

Action Statement

Flora and Fauna Guarantee Act 1988

No. 244

Coast Dandelion *Taraxacum cygnorum*

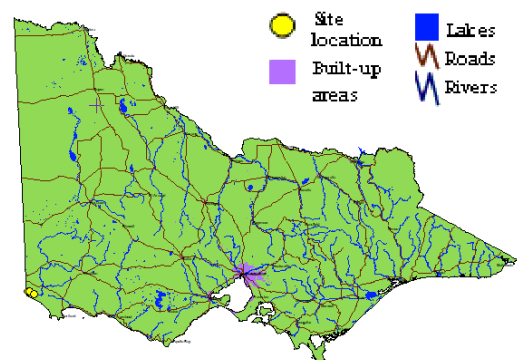
This revised Action Statement is based on the Recovery Plan prepared for this species by DSE under contract to the Commonwealth Department of the Environment, Water, Heritage and the Arts.

Description

Coast Dandelion (*Taraxacum cygnorum* Hand.-Mazz.) is a rosette-forming perennial forb from the Asteraceae family. The mature leaves are glabrescent, 4-12 cm long, and oblong to linear-lanceolate. The leaves have 4-7 short, more-or-less hooked or triangular lobes along each side. The leaf margins between lobes may be entire or finely toothed, and the petioles are usually very pale and narrowly winged. Flowering occurs between October and December, and the flowers are borne on stalks 3-5 cm long (2-3 times longer in fruit). The flower heads are 1.5-2 cm in diameter (including the marginal ligules). The outer bracts are white-bordered, appressed to the inner series, apiculate with a small dark callus, and are 3-5 mm (rarely 6 mm) long. The ligules are pale lemon-yellow; the outer ligules are almost equal in length to the inner bracts. The stigmas are yellow. The dark-red to blackish-purple cypselas (fruit) are narrow-fusiform, ~4-6 mm long, spiny above and wrinkled along their length to the base. The beak of the fruit is 4-6 mm long and approximately the same length as the cypselas body (Scarlett 1999).

Coast Dandelion can be distinguished from other native *Taraxacum* species by the shape and texture of its cypselas, and its relatively short-beaked fruits (the beak is 4-6 mm long in Coast Dandelion as compared to 6.5-9 mm long in Mountain Dandelion (*Taraxacum aristum*)) (Scarlett 1999). The introduced congenics, *Taraxacum* sp. 1 and *Taraxacum* Sect. *Erythrosperma*, may co-occur with Coast Dandelion in western Victoria.

Non-flowering specimens of *Taraxacum* sp. 1 may be distinguished from Coast Dandelion by their



Distribution in Victoria
(Flora Information System DSE 2007)

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generally longer leaves: *Taraxacum* sp. 1 leaves may be 6-40 cm, but are usually ~15 cm. *Taraxacum* sp. 1 interlobes may also be slashed into narrow pointed lobes. Non-flowering *Taraxacum* Sect. *Erythrosperma* specimens may be distinguished from Coast Dandelion by their leaves, which may be cobwebbed (although they are often glabrous), and their petiole midribs which are usually purple (Scarlett 1999). These characters are not reliable but are provided to assist field identification: the most reliable method of identification is with flowering specimens. Other basal rosette-forming species may also be difficult to distinguish from Coast Dandelion, including Cat's Ear (*Hypochoeris radicata*) and Smooth Cat's Ear (*Hypochoeris glabra*). Coast Dandelion tends to have leaves which are thinner than those of *Hypochoeris* spp. Leaf hairs, where present in Coast Dandelion, tend to be almost indistinct and more likely to be angled approximately parallel to the leaf surface (D. Tonkinson pers. comm.). Coast Dandelion also tends to have a stouter looking flower stalk than *Hypochoeris* spp.

Distribution

Taraxacum cygnorum is currently only known from far south west Victoria at Lower Glenelg National Park near Nelson and at Bat's Ridge Faunal Reserve near Portland.

Nineteenth century records from various Bass Strait Islands in Tasmania including King Island (1887), Flinders Island (1847) and Prime Seal Island (1845) have not been recently re-located despite extensive searches (Harris *et al.* 2001).

The Coast Dandelion type specimen came from south west Western Australia ('Swan River to Cape Riche') in the 1840s; this population is now presumed to be extinct. A 1976 collection of Coast Dandelion was assumed to have come from the Esperance area. The specimen, however, was actually from Benambra in Victoria and is likely to be Mountain Dandelion (*Taraxacum aristum*) (K. Atkins pers. comm.). A reference to Coast Dandelion from Israelite Bay in Western Australia has not been validated. The species is now presumed to be extinct in Western Australia (CALM 2003).

Abundance

There are estimated to be in the order of hundreds of standing plants in four populations. Accurate estimates are difficult due to the difficulty of distinguishing Coast Dandelion from related taxa in the field at most times of the year. Plants are also likely to be relatively short lived, and the amplitude of natural annual population fluctuations is unknown.

Neville Scarlett recorded 107 plants at three sites in the Lower Glenelg National Park (LGNP) in 1984 - 1986. Two more recently recorded sites in LGNP have not been taxonomically verified but are believed to consist of just a few plants. Further searching during fruiting season is expected to find more sites in LGNP. Nineteenth century records of sites in Tasmania and Western Australia have not been re-located in recent decades, and the species may be presumed to be extinct or at least extremely reduced in abundance given the intensified land-use in those areas.

Important populations

All known sites of Coast Dandelion are considered important because the species is reduced to only four small, reliably-known sites. These are:

Lower Glenelg National Park, Victoria

Bully Range Road

- Sixty-three plants recorded 1985 across an area of 2500 m².

Nelson North Road

- Twenty-two plants recorded in 1984 across an area of approximately 5.3 ha.

River Road

- Twenty-two plants recorded in 1986 across an area of 693 m². This site may be continuous with the Nelson North Road population: in 1986 Neville Scarlett (La Trobe University) found two plants in a location between those two populations.

Bat's Ridge Wildlife Reserve, Victoria

- Approximately 100 plants estimated in 1986 across an area of 121 m²

Unconfirmed Sites

River Road 2 (South of Patterson's Canoe Camp gate)

- One plant presumed to be *Taraxacum cygnorum* recorded in 1991. This site had formed virtually impenetrable vegetation by 2003.

Cobbobbonnee Lake

- There is an anecdotal record of *Taraxacum cygnorum* occurring near this location in the east of the Lower Glenelg National Park. The record is stored on Parks Victoria files at the Nelson office in Victoria.

Nineteenth century records, not recently recorded and probably extinct

- Western Australia ('Israelite Bay' and 'Swan River to Cape Riche')
- Flinders Island, Tasmania

- King Island, Tasmania
- Prime Seal Island, Tasmania

Habitat

Known sites of *Taraxacum cygnorum* are located in woodland and scrub in near-coastal areas on limestone with red-brown sandy loam soils. Nineteenth century records from Tasmanian Bass Strait islands are likely to have been made on areas of limestone geology (e.g. along the narrow belt of lime-cemented calcrete on Flinders Island east of Wybalenna). The average annual rainfall at Victorian sites is between 760 and 860 mm.

The woodlands are variously dominated by Brown Stringybark (*Eucalyptus baxteri*), Swamp Gum (*E. ovata*), Messmate Stringybark (*E. obliqua*), Manna Gum (*E. viminalis*) and Shining Peppermint (*E. willisii*). The understorey may contain a large component of sclerophyllous shrubs and a diverse range of native herbs. Prominent tall shrubs include Coast Beard-heath (*Leucopogon parviflorus*), Coast Wattle (*Acacia longifolia* subsp. *sophorae*) and Silver Banksia (*Banksia marginata*). Other abundant sub-strata species include Variable Groundsel (*Senecio pinnatifolius*), Austral Bugle (*Ajuga australis*) and Austral Carrot (*Daucus glochidiatus*). Large moss patches (*Thuidium* spp.) may be present.

The local area near recorded plants tends to contain relatively sparse tree cover compared to the surrounding vegetation. This may, however, be coincident with the types of habitat searched. Two sites where Coast Dandelion was recorded in the 1980s now appear to contain far denser tree and shrub strata than were originally present (i.e. Nelson North Road and Bats Ridge Reserve). Absence of fire in some areas may have contracted suitable habitat.

Many superficially similar rosette-forming native and introduced species are often present at known sites, notably introduced *Hypochoeris glabra*, *H. radicata*, *Taraxacum* sp. 1, *Taraxacum* sect. *Erythrosperma*, *Sonchus oleraceus* and *Leontodon taraxacoides* subsp. *taraxacoides*. Coast Dandelion has not been recorded from the adjacent Messmate Stringybark (*E. obliqua*) open forest with a dense understorey of Austral Grass-tree (*Xanthorrhoea australis*) on grey sandy soils.

Life history and ecology

Little is known of the biology or ecology of *Taraxacum cygnorum*. The effect of fire on Coast Dandelion is unknown. Two fires in quick succession would be unlikely at either Lower Glenelg National Park or Bats Ridge Faunal Reserve. Furthermore, Coast Dandelion is an annual and would most likely be able to produce

enough seed to survive a second burn in quick succession.

A greater threat to the species may be the physical heat shock imposed to plants and seeds by fire. The long term absence of fire may allow high fuel loads to accumulate, resulting in particularly intense fires and high soil temperatures when burnt. Coast Dandelion seeds that are close to the soil surface may be killed by high soil temperatures during fire. Given the relative isolation of known sites (i.e. all known sites are at least two kilometres apart), the probability of recolonisation from other sites following local extinction may be very low.

Conservation status

Taraxacum cygnorum is listed as vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Taraxacum cygnorum is listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*.

Taraxacum cygnorum is presumed extinct in Tasmania under the Tasmanian *Threatened Species Protection Act 1995*, and in Western Australian under the *Wildlife Conservation Act 1950* (CALM 2003).

It is considered endangered in the Department of Sustainability and Environment's *Advisory List of Rare or Threatened Vascular Plants in Victoria - 2005* (DSE 2005).

Decline and threats

Lack of biomass reduction

Fire may be necessary to maintain an open shrub layer and prevent ground species such as *Taraxacum cygnorum* from being shaded out. For example, at Nelson North Road, the species was recorded in 1984, approximately eight years after the area was burnt in 1976 (D. Ryan pers. comm.). The site had not been burnt again by 2003 (i.e. 27 years without fire) when the site was revisited. By this time, a dense shrub stratum had developed which may have been limiting *Taraxacum cygnorum* recruitment. Open areas of vegetation were only present along an adjacent recently placed firebreak and in a recently burnt area about 40 m from the known (staked) site. Further searches are warranted in nearby recently burnt areas to ascertain the species' potential for a post-fire germination response.

Inappropriate fire regimes

The fire regimes suitable for persistence of *Taraxacum cygnorum* and its associated habitat are not known. It is likely that fire is required to maintain open vegetation for *Taraxacum*

cygnorum habitat, but that fire is not necessary for seed germination.

Fire break construction

A dozed firebreak was placed close to the Nelson North Road site (approximately 10 m from the stake that marks the site). Given that the area occupied by Coast Dandelion at the site was 230 m x 230 m, it is likely that some plants were destroyed when this firebreak was created. The site should be monitored to determine *Taraxacum cygnorum* recovery along the disturbed track. Related introduced *Taraxacum* species are likely to respond positively to soil disturbance associated with the fire break. Future track works should consider the location of threatened species including *Taraxacum cygnorum*. All Parks Victoria staff and works contractors need to be advised of the locations of the species.

Weed invasion

Introduced rosette-forming species of *Hypochoeris*, *Taraxacum* and *Leontodon* co-occur with *Taraxacum cygnorum* at most sites but do not appear to be out-competing Coast Dandelion at present. Invasion by the shrub Coast Wattle (*Acacia longifolia* subsp. *sophorae*) may be a potentially greater threat. Coast Wattle may alter the structure of associated vegetation and may diminish suitable habitat for *Taraxacum cygnorum* in the long-term.

Previous Management Action

- *Ex-situ* propagation of Coast Dandelion was carried out successfully by N. Scarlett in the 1980s.
- A survey of Bats Ridge in 2004/5 failed to locate plants.

Conservation Objectives and Intended Management Actions

The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation (ABC) system. 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.

Long term objective

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

Specific Objectives, Actions and Targets

Objective I To improve knowledge of biology, ecology and management requirements

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
1. Acquire baseline population data Clarify the identity of unconfirmed populations to enable an accurate conservation status assessment. Acquire baseline population data by conducting detailed field surveys including (a) identification of the area and extent of populations; (b) estimates of the number, size and structure of populations, and (c) inference or estimation of population change.	<ul style="list-style-type: none"> ▪ Baseline data collected. ▪ Conservation status reassessed. ▪ Populations accurately mapped. ▪ Records on state databases (Flora Information System, VROTPop and Herbarium) updated. 	Parks Victoria, DSE
2. Assess habitat characteristics and/or condition. Accurately survey known habitat, and collect floristic and environmental information relevant to community ecology and condition.	<ul style="list-style-type: none"> ▪ Habitat data collected and analysed. ▪ Important habitat mapped. 	DSE, Parks Victoria
3. Conduct survey to identify and search suitable habitat. Identify and survey potential habitat, using ecological and bioclimatic information that may indicate habitat preference.	<ul style="list-style-type: none"> ▪ Predictive model for potential habitat developed and tested. ▪ Potential habitat searched. 	DSE, Parks Victoria

4. Undertake research to identify key biological functions. Evaluate current reproductive/regenerative status and seed bank status by determining longevity, fecundity and recruitment levels. Determine seed germination requirements by conducting laboratory and field trials aimed to identify key stimuli.	<ul style="list-style-type: none"> ▪ Critical life history stages identified. ▪ Recruitment and dispersal identified at known sites. ▪ Seed bank/regenerative potential quantified for each/target population. ▪ Stimuli for recruitment/regeneration identified. 	DSE
5. Undertake detailed population monitoring and collect demographic information. Measure population trends and responses against recovery actions by collecting demographic information including recruitment and mortality, timing of life history stages and morphological data.	<ul style="list-style-type: none"> ▪ Techniques for monitoring developed and established. ▪ Census data for target populations collected. 	DSE, Parks Victoria
6. Analyse population trends	<ul style="list-style-type: none"> ▪ Population growth rates determined and Population Viability Analysis completed for target populations. 	DSE

Objective II To secure populations or habitat from potentially incompatible land use or catastrophic loss.

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
7. Incorporate actions in relevant park or reserve management plan.	<ul style="list-style-type: none"> ▪ Park management plans identify species and provide for its protection and active management. 	Parks Victoria
8. Collect and store reproductive material as a safeguard against catastrophic loss.	<ul style="list-style-type: none"> ▪ Reproductive material securely stored. 	Royal Botanic Gardens
9. Propagate plants as a safeguard against catastrophic loss.	<ul style="list-style-type: none"> ▪ Effective propagation and cultivation techniques developed and documented. ▪ At least 200 mature plants in cultivation. 	Royal Botanic Gardens

Objective III To improve the extent and/or condition of habitat

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
10. Identify disturbance regimes to maintain habitat. Prepare management prescriptions for ecological burning at Lower Glenelg National Park and Bats Ridge Faunal Reserve.	<ul style="list-style-type: none"> ▪ Management prescriptions prepared and implemented. 	Parks Victoria
11. Manage environmental weeds. Control woody weeds (notably <i>Acacia longifolia</i> subsp. <i>sophorae</i>) near habitat of <i>Taraxacum cygnorum</i> at Lower Glenelg National Park.	<ul style="list-style-type: none"> ▪ Measurable reduction in weed cover / abundance at all sites. 	Parks Victoria

Objective IV To increase community awareness and support

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
12. Involve community groups and volunteers in recovery activities.	<ul style="list-style-type: none"> ▪ Opportunities for involvement identified, promoted and supported. 	Parks Victoria, DSE

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