PRACTICALITIES

BIODIVERSITY CONSERVATION AND WILDFLOWER PRODUCTION OF BUSH CAULIFLOWER (*VERTICORDIA ERIOCEPHALA*) - CONFLICT OR COMPATIBILITY?

by Sarah McEvoy and Denise True

BUSH Cauliflower (*Verticordia eriocephala*) is one of the most distinctive Wheatbelt wildflowers with its characteristic white 'cauliflower' blooms. It occurs from Coorow to near Esperance and usually grows on sand over gravel or sand over clay in a scrub heath community. While the range of the species is wide, the area of habitat remaining in which Bush Cauliflower occurs is limited. Field surveys have shown that much of the potential habitat has been cleared, mainly for agriculture but also to a lesser extent for sand and gravel mining. Illegal harvesting on conservation reserves in the western Wheatbelt is common, with nearly all nature reserves and national parks having been exploited.

Bush Cauliflower has been commercially harvested for about the last 15 years from wild populations for use in the wildflower trade. The value per bunch (approximately 10 stems per bunch) to the private property picker is 60c - 80c when selling to a local landholder/wholesaler (depending on distance to the stands and ease of picking), or about 40c more when sold directly to an exporter. The majority of Bush Cauliflower is exported overseas, some is exported to eastern Australia and a very small percentage is sold locally.

Little cultivation of Bush Cauliflower has occurred to date. Research being conducted by Agriculture Western Australia is investigating the best method of establishing a commercial plantation, including an investigation of nutritional requirements and mycorrhizal (fungal) associations which may influence growth and yield. Previous work has highlighted difficulties in establishing the crop. Similar difficulties have been experienced by growers with trial plantings. High transplanting losses occur and after planting out, plants often stagnate in the field for some time before either flourishing or dying.

With a gradual decline in the species' availability from Crown land, coupled with a downturn in the rural economy, there has been an increase in the number of blooms being taken from semi-managed 'wild' populations on private land. As a result of concerns about the sustainability of commercial harvesting, picking of this species has been prohibited on Crown land since November 1994.

Effects of picking

One of the problems with picking or harvesting Bush Cauliflower is that many of the plants are killed as a result of the practice. Research we have carried out indicates that harvesting results on average in the death of half of all plants, including plants not picked. For heavily harvested plants where more than 80% of the flowers are removed, mortality is nearly 100%. Where plants survive, regeneration is slow with stems growing only 3-5 cm per growing season and plants taking between 3-5 years to produce another commercial flowering head.

The other damaging aspect of picking is the actual reduction of future plants by diminishing the seed bank through removal of the fruits that contain seed. This species depends almost entirely on seed stored in the soil for germination of seedlings following the death of parent plants during fire.

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THE EFFECT OF DIFFERENT MANAGEMENT REGIMES ON BUSH CAULIFLOWER

Technique	Benefit	Disadvantage
Rolling and/or chaining	encourages regeneration of some species	• severely disrupts the community, often killing resprouter species
Fertilising	may increase growth rate	• value to Verticordias not yet proven • can be deleterious to other species in the remnant
Controlling pests and diseases	improve growth and health of Bush Cauliflower	• the pollinator of Bush Cauliflower has not yet been identified and insecticide spraying may adversely affect future seed production • may affect other insects which have ecological and agricultural benefits
Removal of competing flora	less competition	• may not lead to increased growth • reduction in conservation values of the remnant
Access roads and tracks	confine vehicle access for picking to one area	• may create a passage for the spread of weeds and disease such as *Phytophthora* • may increase wind turbulence in remnant, resulting in deaths of Bush Cauliflower plants
Irrigating	increase growth rates in a row crop	• unlikely to improve growth in a remnant population, especially without deleterious effect on other species • may not be a wise use of a scarce resource
Pruning	improve shape and yield	• likely to result in death of plants or reduce yield
Burning	regenerate target species	• frequency and timing are critical - would not recommend less than 15 year intervals • if seed source is depleted, may result in extinction of target species from remnant • can increase weed invasion if buffer areas not provided.

Why conserve Bush Cauliflower?

With proper management, retaining viable stands in remnants can not only contribute to the ecology of a remnant and overall conservation of the species, but may also provide additional farm income.

The location of Bush Cauliflower in the landscape, on mid to upper slopes and crests, means its retention can be important for land conservation purposes. The vegetation type in which it occurs provides a rich habitat for fauna and Bush Cauliflower itself is an important structural and visual element in the ecosystem. In addition, conservation of viable populations of this species cannot be achieved on Crown land alone, and the role of private property in maintaining this species throughout the Wheatbelt is vital.

Managing a harvested population

The following management techniques can help to protect the vegetation and specifically Bush Cauliflower, for landcare, nature conservation and commercial harvesting:

- fence to exclude grazing
- control weeds
- exclude frequent fires
- avoid allowing fertiliser and insecticide to drift into the remnant
- disease hygiene management.

Specific techniques have been used by growers in semi-natural stands to 'improve' the yield of Bush Cauliflower for commercial production. However they can have both beneficial and deleterious effects on the species and its habitat. The table above provides a guide for understanding the potential effects of your actions.

It should be noted that any flora which is exported (as nearly all Bush Cauliflower is) must, under Commonwealth legislation, be sustainable for both the species and its ecosystem. So, if any potentially destructive techniques are proposed, the impacts on other values of the remnant should be carefully considered. It is suggested that before any management techniques to improve production are imposed, the following should be undertaken:

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- defining what are the major ecosystems which will be affected by commercial harvesting from remnant vegetation;
- assessing the conservation status of the species and communities affected (either directly or indirectly) by your actions;
- evaluating the effects of management techniques used for flora harvesting on remnant vegetation. Potential sources of help in assessing these effects are CALM, AgWA, LCDCs - or your local *Land for Wildlife* Officer.

Inappropriate use can result in degradation of the remnant with consequent effects on water, soil and nature conservation values - the very reasons for which the remnant has been retained. In addition, if you cannot prove your actions are sustainable, an export licence is unlikely to be granted.

So, pick conservatively, and plan your management to reflect nature as much as possible to ensure the compatibility of economic values with long-term viability of the Bush Cauliflower remnant.

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