MALLEE CATCHMENT
TECHNICAL BULLETIN

Technical Bulletin #12

Survey of *Swainsona reticulata* in the Victorian Mallee

Above: *Swainsona reticulata* seed pods. Photo: Ian Sluiter, Ogyris Pty Ltd.

Left: *Swainsona reticulata* flowering: Photo: Ian Sluiter, Ogyris Pty Ltd

This technical bulletin summarises the findings of targeted field research on the status of *Swainsona reticulata* at six Victorian Mallee sites in August-September, 2011.

Background

The kneed Swainson-pea *(Swainsona reticulata)* is a prostrate to semi-ascending, perennial pea species that grows to approximately 15cm tall (Walsh and Entwisle 1996). The species is restricted in Victoria to low aeolian, sandy rises on or very near to the floodplain of the Murray River. Earl *et al.* (2003) reviewed the conservation status of Swainson-pea species in Victoria and concluded that *S. reticulata* occurred at six sites, with a total of approximately 490 plants. The largest population of 150 plants occurred at Karadoc Swamp, approximately 20km southeast of Mildura. In September 2010, a survey of the site found that the population was larger than previously thought, with 7,800 plants distributed across 2.44ha of habitat (Sluiter 2010).

Over recent years, new sites of *S. reticulata* have been found, while

At a glance

- *Swainsona reticulata* is listed as threatened under the *Flora and Fauna Guarantee Act* 1988;
- A research survey was conducted to monitor and assess the status of *Swainsona reticulata* in the Victorian Mallee;
- The survey revealed there are upwards of 20,000 *Swainsona reticulata* across seven of 10 known Mallee sub-populations.

mallee
catchment management authority

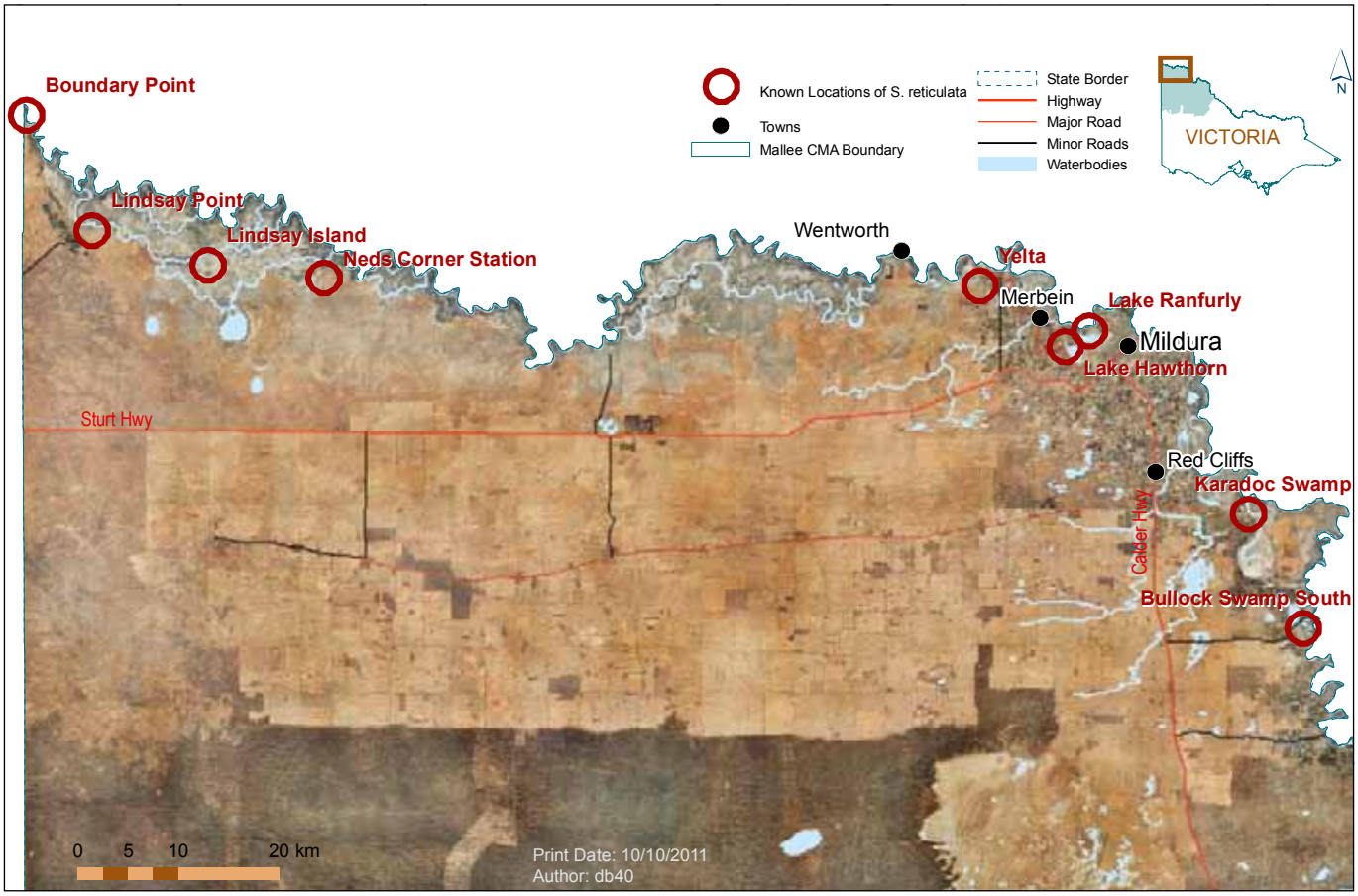

Fig. 1. Known locations of *Swainsona reticulata* in the Victorian Mallee (note that there are two populations at Lake Ranfurly).

plants from some older sites have now been ascribed to different Swainson-pea species. At the present time, *S. reticulata* is known to occur at 10 sites located between Nangiloc and the South Australian border (Fig. 1). In 2011, the Mallee Catchment Management Authority (CMA) commissioned a study to investigate *S. reticulata* at seven of the known sites, as well as to search for the species within potentially suitable habitat elsewhere on the Murray River floodplain.

Methods

Field work was undertaken in August-September 2011 and involved undertaking wandering traverses (parallel lines, 5-10m apart) to search for *S. reticulata*. When plants were found, absolute counts of the number of individuals present were made. The large number of plants present at the Bullock Swamp South site meant that alternative methods had to be adopted to provide an estimate of plant numbers at that location. A combination of fixed area plots (5x5m) and long belt transects (20x2m) were used to provide density estimates at this location.

Threats, such as herbivores and human disturbance, were qualitatively assessed.

The soils and vegetation at each site were also described and any additional Victorian rare or threatened species (VROTS) recorded.

Results

Table 1 provides a site by site comparison of *S. reticulata* occurrence at the seven assessed sites.

Based on current and previous assessments, there are upwards of 20,000 plants of *S. reticulata* occurring across seven of 10 known Mallee sub-populations. These seven sub-populations comprise an area of occupancy of 15.27ha.

Table 1: A site by site comparison of the presence of *Swainsona reticulata* at seven sites in the Victorian Mallee. Area of occupancy reflects the area over which plants were distributed. Number of individual plants is absolute counts at all sites except Bullock Swamp South, where total number of plants was estimated.

Site name	Area of occupancy (Ha)	Number of individual plants	Density (plants m^2)
Lindsay Island	7.81	78	0.001
Yelta	0.00	1	
Lake Hawthorn Gibbs Rd	0.26	125	0.048
Lake Ranfurly North	0.90	276	0.031
Lake Ranfurly South	1.44	311	0.022
Bullock Swamp South	2.42	11,616	0.48
Karadoc Swamp*	2.44	7,800	0.32
Total	**15.27**	**20,207**	**n/a**

*Data are from September 2010. (Sluiter 2010).

Above: Example of a belt transect assessment. Photo: Ian Sluiter, Ogyris Ptd Ltd.

Left: *Swainsona reticulata* growing on sand at the Lake Ranfurly north site. Photo: Ian Sluiter, Ogyris Ptd Ltd.

A total of 12 different threats that are currently impacting on the conservation status of *S. reticulata* were established. These include; high herbivore abundance; invasive weeds; and human disturbance, such as rubbish dumping and sand removal.

During the survey, a total of 215 records of VROTS (excluding *S. reticulata)* were detected at 199 locations, comprised of 35 different species.

Conclusions

S. reticulata can be considered to be vulnerable in Victoria because the species satisfies the following International Union for Conservation of Nature (IUCN) criteria: for area of occupancy (<2,000km²) 2a, 2c and restricted area of occupancy (<20km²) of population D2. Specifically, *S. reticulata* can be described as:

- being severely fragmented and known to form 10 or fewer sub-populations;
- suffering from extreme fluctuations in the number of mature individuals, mostly in drought years;
- having a population which is extremely restricted (probably less than 20ha in total area of occupancy) with a number of sites prone to the effects of human activities and/or stochastic events.

Based on this survey, no change is recommended to the current conservation status of this species in Victoria.

Information gaps

The sites at Boundary Point, Lindsay Point and Ned's Corner were not assessed in the current survey and were last inspected in September 1983, 1985 and 2008 respectively. Information pertaining to the Lindsay Point sub-population is scant, but both the Boundary Point and Ned's Corner sub-populations were small in numbers and area of occupancy. It is suggested that further surveys for *S. reticulata* be undertaken at these sites in spring 2012.

Recommendations

Recommendations, prioritised by site in order of greatest importance to the conservation of *S. reticulata* in Victoria, are provided. It is assumed that recommendations pertaining to Karadoc Swamp (Sluiter 2010) have already or are currently receiving attention and are not included here.

1. Fence the two patches at the Bullock Swamp sub-population and undertake rabbit control works within the exclosures;
2. Fence the Lindsay Island sub-population within Murray-Sunset National Park and undertake rabbit control works within the exclosures;
3. Fence the two patches at the Lake Ranfurly South sub-population within Mildura Rural City Council (MRCC) managed land, undertake rabbit control works within the exclosures and rationalise track access;
4. Fence the patch at the Lake Hawthorn sub-population within MRCC managed land, undertake rabbit control works within the exclosure and rationalise track access;
5. Rationalise track access within MRCC managed land at the Lake Ranfurly north sub-population, fix the exclosure fence where needed and undertake rabbit control within the site;
6. Fence a 1ha area on the south side of the access track through the Yelta sub-population, undertake rabbit control works within the exclosure and rationalise track access;
7. Collect seed from the Lake Hawthorn and Lake Ranfurly sub-populations as, due to the proximity to Mildura, these sites are under the greatest threat from human influence;

Above: *Swainsona reticulata*. Photo: Ian Sluiter, Ogyris Ptd Ltd.

8. Propagate, grow and plant out *S. reticulata* in a conservation trial at a secure fenced location on the Merbein Common as well as at Wallpolla Island where there are fenced exclosures on sandy rises above the surrounding Murray River floodplain.

Acknowledgements

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Further information

The information for this technical bulletin has been taken from Sluiter I (2011) *A survey of kneed Swainson-pea* (Swainsona reticulata) *J.M Black in the Victorian Mallee in August-September 2011*. Unpublished report to the Mallee CMA (Mildura, Victoria).

For further information on *Swainsona reticulata*, contact the Mallee CMA on 03 5051 4377.

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Project Partners

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