipodium punctatum	2
Discaria pubescens	2
Diuris spp.	2
Dodonaea viscosa	2
Drosera peltata	C
Echinopogon spp.	C
Einadia hastata	2
Einadia nutans	C
Einadia trigonos	2
Elymus scaber	C
Enneapogon nigricans	C
Epacris spp.	2
Epilolium spp.	C
Pentapogon quadrifidus	2
Persicaria prostrata	C
Persoonia spp.	2
Pimelea curviflora	I
Pimelea glauca	2
Pimelea pauciflora	C
Plantago antartcica	2
Plantago euryphylla	2
Plantago gaudichaudii	2
Plantago varia	I
Poa labillardieri	*
Poa meionectes	C
Poa sieberiana	C
Podolepis hieracioides	2
Podolepis jaceoides	2
Polygala japonica	2
Polystichum proliferum	2
Poranthera microphylla	2
Prasophyllum spp.	2
Pratia pedunculata	2
Prunella vulgaris	2
Pseudognaphalium luteoalbum	C
Pteridium esculentum	C
Pterostylis spp.	2
Pultenaea spp.	2
Ranunculus spp.	2
Restio australis	2
Rhodanthe anthemoides	2
Rubus parvifolius	2
Rumex brownii	C
Rumex dumosus	C
Rutidosis leiolepis	2
Rutidosis leptorrhynchoides	2
Schoenus apogon	C
Scleranthus biflorus	C
Scleranthus diander	C
Scleranthus fasciculatus	2
Scuttelaria humilis	2
Sebaea ovata	2
Selliera radicans	2
Senecio linearifolius	2
Senecio spp. (excluding *S. linearifolius*)	C
Solanum linearifolium	2
Solenogyne dominii	C
Solenogyne gunnii	C
Sorghum leiocladum	2
Spiranthes sinensis	2
Sporobolus spp.	C
Stackhousia monogyna	2
Stellaria angustifolia	2
Stellaria multiflora	2
Stellaria pungens	2
Stuartina spp.	C
Stylidium graminifolium	2
Swainsona spp.	2
Tetratheca spp.	2
Thelymitra spp.	2
Themeda australis	*
Thesium australe	2
Thysanotus tuberosus	2
Trachymene humilis	2
Tricoryne elatior	2
Tripogon loliformis	C
Triptilodiscus pygmaeus	2
Utricularia dichotoma	2
Velleia montana	2
Velleia paradoxa	2
Veronica spp.	2
Viola betonicifolia	2
Vittadinia spp.	C
Wahlenbergia spp.	C
Wurmbea dioica	2
Xerochrysum spp.	2
Zornia dyctiocarpa	2

Eragrostis spp.	C
Eriochilus cucullatus	2
Erodium crinitum	C
Eryngium ovinum	2
Eucalyptus aggregata	2
Eucalyptus amplifolia	2
Eucalyptus gregsoniana	2
Euchiton spp.	C
Euphrasia collina	2
Fimbristylis dichotoma	2
Galium gaudichaudii	2
Gastrodia sesamoides	2
Genoplesium spp.	2
Geranium antrorsum	2
Geranium spp. (excluding *G. antrorsum*)	C
Glossodia major	2
Glycine clandestina	2
Glycine tabacina	2
Gompholobium spp.	2
Gonocarpus micranthus	2
Gonocarpus tetragynus	I
Goodenia bellifiolia	2
Goodenia hederacea	I
Goodenia humilis	2
Goodenia pinnatifida	2
Goodenia stelligera	2
Grevillea arenaria	2
Grevillea juniperina	2
Grevillea lanigera	2
Grevillea ramosissima	2
Hakea microcarpa	2
Hakea sericea	2
Haloragis heterophylla	I
Hardenbergia violacea	2
Helichrysum rutidolepis	2
Helichrysum scorpioides	2
Hemarthria uncinata	2
Hibbertia riparia	2
Hovea linearis	2
Hydrocotyle algida	C
Hydrocotyle calicarpa	2
Hydrocotyle laxiflora	I
Hydrocotyle peduncularis	C
Hypericum gramineum	I
Hypericum japonicum	2
Hypoxis spp.	2
Imperata cylindica	C
Indigofera australis	2
Isoetopsis graminifolia	2
Isolepis spp.	C
Isotoma fluviatilis	2
Jacksonia scoparia	2
Joycea pallida	C
Juncus spp.	C
Kennedia prostrata	2
Kunzea ericoides	C
Kunzea parvifolia	C
Lagenifera stipitata	2
Laxmannia gracilis	2
Lepidium hyssopifolium	2
Lepidosperma laterale	2
Leptorhynchos elongatus	2
Leptorhynchos squamatus	I
Leptospermum spp.	C
Leucochrysum albicans	2
Leucopogon fletcheri	2
Leucopogon fraseri	2
Leucopogon virgatus	2
Levenhookia dubia	2
Linum marginale	2
Lissanthe strigosa	I
Lomandra bracteata	I
Lomandra filiformis	I
Lomandra longifolia	I
Lomandra multiflora	I
Lomatia ilicifolia	2
Lomatia myricoides	2
Luzula spp.	I
Lythrum hyssopifolia	C
Melichrus urceolatus	I
Mentha diemenica	2
Microlaena stipoides	C
Microseris lanceolata	2
Microtis spp.	2
Mirbelia oxyloboides	2
Mitrasacme polymorpha	2
Mitrasacme serpylifolia	2
Montia fontana	C
Neopaxia australasica	2
Opercularia spp.	2
Ophioglossum lusitaniacum	2
Oreomyrrhis eriopoda	2
Oxalis spp.	C
Ozothamnus spp.	C
Panicum effusum	C
Patersonia sericea	2
Pennisetum alopecuroides	2
Pentapogon quadrifidus	2
Persicaria prostrata	C
Persoonia chamaecyce	2
Persoonia linearis	2
Pimelea curviflora	I
Pimelea glauca	2
Pimelea linifolia	2
Plantago antartcica	2
Plantago euryphylla	2
Plantago gaudichaudii	2
Plantago varia	I
Platylobium formosa	2
Poa labillardieri	*
Poa meionectes	C
Poa sieberiana	C
Podolepis hieracioides	2
Podolepis jaceoides	2
Polygala japonica	2
Pomax umbellata	2
Poranthera microphylla	2
Portulaca oleracea	C
Prasophyllum spp.	2
Pratia pedunculata	2
Prunella vulgaris	2
Pseudognaphalium luteoalbum	C
Pteridium esculentum	C
Pterostylis spp.	2
Pultenaea pedunculata	2
Pultenaea spp.	I
Ranunculus spp.	2
Restio australis	2
Rhytidosporum procumbens	2
Rubus parvifolius	2
Rulingia prostrata	2
Rumex brownii	C
Rumex dumosus	C
Rumex tenax	C
Rutidosis leptorhynchoides	2
Schoenus apogon	C
Scleranthus biflorus	2
Scleranthus diander	2
Scleranthus fasciculatus	I
Scuttelaria humilis	2
Sebaea ovata	2
Selliera radicans	2
Senecio linearifolius	2
Senecio spp. (excluding *S. linearifolius*)	C
Solanum linearifolium	2
Solenogyne dominii	C
Solenogyne gunnii	C
Sorghum leiocladum	2
Spiranthes sinensis	2
Sporobolus spp.	C
Stackhousia monogyna	2
Stackhousia viminea	2
Stellaria angustifolia	2
Stellaria multiflora	2
Stellaria pungens	2
Stuartina spp.	C
Stylidium despectum	2
Stylidium graminifolium	I
Stypandra glauca	2
Styphelia triflora	2
Swiansona recta	2
Tetratheca spp.	2
Thelionema spp.	2
Thelymitra spp.	2
Themeda australis	*
Thesium australe	2
Thysanotus patersonii	2
Thysanotus tuberosus	2
Trachymene humilis	2
Tricoryne elatior	I
Triptilodiscus pygmaeus	I
Utricularia dichotoma	2
Velleia montana	2
Velleia paradoxa	2
Veronica gracilis	2
Veronica spp.	2
Viola betonicifolia	2
Vittadinia spp.	C
Wahlenbergia spp.	C
Wilsonia rotundifolia	2
Wurmbea dioica	2
Xanthorrhoea spp.	2
Xerochrysum spp.	2
Zornia dyctiocarpa	2

Appendix 3. List of species of the North-western Sub-region.

C = common or increaser species;

I = indicator species level 1;

2 = indicator species level 2;

*** *Themeda australis* and *Poa labillardierii* need to be treated as indicator species level 2 if they dominate a site (see p. 9 in guidelines).**

Note that not all species found in grassy ecosystems of the sub-region are on this list. If other species are recorded in your plot, treat them as C species.

Acacia acinacea	2
Acacia armata (syn. *paradoxa*)	2
Acacia dawsonii	2
Acacia decora	2
Acacia doratoxylon	2
Acacia gunnii	2
Acacia pycnantha	2
Acacia siculiformis	2
Acacia ulicifolia	2
Acacia verniciflua	2
Acaena spp.	C
Acrotriche serrulata	2
Adiantum aethiopica	2
Agrostis spp.	C
Ajuga australis	2
Allocasuarina luehmannii	2
Alternanthera sp.A	C
Amphibromus spp.	C
Aphanes australiana	C
Aristida behriana	2
Aristida ramosa	C
Arthropodium milleflorum	2
Arthropodium minus	2
Asperula ambleia	2
Asperula conferta	2
Asperula scoparia	2
Asplenium flabellifolium	2
Astroloma humifusum	2
Austrodanthonia spp.	C
Austrostipa spp.	C
Billardiera scandens	2
Blechnum sp.	2
Boerharvia dominii	2
Bossiaea buxifolia	2
Bossiaea prostrata	2
Bossiaea riparia	2
Bothriochloa macra	C
Brachycome aculeata	2
Brachycome diversifolia	2
Brachycome heterodonta	2
Brachycome ptychocarpa	2
Brachycome rigidula	2
Brachycome sp. aff. *formosa*	2
Brachycome spathulata	2
Brachyloma daphnoides	2
Brunonia australis	2
Bulbine bulbosa	2
Bulbine glauca	2
Burchardia umbellata	2
Caesia calliantha	2
Caladenia spp.	2
Caladenia spp.	2
Calandrinia sp.	2
Callistemon sieberi	2
Calocephalus citreus	2
Calochilus robertsonii	2
Calotis anthemoides	2
Calotis lappulacea	2
Calotis scabiosifolia var. *integrifolia*	2
Calytrix tetragona	2
Cardamine spp.	2
Carex bichenoviana	2
Carex spp. (excluding *C. bichenoviana*)	C
Cassinia spp.	C
Cassytha sp.	C
Centella spp.	2
Centipeda cunninghamiana	C
Centipeda minima	C
Centrolepis strigosa	2
Chamaesyce drummondii	C
Cheilanthes spp.	2
Cheiranthera cyanea	2
Chenopodium pumilio	C
Chloris truncata	C
Chrysocephalum apiculatum	I
Chrysocephalum semipapposum	2
Clematis microphylla	2
Comesperma ericinum	2
Convolvulus angustissimus	C
Cotula australis	C
Craspedia spp.	2
Crassula spp.	C
Cryptandra amara	2
Cullen microcephalum	2
Cullen tenax	2
Cymbonotus spp.	C
Cymbonpogon refractus	2
Cynodon dactylis	C
Cynoglossum australe	2
Cynoglossum suaveolens	C
Cyperus spp.	C
Daucus glochidiatus	C
Daviesia genistifolia	2
Daviesia latifolia	2
Daviesia leptophylla	2
Daviesia mimosoides	2
Derwentia perfoliata	2
Desmodium brachypodium	2
Desmodium varians	2
Deyeuxia quadriseta	2
Dianella longifolia	2
Dianella revoluta	2
Dichelachne spp.	C
Dichondra repens	C
Dichondra sp.A	2
Dichopogon fimbriatus	2
Dichopogon strictus	2
Digitaria spp.	C
Dillwynia spp.	2
Dipodium punctatum	2
Discaria pubescens	2
Diuris spp.	2
Dodonaea boroniifolia	2
Dodonaea viscose	2
Drosera peltata	C
Echinopogon spp.	C
Einadia hastata	2
Einadia nutans	C
Elymus scaber	C
Enneapogon nigricans	C
Epilolium spp.	C
Eragrostis spp.	C
Eriochilus cucullatus	2
Erodium crinitum	C
Eryngium ovinum	2
Eryngium vesiculosum	2
Euchiton spp.	C
Eutaxia diffusa	2
Galium gaudichaudii	2
Gastrodia sesamoides	2
Genoplesium spp.	2
Geranium antrorsum	2
Geranium spp. (excluding *G. antrorsum*)	C
Glossodia major	2
Glycine clandestina	2
Glycine tabacina	2
Gompholobium huegelii	2
Gonocarpus tetragynus	I
Goodenia hederacea	2
Goodenia pinnatifida	2
Grevillea lanigera	2
Grevillea ramosissima	2
Grevillea rosmarinifolia	2
Grevillea sp. aff. *alpina*	2
Gynatrix pulchella	2
Gypsophylla tubulosa	C
Hakea microcarpa	2
Haloragis heterophylla	I
Hardenbergia violacea	2
Helichrysum rutidolepis	2
Helichrysum scorpioides	2
Hemarthria uncinata	2
Hibbertia riparia	2
Hovea linearis	2
Hydrocotyle algida	C
Hydrocotyle calicarpa	2
Hydrocotyle laxiflora	2
Hydrocotyle peduncularis	C
Hypericum gramineum	2
Hypericum japonicum	2
Hypoxis spp.	2
Imperata cylindica	C
Indigofera adesmiifolia	2
Indigofera australis	2
Isoetopsis graminifolia	2
Isolepis spp.	C
Isotoma fluviatilis	2
Joycea pallida	C
Juncus spp.	C
Kunzea ericoides	C
Kunzea parvifolia	C
Laxmannia gracilis	2
Lepidium ginninderense	2
Lepidosperma laterale	2
Leptorhynchos elongatus	2
Leptorhynchos squamatus	2
Leptospermum spp.	C
Lespedeza juncea	2
Leucochrysum albicans	2
Leucopogon fletcheri	2
Leucopogon fraseri	2
Leucopogon virgatus	2
Levenhookia dubia	2
Linum marginale	2
Lissanthe strigosa	2
Lobelia gibbosa	2
Lomandra bracteata	I
Lomandra filiformis	I
Lomandra longifolia	2
Lomandra multiflora	2
Lomatia myricoides	2
Lotus australis	2
Luzula spp.	2
Lythrum hyssopifolia	C
Melichrus urceolatus	2
Mentha diemenica	2
Microlaena stipoides	C
Microseris lanceolata	2
Microtis spp.	2
Mirbelia oxyloboides	2
Montia fontana	C
Muelenbeckia tuggeranong	2
Neopaxia australasica	2
Opercularia hispida	2

Ophioglossum lusitaniacum	2	*Prunella vulgaris*	2	*Sorghum leiocladum*	2
Oreomyrrhis eriopoda	2	*Pseudognaphalium luteoalbum*	C	*Spiranthes sinensis*	2
Oxalis spp.	C	*Pteridium esculentum*	C	*Sporobolus* spp.	C
Panicum effusum	C	*Pterostylis* spp.	2	*Stackhousia monogyna*	2
Paspalum distichum	C	*Ptilotis* sp.	2	*Stellaria pungens*	2
Patersonia sericea	2	*Pultenaea* spp.	2	*Stuartina* spp.	C
Pelargonium spp.	2	*Ranunculus* spp.	2	*Stylidium despectum*	2
Pellaea falcata	2	*Ranunculus* spp.	2	*Stylidium graminifolium*	2
Pennisetum alopecuroides	2	*Rhodanthe anthemoides*	2	*Stypandra glauca*	2
Pentapogon quadrifidus	2	*Rhytidosporum procumbens*	2	*Styphelia triflora*	2
Persicaria prostrata	C	*Rubus parvifolius*	2	*Swainsona sericea*	2
Persoonia linearis	2	*Rumex brownii*	C	*Swiansona recta*	2
Pimelea curviflora	2	*Rumex dumosus*	C	*Tetratheca* spp.	2
Pimelea glauca	2	*Rutidosis leptorhynchoides*	2	*Thelymitra* spp.	2
Pimelea linifolia	2	*Rutidosis multiflora*	2	*Themeda australis*	*
Plantago gaudichaudii	2	*Schoenus apogon*	C	*Thysanotus patersonii*	2
Plantago varia	2	*Scleranthus biflorus*	2	*Thysanotus tuberosus*	2
Platylobium formosa	2	*Scleranthus diander*	2	*Tricoryne elatior*	2
Pleurosorus rutifolius	2	*Scleranthus fasciculatus*	2	*Triptilodiscus pygmaeus*	2
Poa labillardieri	*	*Scuttelaria humilis*	2	*Utricularia dichotoma*	2
Poa meionectes	C	*Sebaea ovata*	2	*Velleia paradoxa*	2
Poa sieberiana	C	*Senecio macrocarpa*	2	*Veronica* spp.	2
Podolepis jaceoides	2	*Senecio* spp. (excluding *S. macrocarpa*)	C	*Viola betonicifolia*	2
Polygala japonica	2	*Sida corrugata*	2	*Vittadinia* spp.	C
Pomaderris pallida	2	*Solanum* sp. (spiny leaves)	2	*Wahlenbergia* spp.	C
Pomax umbellata	2	*Solanum* spp.	2	*Westringia eremicola*	2
Poranthera microphylla	2	*Solenogyne dominii*	C	*Wurmbea dioica*	2
Portulaca oleracea	C	*Solenogyne gunnii*	C	*Xanthorrhoea australis*	2
Prasophyllum petilum	2			*Xerochrysum viscosum*	2
Pratia purpurascens	2			*Zornia dyctiocarpa*	2

Appendix 4. Calculation Table (for photocopying)

Site name:			**Plot ID:**		**Date:**	
Species name **(Native species only)**	**Braun-Blanquet score**	**Species type code**	**Indicator species level 2**	**Indicator species level 2 with the exception of those with scores of "r"**	**Indicator species (level 1 & 2)**	**Indicator species levels 1 & 2 with the exception of those with scores of "r"**
XxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxX	**See p.9**	**Appendices**	**Table C**	**Table D**	**Table E**	**Table F**
TALLY:	XXXxxxx xxxxXXX	XXXxxxx xxxxXXX			XXXxxxx xxxxXXX	
					SITE'S FLORISTIC VALUE SCORE:	

Tally: count, do not total, the number of entries in the required columns: *Indicator species level 2* (count all entries), *Indicator species level 2 with the exception of those with scores of "r"* (count entries with scores greater than "r"), *Indicator species levels 1 & 2 with the exception of those with scores of "r"* (count entries with scores greater than "r")

To derive a **floristic value score** for a site, **total** the three tally numbers along the base of the table.