

Action Statement

Flora and Fauna Guarantee Act 1988

No. 152

Limestone Sida *Sida spodochroma*

Description and distribution

Limestone Sida (*Sida spodochroma* F. Muell.) (family Malvaceae) is a prostrate or decumbent shrub up to 20 cm tall and wide. Leaves are alternate, lanceolate to ovate, deeply crenate and downy, 5-20 mm long and wide. They are greyish above and yellowish-green below. Flowers, which may occur from January to December, are solitary (rarely paired) and yellow with petals 3-4.5 mm long. Fruits, 3-5 mm diameter, are subglabrous, dark green and conical with a raised centre. A full species description is provided in Walsh and Entwisle (1996). Limestone Sida was formerly known as *Sida* sp. C. (aff. *corrugata*) and *Sida corrugata* var. A. Some specimens from the Nullarbor and Western Australia appear to be intermediate between this taxon and *S. corrugata* (R. Barker *pers. comm.*).

Limestone Sida occurs in all mainland States of Australia. It is found from the Broken Hill area in New South Wales through to the Nullarbor Plain and west as far as Ravensthorpe in Western Australia (R. Barker *pers. comm.*). The species is considered widespread throughout the western parts of New South Wales (Bowen and Pressey 1993) and occurs in many regions of South Australia (Jessop and Toelken 1986).

In Victoria, the species appears to be restricted to the far north-west on limestone soils in the Red Cliffs-Cardross area and only eight small populations have been found to date. Limestone Sida was first recorded in Victoria in 1982/3, when two populations were discovered, at the Cardross Oval and along a roadside and adjoining private property north west of Red Cliffs (Parsons 1983). Subsequently, four other populations were discovered in 1993 in the Cardross State Forest.



Limestone Sida *Sida spodochroma*
(Photo: Ian Sluiter)



Distribution in Victoria (DSE 2004)

In 2000 two additional populations were reported at The Lake Primary School and in the Cardross State Forest. All Victorian populations occur within 10.5 kilometres of each other.

Habitat

Across its range within South Australia, Limestone Sida occurs on sand plain or dunes, frequently with chenopods or *Austrostipa* spp. and often associated with limestone (R. Barker *pers. comm.*). Jessop and Toelken (1986) noted the species occurred in sandy to loam soils, in sandhills or on rocky slopes, in sclerophyllous woodland or chenopod shrubland. In western New South Wales, the species has been recorded on rocky outcrops (Harden 1990, Bowen and Pressey 1993) and on highly calcareous sandy loams in flat areas between sandy rises (Cunningham *et al.* 1981).

In Victoria, Parsons (1983) observed that the first two known populations occurred on reddish sandy loam soils where limestone was present. The stands in the Cardross State Forest occur on heavy soils with a hard cryptogamic crust, in wide swales between low dunes. These forest populations occur in mallee scrub where overstorey, litter and cryptogamic cover vary widely. The populations at the Cardross Oval and the roadside are on sites where the original vegetation of Yorrell *Eucalyptus gracilis* mallee woodland has been largely cleared.

Life history and ecology

Little appears to be known about the life history and ecology of Limestone Sida, including specific habitat requirements and conditions for successful reproduction and establishment. Five relatively distinct populations occur in Cardross State Forest and reasons why plants do not occur in apparently suitable adjoining habitats are not known.

Monitoring of permanent plots in Cardross State Forest suggests the species is very slow growing. Over five years, most plants had experienced limited growth. While there was little evidence of successful recruitment within the plots, few plants had died. Browne (1984) indicated that *Sida* species in north west Victoria tend to grow and reproduce in late spring and then usually die back to a woody rootstock in drier periods leaving a few small shoots and leaves. *Sida* species can exhibit vigorous growth following good summer rains, and this has been observed with *S. spodochroma* at the oval, roadside and paddock sites (L. Rowley *pers. comm.*).

Browne (1984) observed that many *Sida* species, with the exception of those on river floodplains, could thrive following clearing, soil disturbance and sometimes fire, presumably from soil-stored seed.

The response of Limestone Sida to different disturbance regimes is not well understood, although Barker (*pers. comm.*) suspects the species tolerates disturbance quite well, and may be advantaged by the consequent spread of mericarps. Populations of Limestone Sida in Victoria occur in areas with a range of management regimes, and have persisted at some sites where regular disturbance occurs.

Limestone Sida plants in Cardross State Forest are likely to have experienced quite high levels of grazing by kangaroos and rabbits in the past. Even in the apparent absence of rabbits, unfenced Limestone Sida plants in the Cardross State Forest experienced heavy kangaroo grazing over the 2000/2001 summer (G. Allen *pers. obs.*). Such grazing pressure may be limited to when grass biomass is relatively low.

While the palatability of Limestone Sida is not known, a number of *Sida* species are palatable or very palatable to domestic stock (R. Barker *pers. comm.*). Cunningham *et al.* (1981) noted that in New South Wales Limestone Sida appeared to tolerate grazing by stock and can often represent a significant proportion of the available green feed in pastures during warmer months. The mericarps of some *Sida* species are actively sought by ants (R. Barker *pers. comm.*).

All Limestone Sida populations currently known in Victoria have experienced some form of soil disturbance. Trail bike tracks still traverse two of the sites in the state forest and a relatively high level of vehicle traffic occurs at the Cardross Oval. A section of the roadside population had been disc-ploughed (until 1995) by the adjoining landowner, and regeneration was evident along the ripped lines. The private land adjoining has also been disced in the past, but is now slashed. The type of slasher used tends to drag along the ground and cause soil disturbance. Very few plants were seen in the paddock in late January 2001, prompting concerns for the species' management. But a return visit three weeks later after rain, revealed numerous small plants throughout the paddock corner (L. Rowley *pers. comm.*).

Slashing of vegetation has occurred at the roadside site in the past and still occurs up to twice a year on the adjoining private land. Slashing occurs several times a year at the Cardross Oval site where the plants have been reduced to prostrate spreading branches (M. Jenkins *pers. comm.*). However, plants that are slashed more frequently within the oval site were less spreading, and carried very few flowers and fruits compared to those that are slashed less frequently at the site. Similarly, a comparison of plants between the roadside and adjoining private land revealed that

the regularly slashed plants were kept small and compact, and did not display much fruit production (L. Rowley *pers. comm.*).

The species can endure some level of soil compaction and trampling. At the Cardross Oval, plants persist where vehicles are driven or parked occasionally, and several occur around the cricket practice nets (L. Rowley *pers. comm.*).

The response of Limestone Sida to fire is unknown. The roadside population was apparently burnt in the past for summer fire prevention (Parsons 1983). No records of the population previous to this event exists, so a comparison is not possible.

Limestone Sida may be threatened by competition from introduced grasses and dense shrubs. At the Cardross Oval site, the species primarily occurs in more open, regularly slashed areas and is absent from adjoining areas where dense vegetation occurs. Weed species are present at all sites, although to a greater extent at the roadside and Cardross Oval sites. The ability of Limestone Sida to compete with weeds is unknown.

Conservation status

National conservation status

Limestone Sida is not listed under the **Environment Protection and Biodiversity Conservation Act 1999**.

Victorian conservation status

Limestone Sida is currently classified as 'Endangered' in Victoria (DSE 2003).

Limestone Sida has received a Final Recommendation in support of listing from the Scientific Advisory Committee (SAC 2002) and is listed under the **Flora and Fauna Guarantee Act 1988**.

Decline and threats

While the species' former distribution and abundance in Victoria is not accurately known, Parsons (1983) argued that its former range may have been largely destroyed by irrigated agriculture.

Limestone Sida is considered threatened in Victoria because of its restricted distribution and the small number and size of populations currently known to exist. The total population appears to be less than 2 000 plants. The lack of information on the species' requirements for successful reproduction, establishment and long term survival means that appropriate management regimes are difficult to determine. Existing populations are currently subject to a number of different management

regimes, which may help to elucidate the species' requirements.

The roadside, paddock and Cardross Oval populations are the most vulnerable sites, given their high level of disturbance and small size. Parsons (1983) described these populations as "...unconserveable..." in the long term. Monitoring of these populations since June 1983 has indicated that while the general area occupied by the plants has not expanded, numbers have fluctuated at each site from less than 20 to up to 200 plants. However, this could be due to the time of year surveyed and/or response to soil moisture levels. The Cardross Oval site covers an area of less than 1 ha immediately adjoining the oval itself. The roadside population occurs on a corner, with a strip of approximately 50 m x 30 m along each road edge, and an unknown distribution of plants in the adjoining private property.

The populations in Cardross State Forest occur in small patches, ranging from about 20 plants in the smallest patch to about 1 000 plants in the largest patch that covers about 1 ha. Stock grazing and timber harvesting do not occur in Cardross State Forest and small areas are licensed to recreation clubs such as sporting shooters, field and game clubs and pistol clubs. Grazing by rabbits and kangaroos, and trail bike riding, are likely to have affected these populations. Trail bike riding still occurs within two stands. Following the release of the Rabbit Calici Virus in the mid 1990s rabbit numbers have been low in this area. There are drainage basins immediately adjacent to two of the populations. These have received drainage water collected from adjoining vine properties in the past, although improved irrigation practices have lessened the potential impact on these populations.

Existing conservation measures

Establishment of additional populations

- In the mid 1980s, concern over the long term fate of the two known populations prompted plans for establishment of new populations and the relocation of the existing ones. An attempt was made, on a small scale, to establish plants within the Red Cliffs Scenic Reserve in 1984, using material from existing stands. Some plants were transplanted whilst others were grown from seedlings. This trial failed, with the majority of the 35 plants browsed by rabbits and some mistakenly dug up by humans within a year of planting.

Habitat protection and monitoring

- In 1996, fences were erected at three of the Cardross State Forest populations to eliminate

trail bike damage, or to eliminate a combination of trail bike and rabbit damage. Unfenced control areas were provided. Eight permanent quadrats each of 4m² were established for future monitoring. All quadrats were monitored again in 2000.

- All but two Limestone Sida sites have been monitored periodically since their discovery.
- In January 2001, agreement was reached with the Mildura Rural City Council to fence off a portion of the population at Cardross Oval to prevent regular vehicular traffic. Slashing will continue (as has occurred for the last 20 years) until a better management regime has been identified.
- In February 2001, NRE and Mildura Rural City Council, met on-site with the landowner of the freehold population to highlight the species' presence and value, and discuss the appropriate management of the site including the roadside. Although the landowner was reluctant to enter into a Section 173 agreement under the Planning and Environment Act 1987, he had no plans to sell, or alter the management of the land.

Conservation objectives

Long term objective

To ensure that the Limestone Sida can survive, flourish and retain its potential for evolutionary development in the wild.

Objectives of this Action Statement

1. Determine the demographic status of the Cardross State Forest stands by 2006.
2. Maintain the size of the population at Cardross Oval and on the freehold land and adjacent roadside.

Intended management actions

The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation database. Detailed information about the actions and locations, including priorities, is held in this system and will be provided annually to land managers and other authorities.

1. Contact all relevant land managers and utility companies to ensure they are aware of the location and significance of this threatened species. Provide written information on the species.

Responsibility: DSE (North West Region)

2. Document management history and collate population information from all sites to make

comparisons regarding the various management regimes.

Responsibility: DSE (NW Region)

3. Erect signs to alert maintenance crews and other contractors working at Cardross Oval, the roadside site near Red Cliffs and the Lake Primary School.

Responsibility: DSE (NW Region), Mildura RCC, Department of Education

4. Confirm presence of populations and assess threats for the unconfirmed Cardross State Forest sites.

Responsibility: DSE (NW Region)

5. Monitor known populations annually using agreed protocols.

Responsibility: DSE (NW Region)

6. Control weeds at all sites as required.

Responsibility: DSE (NW Region), Mildura RCC, Department of Education

7. Negotiate Public Authority Management Agreement or other suitable agreement with Mildura RCC in regard to Cardross Oval and the roadside site near Red Cliffs.

Responsibility: DSE (NW Region)

8. Incorporate information on the locations and management requirements of Limestone Sida into local planning schemes and overlays and the Roadside Conservation and Fire Management Plan. Ensure that sites are protected in planning decisions and in the course of other Council activities.

Responsibility: Mildura Rural City Council

9. Incorporate actions to protect, enhance and restore Limestone Sida habitat into the Mallee Regional Catchment Strategy or its subordinate strategies via Biodiversity Action Plans. Implement these actions, according to priority, as resources become available, in conjunction with other agencies, community groups and landholders.

Responsibility: Mallee Catchment Management Authority

10. Negotiate suitable management of population with landowner of the private property NW of Red Cliffs, including possible incentives.

Responsibility: DSE (NW Region), Mallee Catchment Management Authority

11. Fence the known site in Cardross State Forest to exclude trail bikes

Responsibility: DSE (NW Region)

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Further information can be obtained from Department of Sustainability and Environment Customer Service Centre on 136 186.

Flora and Fauna Guarantee Action Statements are available from the Department of Sustainability and Environment website: <http://www.dse.vic.gov.au>

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