Management Guidelines for Remnant Vegetation Harvested for Cutflowers

Meeboldina scariosa – formally Leptocarpus scariosus

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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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Guidelines for the Sustainable Management of Remnant Vegetation Harvested for *Leptocarpus scariosus* ("Velvet" or "Seeded" Rush) Cut-flowers

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Introduction

Leptocarpus scariosus is the most heavily exploited native rush used by the processed cut-flower industry. In 1993 almost 21,000 bunches were harvested, with about 81% of them coming from remnant vegetation on farms. There is very little produced in plantations. The plant is dried and sometimes bleached and dyed for use in flower arrangements. The female plant, called "velvet rush", is most sought-after by the industry, but some male plants (called "seeded rush" is also harvested. *Leptocarpus scariosus* has a restricted distribution in high rainfall coastal areas of the south-west and occurs naturally as a band around wetlands and lakes, and along streams.

The purpose of these management guidelines is to advise on the best methods to sustainably manage *L. scariosus* and the remnant vegetation from which it is harvested to protect the conservation values of the remnant. The guidelines are based on interviews with farmers who have produced *L. scariosus* from their remnant vegetation and from research carried out by CALM, Agriculture WA and as a university research project.

Biology

Leptocarpus scariosus is a seed regenerator with a relatively small rhizome in comparison to its above-ground parts. The male and female plants grow as clumps of culms up to 1.2 m high with the diameter of the clump increasing with age. Female plants become reproductively mature in the sixth or seventh year after germination and when flowering commences it is only in a few culms, therefore plants germinated from seed may take up to 8 years before they can be harvested. Seeds take 12 months to mature and then are released onto the ground over summer. The seeds are probably not long-lived, and germination after a fire is therefore based on the previous season's seed-set.

Fire

Leptocarpus scariosus is frequently killed by fire because its rootstock is shallow. However if the fire occurs when the soil is very wet the plant may survive because its rootstock is insulated from heat. For this reason if a stand of *L. scariosus* is to be burnt it should be done early in spring, or in autumn, after there has been sufficient rain to saturate the ground. Provided that the rhizomes are sufficiently protected, burning will remove old dead culms on mature plants and stimulate the germination of seedlings. However, it is highly advisable that only part of the area is burnt in any one year, both to protect the stand if the fire is too hot, and because it is 7 - 8 years before a harvest can be made after fire. The minimum time between fires, in any one area, should be 10 years. An area should not be harvested in the year prior to burning because *L. scariosus* relies on its latest seed crop for regeneration .

Recommendations

- Remnant vegetation being managed for the production of cut-flowers from *L. scariosus* should have a minimum interval between burns of 15 years.
- Burning should be done in late autumn after there has been sufficient rain to saturate the soil.
- Not all of an area of *L. scariosus* should be burnt at one time.

Ploughing or slashing

Ploughing or disking is sometimes used as a method of rejuvenating stands of *L. scariosus.* However, ploughing will kill most adult plants, especially if it is done under dry conditions, and can not be recommended. Regeneration of the stand will depend on seedling germination and survival. The risk of erosion after ploughing and the major change in vegetation structure it involves make it unacceptable as a management option.

Slashing done more than 30 cm above the ground should not kill adult plants. It will have the effect of temporarily lessening the competition from shrubs, and of removing dead culms from the *L. scariosus* plants. However, slashing may significantly alter the vegetation composition if a large proportion of non-resprouting plants (including *L. scariosus*) are killed by the operation and do not regenerate. It is advisable that only a proportion of the remnant be slashed in any one year in case germination or seedling survival is poor.

Recommendations

- Ploughing is not a suitable method of management of remnant vegetation being managed for the production of cut-flowers from *L. scariosus.*
- Slashing should be at least 30 cm above ground and be at no less than 10 year intervals.
- No more than 25% of a remnant should be slashed in any one year.

Fertilizers

Because *L. scariosus* occurs in wetland areas there is a risk that applied fertilizers will be flushed into streams and rivers after rainfall. This wastes the fertilizer and also adds to over-enrichment problems with waterbodies downstream. In addition *L. scariosus* habitats are naturally infertile and it is likely that added nutrients would encourage the invasion of weeds and selectively disadvantage the native species.

Recommendation

- That fertilizer should not be applied to remnant vegetation being managed for the production of cut-flowers from *L. scariosus.*

Harvesting

Leptocarpus scariosus is harvested by cutting the culms high enough above the ground to give a commercial stem length (50 - 70 cm). The cut is made using various implements, such as knives, 'whippersnippers' and hedgecutters. Research has shown that the height of cutting is crucial to the survival or future growth of individual *L. scariosus* plants. Up to half of plants cut off at ground level may die. Even if plants are harvested at ground level survive, they will regenerate very slowly. Regrowth may also be poor on plants cut below 30 cm. It is 3 - 4 years before culms are long enough to be harvested again.

Recommendations

- *L. scariosus* should not be cut less than 30 cm above ground level.
- There should be a minimum of 4 years between harvests of the same plant.
- No more than 20% of female clumps should be harvested in any one year.
- A knife should be used for harvesting to help get an even cut.

References

- Sprigg and M. Webb. 1994. *A Study of the Processed Wildflower Industry*. Western Australian Department of Agriculture, Miscellaneous Publication No. 44/94.
- Hussey, B.M.J. and Wallace, K.J. 1993. *Managing Your Bushland*. Department of Conservation and Land Management, Western Australia.
- Chambers, J.M., Fletcher, N.L. and McComb, A.J. 1995. *A Guide to Emergent Wetland Plants of South-Western Australia*. Marine and Freshwater Laboratory, Perth, Murdoch University, Western Australia.