National Recovery Plan for the **Coast Dandelion** Taraxacum cygnorum

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Sustainability

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Cover photograph: Habitat of Coast Dandelion *Taraxacum cygnorum* at River Rd site, Lower Glenelg National Park Victoria, by Oberon Carter.

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Summary

The Coast Dandelion *Taraxacum cygnorum* is a small, short-lived rosette-forming forb that was formerly widely distributed across southern Australia, occurring in Western Australia, Victoria and Tasmania. The species has not been seen in Western Australia and Tasmania for more than a century, and the most recent records are from four sites in south-western Victoria in the 1980s. It is currently not known if there are any extant populations. Weed invasion, disturbance and altered fire regimes are thought to be the main threats to the species. The Coast Dandelion is listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999, and as Threatened under the Victorian *Flora and Fauna Guarantee Act* 1988. This species is presumed extinct under the Tasmanian *Threatened Species Protection Act* 1995 and the Western Australian *Wildlife Conservation Act* 1950. This national Recovery Plan for the Coast Dandelion is the first recovery plan for the species, and details its distribution, habitat, threats and recovery objectives and actions necessary to ensure its long-term survival.

Species Information

Description

The Coast Dandelion *Taraxacum cygnorum* Hand.-Mazz., from the family Asteraceae, is a rosette-forming perennial forb. Mature leaves are glabrescent, 4–12 cm long and oblong to linear-lanceolate with 4–7 short, more or less hooked or triangular lobes along each side. The leaf margins between lobes may be entire or finely toothed. Petioles are usually very pale and narrowly winged. Flowers appear between October and December on stalks that are 3–5 cm long (2–3 times longer in fruit). Flower heads are 1.5–2 cm in diameter (including the marginal ligules). Outer bracts are white bordered and appressed to the inner series, and are 3–6 mm long, apiculate with a small dark callus. Ligules are pale lemon-yellow; outer ligules are almost equal to in the inner bracts. Stigmas are yellow. The dark-red to blackish-purple fruits are narrow-fusiform, 4–6 mm long, spiny above, wrinkled, and with a 4–6 mm long beak (description from Scarlett 1999). This species is distinguished from other native *Taraxacum* species by the generally shorter leaves. Virtually nothing is known of the biology or ecology of the Coast Dandelion.

Distribution

The Coast Dandelion formerly had a wide but apparently disjunct distribution across southern Australia, occurring from near Perth to Esperance in Western Australia, in south-western Victoria, and on three islands in Bass Strait (Tasmania) (Figure 1). There are no records from South Australia. The most recent records are from south-western Victoria, near Nelson and Portland, in the Naracoorte Coastal Plain IBRA bioregion (*sensu* DEH 2000). However, it was previously recorded on Flinders Island and Prime Seal Island (Flinders bioregion) and King Island (King bioregion) in Tasmania, and from 'Israelite Bay' (Esperance Plains bioregion) and 'Swan River to Cape Riche' (precise locations unknown) in Western Australia. Records from eastern Victoria and south-eastern New South Wales attributed to *T. cygnorum* are misidentifications of the similar native Mountain Dandelion *Taraxacum aristum*.(N. Scarlett pers. comm.; Scarlett 1999). Maps showing the distribution of the Coast Dandelion are available from the Department of Sustainability and Environment, Victoria.

Population Information

The Coast Dandelion was last seen in the 1980s, where it was recorded from four sites in south-western Victoria: three in the Lower Glenelg National Park near Nelson, and one in the Bat's Ridge Nature Reserve near Portland (Table 1). The total population was estimated at 200 plants in the 1980s. No plants were observed during surveys in 1991–1992 and in 2003, although these surveys were probably carried out when fertile material was absent, and *T. cygnorum* could not then reliably be distinguished from any introduced *Taraxacum* species

present. All populations occurred on reserved land managed by Parks Victoria. There are at least two unconfirmed records of Coast Dandelion elsewhere in the Lower Glenelg National Park, and more sites are likely to be found following further searches at times when plants are fruiting. The species was successfully cultivated by Neville Scarlett at La Trobe University in the 1980s, but no plants currently exist in cultivation.

Site	Population size*	Threats (High Medium Low)
Lower Glenelg National Park		
Bully Range Rd	1985: 63 plants	altered fire regimes (H)
		weed invasion (H)
Nelson North Rd	1984: 22 plants	weed invasion (H)
		altered fire regimes (H)
		firebreak construction, maintenance (H)
River Rd	1986: 22 plants	altered fire regimes (H)
Bat's Ridge Nature Reserve	1986: 100 plants	altered fire regimes (H)
		weed invasion (L)

* data from N. Scarlett La Trobe University unpubl.





Habitat

The habitat preferences of the Coast Dandelion are poorly known. Sites where the species most recently occured are in near-coastal areas in shrubby woodland on limestone with redbrown sandy loam soils, with an average annual rainfall of 760–860 mm. Woodlands are variously dominated by *Eucalyptus baxteri, Eucalyptus ovata, Eucalyptus obliqua, Eucalyptus viminalis* and *Eucalyptus willisii*. Prominent tall shrubs include *Leucopogon parviflorus, Acacia longifolia* subsp. *sophorae* and *Banksia marginata*, with common smaller plants including Senecio pinnatifolius, Ajuga australis, and Daucus glochidiatus. Large moss patches (*Thuidium* spp.) may be present. The Coast Dandelion has not been recorded from adjacent *E. obliqua* open forest with dense *Xanthorrhoea australis* understorey on grey sandy soils. The Western Australian and Tasmanian records are also likely to have been from areas with a limestone geology. A proposed recovery action is to define the habitat critical to the survival of the species, if populations can be relocated.

Decline and Threats

There is little information on the decline of and historic threats to the Coast Dandelion. Records from the 1800s from Tasmania and Western Australia have not been re-located in recent decades and the species is presumed to be extinct in those States. Searches of the outer Furneaux Islands by Harris *et al.* (2001) and of coastal limestone areas of Flinders Island in 2003 by David Cheal (pers. comm.) failed to locate the species. The disjunct historical distribution in the south-west and the south-east of Australia, but apparent absence from large areas of suitable habitat in South Australia, is also perplexing. Former population size is impossible to estimate.

There are also problems with reliably identifying the Coast Dandelion, due to its resemblance to other superficially similar rosette-forming herbs, notably the introduced *Hypochoeris glabra* and *Hypochoeris radicata*, *Taraxacum* species 1, *Taraxacum* section *Erythrosperma, Sonchus oleraceus* and *Leontodon taraxacoides* subsp. *taraxacoides*. Several of these are present at sites where *T. cygnorum* grows. The apparent rarity of the species may at least in part be due to lack of monitoring or mis-identification.

The historical decline of the Coast Dandelion may be due to intensified land-use in much of the coastal areas where the species was thought to occur. Major threats to the remaining populations in Victoria are thought to be weed invasion, especially by the Coast Wattle *Acacia longifolia* subsp. *sophorae*, and changed fire regimes, resulting in longer periods between burning and consequent increased density of vegetation communities. The local area near recorded plants tends to contain relatively sparse tree cover compared to surrounding vegetation. Two sites where the Coast Dandelion was recorded in the 1980s now appear to contain much denser native vegetation than was originally present. Absence of fire in some areas may have contracted suitable habitat. Firebreaks have been created near some populations, and maintenance may be impacting on populations.

Plants were last detected in the four known populations in the 1980s, and surveys in 1992 and 2003 failed to locate any plants. However, plants most likely still occur at one or two of the current locations, although accurate estimates are difficult due to the difficulty in distinguishing Coast Dandelion from related taxa at most times of the year. Plants are also likely to be relatively short-lived, and the size of natural fluctuations of populations from year to year is unknown.

Recovery Information

Recovery Objectives

The overall objective of recovery is to minimise the probability of extinction of the Coast Dandelion in the wild and to increase the probability of populations becoming self-sustaining in the long term.

Within the duration of this Recovery Plan, the specific objectives for the recovery of the Coast Dandelion are to:

- 1. Determine distribution, abundance and population structure
- 2. Determine habitat requirements
- 3. Manage threats to populations
- 4. Identify key biological functions
- 5. Determine growth rates and viability of populations
- 6. Establish a population in cultivation
- 7. Build community support for conservation

Recovery Actions and Performance Criteria

Action	Description	Performance Criteria					
Specific	Specific Objective 1: Determine distribution, abundance and population structure						
1.1	Develop a genetic test for reliably distinguishing the species.	Genetic markers developed					
	Responsibility: DSE, RBG						
1.2	Undertake surveys to determine the area and extent of populations, the number, size and structure of populations, and inference or estimation of population	Four most recent population sites searched during fruiting season.If plants detected, sites mapped for population					
	change.	size, condition and habitat.					
Specific	Objective 2: Determine babitat requirements						
2 1	Survey known babitat and collect floristic and	 Species/babitat specific survey design prepared 					
2	environmental information relevant to community ecology and condition.	 Habitat critical to survival mapped for any extant populations. 					
	Responsibility: DSE, PV						
2.2	Identify and survey potential habitat, using ecological and bioclimatic information that may indicate habitat	Potential habitat in Lower Glenelg National Park surveyed.					
	Responsibility: DSE. PV	 Predictive model for potential habitat developed & tested at five sites 					
Specific	Objective 3: Manage threats to populations						
3.1	Control threats from pest plants.	Reduction in cover of woody weeds (notably					
	Responsibility: PV	Acacia longifolia subsp. sophorae) at and near all sites.					
3.2	Identify optimal fire regimes to maintain habitat, building	Preparation and implementation of management					
	on knowledge from action 2.1. Responsibility: DSE, PV	prescriptions for ecological burning at Lower Glenelg NP and Bats Ridge Faunal Reserve if required.					
3.3	Control the threat of direct damage by human activities.	 Impact of firebreak maintenance monitored and reduced if required. 					
Specific	Objective 4: Identify key biological functions						
4.1	Evaluate current reproductive status, seed bank status,	Reproductive ecology and regenerative potential					
	longevity, fecundity and recruitment levels.	quantified for four representative sites.					
	Responsibility. DSE	 Seed bank potential quantified for 10 representative sites. 					
4.2	Identify key stimuli for seed germination requirements.	 Stimuli for recruitment identified. 					
	Responsibility: DSE	 Management strategies identified to maintain, enhance or restore processes fundamental to reproduction and survival. 					
Specific	Objective 5: Determine the growth rates and viability of	populations					
5.1	Measure population trends and responses against recovery actions by collecting demographic information	 Techniques for monitoring developed and implemented. 					
	stages and morphological data.	 Population growth rates determined and Population Viability Analysis completed for all populations. 					
Spacific	Responsibility: PV, DSE						
6.1	Establish plants in cultivation to provide a research	Development of effective propagation and					
0.1	population and potentially for reintroductions.	cultivation techniques.					
6.2	Establish a sold bank and determine sold viability	At least 200 mature plants in cultivation.					
0.2	Responsibility: RBG	• Seed from all extant populations in storage.					
Specific	Objective 7: Build community support for conservation						
7.1	Identify opportunities for community involvement in the conservation of the Coast Dandelion.	 Community nature conservation and Landcare groups aware of the species and support its conservation. 					

Responsibility: DSE/PV

Abbreviations: DSE – Department of Sustainability and Environment (Victoria); PV – Parks Victoria; RBG – Royal Botanic Gardens, Melbourne

Program Implementation

This Recovery Plan guides recovery actions and will be managed by the Department of Sustainability and Environment. A Threatened Flora Recovery Team, consisting of scientists, land managers and field naturalists will be established to oversee threatened flora recovery in Victoria in general. Technical, scientific, habitat management or education components of the Recovery Plan will be referred to specialist sub-committees on research, *in situ* management, community education and cultivation. Regional Recovery Teams will be responsible for preparing work plans and monitoring progress toward recovery.

Program Evaluation

This Recovery Plan will be reviewed within five years after the Plan is adopted under the EPBC Act. The Recovery Team will be responsible for annual assessments of progress towards recovery.

Management Practices

Management practices required to conserve the Coast Dandelion include:

- Surveys and publicity to locate new populations and/or relocate old populations, especially in Western Australia and Tasmania.
- Weed control.
- Research into the ecology and management of the species and its habitat, especially in regard to fire and other disturbance regimes required to maintain populations.

Affected Interests

Parks Victoria manages the sites where the Coast Dandelion most recently occurred, and has approved the actions outlined in this Recovery Plan, subject to availability of sufficient funding.

Role and Interests of Indigenous People

Indigenous communities on whose traditional lands the Coast Dandelion occurs have been advised, through the relevant DSE Regional Indigenous Facilitator, of the preparation of this Recovery Plan and invited to be involved in the implementation of the Recovery Plan.

Social and Economic Impacts

The implementation of this Recovery Plan is unlikely to cause significant adverse social and economic impacts, as the most recently recorded sites occur on reserved public land.

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Priority, Feasibility and Estimated Costs of Recovery Actions

Action	Description	Priority	Feasibility	Responsibility	Cost estimate					
					Year 1	Year 2	Year 3	Year 4	Year 5	Total
1	Distribution, abundance									
1.1	Genetic tests	1	75%	DSE, RBG	\$0	\$25,000	\$25,000	\$0	\$0	\$50,000
1.2	Surveys	1	100%	DSE, PV	\$8,000	\$8,000	\$8,000	\$0	\$0	\$24,000
2	Habitat requirements									
2.1	Survey known habitat	1	100%	DSE, PV	\$10,000	\$10,000	\$0	\$0	\$0	\$20,000
2.2	Identify survey pot. habitat	1	75%	DSE, PV	\$0	\$10,000	\$10,000	\$0	\$0	\$20,000
3	Manage threats									
3.1	Control pest plants	1	75%	PV	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
3.2	Identify fire regimes	1	50%	DSE, PV	\$10,000	\$10,000	\$10,000	\$5,000	\$5,000	\$40,000
3.2	Control human damage	1	100%	PV	\$2,000	\$2,000	\$2,000	\$0	\$0	\$6,000
4	Identify key biol functions									
4.1	Evaluate reproductive status	2	75%	DSE	\$0	\$0	\$10,000	\$10,000	\$10,000	\$30,000
4.2	Seed germination	2	75%	DSE	\$0	\$0	\$5,000	\$5,000	\$5,000	\$15,000
5	Growth rates pop viability									
5.1	Conduct censusing	2	100%	DSE	\$10,000	\$10,000	\$5,000	\$5,000	\$5,000	\$35,000
6	Establish in cultivation									
6.1	Establish cultivated plants	3	50%	DSE, RBG	\$0	\$0	\$0	\$10,000	\$10,000	\$20,000
6.2	Establish a seed bank	3	50%	DSE	\$0	\$0	\$0	\$2,000	\$2,000	\$4,000
7	Community support									
7.1	Community extension	3	100%	DSE	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$10,000
				TOTALS	\$47,000	\$82,000	\$82,000	\$44,000	\$44,000	\$299,000.00