

## Abridged Threatened Species Nomination Form

For nominations/assessments under the Common Assessment Method (CAM) where supporting information is available, but not in a format suitable for demonstrating compliance with the CAM, and assessment against the IUCN Red List threat status.

### Cover Page *(Office use only for Assessment)*

<b>Species name</b> (scientific and common name):	<i>Daviesia ovata</i>
<b>Nomination for</b> (addition, deletion, change):	<b>Addition</b>
<b>Nominated conservation category and criteria:</b>	<b>CR: B1ab(iii,v)+B2ab(iii,v)</b>

Scientific committee assessment of eligibility against the criteria:		
This assessment is consistent with the standards set out in Schedule 1, item 2.7 (h) and 2.8 of the Common Assessment Method Memorandum of Understanding.		Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>A.</b>	Population size reduction	•
<b>B.</b>	Geographic range	•
<b>C.</b>	Small population size and decline	•
<b>D.</b>	Very small or restricted population	•
<b>E.</b>	Quantitative analysis	•

Outcome:		
<i>Scientific committee Meeting date:</i>		
<i>Scientific committee comments:</i>		
<i>Recommendation:</i>		
<i>Ministerial approval:</i>		<i>Date of Gazettal/ Legislative effect:</i>

# Nomination/Proposal summary *(to be completed by nominator)*

Current conservation status				
Scientific name:	<i>Daviesia ovata</i>			
Common name:	Broad-leaf Daviesia			
Family name:	Papilionaceae	Fauna <input type="checkbox"/>	Flora <input checked="" type="checkbox"/>	
Nomination for:	Listing <input checked="" type="checkbox"/>	Change of status/criteria <input type="checkbox"/>	Delisting <input type="checkbox"/>	
1. Is the species currently on any conservation list, either in a State or Territory, Australia or Internationally? 2. Is it present in an Australian jurisdiction, but not listed?		Provide details of the occurrence and listing status for each jurisdiction in the following table		
Jurisdiction	State / Territory in which the species occurs	Date listed or assessed (or N/A)	Listing category i.e. critically endangered or 'none'	Listing criteria i.e. B1ab(iii)+2ab(iii)
International (IUCN Red List)				
National (EPBC Act)				
State / Territory	1. WA	2008	Critically Endangered	C2a(ii)
		5/4/2017	Critically Endangered	B1ab(iii,v)+B2ab(iii,v)
	2.			
Consistent with Schedule 1, item 2.7 (h) and 2.8 of the Common Assessment Method Memorandum of Understanding, it is confirmed that:				
<ul style="list-style-type: none"> <li>this assessment meets the standard of evidence required by the Common Assessment Method to document the eligibility of the species under the IUCN criteria;</li> </ul>			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comments:				
<ul style="list-style-type: none"> <li>surveys of the species were adequate to inform the assessment;</li> </ul>			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comments:	Further survey showed an increase in the number of subpopulations from 1 to 2, and in the number of mature individuals from 2 in 2007, to 94 plants in 2014.			
<ul style="list-style-type: none"> <li>the conclusion of the assessment remains current and that any further information that may have become available since the assessment was completed supports or is consistent with the conclusion of the assessment.</li> </ul>			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comments:	Since the assessment in 2007, one new subpopulation has been discovered, and the number of mature individuals has also increased to 94. However, the habitat of the subpopulations is highly threatened from dieback disease and grazing from quokkas and rabbits, with heavy grazing of juvenile plants recorded, delaying flowering and thereby reducing reproductive potential. Without ongoing management a projected decline is expected. Now meets criteria B1ab(iii,v)+B2ab(iii,v).			
Nominated national conservation status: category and criteria				

Presumed extinct (EX) <input type="checkbox"/>		Critically endangered (CR) <input checked="" type="checkbox"/>		Endangered (EN) <input type="checkbox"/>		Vulnerable (VU) <input type="checkbox"/>	
None (least concern) <input type="checkbox"/>		Data Deficient <input type="checkbox"/>		Conservation Dependent <input type="checkbox"/>			
<b>What are the IUCN Red List criteria that support the recommended conservation status category?</b>			<b>CR: B1ab(iii,v)+B2ab(iii,v)</b>				
<b>Eligibility against the IUCN Red List criteria (A, B, C, D and E)</b>							
<i>Provide justification for the nominated conservation status; is the species eligible or ineligible for listing against the five criteria. For <b>delisting</b>, provide details for why the species no longer meets the requirements of the current conservation status.</i>							
<b>A.</b>	Population size reduction (evidence of decline)		<ul style="list-style-type: none"> <li>The number of mature individuals appears to have increased overall from 2 in 2007 to 94 in 2014, partly due to the discovery of new occurrences of the species.</li> <li><b>Does not meet criteria</b></li> </ul>				
<b>B.</b>	Geographic range (EOO and AOO, number of locations and evidence of decline)		<ul style="list-style-type: none"> <li>(B1) Extent of Occurrence is 8 km<sup>2</sup> based on the AOO.</li> <li>(B2) Area of Occupancy is 8 km<sup>2</sup> using the 2km x 2km grid method (&lt;10 km<sup>2</sup>).</li> <li>(a) Only known from a single location within Mount Manypeaks Nature Reserve and Water Reserve.</li> <li>(b) Continuing decline observed and projected:</li> <li>(iii) (v) The habitat is highly threatened and has been modified by <i>Phytophthora cinnamomi</i>, canker, fire and grazing. Outside of fenced enclosures, there has been heavy grazing of juvenile plants, delaying flowering and thereby reducing reproductive potential. Plant death likely due to grazing and potentially <i>Phytophthora</i>.</li> <li><b>Meets criteria for Critically Endangered B1ab(iii,v)+B2ab(iii,v)</b></li> </ul>				
<b>C.</b>	Small population size and decline (population size, distribution and evidence of decline)		<ul style="list-style-type: none"> <li>Known from 94 mature individuals.</li> <li>(C2) Ongoing threats to habitat condition and extent from <i>Phytophthora cinnamomi</i>, canker, grazing, fire, firebreak maintenance and a drying climate, with projected loss of plants due to grazing and disease.</li> <li>(i) Number of mature individuals in each subpopulation &lt; 250.</li> <li>(ii) Largest subpopulation contains 64% of all mature individuals.</li> <li><b>Meets criteria for Endangered C2a(i)</b></li> </ul>				
<b>D.</b>	Very small or restricted population (population size)		<ul style="list-style-type: none"> <li>(D) There are approximately 94 mature individuals in total.</li> <li><b>Meets criterion for Endangered D</b></li> </ul>				
<b>E.</b>	Quantitative analysis (statistical probability of extinction)		<ul style="list-style-type: none"> <li>No information to assess.</li> </ul>				
<b>Summary of assessment information</b>							

EOO	1.19 km <sup>2</sup> (MCP) calculated to 8 km <sup>2</sup> as estimation based on estimated AOO	AOO	8 km <sup>2</sup> (2 km x 2 km grid), but mapped area of subpopulations <0.00507 km <sup>2</sup> .	Generation length	Unknown
No. locations	1	Severely fragmented	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>		
No. subpopulations	2	No. mature individuals	94		
Percentage global population within Australia			100		
Percentage population decline over 10 years or 3 generations			Unknown		
<b>Threats</b> (detail how the species is being impacted)					
Threat (describe the threat and how it impacts on the species. Specify if the threat is past, current or potential)		Extent (give details of impact on whole species or specific subpopulations)		Impact (what is the level of threat to the conservation of the species)	
Phytophthora dieback  • <i>Phytophthora cinnamomi</i> may kill plants and degrade associated habitat. The species has not been tested for susceptibility to dieback disease, however, the habitat is highly susceptible and no plants are found in infested areas. Aerial canker has also been recorded.  Past, current and future		Whole population		Catastrophic	
Grazing (quokkas, rabbits)  • Grazing appears to delay flowering thereby reducing the plants reproductive potential. In particular, grazing of juvenile plants, those up to 0.4 m high, has been heavy. Taller plants have been observed under <i>Eucalyptus marginata</i> where they appear to have some protection from grazing.  Past, current and future		Whole population		Catastrophic	
Altered fire regimes  • The species is thought to regenerate after fire from soil-stored seed. However, if fire frequency is increased the soil seed bank could be depleted before juvenile plants have reached maturity.  Past, current and future		Whole population		Severe	
Firebreak maintenance  • Plants occur along the edges of a track and are threatened by vehicles during track maintenance activities which may potential also introduce disease.  Past, current, future		Whole population (Subpopulation 1)		Severe	

<p>Drought</p> <ul style="list-style-type: none"> <li>This is a threat to the species if it occurs over a number of years.</li> <li>Climate change modelling for the south west predicts a decline in rainfall, and some seasonal shift to summer rainfall events, which is likely to increase the potential impact of drought on the species.</li> </ul> <p>Future</p>	Whole population	Severe
<b>Management and Recovery</b>		
Is there a Recovery Plan (RP) or Conservation Management Plan operational for the species?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<p><i>List all relevant recovery or management plans (including draft, in-preparation, out-of-date, national and State/Territory recovery plans, recovery plans for other species or ecological communities, or other management plans that may benefit or be relevant to the nominated species).</i></p> <ul style="list-style-type: none"> <li>Department of Environment and Conservation (2010) <i>Daviesia ovata</i> Interim Recovery Plan 2010–2014. Interim Recovery Plan No. 296. Department of Environment and Conservation, Western Australia.</li> </ul>		
<p><i>List current management or research actions, if any, that are being undertaken that benefit the conservation of the species.</i></p> <ul style="list-style-type: none"> <li>Monitoring and surveys have been carried out to determine plant numbers and impact of threats;</li> <li>Markers have been install to prevent impact from firebreak maintenance;</li> <li>Seed has been collected and stored at Parks and Wildlife Threatened Flora Seed Centre;</li> <li>Cages and fencing enclosures have been erected around the species to protect from grazing;</li> <li>A new subpopulation is being established through translocation into disease free area.</li> </ul>		
<p><i>List further recommended management or research actions, if any, that would benefit the conservation of the species. Please ensure that this section addresses all identified threats.</i></p> <p>Management</p> <ul style="list-style-type: none"> <li>Monitor subpopulations annually or near-annually for factors such as habitat degradation (including the impact of dieback), population stability (expansion or decline), grazing, pollinator activity, seed production, recruitment, longevity, predation and the impact of phosphite application on the species;</li> <li>Develop and implement a fire management strategy, to determine fire control measures and fire frequency, and method of construction and maintenance of firebreaks;</li> <li>Investigate the practicality of install fencing/caging at subpopulations to reduce grazing and allow recruitment within a larger area of habitat;</li> <li>When monitoring ascertains the threat of rabbits is high, scatter baiting of 1080 oats as well as installing rabbit proof fencing may be required;</li> <li>Undertake surveys during the species flowering period from September to November, in areas of potentially suitable habitat, such as open shrub mallee over heath, or scrub in brown sand-loam over granite;</li> <li>Continue to follow dieback hygiene measures, particularly during installation and maintenance of firebreaks and when walking into populations in wet soil conditions;</li> <li>Apply phosphite, via aerial spraying, to assist in managing <i>Phytophthora</i> impacts.</li> </ul> <p>Research</p> <p>Research biology and ecology of the species including:</p>		

- a study of the soil seed bank dynamics and the role of various factors including disturbance, competition, drought, inundation and grazing in recruitment and seedling survival;
- determination of reproductive strategies, phenology and seasonal growth;
- investigation of the mating system and pollination biology;
- investigation of population genetic structure, levels of genetic diversity and minimum viable population size;
- impacts of dieback disease and phosphite application on the species and its habitat; and
- the impact of changes in hydrology in the habitat.

**Nomination prepared by:**

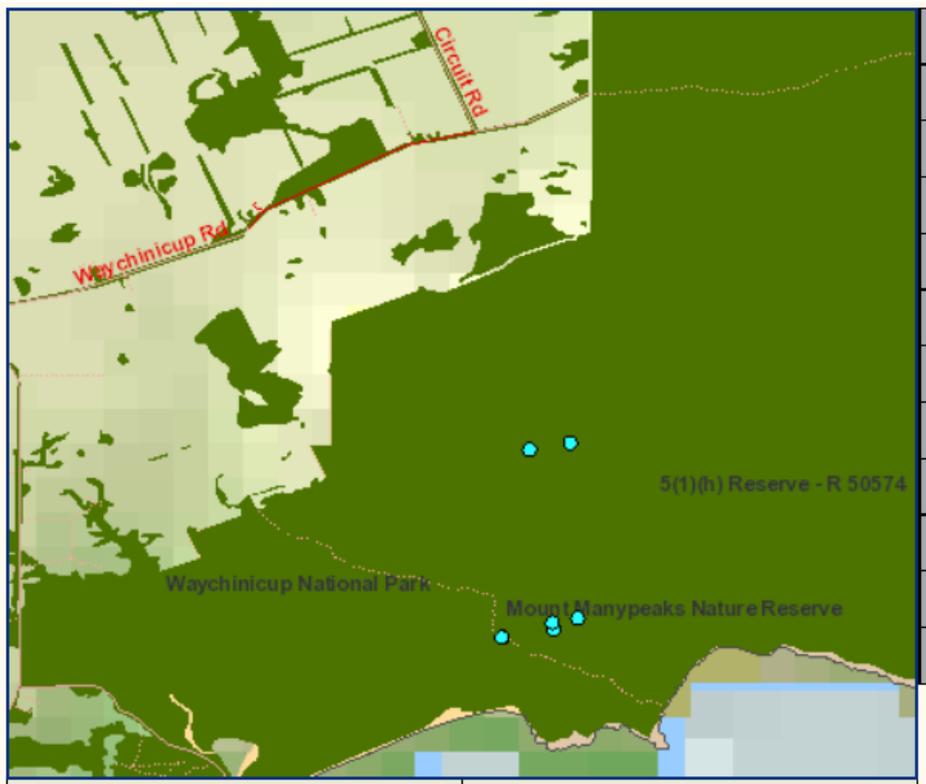
**Contact details:**

**Date submitted:**

15/9/2016

*If the nomination has been refereed or reviewed by experts, please provide their names and contact details:*

**Location of *Daviesia ovata* with remnant vegetation and conservation estate**



Summary of subpopulation information (detailed information to be provided in the relevant sections of the form)						
Location (include coordinates)	Land tenure	Survey information: Date of survey and No. mature individuals	AOO	Site / habitat Condition	Threats (note if past, present or future)	Specific management actions
Subpopulation 1: Mount Manypeaks (29883)	Nature reserve	1982: 1 1983: 1 2007: 2 (6 juveniles) 2008: *14 (42 juveniles) 2009: 12 (49 juveniles) 2010/11: *21 (42 juveniles) 2013/14: *60 (13 juveniles)  *Extension of subpopulation with new plants found	0.232 ha	Very good to moderate. Habitat modified by grazing, dieback disease	Phytophthora dieback (past, present, future) Grazing (herbivores) (past, present, future) Fire (past, present, future) Firebreak maintenance (past, future) Drought (future)	Install and maintain fencing Develop a fire management plan Collect seed and test viability, conduct regeneration trials Baiting program to be completed Install markers
Subpopulation 2: NW of Mt Manypeaks, Waychinicup River Catchment Area, Reserve 50574	Proposed nature reserve	**2008: 7 (53 juveniles) 2009: 10 (54 juveniles) 2010: 5 (55 juveniles) 2011: 0 (58)	0.275 ha	Very good. Habitat modified by grazing, dieback disease.	Phytophthora dieback (past, present, future) Grazing (herbivores) (past, present, future) Fire (past, present, future) Drought (future)	Install and maintain fencing Develop a fire management plan Collect seed and test viability, conduct regeneration trials Baiting program to be completed

		juveniles) 2012: 4 (43 juveniles) 2014: 34 (20 juveniles)  **new subpopulation located NW of Mt Manypeaks				
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## Form to nominate a Western Australian species for listing as threatened, change of category or delisting (Updated 2016).

To fill out this form you **must** refer to the Guidelines. Incomplete forms may result in delays in assessment, or rejection of the nomination.

Answer all relevant sections, filling in the white boxes and indicating when there is no information available. To mark boxes with a cross : on the **View** menu, point to **Toolbars**, and then click **Forms**. Click **Protect Form** , then check the box. Unlock the form by clicking  and you will then be able to type text in the white table cells.

**Note**, this application form applies to both flora and fauna species, and hence some questions or options may not be applicable to the nominated species – for these questions, type “N/A”.

<b>SECTION 1. NOMINATION</b>	
<b>1.1. Nomination information</b>	
Flora <input checked="" type="checkbox"/>	Fauna <input type="checkbox"/> Nomination for: Addition <input checked="" type="checkbox"/> Change of category <input type="checkbox"/> Delisting <input type="checkbox"/>
<b>1.2. Scientific Name</b> This name will be used to identify the species on all official documentation. Use the approved name used by the Western Australian Museum or Herbarium. If this is not possible, use unpublished names or numbers of voucher specimens.	
<i>Daviesia ovata</i> benth.	
<b>1.3. Common Name</b> If the species has a generally accepted common name, please show it here. This name will be used on all official documentation.	
Broad-leaf Daviesia	
<b>1.4. Current Conservation Status. If none, type 'None'.</b>	
International IUCN Red List Category and Criteria applicable to the highest rank category only e.g. Vulnerable (B1ab(iv);D(1))	None
National EPBC Act 1999 Category	None
State of WA Wildlife Conservation Notice Schedule	Critically Endangered
State of WA IUCN Category	C2a(ii)
State of WA Priority	None
Is the species listed as 'Threatened' in any other Australian State or Territory? If Yes, list these States and/or Territories and the status for each.	
No <input checked="" type="checkbox"/> Yes <input type="checkbox"/>	

**Does the species have specific protection (e.g. listed on an annex or appendix) under any other legislation, inter-governmental or international arrangements e.g. CITES? If Yes, please provide details.**

No  Yes

**1.5. Nominated Conservation Status. Type one category for each of the fields. If none, write 'None'.**

**International IUCN Red List Category and Criteria applicable to the highest rank category only e.g. Vulnerable (B1ab(iv);D(1))**

**National EPBC Act 1999**

CR: B1ab(iii,v)+B2ab(iii,v)

**State of WA Wildlife Conservation Notice Schedule**

Schedule 1

**State of WA IUCN Category**

CR: B1ab(iii,v)+B2ab(iii,v)

**State of WA Priority**

**1.6. Reasons for the Nomination.**

**Briefly summarise the reasons for the nomination in dot points. Please include details relevant to the IUCN Categories and Criteria where appropriate.**

- The species was known from only one population of eight individuals on the western slopes of Mt Manypeaks following considerable survey effort to relocate it in 2007. Further survey in 2008, located several new patches of individuals, as well as a new subpopulation north-west of Mt Manypeaks in a water reserve. The number of mature individuals has increased to 94 in 2014.
- The habitat of the subpopulations is highly threatened from dieback disease and grazing from quokkas and rabbits, with heavy grazing of juvenile plants recorded, delaying flowering and thereby reducing reproductive potential. Plant death is likely due to grazing and potentially *Phytophthora*.
- The species was considered to be common at one location in this area by G. Keighery in 1986, this is the last collection of this species.
- The species was not observed in the Manypeaks area from 1986 to when relocated in 2007. This may be related to its fire ecology, ie the species could possibly be a short-lived species more abundant after fire. Therefore, surveys to relocate the species were commenced in 2007 as the area was burnt in a wildfire in summer 2005 (last burnt prior to this in 1979).

## **SECTION 2. SPECIES**

### **2.1. Taxonomy.**

**Describe the taxonomic history, using references, and describe the key distinguishing features that can be used to separate this taxon from closely related taxa. Include details of the type specimen, changes in taxonomy, scientific names and common names used for the species.**

This species belongs to WA group of *Daviesia* in which small bracts enlarge after flowering to become papery and coloured enclosing the pods (eg *D. cordata*). In the case of *D. ovata* phyllodes are tapered to rounded at base (cordate to sagittate for *D. cordata* and *D. crenulata*), phyllodes are broadest at or below the middle, involucre bracts 6-10 mm long at anthesis, much shorter than flowers.

**Is this species conventionally accepted? If no, explain why. For example, is there any controversy about the taxonomy? For undescribed species, detail the location of voucher specimens (these should be numbered and held in a recognised institution and be available for reference purposes).**

No  Yes

**Describe any known hybridisation with other species in the wild, indicating where this occurs and how frequently.**

None known
<b>2.2. Description</b> <b>Describe the physical appearance, habit, behaviour/dispersion and life history. Include anatomy or habit (e.g. size and/or weight, sex and age variation, social structure) and dispersion (e.g. solitary, clumped or flocks etc), and life history (eg short lived, long lived, geophytic, etc).</b>
<p>Mature plants seen were 1m tall, plants to 2m (6ft) recorded by C.A Gardiner 1935. Erect multi-stemmed form but coming from single stem, bushy appearance. Appears to be obligate re-seeder from observations of juveniles. The considerable size variation observed in population of eight plants was attributed to grazing. Flowers are yellow-orange and red with purple-red bracts.</p> <p>Plant longevity unknown, the species has not been observed on Manypeaks since 1986. Manypeaks was last burnt (prior to 2005 fire) in 1979, longevity of seedbank is unknown.</p>
<b>2.3. Distribution</b> <b>Describe the distribution of the species <u>in Australia</u> and, if possible, provide a map.</b>
<p>Located in two subpopulations in the Mt Manypeaks area, 35km east north east of Albany on the south coast of Western Australia.</p>
<b>2.4. Habitat</b> <b>Describe the non-biological habitat (e.g. aspect, topography, substrate, climate) and biological habitat (e.g. forest type, associated species, sympatric species). If the species occurs in various habitats (e.g. for different activities such as breeding, feeding, roosting, dispersing, basking etc) then describe each habitat.</b>
<b>Non-biological habitat</b>
<p>Brown sand-loam over granite, granite boulders scattered in area, NNE aspect above drainage line on lower western slopes,.</p>
<b>Biological habitat</b>
<p>Heath / scrub, regenerating from fire in summer 2005. Dominant species <i>Hakea elliptica</i>, <i>Dryandra formosa</i>, <i>Kingia australis</i>, <i>Gastrolobium coriaceum</i>, <i>Acacia myrtifolia</i>, <i>Melaleuca striata</i>, <i>Beaufortia decussate</i> and <i>Taxandria angustifolia</i>.</p>
<b>Does the (fauna) species use refuge habitat e.g. in times of fire, drought or flood? Describe this habitat.</b>
<p>n/a</p>
<b>Is the species part of, or does it rely on, a listed threatened ecological community? Is it associated with any other listed threatened species?</b>
<p>No</p>
<b>2.5. Reproduction</b> <b>Provide an overview of the breeding system.</b> <b>For <u>fauna</u>: Provide an overview of the breeding system and breeding success, including: when does it breed; what conditions are needed for breeding; are there any breeding behaviours that may make it vulnerable to a threatening process?</b> <b>For <u>flora</u>: When does the species flower and set fruit? Is the seed produced viable? What conditions are needed for this? What is the pollinating mechanism? If the species is capable of vegetative reproduction, a description of how this occurs, the conditions needed and when. Does the species require a disturbance regime (e.g. fire, ground disturbance) in order to reproduce?</b>
<p>Flowers from September to early November (just at end of flowering 5/11/07). Two plants of eight in population have flowered at 2 years after germination, grazing may have delayed flowering in remaining six plants. It is possible that the larger plants have re-sprouted but their form does not suggest this.</p> <p>It is possible, given its apparent relatively short juvenile period, that the species is not long-lived and long fire free intervals may influence its abundance.</p> <p>Seed traps were placed on 2 plants 6/11/07. A number of seed collections have since been made from both subpopulations and are held in the Department of Parks and Wildlife Threatened Flora Seed Centre.</p> <p>Pollinators are unknown.</p>

<b>2.6. Population dynamics</b> Provide details on ages of sexual maturity, extent of breeding success, life expectancy and natural mortality. Describe population structure (presence of juveniles/seedlings, mature and senescing individuals).
Life expectancy unknown, population structure uneven but this is probably due to grazing.
<b>Questions 2.7 and 2.8 apply to <u>fauna</u> nominations only</b>
<b>2.7. Feeding</b> Summarise food items or sources and timing/availability.
N/A
<b>Briefly describe feeding behaviours, including those that may make the species vulnerable to a threatening processes.</b>
N/A
<b>2.8. Movements</b> Describe any relevant daily or seasonal pattern of movement for the species, including relevant arrival/departure dates if migratory. Provide details of home range/territories.
N/A
<b>SECTION 3. INTERNATIONAL CONTEXT</b>
<b>For species that are distributed both in <u>Australia</u> and in <u>other countries</u>.</b>
<b>3.1. Distribution</b> Describe the global distribution.
N/A
<b>Provide an overview of the global population size, trends, threats and security of the species outside of Australia.</b>
N/A
<b>Explain the relationship between the Australian population and the global population. What percentage of the global population occurs in Australia? Is the Australian population distinct, geographically separate or does part, or all, of the population move in/out of Australia's jurisdiction? Do global threats affect the Australian population?</b>
N/A
<b>SECTION 4. CONSERVATION STATUS AND MANAGEMENT</b>
<b>4.1. Population</b> What is the total population size in terms of number of mature individuals? Has there been any known reduction in the size of the population, or is this likely in the future? – provide details. Are there other useful measures of population size and what are they? Or if these are unavailable, provide an estimate of abundance (e.g. scarce, locally abundant etc).
8 plants, 2 mature, 6 juvenile in 2007. 94 mature individuals recorded in 2014.
<b>Provide locations of: captive/propagated occurrences or <i>ex situ</i> collections; recent re-introductions to the wild; and sites for proposed re-introductions. Have these sites been identified in recovery plans?</b>
8 seed collections held in the Threatened Flora Seed Centre as of 2013.
<b>How many locations do you consider the species occurs in and why? Where a species is affected by more than one threatening event, location should be defined by considering the most serious plausible threat.</b>
The species is unlikely to occur outside a 1.5-2 km <sup>2</sup> area in the vicinity of Mt Manypeaks, it appears to be very rare in this area with only two subpopulations located (new subpopulation located in 2008). Threatening processes for this area include <i>Phytophthora cinnamomi</i> which is widespread in the area and vertebrate grazing (Quokka, rabbits). The species susceptibility to <i>P. cinnamomi</i> is unknown however the genus is generally susceptible. Fire regimes may influence abundance but insufficient fire ecology data is available.
<b>For <u>flora</u>, and where applicable, for <u>fauna</u>, detail the location, land tenure, estimated number of individuals, area of occupancy, and condition of site for each known location or occurrence.</b>

() = number of juveniles					
Location	Land status	Date of most recent survey	Number of individuals at location	Area of occupancy at location	Condition of site
Mount Manypeaks	Nature reserve	2007	2 (6)	10x10 m 0.232 hectares (2014)	Moderate Very good to moderate (2014)
		2008	14 (42)		
		2009	12 (49)		
		2010/11	21 (42)		
		2013/14	60 (13)		
NW Mt Manypeaks	Proposed nature reserve	2008	7 (53)	0.275 hectares	Very good
		2009	10 (54)		
		2010	5 (55)		
		2011	0 (58)		
		2012	4 (23)		
		2014	34 (20)		
<b>Has the number of individuals been counted, or is this an estimate? Provide details of the method of determining the number of individuals.</b>					
Counted.					
<b>Has there been any known reduction in the number of locations, or is this likely in the future? – provide details.</b>					
<p>The species was not re-located at the two precise locations known from 1983 (DEC records) although the current population is close to one of these.</p> <p>The 1983 populations surveyed by R. Smith (CALM) had six and 30 plants, respectively. M. Crisp considered that the plant was “on the every brink of extinction” in 1983.</p> <p>The other locations have been extrapolated from herbarium collections ie ‘south side of Manypeaks’ (1983) and “halfway along west slopes of Manypeaks” (1986) and “shady spots in gorges” (1935). It would appear from this that several populations may no be longer extant. In 1986, G. Keighery considered the species to be common on western aspect of Manypeaks (G. Keighery pers comm.).</p>					
<b>What is the extent of occurrence (in km<sup>2</sup>) for the species; explain how it was calculated and datasets used. If an accurate estimate is unavailable, provide a range of values or a minimum or maximum area estimate. Include estimates of past, current and possible future extent of occurrence. If available, include data that indicates the percentage decline over 10 years or 3 generations (whichever is longer) that has occurred or is predicted to occur.</b>					
Historic extent of occurrence estimated as 1.5-2 km <sup>2</sup> based on herbarium collections, DEC records. Current EOO = 1.2 km <sup>2</sup> roughly calculated from an ArcGIS polygon that encompassed all known subpopulations.					
<b>Is the distribution of the species severely fragmented? Why?</b>					
No – historically the species was only known from this one area.					
<b>Identify important occurrences necessary for the long-term survival and recovery of the species? This may include: key breeding populations, those near the edge of the range of the species or those needed to maintain genetic diversity.</b>					
All occurrences.					

#### **4.2. Survey effort**

**Describe the methods to conduct surveys. For example, (e.g. season, time of day, weather conditions); length, intensity and pattern of search effort (including where species not encountered); any limitations and expert requirements.**

Species was known from only one subpopulation following considerable survey (foot transects) in 2007 (6 days, 13 person days, 110 + hours); species was considered to be common by G. Keighery in 1986.

The plant has not been observed during Noisy Scrub Bird surveys 1999 to 2007 (Sarah Comer pers. comm.).

Extensive survey by Parks and Wildlife staff in 2008, two years following a fire, located new plants within 200m of the existing plants. A new subpopulation was also discovered nearly 2km away, also northwest of Mt Manypeaks.

Further plants were also found by Parks and Wildlife staff up to nearly 1km from existing plants in 2010 and 2014.

**Provide details on the distinctiveness and detestability of the species, or the distinctiveness of its habitat, that would assist survey success.**

The species habitat is relatively abundant on the lower to mid-slopes of Mt Manypeaks.

The species form / vegetation is distinctive, it is not cryptic. The first individual located was a juvenile to 30 cm – its foliage is similar to but readily distinguished from eg *Hakea elliptica* or *G. coriaceum*.

**Has the species been reasonably well surveyed? Provide an overview of surveys to date (include surveys of known occurrences and surveys for additional occurrences) and the likelihood of its current known distribution and/or population size being its actual distribution and/or population size. Include comments on potential habitat and surveys that were conducted, but where the species was not present/found.**

Species is currently known from only one small subpopulation (two in 2016) following considerable survey in 2007 (6 days, 13 person days, 110 + hours) within its historical range.

The species was not located in a Biological Survey of Mountains including Manypeaks 1994-1996.

The species has not been observed during Noisy Scrub bird monitoring 1999-2007.

There is still scope for limited additional survey within its historical range, given the discovery of new patches of plants and a new subpopulation nearly 2km away. Areas recently burnt should be targeted for survey given the species fire response.

### 4.3. Threats

Identify past, current and future threats indicating whether they are actual or potential. For each threat describe:

- how and where they impact this species
- what the effect of the threat(s) has been so far (indicate whether it is known or suspected)
- present supporting information/research
- does it only affect certain populations?
- what is its expected effect in the future (is there supporting research/information; is the threat only suspected; does it only affect certain populations?).

*Phytophthora dieback*: *P. cinnamomi* was identified in the area in the early 1990s at which time it appeared to have been there for some time (Mal Grant pers. com.). *Phytophthora dieback* is currently prevalent in the area, and although it is not certain that the species is susceptible, many associated plants are susceptible. *Daviesia ovata* is found in small pockets of healthy vegetation with no plants found in infested areas.

Grazing: heavy grazing by quokkas (and possibly rabbits) appears to delay flowering thereby reducing the plants reproductive potential. In particular, grazing of juvenile plants, those up to 0.4 m high, has been heavy. Taller plants have been observed under *Eucalyptus marginata* where they appear to have some protection from grazing by quokka was observed in 2007.

Fire: The species is thought to regenerate after fire following germination of soil-stored seed, however resprouting of some individuals has been observed and these commence flowering within two years. Quokka numbers have been observed to increase following fire and favour regenerating habitat, such as juvenile *Daviesia ovata*, as food.

Firebreak maintenance: a potential threat to plants located along the firebreak.

**If possible, provide information threats for each occurrence/location:**

Location	Past threats	Current threats	Potential threats	Management requirements (see section 4.4)
Mt Manypeaks (West)	<i>P. cinnamomi</i> , grazing, fire	<i>P. cinnamomi</i> , grazing, fire	<i>P. cinnamomi</i> , grazing, firebreak maintenance, fire	Test for susceptibility to <i>P. cinnamomi</i> , protect from grazing, locate more plants/populations, install markers, collect seed
Mt Manypeaks (NNW)	<i>P. cinnamomi</i> , grazing, fire	<i>P. cinnamomi</i> , grazing, fire	<i>P. cinnamomi</i> , grazing, fire	Test for susceptibility to <i>P. cinnamomi</i> , protect from grazing, locate more plants/populations, collect seed

Identify and explain why additional biological characteristics particular to the species are threatening to its survival (e.g. low genetic diversity). Identify and explain any models addressing the survival of the species.

N/A

<b>4.4. Management</b>	
<b>Identify key management documentation for the species e.g. recovery plans, conservation plans, threat abatement plans etc.</b>	
N/A	
<b>Does this species benefit from the management of another species or community? Explain.</b>	
Yes: Noisy Scrub Bird, Bristle Bird habitat.	
<b>How well is the species represented in conservation reserves or covenanted land? Which of these are actively managed for this species? Provide details.</b>	
Present in nature reserve and proposed nature reserve	
<b>Are there any management or research recommendations that will assist in the conservation of the species? Provide details.</b>	
<ul style="list-style-type: none"> <li>• Install markers to prevent impact from firebreak maintenance;</li> <li>• Collect seed and store at Parks and Wildlife Threatened Flora Seed Centre;</li> <li>• Install and maintain cages and fencing enclosures around the species to protect from grazing;</li> <li>• Establish new subpopulations through translocation into disease free area;</li> <li>• Monitor subpopulations for evidence of grazing impacts, or changes in plant or site health;</li> <li>• Develop and implement a fire management strategy, including the need for, and method of, the construction and maintenance of firebreak;</li> <li>• Control rabbits;</li> <li>• Undertake surveys in areas of potentially suitable habitat;</li> <li>• Continue to follow dieback hygiene measures;</li> <li>• Apply phosphite to assist in managing <i>Phytophthora</i> impacts;</li> <li>• Research biology and ecology of the species, with a focus on pollination effectiveness, seed viability, conditions required for natural germination, response to threats (particularly dieback disease) and disturbances and reproductive biology.</li> </ul>	
<b>4.5. Other</b>	
<b>Is there any additional information that is relevant to consideration of the conservation status of this species?</b>	
No.	
<b>SECTION 5. NOMINATOR</b>	
<b>Nominator(s) name(s)</b>	
<b>Organisation(s)</b>	
<b>Address(s)</b>	
<b>Telephone number(s)</b>	
<b>Email(s)</b>	
<b>Date</b>	14/11/07 Updated 21/9/2016
<b>If the nomination has been refereed or reviewed by experts, provide their names and contact details.</b>	
Libby Sandiford	
<b>SECTION 6. REFERENCES</b>	
<b>What references or sources did you use to prepare your nomination? Include written material, electronic sources and verbal information. Include full references, address of web pages and the names and contact details of authorities with whom you had verbal communications.</b>	
DEC files, "Conservation of the genus <i>Daviesia</i> " by M.D. Crisp, 1983; Florabase.	