

## Abridged Threatened Species Nomination Form

For nominations 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)*

<b>Species name</b> (scientific and common name):	<i>Kunzea ericifolia</i> subsp. <i>subulata</i>
<b>Nomination for</b> (addition, deletion, change):	<b>Addition</b>
<b>Nominated conservation category and criteria:</b>	<b>VU: D1</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 Gazetteal/ Legislative effect:</i>	

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

Current conservation status				
Scientific name:	<i>Kunzea ericifolia subsp. subulata</i>			
Common name:				
Family name:	Myrtaceae	Fauna <input type="checkbox"/>	Flora <input checked="" type="checkbox"/>	
Nomination for:	Listing <input checked="" type="checkbox"/>	Change of status <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	6/1/2017	Vulnerable	D1
	2.			
	3.			
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:				
<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:				
Nominated national conservation status: category and criteria				
Presumed extinct (EX) <input type="checkbox"/>	Critically endangered (CR) <input type="checkbox"/>	Endangered (EN) <input type="checkbox"/>	Vulnerable (VU) <input checked="" type="checkbox"/>	
None (least concern) <input type="checkbox"/>	Data Deficient <input type="checkbox"/>	Conservation Dependent <input type="checkbox"/>		

What are the IUCN Red List criteria that support the recommended conservation status category?	VU: D1
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**Eligibility against the IUCN Red List criteria (A, B, C, D and E)**

*Provide justification for the nominated conservation status; is the species eligible or ineligible for listing against the five criteria. For **delisting**, provide details for why the species no longer meets the requirements of the current conservation status.*

<b>A.</b>	Population size reduction (evidence of decline)	<ul style="list-style-type: none"> <li>Unable to assess</li> </ul>
<b>B.</b>	Geographic range (EOO and AOO, number of locations and evidence of decline)	<ul style="list-style-type: none"> <li>AOO 8km<sup>2</sup> using 2x2km grid. EOO calculated as 8km<sup>2</sup> based on AOO estimation.</li> <li>3 locations</li> <li>Some fluctuation in population size observed due to climatic and fire events, but considered within bounds of natural life history of the species and continuing decline not demonstrated.</li> <li><b>Not demonstrated to meet criteria</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 approximately 550+ mature individuals</li> <li>Fluctuation in population size with climatic and fire events, but continuing decline not demonstrated.</li> <li><b>Not demonstrated to meet criteria</b></li> </ul>
<b>D.</b>	Very small or restricted population (population size)	<ul style="list-style-type: none"> <li>Known from approximately 550+ mature individuals</li> <li><b>Meets criteria for Vulnerable: D1</b></li> </ul>
<b>E.</b>	Quantitative analysis (statistical probability of extinction)	<ul style="list-style-type: none"> <li>Unable to assess</li> </ul>

**Summary of assessment information**

EOO	207ha – calculated to 8 km <sup>2</sup> based on AOO	AOO	8 km <sup>2</sup> (2kmx2km grid method). Area subpopulations 0.3ha	Generation length	Unknown
No. locations	3	Severely fragmented	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>		
No. subpopulations	3	No. mature individuals	550+ (< 1000)		
Percentage global population within Australia	100				
Percentage population decline over 10 years or 3 generations	Unknown				

**Threats (detail how the species is being impacted)**

Threat <i>(describe the threat and how it impacts on the species. Specify if the threat is past, current or potential)</i>	Extent <i>(give details of impact on whole species or specific subpopulations)</i>	Impact <i>(what is the level of threat to the conservation of the species)</i>
Fire (current)	Whole species	Plants are killed by fire (obligate seeder) with a long juvenile period and hence frequent fires can lead to local extinction
Phytophthora dieback (potential)	Whole species	The species does not appear to be killed by dieback, but occurs in a vegetation type that is susceptible to dieback which may change the habitat characteristics for the species.
Drought (potential)	Whole species	As a refugial taxon with apparent wetland origins which is now restricted to moisture gaining mountain-top or southern slopes habitat, <i>K. ericifolia</i> subsp. <i>subulata</i> is vulnerable to the drying effects of climate change.
<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>• Management plan for Fitzgerald River National Park 1991-2001</li> <li>• Fitzgerald River Biosphere Recovery Plan 2011</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>• Fire to be excluded from West Mt Barren until juvenile plants have matured and have re-established a soil seed bank.</li> <li>• Seed was collected from West Mt Barren in April 2002 with 70,100 seeds stored at the Parks and Wildlife Threatened Flora Seed Centre and an additional 50,000 seeds stored at the Millenium Seed Bank (Kew) from the same collection.</li> </ul>		
<p><i>List further recommended management or research actions, if any, that would benefit the conservation of the species.</i></p> <ul style="list-style-type: none"> <li>• Document juvenile period.</li> <li>• Establish monitoring to document population trends on W Mt Barren</li> <li>• Determine susceptibility to <i>Phytophthora cinnamomi</i></li> <li>• Re-survey salt-lake population</li> </ul>		

<b>Nomination prepared by:</b>	
<b>Contact details:</b>	
<b>Date submitted:</b>	13/1/2017
<i>If the nomination has been refereed or reviewed by experts, please provide their names and contact details:</i>	

Summary of subpopulation information <i>(detailed information to be provided in the relevant sections of the form)</i>						
Location <i>(include coordinates)</i>	Land tenure	Survey information: Date of survey and No. mature individuals	Area of subpopul ations	Site / habitat Condition	Threats <i>(note if past, present or future)</i>	Specific management actions
W Mt Barren	National Park	Oct 2013: 300+	0.1 ha	excellent	Current:  Fire  Future  Phytophthora dieback, drought	
Mt Bland	National Park	2012: 200+	0.1 ha	excellent	Current:  Fire  Future  Phytophthora dieback, drought	
SE of Mt Bland	National Park	2012: <50	0.1 ha	excellent	Current:  Fire  Future  Phytophthora dieback, drought	



## Threatened species nomination

For nominations to the WA Threatened Species Scientific Committee (and the Minister for Environment) to amend threatened species listings under the WA *Wildlife Conservation Act 1950* or their IUCN Red List threat status.

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

<b>Species name</b> (scientific and common name):	<i>Kunzea ericifolia</i> subsp. <i>subulata</i>
<b>Nomination for</b> (addition, deletion, change):	<b>Addition</b>
<b>Nominated conservation category and criteria:</b>	<b>VU: D1</b>

TSSC assessment of eligibility against the criteria:		
<b>A.</b>	Population size reduction	<ul style="list-style-type: none"> <li>Unable to assess</li> </ul>
<b>B.</b>	Geographic range	<ul style="list-style-type: none"> <li>AOO 8km<sup>2</sup> using 2x2km grid. EOO calculated as 8km<sup>2</sup> based on AOO estimation.</li> <li>3 locations</li> <li>Fluctuation in population size with climatic and fire events, but continuing decline not demonstrated.</li> <li><b>Not demonstrated to meet criteria</b></li> </ul>
<b>C.</b>	Small population size and decline	<ul style="list-style-type: none"> <li>Known from approximately 550+ mature individuals</li> <li>Fluctuation in population size with climatic and fire events, but continuing decline not demonstrated.</li> <li><b>Not demonstrated to meet criteria</b></li> </ul>
<b>D.</b>	Very small or restricted population	<ul style="list-style-type: none"> <li>Known from approximately 550+ mature individuals</li> <li><b>Meets criteria for Vulnerable: D1</b></li> </ul>
<b>E.</b>	Quantitative analysis	<ul style="list-style-type: none"> <li>Unable to assess</li> </ul>

<b>Outcome:</b>			
<i>TSSC Meeting date:</i>	22/6/2016		
<i>TSSC comments:</i>	<p>Nominated category discussed why EN was not nominated.</p> <p>Discussed whether dieback is a threat for Kunzea. Members personal experience is that they have been seen in dieback affected areas and appear to be unaffected.</p> <p>Incorrect information in nomination regarding seedbank – two members advised not in soil seedbank.</p>		
<i>Recommendation:</i>	Vulnerable: D1		
<i>Ministerial approval:</i>	28/12/2016	<i>Government Gazette:</i>	06/01/2017





Department of  
Environment and Conservation

Our environment, our future



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## Form to nominate a Western Australian species for listing as threatened, change of category or delisting.

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The purpose of this nomination form is to bring your nomination to the attention of the Western Australian Threatened Species Scientific Committee (TSSC) for its consideration and subsequent advice to the Minister for Environment, who makes the final decision on changes to the threatened species lists. Please read through both the guidelines and the nomination form to familiarise yourself with the information required before filling out the nomination form.

The assessment of the conservation status is according to IUCN red list category and criteria, and whilst it is a State listing process, the TSSC will consider the status of Western Australian species throughout their total natural range in Australia, and where appropriate (eg, for species that do not breed in Australia), their range and status outside Australia. Therefore, information provided in the nomination should include information on populations outside WA where applicable.

**Note**, this nomination 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”.

### **Nominators should refer to:**

[DEC Nomination Guidelines](#)

[IUCN \(2001\). IUCN Red List Categories and Criteria Version 3.1 \(IUCN, Gland, Switzerland\)](#)

[IUCN \(2011\). Guidelines for using the IUCN Red List Categories and Criteria. Version 9.0 \(September 2011\). \[www.iucnredlist.org\]\(http://www.iucnredlist.org\)](#)

### **Nominations should be submitted (preferably in electronic format) to:**

Species and Communities Branch  
Department of Environment and Conservation  
Locked Bag 104  
BENTLEY DC WA 6983

Telephone: (08) 9334 0455

Email: [tssc@dec.wa.gov.au](mailto:tssc@dec.wa.gov.au)

**TSSC meetings are usually held near the end of the first quarter of the calendar year. The closing date for nominations for TSSC meetings is the last Friday of January that year.**

**NOTICE: Incomplete forms may result in delays in assessment, or rejection of the nomination. DEC staff can advise you on how to fill out the form and may be able to supply additional, unpublished information.**

To mark boxes with a **cross**, double click the box and select not checked or checked.

SECTION 1. NOMINATION					
<b>1.1. Nomination for: <i>Kunzea ericifolia</i> subsp. <i>subulata</i></b>					
Flora <input checked="" type="checkbox"/>	Fauna <input type="checkbox"/>	as:	Threatened / DRF <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 possible.					
<i>Kunzea ericifolia</i> subsp. <i>subulata</i>					
<b>1.3. Common Name</b> If the species has a generally accepted common name, please show it here.					
None					
<b>1.4. Family Name</b>					
Myrtaceae					
<b>1.5. Current Conservation Status. If none, type 'None'.</b>					
	IUCN Red List Category e.g. Vulnerable			IUCN Red List Criteria e.g. B1ab(iv); D1	
International IUCN Red List	None				
National EPBC Act 1999	None				
State of Western Australia	Priority Two				
State of WA Priority	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>1.6. Nominated Conservation Status.</b>					
	IUCN Red List Category e.g. Vulnerable			IUCN Red List Criteria e.g. B1ab(iv); A2(c); D1 & D2	
State of Western Australia	Vulnerable			D	
State of WA Priority	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
<b>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.</b>					
No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Details:					
<b>1.7. Reasons for the Nomination.</b> Briefly summarise the reasons for the nomination in dot points. Please include details relevant to the IUCN Category and each Criteria.					
<ul style="list-style-type: none"> <li>• Very restricted distribution – EOO 207ha and AOO 0.3ha</li> </ul>					
<ul style="list-style-type: none"> <li>• Known from three small populations and approximately 550+ mature individuals</li> </ul>					
<ul style="list-style-type: none"> <li>• Apparent decline in the area of occupancy and number of mature individuals at one population (not quantified)</li> </ul>					
<ul style="list-style-type: none"> <li>• Refugial species, vulnerable to drying climate</li> </ul>					
<ul style="list-style-type: none"> <li>• Obligate seeder, vulnerable to frequent fire due to a relatively long juvenile period</li> </ul>					

## 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.**

From H.R. Toelken J. Adelaide Bot. Gard. 17 (1996) : “Young branches villous with short and long hairs up to 3.5 mm long and usually shorter than those of leaves. Leaves linear rarely linear-lanceolate, very convex below to semicircular in section but flat or slightly grooved above with hairs, straight or if slightly recurved then from the petiole; petiole 0.8-1.5 mm long. Flowers: September, October.

The plants growing among rocks on top of and on the southern slopes of West Mt Barren form spreading shrubs to 1.5 m high and their terminal branches are usually short and gnarled. These shrubs have quite a different appearance from those of the typical subspecies.

Distribution and ecology: Historically only known from the vicinity of West Mt Barren where plants grow among rocks towards the summit and from a salt lake southeast of Mt Bland (Royce 1970)

The leaves of subspecies *ericifolia* are usually dorsiventrally compressed, but in a few specimens, e.g. E.M. Bennett 1082, they range from flat to a somewhat convex abaxial surface. These leaves are oblong, 3-5 mm long, covered with long spreading hairs at least when young and have a petiole 0.5-0.7 mm long so that they cannot be confused with those of subsp. *subulata*.”

The more widespread *Kunzea ericifolia* subsp. *ericifolia* occurs in seasonally wet drainage lines and wetlands in the Warren, Jarrah forest and Swan Coastal Plain IBRA sub regions reaching its most eastern limit just east of Albany.

**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.**

No known hybridisation

### 2.2. Description

**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).**

Erect bushy shrub to 1.5m high.

The taxon is probably a long-lived perennial (oldest plants are presumed to be 26 years old as last burnt in 1989). No signs of senescence have been observed.

### 2.3. Distribution

**Describe the distribution of the species in Australia and, if possible, provide a map.**

Occurs on the summit area of West Mt Barren (WMB), Mt Bland and adjacent to a salt lake south-east of Mt Bland in the western part of the Fitzgerald River National Park, South Coast Region, WA

<p><b>2.4. Habitat</b>  Describe the non-biological habitat (e.g. aspect, topography, substrate, climate) and biological habitat (e.g. vegetation 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. Note if the habitat has a special defining characteristic. If possible estimate the area of habitat, or the relative abundance of the habitat, and note if a critical habitat requirement (eg breeding habitat) is restricted in its availability to the species.</p>
<p><b>Non-biological habitat</b></p>
<p>Occurs on shallow white sandy loam on quartzite (mountain summit) (2 populations) and on pale grey-brown sandy loam overlying siltstone upslope from a salt-lake (1 population).</p>
<p><b>Biological habitat</b></p>
<p><b>Mountain top: Heath</b></p> <p><b>Shrubs to 1-1.5m high:</b> <i>Calothamnus validus</i>, <i>Banksia oreophila</i>, <i>Allocasuarina trichodon</i>, <i>Agonis conspicua</i>, <i>Agonis undulata</i>, <i>Bossiaea dentata</i>, <i>Allocasuarina trichodon</i>.</p> <p><b>Low shrubs &lt; 1m high:</b> <i>Acacia cedroides</i> <i>Hypocalymma jessicae</i>, <i>Leucopogon</i> sp. Fitzgerald Peaks, <i>Hemiphora exserta</i>.</p> <p><b>Herb:</b> <i>Opercularia hispidula</i>.</p> <p><b>Sedge:</b> <i>Lepidosperma</i> sp. Big heads.</p> <p><b>Salt Lake: Open woodland over heath</b></p> <p><b>Shrubs.</b> <i>Melaleuca cuticularis</i>, <i>Banksia oreophila</i>, <i>Astartea</i> sp., <i>Lepidosperma</i> sp. and <i>Anarthria laevis</i>.</p>
<p><b>Does the (fauna) species use refuge habitat e.g. in times of fire, drought or flood? Describe this habitat.</b></p>
<p>N/A</p>
<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>
<p><i>Adenanthos ellipticus</i> occurs within 500m of <i>Kunzea ericifolia</i> subsp. <i>subulata</i> on West Mt Barren and within 200m of <i>Kunzea ericifolia</i> subsp. <i>subulata</i> on Mt Bland.</p>
<p><b>2.5. Reproduction</b>  Provide an overview of the breeding system.  For <b>fauna</b>: 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?  For <b>flora</b>: 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?</p>
<p>Flowers in spring and fruits in summer-autumn with seed collected from West Mt Barren in April 2002. 90% of seed germinated on testing with no special treatment required.</p> <p>Possible pollinators (beetles) observed in October 2013 on West Mt Barren.</p> <p>No resprouting has been observed following fire with plants apparently killed by fire and germinating from a soil-stored seed bank. No other form of disturbance has been observed.</p>

<p><b>2.6. Population dynamics</b>  <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). Estimate generation length.</b></p>
<p>Populations appear to be even-aged in relation to time since fire. Part of the West Mt Barren population was burnt in 2008 with resulting seedlings still non-reproductive in spring 2013 suggesting a juvenile period of at least 5-6 years. The remainder of the West Mt Barren population and all of the Mt Bland population were last burnt in 1989 and appear even aged.</p> <p>The salt lake population was burnt in 2008 and the plant observed was larger and reproductive in 2012 some 4 years after fire (D. Rathbone - photo).</p>
<p><b>Questions 2.7 and 2.8 apply to <u>fauna</u> nominations only</b></p>
<p><b>2.7. Feeding</b>  <b>Summarise food items or sources and timing/availability.</b></p>
<p>N/A</p>
<p><b>Briefly describe feeding behaviours, including those that may make the species vulnerable to threatening processes.</b></p>
<p>N/A</p>
<p><b>2.8. Movements</b>  <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.</b></p>
<p>N/A</p>
<p><b>SECTION 3. INTERNATIONAL CONTEXT</b></p>
<p><b>For species that are distributed both in <u>Australia</u> and in <u>other countries</u>.</b></p>
<p><b>3.1. Distribution</b>  <b>Describe the global distribution.</b></p>
<p>N/A</p>
<p><b>Provide an overview of the global population size, trends, threats and security of the species outside of Australia.</b></p>
<p>N/A</p>
<p><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></p>
<p>N/A</p>
<p><b>SECTION 4. CONSERVATION STATUS AND MANAGEMENT</b></p>
<p>Conservation status and management information is required for the national extent of the species, however, greater detail is expected for the WA occurrences. If the taxon is considered to be endemic to Western Australia, please provide supporting evidence.</p> <p><b>4.1. Population</b>  <b>What is the total national/State population size in terms of number of mature individuals? Has the number of individuals been counted, or is this an estimate? Provide details of the method of determining the number of individuals. 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).</b></p> <p>Note: The term 'population' is used in a specific sense in the Red List Criteria that is different to its common biological usage. Population is here defined as the total number of mature individuals of the taxon. In the case of taxa obligately dependent on other taxa for all or part of their life cycles, biologically appropriate values for the host taxon should be used. (IUCN 2001)</p>

Estimated 550+ mature plants. Note: plants were not individually counted and this figure may be an underestimate, however, total mature plants are unlikely to exceed 1000 in total.																													
<b>How many subpopulations or locations do you consider the species occurs in and why?</b>																													
Note: 'Subpopulations' are defined as geographically or otherwise distinct groups in the population between which there is little demographic or genetic exchange (typically one successful migrant individual or gamete per year or less). 'Locations' are defined as a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present. The size of the location depends on the area covered by the threatening event and may include part of one or many subpopulations. Where a taxon is affected by more than one threatening event, location should be defined by considering the most serious plausible threat. (IUCN 2001) Refer to Red List Guidelines 9.0																													
Three sub-populations are considered to occur, 2 on or near Mt Bland and 1 on W Mt Barren																													
<b>Provide locations of: captive/propagated occurrences or <i>ex situ</i> collections; recent re-introductions or introductions to the wild; and sites for proposed re-introductions or introductions. Have these sites been identified in recovery plans?</b>																													
Seed was collected from West Mt Barren in April 2002 with 70,100 seeds stored at the Parks and Wildlife Threatened Flora Seed Centre and an additional 50,000 seeds stored at the Millenium Seed Bank (Kew) from the same collection.																													
<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 date, location or occurrence. More specific detail is expected for WA occurrences for taxa that are not endemic to WA.</b>																													
<table border="1"> <thead> <tr> <th>Date of survey</th> <th>Location Description (include coordinates of the site)</th> <th>Land status</th> <th>Number of mature individuals at location</th> <th>Area of occupancy at location</th> <th>Condition of site</th> </tr> </thead> <tbody> <tr> <td>Oct 2013</td> <td>West Mt Barren, FRNP</td> <td>NP</td> <td>300+</td> <td>0.1 ha</td> <td>excellent</td> </tr> <tr> <td>2012</td> <td>Mt Bland, FRNP</td> <td>NP</td> <td>200 +/-</td> <td>0.1 ha</td> <td>excellent</td> </tr> <tr> <td>2012</td> <td>SE of Mt Bland</td> <td>NP</td> <td>&lt;50</td> <td>0.1 ha</td> <td>excellent</td> </tr> </tbody> </table>						Date of survey	Location Description (include coordinates of the site)	Land status	Number of mature individuals at location	Area of occupancy at location	Condition of site	Oct 2013	West Mt Barren, FRNP	NP	300+	0.1 ha	excellent	2012	Mt Bland, FRNP	NP	200 +/-	0.1 ha	excellent	2012	SE of Mt Bland	NP	<50	0.1 ha	excellent
Date of survey	Location Description (include coordinates of the site)	Land status	Number of mature individuals at location	Area of occupancy at location	Condition of site																								
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<b>What is the total area of occupancy (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. Where separate breeding habitat is applicable, if possible, also provide area of breeding habitat.</b>																													
0.3 ha, based on calculation of area within polygon using ARCGIS																													
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<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																													
<b>Is the distribution of the species severely fragmented? Why?</b>																													
No fragmentation. Populations are within intact remnant vegetation in a National Park																													
<b>Is the taxon subject to extreme fluctuations? If so, provide evidence.</b>																													
Unknown																													

<p><b>Has there been any known decline in the species within WA or nationally, or is this likely in the future? – provide details in relation to the elements detailed below, including how the decline has been measured or inferred. Is there a presumption of continuing decline? If so, provide details of the decline and how it relates to the specific Red List Categories and Criteria version 3.1.</b></p> <p>Note: A continuing decline is a recent, current or projected future decline (which may be smooth, irregular or sporadic) which is liable to continue unless remedial measures are taken. Fluctuations will not normally count as continuing declines, but an observed decline should not be considered as a fluctuation unless there is evidence for this. (IUCN 2001) Refer to Red List Guidelines 9.0</p>
<p><b>Has there been a decline in the size of the population (number of mature individuals)?</b></p> <p>No trends available for recently discovered Mt Bland population</p> <ul style="list-style-type: none"> <li>• Apparent decline in numbers of juvenile plants since 2009 at WMB, apparent decline in mature plants since 2000 at WMB.</li> <li>• Herbarium record 1988 (WMB) documents that the species occurred ‘on sandplain beneath steep slopes’... with ‘<i>Banksia coccinea</i>, <i>Lambertia (inermis)</i>’ (near walk trail) as well as ‘on summit’ which implies that the West Mt Barren population was once more widespread. Survey in February 2015 of the lower slopes near the old walk trail did not locate any plants.</li> <li>• Herbarium record 1982 (WMB) documents that the species occurred on east and south sides of WMB: not seen on southeast or east side during surveys by Rathbone (2013) or monitoring of <i>Adenanthos ellipticus</i> (S. Barrett).</li> <li>• Therefore there has been an apparent decline in the area of occupancy and size of WMB population.</li> <li>• Only one plant was sighted in population SE of Mt Bland near salt lake in 2012. Photographs of the habitat suggest that there are few plants in this population currently.</li> </ul>
<p><b>- can the rate of population size reduction be determined over the last 10 years or 3 generations (whichever is the longer)? If so, state whether the determination is based on quantitative data (observed), estimated (provide data and calculations), inferred or suspected.</b></p> <p>Not able to accurately determine rate of decline as population estimates only available</p>
<p><b>- can the rate of population size reduction be estimated for the next 10 years or 3 generations and in any 10 year or 3 generation period (up to a maximum of 100 years into the future)? If so, state how the reduction is estimated (provide data and calculations), inferred or suspected.</b></p> <p>No</p>
<p><b>Has there been a decline in the number of locations, extent of occurrence or area of occupancy?</b></p> <p>No decline in number of locations or extent, there has been an apparent reduction in the area of occupancy at West Mt Barren.</p>
<p><b>Has there been a decline in the area or quality of habitat?</b></p> <p>No, however localised drought may have an impact on skeletal soils, affecting habitat quality. Seedlings and juveniles are likely to be vulnerable to drought in the early post-fire period.</p>
<p><b>4.2. Survey effort</b>  <b>Describe the methods to conduct surveys. For example, season, time of day, weather conditions; length, intensity and pattern of search effort (including where species not encountered); any limitations and expert requirements.</b></p> <p>Survey has been predominantly in spring with transects walked through coastal and inland quartzite hills and mountains.</p>

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

The species is the only yellow flowering *Kunzea* in the Fitzgerald River National Park. Its foliage and fruit are also characteristic. Its habitat (heath on quartzite on mountain summit top) is highly distinctive as is its salt-lake habitat.

**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.**

The quartzite ranges of the Fitzgerald River National Park were extensively surveyed between 2010 and 2012 as part the Fitzgerald River Improvement Project. During this project, Damien Rathbone (2011-2012) surveyed all the coastal quartzite hills (The Barrens, Thumb Peak, Whoogerup Range and Mt Bland). In the process, he discovered the Mt Bland population and re-located the salt lake population. Previous surveys include a “Biological Survey of Mountains in southern WA” (Barrett 1996) that surveyed Thumb Peak as well as the Chapman & Newbey survey of Fitzgerald River National Park (1995).

There have been additional surveys of Mid Mt Barren & Woolbernup Hill (S Barrett, Mike Hislop 2002), Eyre Range and Fortification Hill (S Barrett 2012), Mt Drummond (S Barrett 2007) as well as numerous surveys of the accessible East and West Mt Barrens and Mt Maxwell where other threatened flora are monitored.

It is highly likely that its current distribution is its actual distribution.

The salt-lake population requires further survey to determine size.

### 4.3. Threats

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

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

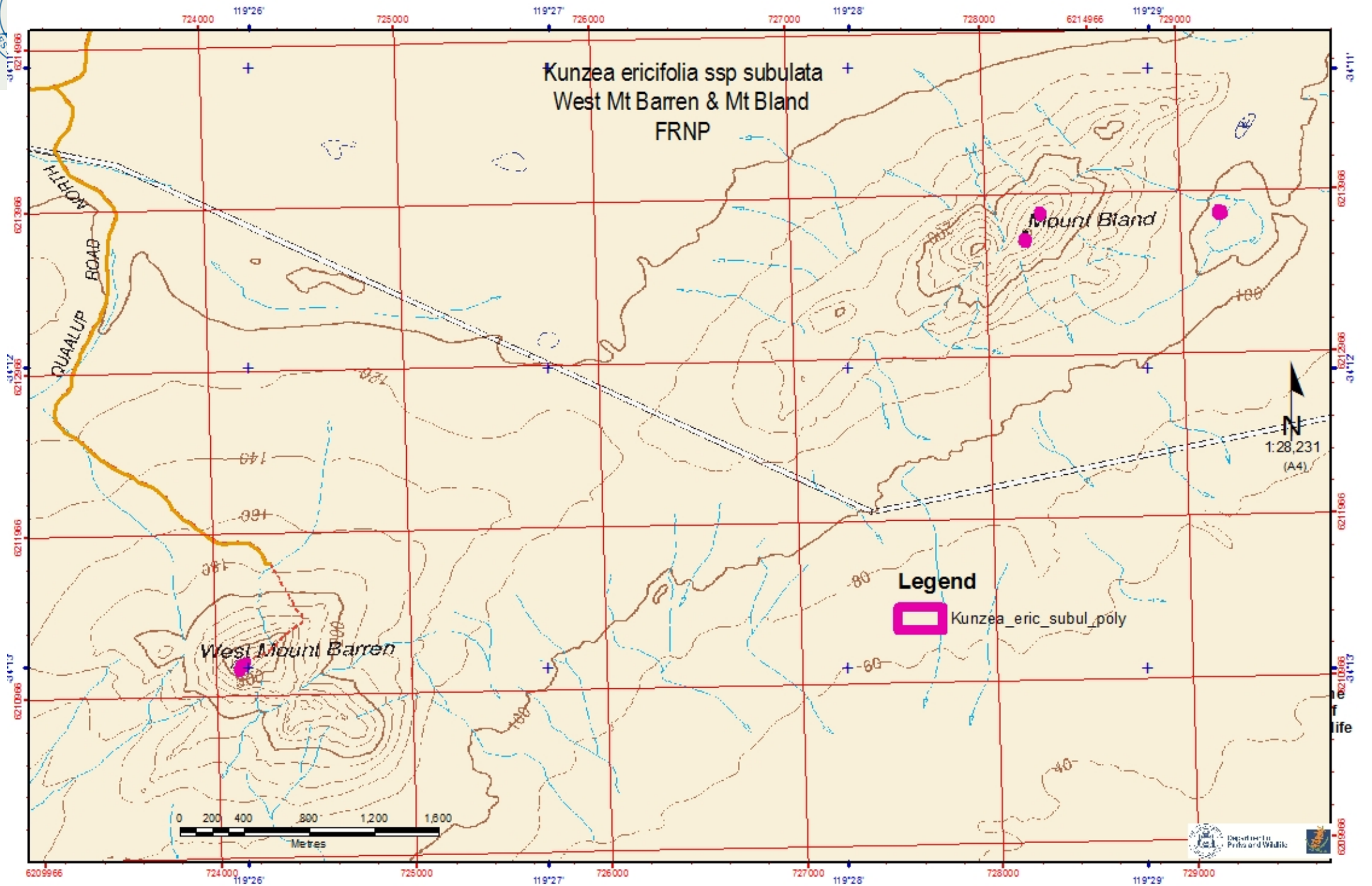
**If possible, provide information threats for each current occurrence/location:**

Location	Past threats	Current threats	Potential threats	Management requirements (see section 4.4)
W Mt Barren		Fire	Phytophthora dieback, drought	Fire management, monitor population trends, dieback hygiene
Mt Bland		Fire	Phytophthora dieback, drought	Fire management, monitor population trends, dieback hygiene, seed collection



SE of Mt Bland		Fire	Phytophthora dieback, drought	Fire management, monitor population trends, dieback hygiene
<p><b>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.</b></p> <p>As a taxon with apparent wetland origins which is now restricted to moisture gaining mountain-top or southern slopes habitat, <i>K. ericifolia</i> subsp. <i>subulata</i> is vulnerable to the drying effects of climate change.</p> <p>Genetic diversity unknown.</p> <p>No models available.</p>				
<p><b>4.4. Management</b>  <b>Identify key management documentation for the species e.g. recovery plans, conservation plans, threat abatement plans etc.</b></p>				
<p>No recovery plans for the species or the nearby Threatened species <i>Adenanthos ellipticus</i></p> <p>Management plan for Fitzgerald River National Park 1991-2001</p> <p>Fitzgerald River Biosphere Recovery Plan 2011</p>				
<p><b>Does this species benefit from the management of another species or community? Explain.</b></p>				
<p><i>Kunzea ericifolia</i> subsp. <i>subulata</i> benefits from management of <i>Adenanthos ellipticus</i> (Threatened, ranked VU) on West Mt Barren</p>				
<p><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></p>				
<p>All populations are in a Conservation Reserve that is not actively managed specifically for this species</p>				
<p><b>Are there any management or research recommendations that will assist in the conservation of the species? Provide details.</b></p>				
<ul style="list-style-type: none"> <li>• Fire to be excluded from West Mt Barren until juvenile plants have matured and have re-established a soil seed bank</li> <li>• Document juvenile period.</li> <li>• Establish monitoring to document population trends on W Mt Barren</li> <li>• Determine susceptibility to <i>Phytophthora cinnamomi</i></li> <li>• Re-survey salt-lake population</li> </ul>				
<p><b>4.5. Other</b>  <b>Is there any additional information that is relevant to consideration of the conservation status of this species?</b></p>				
<p>None</p>				
<p><b>SECTION 5. NOMINATOR</b></p>				
<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>	<b>30/10/ 2015</b>
<b>If the nomination has been refereed or reviewed by experts, provide their names and contact details.</b>	
Damien Rathbone DPaW Albany Andrew Brown DPaW Species and Communities Branch	
<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>	
Rathbone D (2013) Flora Survey of the Coastal Catchments and Ranges of the Fitzgerald River National Park Department of Environment and Conservation	
Barrett S (1996) Biological survey of mountains in southern Western Australia. Environment Australia. (Department of Conservation and Land Management: Perth)	
<i>Tauss, C. (2011). The Flora and Vegetation of the proposed Fitzgerald River National Park coastal walk trail. A report on the preliminary results of Phase 1 of the field survey conducted in December 2010. Unpublished report for Dalcon Environmental (Inglewood, WA) and the Western Australian Department of Environment and Conservation (Albany, WA).</i>	
Toelken H.R. (1996) A revision of the genus <i>Kunzea</i> (Myrtaceae). <i>Journal Adelaide Botanical Gardens</i> <b>17</b>	
Chapman A, Newbey K1 (1995) A biological survey of the Fitzgerald area. Department of Conservation & Land Management.	
Department of Conservation & Land Management (1991) Management Plan for Fitzgerald River National Park 1991-2001	
Department of Environment and Conservation (2011) Fitzgerald River Biosphere Recovery Plan	




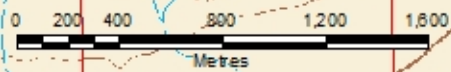
**Kunzea ericifolia ssp subulata**  
**West Mt Barren & Mt Bland**  
**FRNP**

Mount Bland

West Mount Barren

**Legend**

 Kunzea\_eric\_subul\_poly



Gridlines shown at 1 minute intervals  
 Grid shown at 1000 metre intervals

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