LAND FOR WILDLIFE

Wildlife Notes

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT **No.7 December 1999**
Information Notes for the *Land for Wildlife* Scheme in Western Australia

Management Guidelines for Remnant Vegetation being Harvested for Cutflowers

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Harvesting waxflower. Photo: D. Lamont.

Western Australia's cut wildflower industry has become a multi-million dollar industry. Currently in WA over 250 species of protected flora are harvested for their flowers and foliage and more than 600 species for their seed from both Crown land and private property.

Flower production from bushland on private property is increasing as land holders become aware of the value of their flora. It is now estimated that more than 20% of WA's native cutflower exports come from remnant vegetation on private property. Management of these bushlands is required to ensure that the bush is preserved, not only because of its conservation value, but also to ensure sustainable harvesting can continue into the future.

Sustainable harvesting practices are also required under Commonwealth law where the flora is harvested for export. Western Australia has a management program for the harvesting of native flora which provides for flora exports, and these management guidelines are a strategy to support this management plan.

It should be understood that some techniques which are used to improve production of protected flora for cut

flowers and foliage 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.

Seasonal variations also need to be taken into account. For example, in drought years plants become stressed. If you harvest as you would in a 'normal' year this may stress the plants further and they may die.

The following guidelines have been written as a general guide for managing remnant vegetation for cut flowers.

FIRE

Fire affects plant regeneration in different ways depending on whether the plant is a **reseeder** or a **resprouter**.

Reseeder species rely upon seed stored on the plant or in the soil to replace parent plants after fire. To replenish this 'seed bank', plants must be able to reach maturity, flower and set seed. The time involved varies for different species and it is best estimated by studying the plants you wish to harvest as well as the other species in your remnant(s).

Some species only regenerate from seed, these species are called obligate seeders. It is important that fires do not occur at a frequency which prevents these plants establishing a new store of seed. For remnants which are harvested for cut flowers and seed, the time between managed fires should be increased to allow a greater time for a seed store to be built up.

Resprouters shoot again from buds protected beneath their bark or on their rootstocks (underground stems). To do this they use up food reserves stored in roots and stems.

These plant species can generally survive stress such as fire, drought and some grazing. However, if fire or grazing occurs too frequently these plants do not have enough time to build up new food reserves and each resprouting becomes weaker until the plant eventually dies. If resprouter species are killed, viable seed needs to be available to re-establish them.

Many plants reproduce by both methods, seeds and resprouting. Each remnant will have a mixture of reseeder and resprouter species.

The required interval between fire may vary between remnants, depending on the species present. Fire may increase the number of native species in an area if it has not been burnt for a long time, provided appropriate seed is present, and the fire is at the right temperature and time of year.

However, if the fires are too frequent, especially in small remnants which have been harvested for flowering stems, local extinction of fire-sensitive native species may occur and weed establishment will increase, especially if there is potential for weeds to enter from surrounding farmland.

Weeds produce many thousands of seeds each year and are not disadvantaged by frequent burning. Many native plant species are weakened by fire and are replaced by weeds. Burning should not be used as a way of removing weeds.

The desirable time to burn for both reseeders and resprouters is in autumn after the first rains. This ensures that there is enough water to help with seedling establishment and helps prevent shallow rootstocks from being harmed.

If burning is used as a management tool, the time between fires should be at least twice as long as the time to maturity of the slowest growing reseeder species. It is advisable to separate the remnant bushland into a number of areas using firebreaks so that only part of the stand is removed from flower production at any one time.

Another benefit of dividing your remnant into compartments is if a burn is followed by a drought year, a plague of locusts or rabbits, or sheep get into it, not all of the remnant is at risk of being degraded – only the part that has been burnt.

DISEASE

Care should be taken not to introduce *Phytophthora* root-rot and other diseases into the remnant bushland. Although some species are resistant to *Phytophthora* fungus other species occurring in the remnant may be vulnerable. Many species in the *Banksia, Isopogon, Lambertia, Persoonia, Petrophile, Xylomelum, Thryptomene, Verticordia, Andersonia, Astroloma, Lysinema* and *Hibbertia* genera are particularly sensitive to *Phytophthora.*

The *Phytophthora* pathogen is most often spread in soil attached to vehicles and on the bottom of shoes, particularly in moist environments. Great care must be taken to prevent its introduction or spread. Harvesting of flora in warm wet conditions is likely to spread this and other diseases which are active in moist conditions. Good hygiene measures are essential, e.g. clean all machinery, vehicles and footwear between each stand and restrict access by livestock and vehicles (see references for detail).

Aerial canker fungi are also a potential problem, especially for some *Banksia* and *Eucalyptus* species. Secateurs should be disinfected between plants to prevent cross-infection and pruning paint can be used to protect fresh cuts. Dead or dying stems should be cut from the plant below the site of disease expression (figure 1), removed and burnt to prevent disease spread.

Secateurs and knives should always be disinfected between stands to reduce the risk of disease introduction. Wiping the secateurs and knives with a cloth soaked in methylated spirits is a quick way of disinfecting them.

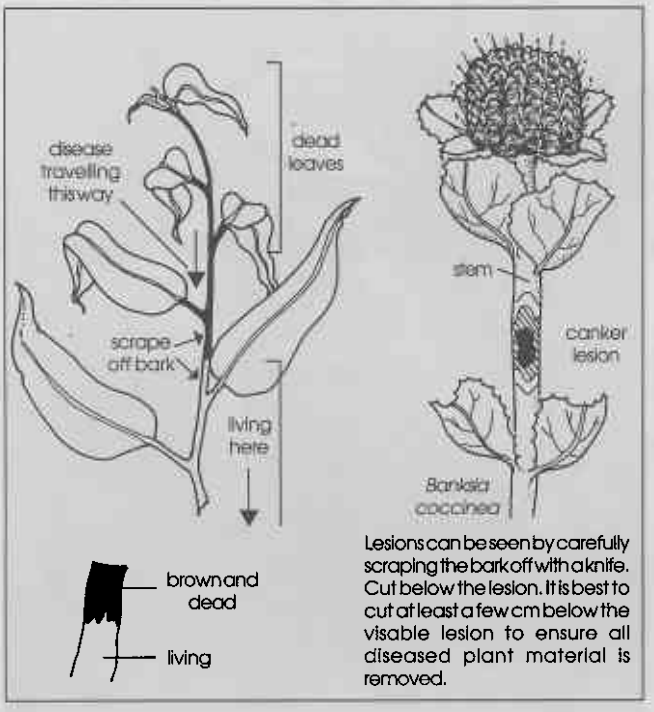

Figure 1. Aerial canker.

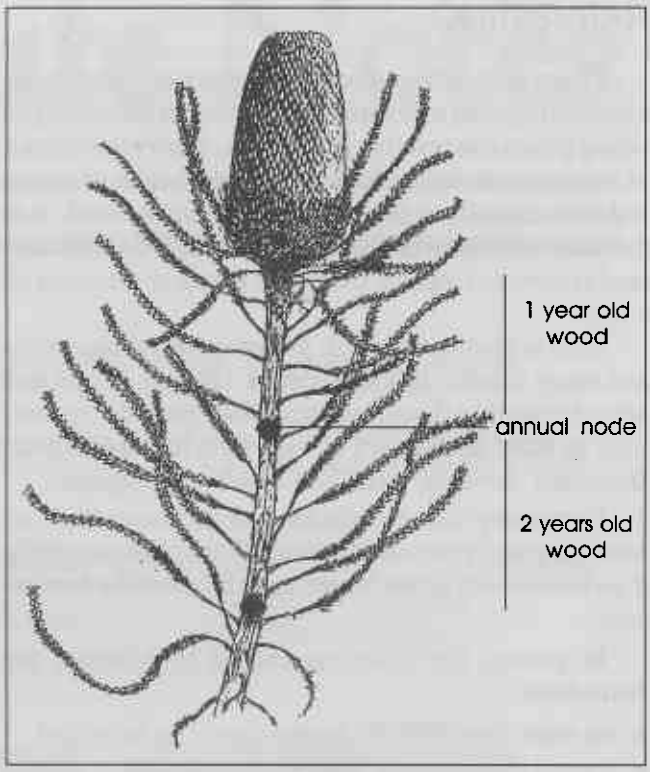

Figure 2. How to age banksias

PRUNING

Some species, including many banksia and dryandra species, respond well to pruning. Pruning of plantation-grown and wild banksias and dryandras is considered a good horticultural practice which is used to improve the production of commercial quality blooms. In general it takes approximately 1 to 2 years after pruning for bloom production to increase for these species.

Pruning can be used as an alternative to burning, with bloom production being much quicker than after a burn.

Light pruning (into 1-2 year-old wood) increases the proportion of commercial quality blooms, but heavy pruning, into 4 - 6 year-old wood, often decreases bloom production and may even kill some of the plants. In general, pruning should not remove all the green leaves from the stem being cut.

The age of stems can be gauged for banksias and dryandras by counting the number of annual nodes (raised areas on stem formed at the end of each growth season) back from the growing tip (figure 2).

Tip pruning can also be used at an early stage to increase branching and hence the number of stems.

FENCING

Stock and rabbits eat the seedlings, compact the soil, cause soil erosion, and can also spread plant diseases and introduce weeds into the area.

It is strongly recommended that bushland used for cut-flower production be fenced to exclude stock. Studies have shown that the general health of remnant bushland declines if it is grazed.

FERTILISER

Fertilisers are generally detrimental to remnant bushland. Some species, particularly members of the Proteaceae (eg *Banksia*, *Dryandra*), are harmed and weed invasion is encouraged. If applied near waterways, fertilisers also have the potential to be washed into them, and contribute to the pollution of waterbodies in the area.

Fertiliser addition is not recommended in most situations.

SLASHING

Slashing is not recommended for reseeder species. Slashing alters the bush vegetation if a large proportion of non-sprouting reseeder plants are killed by the slashing.

If slashing is to be conducted to promote growth of resprouters the following guidelines should be followed:

- slashing should be done 30 cm above the ground
- only a portion of the remnant bushland is slashed at any one time to ensure adequate seed germination and seedling survival in the area
- slashing be conducted from mid autumn to early winter
- tractor tyres may cause some compaction of the soil and damage to other species. Tractor powered slashing should not be carried out more frequently than once in 10 years. To reduce the risk of soil erosion, tractor-powered slashing should not be carried out on steep (> 20%) slopes.

HARVESTING

Plants without rootstocks (underground stem), have a limited capacity to resprout, and incorrect harvesting of young plants can result in plant death. Heavy harvesting of reseeder species reduces the general health of plants and their capacity to produce and accumulate seed. It is therefore important to ensure that there will be sufficient seed reserves to replace the parent plants in the event of a fire.

Seed is also lost through predation by rabbits, birds and many insects; this needs to be taken in to account when harvesting flowering stems from reseeder species such as *Banksia baxteri, B. coccinea, B. hookeriana, Dryandra formosa,* and *Verticordia eriocephala.*

Harvesting all the available flowers from a bush, or when the plant is too young, often kills the plant especially if no shoots with green leaves are left below the harvest cuts.

In general the following should be followed for **reseeders**:

- no more than 30% of blooms should be harvested
- a stand should not be harvested for flowers or foliage for a year prior to it being burnt
- green leaves must be left below the harvest cut
- knives or secateurs should be used for harvesting to help get an even cut.

Plants which resprout often die if harvested at ground level, others regenerate very slowly. These species also suffer from stress if harvested too young.

In general the following harvesting techniques should be followed for **resprouters**:

- plants should not be cut less than 30 cm above ground level
- a knife or secateurs should be used for harvesting to help get an even cut
- depending on the number of good quality stems and the age of the plant, about 20% - 60% of the current season's growth can be taken.

LICENSING

Under the Wildlife Conservation Act 1950, flora native to Western Australia is protected. If you wish to sell protected native flora taken from private land you need a Commercial Producer's Licence or a Nurseryman's Licence (PN). This licence costs $25 per year.

Contact your nearest CALM office or CALM in Como for an application form.

Note: the landowner's permission is also required to harvest protected flora from private property.

Meeboldina scariosa *(formerly* Leptocarpus scariosus*) being harvested. Photo: C. Robinson.*

FURTHER INFORMATION

Specific management guidelines and recommendations have been written for the following species:

Agonis sp., ("coarse ti-tree"), *Agonis parviceps*, ("fine ti-tree"), *Banksia baxteri*, ("baxteri"), *B. coccinea*, ("coccinea"), *B. hookeriana*, ("hookerana"), *Dryandra formosa*, ("formosa"), *Meeboldina scariosa* ("velvet rush" for female plant, "seeded rush" for male) and *Verticordia eriocephala* ("cauliflower" or "brownii").

These guidelines can be obtained by contacting CALM Wildlife Branch on 9334 0455.

REFERENCES

Hussey, B.M.J. and Wallace, K.J. 1993. *Managing Your Bushland.* Department of Conservation and Land Management, Perth.

Kilgour, S. 1999. *Managing Dieback in Bushland: a guide for landholders and community conservation groups.* Dieback Working Group, Kalamunda.

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