

## Step 15

### Monitor single plant species distribution and abundance

Recording the change in distribution and abundance of a plant species can show if management activities are producing the desired results.

This method is often used to monitor threatened species, weed species, or particular plant species used as 'indicators' of the condition of the ecosystem. Measuring the change in distribution and abundance of single species can reveal whether:

- a species is still present in a selected area after a period of time; and
- species have increased or decreased in distribution over time.

Discuss monitoring of threatened species with the local, territory or state government agencies responsible for them. Permits are required for picking threatened plants. Practical or financial assistance may be available for monitoring or managing threatened species.

Field guides help with species identification. People experienced in species identification in government or non-government agencies such as Greening Australia, and conservation agencies or other extension officers may also provide help. The reference section identifies sources of assistance and lists field guides.

The distribution of species can be compared over time, and trends and changes observed. Variations over time can also be graphed. This can help determine whether follow-up management is needed or whether current management is achieving the desired results.

The effects of conservation management on the abundance of most native species can take at least three to five years to become apparent. In the meantime there can be significant temporary fluctuations in the abundance of a species from year to year.

Ensure that monitoring is carried out when the plant or animal is most easily identified. Refer to Table M (in Step 9) to help determine how often and over what time monitoring will occur.

#### Aims

To find out whether:

- A plant species remains in a particular location over time.
- The numbers and the distribution of a selected species change over time.
- Management activities that have contributed to the retention or loss of the species from the site.

#### Materials

Sheet 15

Map

Overlay 4

Identify location using a Geographical Positioning System if one is available.

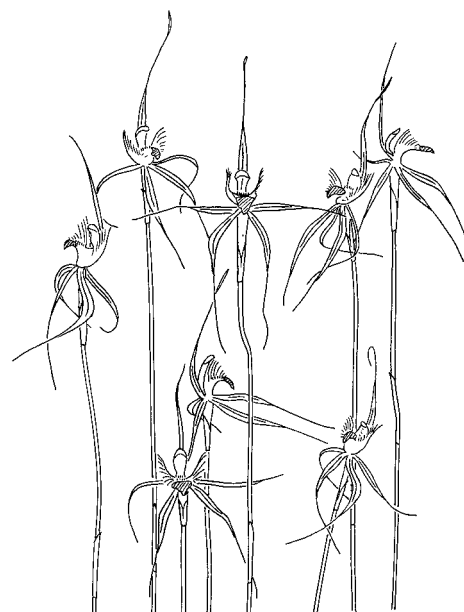
15



4



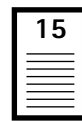
*Bracteantha viscosa*



*Caladenia tentaculata*

## Method

1. **Mark the extent of the population of the species being monitored on Overlay 4.**  
A GPS may be used to define the boundary more accurately. Field guides are useful to identify species being monitored.
2. **Count the species being monitored.**
  - Count the **whole population** if it is small enough to allow this; or
  - Count a **sub-sample** if the monitored species is spread over a large area or is very abundant. Do this at each monitoring interval. Choose two or more plots to sub-sample. Within these plots, count the individual species being monitored.
  - Mark the plots so that they can be found in subsequent years. Use star pickets or determine the corners by measuring from permanent 'markers' such as trees or fence corner posts. A photograph will also be helpful.
3. **Record details of the monitoring.** On Sheet 15 record:
  - the monitoring method being used;
  - how often monitoring is taking place;
  - the location;
  - what is being monitored;
  - total counts and other relevant notes.
4. **Take photos for records of change over time.**
5. **Repeat the monitoring over a period of time.** Compare the results to assess whether the population being assessed has changed in extent and abundance.
6. **Record the results from subsequent monitoring events on Sheet 15.** Note any changes that are relevant and note follow-up activities that are required.
7. **Graph the numbers of plants over time.** The numbers of plants found seasonally and annually can be graphed. Include the graphs with the other results of Sheet 15.



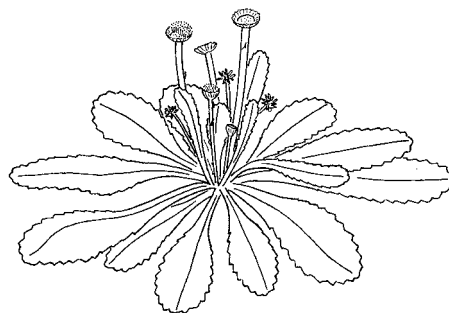
## Sub-sample plot size

The size of sub-sample plots will depend on the density of the population in question and the size of the species. For example:

Trees	20 x 20 metres
Shrubs	5 x 5 metres
Groundlayer	1 x 1 metre



*Hypoxis hygrometrica*



*Solenogyne dominii*

## Example

### Step 15: Surveys of single species



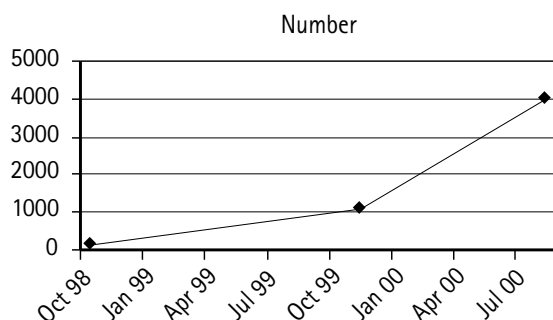
*Craspedia variabilis*

**Species being monitored:** Button Wrinklewort

**Method used:** Count of plants in total area (20 x 30m): undertake counts by traversing the area occupied by the plants. Count each tuft as separate plants. Count in late spring or early summer to assist in identifying plants.

Location	BW1	BW1	BW1
Management unit	F	F	F
Date	Oct 1998	Nov 1999	August 2000
Photo record no.	2		
Count	150	1100	3985

**Notes and follow up actions:** In 1998 the number of plants was estimated only. Note that the discrepancy in population size is likely to be because the plants in 1998 were only recently fenced off, and had been grazed down. Small plants, presumably seedlings, were evident in 1999 and 2000.



**Species being monitored:** Chilean Needle Grass

**Method used:** area of cover: in Unit F, determine the approximate extent of the very dense patch of Chilean Needle Grass, by pacing out the length and breadth of the area.

Location	CNG1	CNG1	CNG1
Management unit	F	F	F
Date	Oct 1998	Nov 1999	Oct 2000
Photo record no.			
Area	35 x 20m (700 m <sup>2</sup> )	40 x 27 m (1080 m <sup>2</sup> )	35 x 28 m (980 m <sup>2</sup> )

**Notes and follow up actions:** October 1999 and September 2000: temporary electric fence erected and site crash grazed to try and reduce seed spread. No significant reduction in area of Chilean Needle Grass achieved by end of 2000

