

Action Statement

Flora and Fauna Guarantee Act 1988

No. 162

Pale Plover Daisy *Leiocarpa leptolepis*

Description and distribution

The Pale Plover Daisy *Leiocarpa leptolepis* (DC.) Paul G. Wilson [formerly *Ixiolaena chloroleuca* (Haegi 1986) (Wilson 2000)] (Family Asteraceae) is a bushy perennial herb with a woody base which grows to a height of about 45cm. The stems are at first densely white and covered with cottony hairs, gradually becoming glabrous (Haegi 1986). The leaves are oblanceolate to elliptic, mostly 1.5–5 cm long, 2–7 mm wide, acuminate, mucronate, with both surfaces glabrous or sparsely glandular-hairy (Walsh and Entwisle 1999). Flower-heads are hemispherical and small, 10–20 mm diameter and bright yellow. Flowering appears to be rainfall-dependent and occurs mostly between May and September (Haegi 1986). A full description is provided in Walsh and Entwisle (1999).

The Pale Plover Daisy occurs in Victoria, northern South Australia, Northern Territory, western New South Wales and southern Queensland. Haegi (DSE file note 1986) indicated the species is moderately common in South Australia, particularly in the Lake Eyre region, in southern Central Australia and in north western New South Wales. In New South Wales it occurs in northern and southern western plains (Harden 1992).

Only one population is currently known in Victoria along a roadside and the adjoining Sandilong Park Recreation Reserve approximately 4km east of Mildura. This population was recorded in 1986, although there are herbarium records dating back to the 1920s that are most likely this population. This population is the most southerly known and is relatively disjunct (Parsons 1987).

Habitat

Interstate, the Pale Plover Daisy has been recorded in loamy and clayey soils along creeklines, swamps and small and shallow watercourses (P. Wilson



Distribution in Victoria (DSE 2004)

pers. comm.). Haegi (1986) observed the species to be found in a range of sites from gibber plain to sandy creek banks and tablelands, although usually in relatively sandy soils. Harden (1992) recorded the species in depressions and on roadside verges.

The only known population in Victoria occurs along a roadside which was formerly Black Box *Eucalyptus largiflorens* woodland on clay floodplain (Parsons 1987). The plants occur in an area measuring approximately 150 m by 30 m. Other threatened species that have been recorded at this site include Bush Minuria *Minuria cunninghamii*, (r-rare); Smooth Minuria *M. integerrima*, (r); Spiny Lignum *Muehlenbeckia horrida* (k-poorly known); and Cane Grass *Eragrostis australasica* (v).

Life history and ecology

The life history and ecology of the Pale Plover Daisy has not been studied. The species does however appear to prefer depressions and wetter areas where water pools temporarily after heavy rains. Monitoring of the Victorian population in 2000 indicated that the majority of plants occurred in periodically inundated depressions (one site of which has been created as a drain) and that plants were absent from some drier sites where they had previously been recorded. It is possible that germination on slightly higher ground is similarly dependent upon adequate and timely soil moisture levels or a period of inundation.

Seed collected from the constructed depression in the Victorian population in January 2001 appeared to be mostly 'malformed' and possibly infertile. Many of the achenes and pappus bristles were either stuck together with signs of snails having been present or showed damage, possibly by water, during development. Other well-formed, individual achenes varied in colour from dark brown to very pale; the relationship of this to viability is unknown (L. Rowley *pers. obs.*). E. Salkin (*pers. comm.*) of the Australian Daisy Study Group (ADSG) examined a small sample of *Ixiolaena* sp. seed and found that only 25% was germinable. The embryo was either absent, malformed or affected by a fungus where the root or shoot emerges. In another trial by an ADSG member, seed from a cultivated *Leiocarpa leptolepis* was extremely difficult to germinate.

Infrequent monitoring of the Victorian population in the mid- to late 1980s and in 2000 provides some indications of the possible effect of particular management regimes. Infrequent slashing of vegetation has occurred along the roadside and adjoining reserve which may have limited weed competition. The long-term effects of slashing Pale Plover-daisy plants is unknown. However, slashing during flowering and seed-set is undoubtedly detrimental.

Following the discovery of Pale Plover Daisy in 1986, a prescribed burn was undertaken in one sub-site during autumn because of concern for weed competition and a suggestion that the species may require some form of disturbance to establish seedlings. The burn was carried out when a very low number of plants was present and so it is difficult to effectively assess the impact of the burn. Monitoring of the population in 2000 however indicated that no plants were currently present in the area burnt in 1988.

The species has a perennial rootstock and dies back to the base each year after setting seed. Observations of new-season's growth on plants in early July (2000) suggest that the plants re-shoot in

autumn or early winter. There are herbarium specimens of plants which have sprouted from rootstocks following grading (N. Walsh *pers. comm.*).

Conservation status

National conservation status

Pale Plover Daisy is not listed under the Environment Protection and Biodiversity Conservation Act 1999.

Victorian conservation status

Pale Plover Daisy is currently classified as 'Endangered' in Victoria (DSE 2003).

Pale Plover Daisy has been listed under the **Flora and Fauna Guarantee Act 1988**.

Decline and threats

The Pale Plover Daisy is primarily threatened by its extreme rarity in Victoria, with only one population currently known. The site is approximately 150 m by 30 m.

Parsons (1987) notes that since the species is distinctive when in flower, it is unlikely that it has been overlooked in other parts of the state.

Infrequent monitoring of the population since the mid- to late 1980s indicates plant numbers have fluctuated significantly, from over 250 plants to only two plants. A total of 180 plants was recorded when the population was monitored in winter 2000.

While the species' habitat requirements are poorly known, its apparent preference for wetter areas means that successful germination and persistence may be strongly influenced by adequate and timely rainfall, or brief periods of inundation.

Road maintenance activities are a significant threat to the population. There have been previous incidents of plants and habitat being damaged by activities such as tree planting and installation of trickle irrigation (Parsons 1987) as well as road grading and resurfacing (circa 1990). The latter damage took place despite the presence of signs indicating that rare plants occurred there. Monitoring in 2000 indicated that there are no plants present in the area graded.

Annual dicotyledonous weeds such as Vetch, *Vicia* sp., and annual introduced grasses have established dense stands in parts of the site. Growth of these weeds can be so dense as to exclude any other species.

Monitoring in 2000 indicated that grass clippings had been dumped at a number of locations within the population site. This activity not only

smothers plants, but may introduce new weed species or increase the spread of weeds.

Existing conservation measures

- Infrequent monitoring of the population has occurred since 1986.
- Seeds were apparently collected for propagation at the former Departmental nursery several times in the late 1980s, with the intention of establishing a seed bank to enhance the population and to introduce plants into an area within the adjoining racecourse. No seeds could be germinated.
- A trial burn was undertaken by the Department within a section of the area occupied by the population in 1988. This has not resulted in the establishment of long-surviving plants, if any.
- 'Rare Plant' signs were erected along the roadside in 1990 to minimise the risk of roadworks causing accidental damage to the population. These signs were updated in 2000.
- Liaison has occurred between DSE and the Mildura Rural City Council concerning the significance of the site.
- A small amount of seed was collected in January 2001 and given to a local nursery for propagation. Advice supplied by E. Salkin (Australian Daisy Study Group, AD SG), regarding the use of smoke-impregnated vermiculite and soil wetter on seeds, will be used to formulate part of the germination trial.

Conservation objectives

Long term objective

To ensure that the Pale Plover Daisy can survive, flourish and retain its potential for evolutionary development in the wild.

Objective of this Action Statement

To ensure that human-induced actions that have the potential to negatively impact on the population are reduced to a negligible level immediately.

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. Liaise with, and provide written information to, relevant staff of the Mildura Rural City

Council (including the Committee of Management for the Sandilong Park Race Course and Recreational Reserve) and Powercorp to ensure that they, and their contractors, are aware of the location and significance of this population.

Responsibility: DSE (NW Region)

2. Ensure that the site is protected within the planning scheme via the use of a Vegetation Protection Overlay, and in the Roadside Conservation and Fire Management Plans.

Responsibility: DSE (NW Region) Mildura Rural City Council

3. Encourage the land manager (Mildura Rural City Council), committee of management (Sandilong Park Race Course and Recreational Reserve) and lessee (golf course) to adopt management practices that are not detrimental to the species or other threatened species present.

Responsibility: DSE (NW Region) Mildura Rural City Council

4. Incorporate actions to protect, enhance and restore Pale Plover Daisy 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

5. Monitor the population at least annually (best season - spring).

Responsibility: DSE (NW Region)

6. Trial various propagation methods using both seeds and cuttings.

Responsibility: DSE (NW Region) Royal Botanic Gardens

7. Determine site characteristics and ecological requirements for successful establishment and persistence using propagated material.

Responsibility: DSE (NW Region)

8. Reinforce the existing population by planting propagated plants.

Responsibility: DSE (NW Region), Royal Botanic Gardens

9. Trial the supply of water to the natural depression on the northern side of the road where plants have previously been recorded. Apply early in the predicted growing season.

Responsibility: DSE (NW Region)

10. Establish contact with relevant authorities in other states where the Pale Plover Daisy occurs

to ensure that any information concerning the species' habitat requirements and ecology is obtained to enable appropriate management of the species in Victoria.

Responsibility: DSE (NW Region)

References

- DSE (2003) *Advisory List of Rare or Threatened Plants in Victoria - 2003*. Department of Sustainability and Environment: East Melbourne. (available on the DSE web site)
- DSE (2004) *Flora Information System* (electronic flora database). Department of Sustainability and Environment: Melbourne.
- Haegi, L. (1986) *Ixiolaena*. In: *Flora of South Australia*. Third Edition. South Australian Government Printer, Adelaide.
- Harden, G. J. (1992) *Flora of New South Wales, Volume 3*. Royal Botanic Gardens, Sydney. University New South Wales Press, New South Wales.
- Parsons, R. (1987) Register of rare and endangered native plant species in Victoria. Conservation status summary report - *Ixiolaena chloroleuca*. La Trobe University: Bundoora.
- Walsh, N. G. & Entwisle, T. J. [eds.] (1999) *Flora of Victoria. Dicotyledons Cornaceae to Asteraceae, Volume 4*. Inkata Press, Melbourne.
- Wilson, P.G. (2000) *Leiocarpa*, a new Australian genus of the tribe Gnaphalieae: Asteraceae. *Nuytsia* 13: 595-605.

Relevant web site

Australian Daisy Study Group -
<http://farrer.riv.csu.edu.au/ASGAP/daisy.html>

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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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section 19 of the Flora and Fauna Guarantee Act
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