

## *Rutidosia helichrysoides* subsp. *helichrysoides* Grey Wrinklewort

### Taxonomy

*Rutidosia helichrysoides* subsp. *helichrysoides* DC.

### Current conservation status

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

### Proposed conservation status

Critically Endangered in Victoria

Criteria B1ab(i,ii,iii,v)+2ab(i,ii,iii,v); C2a(ii)

### Species Information

#### Description and Life History

Erect herb to c. 50 cm high; stems branched, cottony or woolly, woody at base. Leaves c. oblanceolate to linear, mostly 2-8 cm long, 2-10 mm wide, apex acuminate to rounded, base broad, margins usually recurved, surfaces cottony or woolly, usually more densely beneath. Capitula few-many, in corymbose clusters, c. hemispherical, 8-20 mm diam.; involucre 7-9-seriate, 6-10 mm long; bracts ciliate, yellow to golden-brown, shiny, transversely wrinkled; inner bracts with an herbaceous glandular-pubescent claw. Florets bisexual, numerous, yellow, 5-lobed, exceeding involucre. Cypselas 1-1.5 mm long, angular, papillose, dark brown; pappus scales 5-7, entire, 1-2 mm long, whitish. Flowers Spring and Summer.

#### Generation Length

The generation length of *Rutidosia helichrysoides* subsp. *helichrysoides* is estimated to be 1 to 5 (midpoint 2) years.

#### Distribution

The taxon is known in Victoria from recent collections along a roadside near Werrimul in Sunset Country, and from several pre-1900 collections from the northwest (Lake Coorong, Pine Plains, Tyntynder) and the Wimmera (Coromby), and a 1951 from Lake Boulella near Cobram. It also occurs in WA, NT, SA, Qld, NSW.

#### Habitat

The taxon appears to respond to mechanical disturbance. It grows on edges of a graded road, dominated by *Dodonaea viscosa. angustissima* road reserve with cleared paddocks on both sides of the road on reddish loam-sand, on edge of the road. Associated species include *Acacia oswaldii*, *Alectryon oleifolius* subsp. *canescens*, *Chenopodium microphyllum* subsp. *rectum*, *Senna artemisioides*, *Olearia pimelioides*, *Pimelea microcephala*, *Atriplex stipitata*, *Eremophila longifolia*, *Olearia muelleri*, *Casuarina pauper* (nearby) and *Chenopodium curvispicatum*. It also occurs on the edge of a graded firebreak.

In western NSW the taxon grows on sandy loam to sandy clay textured red earths, mainly in Mulga and Bimble Box communities, also in mallee and on red brown gibber soils in Mitchell Grass communities.

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### Threats

The taxon has presumably been lost a result of historic land clearing. The only known occurrence is on a roadside. Part of the population has been destroyed by soil dumping as a result of grading and ploughing for a firebreak. Firebreak ploughing has been disastrous for the remnant vegetation.

The population is very vulnerable to inappropriate management such as road grading, dumping of soil, and firebreak ploughing. The whole or most of the population could be destroyed in one inappropriate management event.

Given that the population is isolated and less than <1000 plants, it is likely that the genetic diversity is low. Very small populations are susceptible to stochastic events.

### 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%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>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.</p> <p>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]</p> <p>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.</p> <p style="text-align: center;"><i>based on any of the following:</i></p> <p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>			

### Evidence:

#### Eligible under Criterion A3 as Vulnerable

The population reduction over the next 10 to 15 years is suspected to be 10 to 50% (midpoint 30%), based on (c) above.

The population is very vulnerable to inappropriate management such as road grading, dumping of soil, and firebreak ploughing.

#### Eligible under Criterion A4 as Vulnerable

The population reduction over any 10 to 15 year period, including both past and future (up to 100 years in the future), is estimated to be 10 to 50% (midpoint 30%), based on (b) and (c) above.

In 2010 part of the population was destroyed by soil dumping as a result of grading and ploughing for a firebreak.

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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 km <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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 B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have 1 location as the key identified threat applies across its range and can rapidly affect all individuals of the taxon present.

It has a continuing decline in (i), (ii), (iii) and (v) above, based on the identified threats.

### Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, it has 1 location and has a continuing decline in (i), (ii), (iii) and (v) and extreme fluctuations in (iv) above.

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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:

#### Eligible under Criterion C2 as Critically Endangered

It is estimated that there are 200 to 800 mature individuals. The lower figure is based on the lowest estimate of ca. 200 plants which were observed by V. Stajsic and J. Eichler in 2007. The upper figure is based on an estimate in 2010 by V. Stajsic and J.A. Jeanes.

The number of mature individuals is estimated to continue to decline, and the percentage of mature individuals in one subpopulation is 90-100 %.

Criterion D. Very small or restricted populations		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 km <sup>2</sup> or number of locations ≤ 5

### Evidence:

#### Eligible under Criterion D as Vulnerable

It is estimated that there are 200 to 800 mature individuals.

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

### References

Cunningham, G.M, Mulham, W.E., Milthorpe, P.L. and Leigh, J.H. (1981). Plants of western New South Wales. Soil Conservation Service of NSW.



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