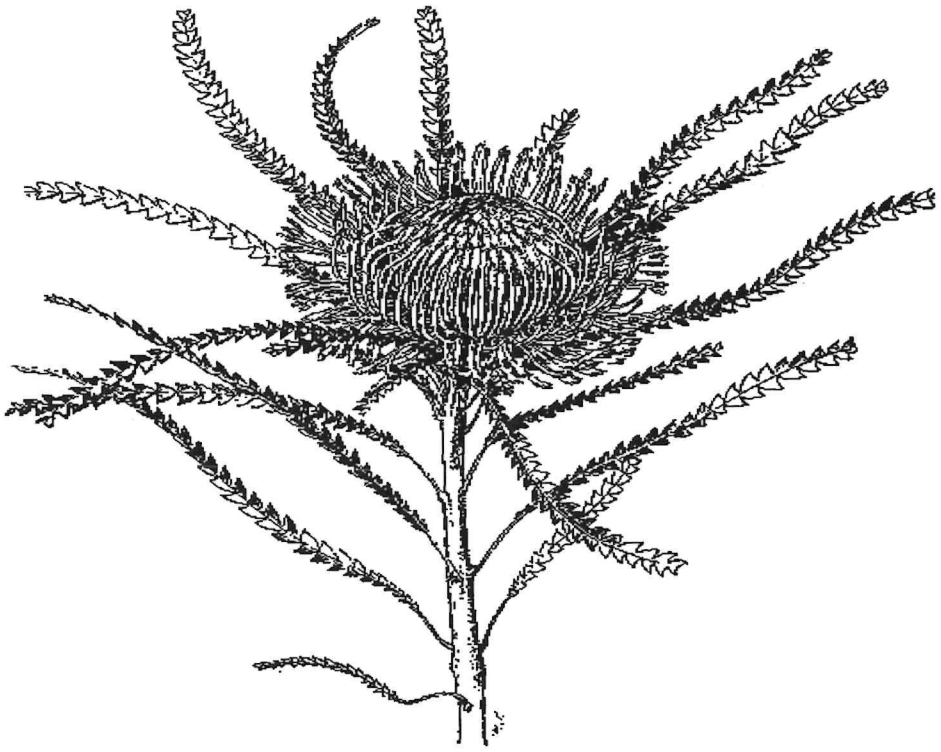
Management Guidelines for Remnant Vegetation Harvested for Cutflowers

Dryandra formosa



Illustrated by Margaret Pieroni

Written by Russell Smith and Liesl Rohl

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DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

BACKGROUND INFORMATION

These guidelines have been produced for use by landowners who wish to sustainably manage their remnant vegetation for cutflower production. The guidelines will also assist government authorities to advise on proposals to manage remnant vegetation for cutflower production on private land.

It is noted that some techniques that may be used to improve production of flowers, foliage or seeds from remnant vegetation may have the potential to adversely affect the nature conservation values of that vegetation, and to contribute to soil and water degradation. Land managers are thus advised to carefully assess management practices and their potential impacts before undertaking bush management for flower production.

Eight of the most heavily harvested species, or species of particular concern, were chosen for the preparation of these guidelines:

Agonis sp., ("coarse tea-tree")
Agonis parviceps, ("fine tea-tree")
Banksia baxteri
B. coccinea
B. hookeriana
Dryandra formosa
Meeboldina scariosa formally Leptocarpus scariosus
Verticordia eriocephala.

The recommendations within these guidelines are based on information received from land owners (who are currently managing these species on their properties), and from survey, monitoring and research results conducted in other managed stands.

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These guidelines were written by Russell Smith, CALM Bunbury, and Liesl Rohl, Flora Industry Botanist, CALM Como.

Guidelines for the conservation of remnant vegetation harvested for *Dryandra formosa* cut-flowers and seeds

Russell Smith

Introduction

Dryandra formosa, a shrub which naturally grows in forests and shrublands on gravelly soils within a quadrangle bounded by Rocky Gully, Denmark, Albany and Mt Barker, is a popular source of blooms for the cut-flower trade. In 1993 it was the ninth most heavily picked native species. The plant grows to about 2.5 metres and produces abundant golden-orange flowers that last well in dried arrangements. Although most stands occur in conservation reserves and State forests about 200 ha occurs in remnant vegetation on private property in the Mt Barker area. In 1994 this remnant vegetation was the source of 17% of total production. With the phasing out of *D. formosa* harvesting in some areas of State forest and until plantations take up the shortfall it is likely that a larger proportion of the harvest will come from remnant vegetation.

The purpose of these guidelines is to advise on the best methods to sustainably manage *D. formosa* and the remnant vegetation from which it is harvested. They are based on recommendations provided by current and former producers of *D. formosa* cut-flowers from remnant vegetation and a limited amount of scientific research and monitoring.

Biology

Dryandra formosa is killed by fire and depends on seed for regeneration. Although the seeds have a high viability and germinate readily, usually only a small proportion of the flowers on a plant are pollinated. The first flowers are produced in the third year but it probably takes about 7 years before sufficient viable seeds are produced to replace the parent plant in the event of a wildfire. There appear to be large losses of seeds to insect predation and seeds probably retain viability for only a year or so. The seeds are contained within woody follicles within the flowering head and are dispersed from the plant over a period of several months after they mature. Some seedling establishment takes place between fires but most occurs in the first winter after fire. Peak flower production occurs in September and October.

Fire

Fire in jarrah forest occurs at intervals of 7 - 20 years, either through prescribed burning or other causes. The interval between fires should be at the upper end of this range in smaller bushland remnants surrounded by pasture because the risk of weeds establishing is much greater.

Plants regenerating after fire do not have enough stems to be harvested for 5 - 6 years and good production could not be expected until they are 7 or 8 years old. However, as with banksias, a higher proportion of commercial quality blooms, with long straight stems, are produced on younger (6 - 8 year-old) plants of *D. formosa* than on old ones. *Dryandra formosa* blooms should not be harvested from an area in the season before it is burnt to ensure there is a sufficient seedbank. Container grown seedlings of *D. formosa* may be planted into a recently burned patch of bushland to increase the density of a stand or to replace the species if it previously

occurred in now degraded bushland. In the latter case control of exotic weeds will be an important factor in the successful establishment of *D. formosa*. It is also essential that nursery-grown stock are free of disease.

Recommendations

- The minimum time between burns in remnant vegetation that is being managed for the production of cut-flowers from *D. formosa* should be 12 years.
- If the population has been harvested this interfire period should be no less than 15 years.

Pruning

In cultivation the top part of the single *D. formosa* stem is usually tip pruned about 6 months after planting and when the plant is about 15 cm high to encourage the growth of multiple stems. About 10 - 12 leaves must be left on the stem below the cut to allow the plant to recover. Lightly pruning plants in new (1 - 2 year-old) wood immediately after harvesting may also increase the production of blooms. Care should be taken with pruning to ensure it is not too heavy, as heavy pruning of established *Dryandra* has been fatal in some circumstances. The age of wood can be estimated by counting the growth nodes back from the growing tip, with each internode indicating a year of growth.

Recommendations

- Tip pruning may be used at an early stage to increase the number of stems and light pruning in young wood may be used on mature plants to promote the production of blooms.

Fencing

The nature conservation value of remnant vegetation that is grazed is soon reduced markedly and it is strongly recommended that bushland used for cut-flower production be fenced. Apart from direct impacts, grazing also leads to compaction of the soil and may result in an introduction or spread of plant diseases.

Recommendation

- Remnant vegetation being managed for the production of cut-flowers from *D. formosa* should be fenced to exclude livestock and should not be grazed.

Harvesting

Dryandra formosa, having no rootstock, has a limited capacity to resprout, and heavy harvesting of young plants especially may result in plant death. As with other obligate seed regenerators *Dryandra formosa* is vulnerable to overpicking if it does not set enough seed to replace the parent plants in the event of a fire. At the age when the first commercial-length stems are produced (5 - 6 years) the plant may only have 5 -10 flowers not all of which will set seed. Seed may also be lost through predation.

Recommendations

- Plants should not be harvested until they are 6 years old, or have produced at least 5 main lateral flowering stems.
- No more than 20% of flowering stems should be harvested from plants less than 8 years-old.
- No more than 30% of flowering stems should be harvested from plants older than 8 years.
- Harvesting should not occur in area in the flowering season immediately before a prescribed burn.

Fertilizers

Like other Proteaceae, *D. formosa* is probably susceptible to phosphorus toxitcity. Slow release, low phosphorus, fertilizers are used for plantation grown *Dryandra*, however, application of fertilizer to remnant vegetation greatly increases the chance of weed invasion.

Recommendation

- Remnant vegetation being managed for the production of cut-flowers from *D. formosa* should not be fertilized.

Disease

Dryandra formosa is highly susceptible to 'dieback' caused by *Phytophthora* root-fungi and good hygiene measures are essential. These involve minimizing or eliminating the potential for infected soil to enter the bushland remnant. The fungi are most active in warm, wet conditions and great care must be taken to ensure machines, vehicles and footwear are cleaned of mud before entering the remnant. Aerial canker fungi are also a potential problem especially for older plants or plants under stress. Secateurs should be disinfected between plants to prevent cross-infection and pruning paint can be used to protect fresh cuts. Wiping the blades with a rag soaked in methylated spirits is a quick way of disinfecting them.

Recommendations

- Remnant vegetation being managed for the production of cut-flowers from *D. formosa* should be protected from the introduction or spread of plant diseases by the application of appropriate hygiene measures such as the washing down of machinery, vehicles and footwear before it enters the area.

References

- Pegrum, J. 1989. *Wildflower Production - Dryandra*. Western Australian Department of Agriculture, Farmnote 91/89.
- Hussey, B.M.J. and Wallace, K.J. 1993. *Managing Your Bushland*. Department of Conservation and Land Management, Western Australia.
- Fuss, A. 1994. *Pruning banksias*. Western Australian Department of Agriculture. Farmnote No. 100/94.