Threatened Species Assessment

Dichondra sp. 1
Silky Kidney-weed

Taxonomy

Dichondra sp. 1 sensu Jeanes (1999)

This taxon is very variable with respect to leaf indumentum, and possibly including more than one entity.

Dichondra repens is also very variable with respect to indumentum density and pedicel length. Forms from swampy sites in the Edenhope-Penola-Casterton area approach *Dichondra* sp. 1 in indumentum and a tendency for fruiting pedicels to recurve, but the floral measurements are more typical of *D. repens* (VicFlora, 2019).

Current conservation status

Categorised as Rare in the 2014 Advisory list of rare or threatened flora (DEPI 2014).

Proposed conservation status

Endangered in Victoria

Criterion B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a perennial herb, variably silky-pubescent. Leaves more or less reniform, mostly 5-20 mm long, 5-25 mm wide, apex rounded to emarginate, base cordate, upper surface sparsely to moderately pilose, lower surface silky-pilose to almost felted with appressed or semi-appressed hairs; petiole usually 10-50 mm long. Flowers solitary; pedicels 3-10 mm long, recurved in fruit; sepals oblong, 1.5-2 mm long at anthesis (enlarging to 3 mm in fruit), shortly united at base, pilose; corolla rotate, 2-2.5 mm long, glabrous, pale greenish-yellow, tube to c. 1 mm long, lobes oblong to oblong-ovate. Capsule deeply 2-lobed; longer than calyx at maturity. The taxon flowers mainly in spring and summer (VicFlora, 2019).

Generation Length

The generation length of *Dichondra* sp. 1 is estimated to be 35 to 50 years. The taxon forms extensive perennial mats which, under undisturbed conditions, are likely to persist indefinitely. The actual longevity of each clonal patch is likely to be curtailed only by stochastic events such as extreme drought, extended inundation, burial under flood-borne silt and sediment, erosion of substrate, animal digging, or overgrazing by macropods, particularly during drought. Since European settlement, mortality may also result from overgrazing by sheep or other exotic herbivores capable of closely browsing to ground level.

Distribution

The taxon is known from the Murray River and its major tributaries, the basalt plain (Sunbury, Melton) and the south-west (e.g., Casterton area). The taxon also occurs in New South Wales and South Australia (VicFlora, 2019).

The precise distribution of this taxon remains poorly known since both this taxon, and the widespread and variable *D. repens,* are highly variable with respect to leaf indumentum. Forms of *D. repens* in swampy habitats in the west of the state mimic *D*. sp. 1 in both morphology and habitat, and *D*. sp. 1 itself may include more than one taxon (VicFlora, 2019).

Habitat

The taxon is known from riverine forest of the Murray River and its major tributaries, grasslands, grassy woodlands of the basalt plain, and fresh to subsaline swamps in the south-west (VicFlora, 2019).

Threats

The taxon is a habitat specialist dependent on the hydrological stability of its floodplain forest or wetland habitat. Historically, it is likely to have suffered significant decline in at least some districts in response to habitat loss to agriculture and habitat modification through agricultural activity and stock grazing.

Current and projected threats include incremental habitat loss and modification in response to agricultural intensification, cropping and draining of wetlands, climatic warming and drying, drought stress, reduced streamflow and flooding in response to diversion for irrigation, and weed invasion. Also, the trampling and pugging of wetland habitats by stock and deer, and overgrazing by macropods, rabbits, pigs, and deer, particularly Fallow Deer (*Dama dama*) in south-west Victoria where now commonly encountered in Blue Gum plantations, are threats to the taxon.

IUCN Criteria

Criterion A. Population size reduction.
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4

	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.

A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [*(a) cannot be used for A3*]

A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.

based on any of the following:

(a) direct observation [*except A3*]

(b) an index of abundance appropriate to the taxon

(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat

(d) actual or potential levels of exploitation

(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites

Evidence:

Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 52 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

This estimate represents a lower bound since it is based on confirmed specimen records in the Australian Virtual Herbarium only. A proportion of site records of *D. repens* in the VBA are undoubtedly also referable to *D.* sp. 1, particularly on the northern plains where there are currently no site records of *D.* sp. 1 in the VBA.

The taxon is estimated to be severely fragmented naturally at both the regional and landscape scales, and anthropogenically at the landscape scale in at least some districts. All geographically isolated occurrences are separated at spacings which exceed the dispersal range of the taxon, which has no specialised mechanism for long-distance dispersal.

It is estimated to have 3 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above, based on the current and projected impact of the identified threats.

Criterion C. Small Population size and decline				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of C1 or C2				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals				

Evidence:

Ineligible under Criterion C as Data Deficient

There is no available estimate of population size for the taxon although it is likely to exceed 1000 mature individuals. Limited quadrat data suggests the taxon tends to occur at low density at the quadrat scale.

Criterion D. Very small or restricted population			
	Critically Endangered	Endangered	Vulnerable
Number of mature individuals (observed or estimated)	< 50	< 250	< 1,000
D2 Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time.	-	-	D2. Typically: AoO < 20 km2 or number of locations ≤ 5

Evidence:

Eligible under criterion D2 as Vulnerable

The taxon is estimated to be very restricted.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014.* Department of Environment and Primary Industries, Melbourne.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Dichondra* sp. 1. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/d3c441cd-091a-4e71-9e60-f59bc91dc2b3