

Watsonia eradication on Culeenup Island

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These brief comments deal with the occurrence and eradication of *watsonia* in an island situation. The name of the island is Culeenup and it is one of eight within the Murray Serpentine River Delta. The island is about 2 kilometres long and about 450 metres wide at its widest point. The area of the Island is over seven hectares. Almost half of this is by now more or less densely covered with this exotic weed.

The Western Australian Naturalists Club owns and operates a field station or observatory on the island. Hence the club has an inherent interest in the delta environs and biota. Already in 1970 the presence of a member of the *Watsonia* genus was mentioned in the Club's scientific journal "The WA Naturalist" Vol. 11(7). It was then recorded as *Watsonia leipoldtii*. As we were told the "Flora of Perth" now lists eight naturalized species of this herbaceous perennial with a strong corm or bulb.

For some fifteen years no further notice was taken of the plant's presence or its inexorable spread. In 1987 some discussions resurfaced about its identity. For a while members referred to it as a *Chasmanthe aithiopitica*. But further comparisons put it back into the genus *Watsonia* and it has since been known as *Watsonia bulbifera*.

Another article on Culeenup Island's flora in Vol. 19(1) of the "WA Naturalist" raised more concerns on the magnitude of the plant's inroads on herbaceous, indigenous flora. Apart from trees and large shrubs nothing will persist in the face of that frontal attack.

In 1983 a long conversation with Vincent Serventy helped to convince me to attempt to do something in spite of a general attitude of indifference.

Close to a channel near the field station, an area of 10 m × 10 m was mowed on a trial basis. It was amazing to see the ignorance in use of a scythe. The mowing was based on the premise that by depriving the plants of photosynthesis they should eventually die.

Separated by a track and opposite this trial, club members commenced to grub the individuals or clusters of plants. This began in winter 1984. The soil was then quite wet and the removal process was not too difficult. The corms were usually only 10–15 cm below the litter and the amount of roots was negligible.

Much later we started on another section, closer to the field station, where each winter we removed square metres of

thickly matted *watsonia*. The line of attack was about eight metres wide. One person walked along and loosened the mass with a pickaxe and another followed to pull the plants out, shake off the soil and throw them onto a heap. Eventually they decompose. Some, with too much soil left on, tended to resprout the following winter.

These two techniques were employed until 1986. By that time our first test plot had been mowed four times. Plants had not flowered but remained alive and regrew every winter.

In August 1986, we added a third, chemical dimension and experimented with the herbicide Roundup. A similar approach had proven useful while spraying *Cortaderia selloana*. But this herbicide is expensive. We applied it in a large broadscale fashion trying to minimize its effect on native plants while also considering the spray caused by wind drift. Health effects on the users have to be considered as well.

After six weeks the result was quite impressive and by midsummer a large thick layer of decaying *watsonia* leaves covered the area. During winter the material broke down further until the soil was visible once more.

In both cases, however, there will always be need for follow-up work. Certain plant groups are missed, bypassed, corms are lost or the fallen bulbils germinate in the years following removal or spraying of the parent plants.

As indicated earlier on, the mowing method has not been successful. Up to the present the plot has been cut over nine times, the plants are stunted and only a few have managed to flower in 1991. It appears that in between mowing cycles the plant produces enough food and stores it in the corm to produce two or three small leaves during the next growth period.

In 1990 we established further test and control plots to:

- i. test the advance of the plants per year, and to slow that advance by creating a buffer zone
- ii. create a buffer zone by treating a 10 m × 4 m area. Over 90% of all plants were killed. There are some surviving old corms and new growth from soil-stored bulbils.

In our experience only a very small amount of natural biological control seems to exist. It has no impact on the abundance of the population. Three ob-

servations have been made:

- i. young corms are at times being dug up by rabbits and eaten,
- ii. sometimes grey kangaroos feed on the flowers and
- iii. Silvereyes when feeding on the flower nectar do damage the long corolla tube. They thereby disable the flower to produce bulbils in due course.

In 1990 the Yunderup Delta Society tried to enlist the help or assistance of the Agriculture Protection Board via a letter to the then Minister for Agriculture, Hon. E. Bridge. This proved to be the wrong address for action or help.

There are hundreds of community offenders out there. We have tried to involve this community-based offender rehabilitation scheme, but the barriers to get these people employed in a worthwhile project are as long as the name of that scheme. In fact, one gains the impression that community offenders are doing us a favour by trying to eliminate their court-imposed community work orders as non-productively as possible. This was also a failure.

We believe that we can at least contain the *watsonia* problem if not completely eradicate it. We do not need cost benefit analysis, policies or strategies, and not even large amounts of money. The only requirement is a firm commitment, but this, of course, is in short supply.

It is a social tragedy that the conservation of our biological diversity cannot be helped or enhanced while we are supporting 80 000 unemployed Western Australians and in some places youth unemployment rates exceeding 30%.