

EFFECTIVE CONTROL OF CREEPING GROUNDSEL (*SENECIO ANGULATUS*)

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Summary Creeping groundsel, *Senecio angulatus*, originates from South Africa and is a threat to native vegetation because of its ability smother plants. It is widespread on the Mornington Peninsula, Victoria. Although previously considered untreatable, field trials suggest that *S. angulatus* may be controlled with triclopyr and metsulfuron methyl without putting indigenous flora at risk.

INTRODUCTION

Indigenous to South Africa, *Senecio angulatus*, was introduced as a garden plant initially to suburban Adelaide, only to escape from Mount Gambia and possibly elsewhere. Within Victoria, *S. angulatus* has been identified in diverse locations, including Alphington, Sandringham, the penguin reserve at Phillip Island, the Morwell area and even among roadside eucalypts in farmlands from Lakes Entrance to the Point Hicks Lighthouse Reserve. On the Mornington Peninsula, it occurs at Kananook Creek, Frankston, growing vigorously over coastal teatree (*Leptospermum laevigatum*) and other indigenous plants, including acacias. It also occurs in gardens in Frankston, Mornington, Blairgowrie, Sorrento, Main Ridge, Balnarring and Pearcedale.

Its encroachment into native vegetation has been facilitated due its mistaken identification with the native semi-prostrate creeper, bower spinach (*Tetragonia implexicoma*), with which it have some similarities. Both creepers have waxy leaves and bear small yellow flowers on stem terminals. However *S. angulatus* poses a serious threat because of its prolific growth and ability to cover and smother native flora.

Botanical description Jessop and Toelken (1986) describe *S. angulatus* as a 'Glabrous perennial, erect or scrambling to 3 m, branching; stem cylindrical striate; leaves coriaceous or fleshy; petioles 1–3.5 cm long; blade palmately veined, rhombic to ovate to broadly deltoid, 3.5–5 × 1.5–3.5 cm, distantly toothed, sometimes basally lobed; inflorescence a terminal cymose corymb or panicle of usually 8–12 capitula, subdichotomous, branches diverging at 30–45 degrees, of near equal length; involucre obconical, 5–7 × 3–4 mm; bracts 7 or 8, calyculus of 3 or 4 linear bracteoles 1–2 mm long; ray florets 4–6, usually 5; ligules 7 × 4 mm, 14-nerved; disk florets 10–15;

achene 2.2 × 0.5 mm, light-brown with scattered erect short hairs; pappus uniform, deciduous'.

MATERIALS AND METHODS

In May 1995, a series of trials compared the efficacy of two herbicides on *S. angulatus*. These took place at Kananook Creek, near the Mile Bridge, Frankston. Plants were up to 6 m high and were flowering when sprayed. Plots treated were 10 × 6 m in size.

Application was made with a motorized pump incorporating a return control valve to the spray tank (Hardy 50, with 20 L min⁻¹ capacity; at 1035 kPa) and a spray gun. The spray gun had a variable cone nozzle, which can accurately direct spray to the target, thereby minimizing contact with surrounding plants. Application was made to thoroughly wet *S. angulatus*.

The herbicides used were triclopyr/picloram (Grazon DS™, containing triclopyr 300 g L⁻¹ and picloram 100 g L⁻¹), metsulfuron methyl (Brush-off™ containing 600 g a.i. kg⁻¹) and glyphosate (Roundup™ containing 360 g a.i. L⁻¹).

Triclopyr/picloram at 120/40 g 100 L⁻¹ was applied alone or with the non-ionic wetting agent B-1956™ (Rohm and Haas). Metsulfuron methyl at 6 g 100 L⁻¹ was tank-mixed with glyphosate at 54 g 100 L⁻¹ and Pulse Penetrant™ (Monsanto) at 150 mL 100 L⁻¹.

RESULTS AND DISCUSSION

Four weeks after *S. angulatus* was sprayed all treatments appeared dead, and after 12 months there were no signs of regrowth (Table 1). At the herbicide rate used there was no substantive improvement in control when B-1956 wetting agent was added to triclopyr/picloram. Other wetting agents would probably not improve results as Grazon DS contains a wetting agent in its formulation.

The use of the fine nozzle spray technique meant that the target plant could be efficiently covered with

Table 1. Effects of herbicides on *S. angulatus*.

| Herbicide | Appearance 4 weeks | after 12 months |
|--------------------|-----------------------|--------------------|
| Triclopyr/picloram | brown and dry | no regrowth |
| Metsulfuron methyl | brown and dry | no regrowth |

minimal spray drift on to surrounding flora. Triclopyr/picloram caused only very slight damage to teatree and acacia which was densely covered by *S. angulatus*. This treatment had the following advantages:

- It is taken up by the target through both root and leaf systems. Triclopyr is taken up mainly through the foliage, while picloram is effective through both foliage and roots.
- The spray is rain-fast within an hour.
- Its effect is rapid taking only 4–6 weeks, depending upon climatic conditions, to brown-out the pest species.
- It is effective against other pest other plants often found flourishing near *S. angulatus*, including blackberries, common gorse and honeysuckle.

However picloram has a long residual life in the soil and is active against many broad-leaf species, so care is needed in the application of sprays which contain this herbicide.

In April 1996, the trial was repeated at the Kananook Creek site and two nearby locations (including the property 'Lewana', Mount Eliza).

Metsulfuron methyl was applied with Pulse Penetrant, but other non-ionic wetting agents such as ICI Cropcare BS1000™ would probably be equally effective. Trials using BS1000 are in progress. The major concern with metsulfuron methyl application was possible

residual activity in the soil which may adversely affect nearby flora, especially eucalypts, through their root system. Great care therefore needs to be taken in the use of this application and the disposal of left-over spray.

S. angulatus can now be considered naturalised on the temperate south coast of Australia, and in particular the Mornington Peninsula. Its presence in the important national and coastal parks of the Nepean Peninsula poses a threat to small and already threatened areas of relatively unspoilt indigenous bushland. Recognition of the threat that this vigorous and intrusive introduced pest poses has to date been slow in coming as have efforts to formulate appropriate and safe chemical measures of control. The trials that have been so far carried out suggest that chemical formulations can be used in conjunction with spraying equipment capable of a fine and accurate output. As trials suggest, contrary to previous fears, *S. angulatus* can be chemically controlled, but it is important that it is distinguished from the native *T. implexicoma*.

Our vigilance is called for in locating this and other pest species.

REFERENCES

- Jessop, J.P. and Toelken, H.R. (1986). 'Flora of South Australia'. (Allen and Unwin, New York).