

## Step 2

### Assess the condition and management history of the site

Disturbance that results from former land use or natural events strongly influences the condition and composition of vegetation communities.

To successfully identify priorities for conserving or restoring a grassy site it is important to understand the effects of former land use on the site.

Disturbance modifies ecological communities by altering their species composition and the habitats of animals that occupy them. The frequency and intensity of disturbance have dramatic effects. Patterns of disturbance were already established in Australia before European occupation. These resulted from land use by Aboriginals, fire and animal activities such as digging and grazing. The plant and animal communities present at the time of European occupation were the outcome of interactions between these disturbances and the landscape. The sudden introduction of agriculture, new industries and urban development brought new patterns of disturbance. These included total clearance, cultivation, mining, road works, broad-scale use of herbicides and fertilisers,

changes to tree cover, altered fire and grazing patterns, modified drainage and introductions of plant and animal species. The changed nature, frequency and intensity of disturbance altered plant communities, and the species that are not tolerant of these impacts have been reduced in number or have become extinct. Severely altered ecosystems can no longer function effectively to reduce salinity, erosion and the effects of drought.

#### Aims

- Describe the management history of each management unit.
- Identify the condition of each of the units as it relates to conservation significance.

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#### Land use history: Information sources

Rural lands protection boards; previous owners and neighbours are useful sources of information about former land use.

Recent and old aerial photos are important resources, because features such as past cultivation, soil disturbance and old fence lines may not be visible at ground level but can often be detected from the air.

Ground observations can be particularly useful. Sheep camps and other areas that have concentrated stock use, such as yards, gates and watering points are usually highly disturbed.

Vegetation composition and structure show evidence of previous grazing even if grazing is no longer practiced on a site, as the changes that result from grazing will persist for many years.

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#### Biomass

Biomass in the context of this workbook refers to the standing herbage in the groundlayer composed of living and dead grasses, forbs and other plant material. Biomass may be removed by grazing, mowing or burning. Biomass can be measured by cutting and weighing, or can be estimated by eye.

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#### Materials

Sheet 2

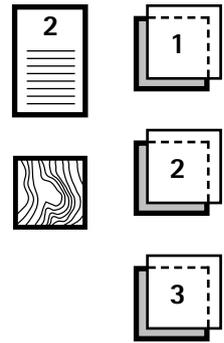
Map

Overlays 1, 2 and 3

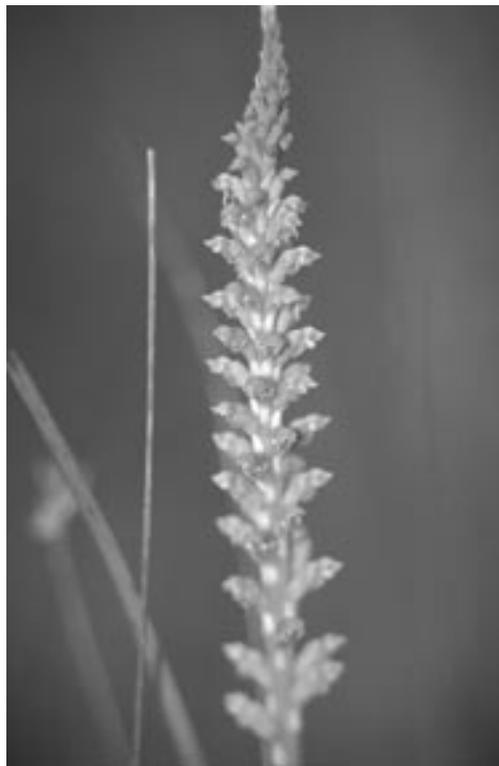


**Method**

1. Record the former land uses of each management unit on Sheet 2 using Table C and Sheet 1 and with reference to the Map and Overlays 1, 2 and 3. Review the management units in the light of their former use. On Overlay 3 adjust boundaries to reflect former use.
2. Record the land use condition scores for each management unit. Use Table C to identify land use conditions and their scores.
3. Calculate the land use condition scores for each management unit. Table D shows how to convert this score to a rank. Record this rank on Sheet 2.



*Eryngium ovinum*



*Calotis scabiosifolia*

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Characteristics of sites that are likely to contain native grasslands or grassy woodland may include:

- areas that have had little or no fertiliser applied;
  - areas that are only occasionally or lightly stocked;
  - areas that have not been ploughed; and
  - areas that contain perennial tussock grasses and a variety of wildflowers.
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**Table C: Site history, condition and current management**

For each management unit, determine which characteristics apply for former land use and current land use. Select the most appropriate categories. In areas of higher rainfall the biomass measures may need to be increased to better reflect local conditions.

Land use condition score	0	1	2	3	4
<b>Biomass management</b>	Biomass is frequently below 500 kg/ha: Constant or regular biomass removal at high intensity. Includes set stocking at high density and/or frequent hot summer fires every 1 to 2 years	Biomass is frequently below 1000 kg/ha: Constant or regular biomass removal at low to moderate intensity. Includes set stocking at moderate and low density, regular slashing, particularly in summer and spring	Biomass regularly over 2000 kg/ha: No regular form of biomass removal	Biomass varies between 500 and 3500 kg/ha: Intermittent biomass removal at high intensity. Includes rotational grazing, infrequent summer fires (1 over 3–5 years) and infrequent slashing in spring and summer	Biomass varies between 1000 and 3500 kg/ha: Intermittent biomass removal at low to moderate intensity. Includes occasional grazing, infrequent slashing or patchy fires (1 in 3 to 10 years) undertaken in varying seasons
<b>Cultivation and soil disturbance</b>	In last 25 years: Fully cultivated or Major soil disturbance	More than 25 years ago: Fully cultivated or Major soil disturbance	In last 25 years: Natural regeneration of understorey	More than 25 years ago: Natural regeneration for greater than 25 years	No cultivation
<b>Establishment of introduced pasture species</b>	With cultivation or direct drilling		Aerial sowing only		No intentional establishment
<b>Fertiliser application</b>	Regularly: every 1 to 5 years		Infrequent: less than 1 in 5 years	Not in last 25 years	Never
<b>Herbicide application (historical)</b>	Broad acre		Patches to 25 m <sup>2</sup>		Spot spray only
<b>Tree and shrub planting</b>	In native grassland In woodland or grassland cleared of trees	Large clumps and extensive planting— any species Introduced or non–local native trees over broad areas	Linear strips and small clumps Scattered trees	Scattered trees Non–local native in linear strips and clumps	No tree planting Scattered trees using local native species with no or minimal soil disturbance or No tree planting

## Reviewing the management units

Any particular management unit may have had a variety of uses. For management purposes it is helpful to treat areas with a similar history in the same way. Consequently the boundaries of management units may need to be adjusted so that each unit reflects a common use.

For example, a lower slope of land class 2 may be separated by a fence line. One side of the fence may have been sown with pasture species in the last 25 years and the other may not have been sown in living memory. In this case the larger management unit would be better viewed as two separate management units and further assessment conducted on each.

On the other hand, fence lines may separate areas with similar land use histories. It may be more useful to treat these areas as one management unit.

A small site may be best managed as one unit.

## Example

### Step 2: Site condition assessment

Site characteristics	Management units
	<b>A</b>
Biomass management (grazing, slashing, fire)	4
Cultivation and soil disturbance	0
Establishment of introduced pasture species	0
Fertiliser application	2
Herbicide application (historical)	2
Tree and shrub planting	4
<b>Total land use condition score</b>	<b>12</b>
<b>Total land use condition ranking</b>	<b>M</b>



*Microlaena stipoides*

**Table D: Converting land use condition scores to a rank**

Land-use Condition Score	Land-use Condition Ranking
20–24	Very high (VH)
15–19	High (H)
10–14	Moderate (M)
5–9	Low (L)
0–4	Very low (VL)



*Acacia gunnii*