

Monadenia - A Trial

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Background



Monadenia (*Disa bracteata* formerly *Monadenia bracteata*) is a highly invasive orchid from southern Africa. Over a short 20 years, this weed is now present through much of the Mount Lofty Ranges and could be expanding into the lower Flinders Ranges in South Australia. Monadenia is also a weed in Western Australia and Victoria.

In the past monadenia was treated by hand digging the entire plant during its growth phase and destroyed. It was a technique to ensure all plants were removed. Sadly, not all monadenia could be found and it has spread widely since. Hand digging is no longer practical when monadenia occurs in large numbers.

Between 2000 and 2004 the late John Garnaut (Bush For Life) developed the technique of removing monadenia flower heads before seed was produced.

Over this time, John had a dramatic reduction of flower heads, estimated to have been 10% of 2000 levels.

This technique prevented further production of seed and allowed time for other bush regeneration activities. There was also a psychological advantage to this technique, which prevented bush regenerators from becoming disenchanted and demoralised.

What we did

In 2005, Bush For Life undertook trials in an attempt to find a more efficient and effective treatment for monadenia. The trials were conducted on two properties; one at Harrogate and one at Springton.

17 treatments for monadenia were trialled in one square metre quadrats, including those used by other organisations such as Threatened Plant Action Group, South Para Biodiversity Project, National Trust and one from Western Australia.

Each property had at least one quadrat with over 70 mature monadenia. The Springton property had one quadrat with 79 mature monadenia.



Flags marking 79 mature monadenia in 1 square metre

Treatments

These treatments were,

- Cut and swab with Glyphosate (neat)
- Cut and swab with Glyphosate (1:2)
- Cut and swab with Glyphosate (1:4)
- Cut and swab with Glyphosate (1:10)
- Cut and spray with Glyphosate (1:100)
- Cut and spray with Glyphosate (1:50)
- Wipe leaves with Glyphosate (1:1)
- Wipe leaves with Glyphosate (1:4)
- Wipe leaves with Glyphosate (1:10)
- Spray with Glyphosate (1:100)
- Spray with Glyphosate (1:50)
- Spray with Glyphosate (1:100) + penetrant
- Spray with Glyphosate (1:50) + penetrant
- Spray with metsulfuron methyl (3g/100L)
- Spray with metsulfuron methyl (1.5g/100L)
- Hand pull flower heads
- Hand dig bulbs

Treatments were undertaken at 3 growth stages,

- F1 - Rosette only stage
- F2 - Flower head emerging in rosette and
- F3 - Lowest flowers flowering.

Each treatment was timed to find which was the fastest and most effective.

Results

Many treatments were more than 70% successful in killing monadenia.

Those with 90% success or greater were, Cutting and spraying if treated at F1 or F3.

Wiping at 1:4, best at F2 & F3

Wiping at 1:10 at all growth stages

Spraying with Glyphosate + penetrant at any growth stage (higher levels of off target damage).

Spraying was approximately 5 times quicker, but tended to result in more off target damage to neighbouring plants.

The least effective at killing monadenia were spraying with metsulfuron methyl and hand removal of flower heads.

Recommendations

Based on this preliminary trial, for monadenia occurring in bushland Bush For Life recommends using a Weedbrush (or shoe polish applicator) with Glyphosate diluted 1:4 with water at all growth stages before flowering. Once a flower stalk is present the Tongs of Death may be easier to use.

In large areas that are heavily infested spot spraying with Glyphosate at 1:100 including a penetrant is recommended. Care will be required to avoid killing native plants.