

## 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>Eremophila glabra</i> subsp. <i>chlorella</i> (emu bush)
<b>Nomination for</b> (addition, deletion, change):	Addition
<b>Nominated conservation category and criteria:</b>	Endangered B2ab(i,ii,iii,iv,v)

<b>Scientific committee assessment of eligibility against the criteria:</b>		
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	•

<b>Outcome:</b>			
<i>Scientific committee meeting date:</i>			
<i>Scientific committee comments:</i>			
<i>Recommendation:</i>			
<i>Ministerial approval:</i>		<i>Date of Gazette/ Legislative effect:</i>	

## Nomination summary (to be completed by nominator)

<b>Current conservation status</b>				
<b>Scientific name:</b>	<i>Eremophila glabra</i> subsp. <i>chlorella</i>			
<b>Common name:</b>	Emu bush			
<b>Family name:</b>	Scrophulariaceae	Fauna <input type="checkbox"/>	Flora <input checked="" type="checkbox"/>	
<b>Nomination for:</b>	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		
<b>Jurisdiction</b>	<b>State / Territory in which the species occurs</b>	<b>Date listed or assessed (or N/A)</b>	<b>Listing category i.e. critically endangered or 'none'</b>	<b>Listing criteria i.e. B1ab(iii)+2ab(iii)</b>
International (IUCN Red List)				
National (EPBC Act)				
State / Territory	1. WA	22/01/2008	Critically Endangered	B1+B2ab(i,ii,iii,iv,v); D
	2. WA	11/7/2016	Endangered	B2ab(i,ii,iii,iv,v)
	3.			
<b>Consistent with Schedule 1, item 2.7 (h) and 2.8 of the Common Assessment Method Memorandum of Understanding, it is confirmed that:</b>				
<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"/>
<b>Comments:</b>				
<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"/>
<b>Comments:</b>	Numerous flora and vegetation surveys have been undertaken across the Swan Coastal Plain but have failed to locate any additional subpopulations, except for the recent discovery of a large subpopulation in Mogumber Nature Reserve. Additional flora and vegetation surveys are undertaken for any land clearing and development. Surveys of known populations and similar habitat in the Kenwick area were conducted during peak flowering time in 2005-2006. Population counts were conducted in 2010, 2011 and 2012.			
<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 type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>Comments:</b>	The species was nominated and accepted for listing by the WA TSSC at the March 2007 meeting. Since then, a new population of over 5,000 plants has been discovered in a nature reserve which			

necessitated a review of the assessment. The species was re-assessed by the WA TSSC and endorsed 11/7/2016. The assessment changed the category to Endangered and amended the listing criteria.					
<b>Nominated national conservation status: category and criteria</b>					
Presumed extinct (EX) <input type="checkbox"/> Critically endangered (CR) <input type="checkbox"/> Endangered (EN) <input checked="" 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>Endangered B2ab(i,ii,iii,iv,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>Insufficient information 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>(B2) Area of occupancy calculated as 24 km<sup>2</sup> using the 2kmx2km grid method</li> <li>(a) There are five subpopulations at 4 locations. While separated by large areas of cleared land the taxon is not considered to be severely fragmented as two locations, including the largest population, are in nature reserves with significant remnant vegetation.</li> <li>(b) Continuing decline (observed) in the (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent &amp; quality of habitat; (iv) number of subpopulation/locations; and (v) number of mature individuals.</li> <li>While more subpopulations and plants have been found since its listing in 2008, most subpopulations are now in decline due to various threats.</li> <li><b>Meets Endangered: B2ab (i,ii,iii,iv,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>Total number of plants 6,437</li> <li>Largest population 5,362 plants (83% of total)</li> <li><b>Does not meet criteria</b></li> </ul>			
<b>D.</b>	Very small or restricted population (population size)	<ul style="list-style-type: none"> <li>Total number of plants 6,437</li> <li><b>Does not meet criteria</b></li> </ul>			
<b>E.</b>	Quantitative analysis (statistical probability of extinction)	<ul style="list-style-type: none"> <li>Insufficient information to assess</li> </ul>			
<b>Summary of assessment information</b>					
EOO	5006 km <sup>2</sup>	AOO	24 km <sup>2</sup> (2kmx2km grid)	Generation length	Unknown

No. locations	4	Severely fragmented	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>
No. subpopulations	5	No. mature individuals	6,437
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)	
Vegetation clearing for subdivision development <ul style="list-style-type: none"> <li>Carousel Swamp subpopulations may be threatened by further clearing for development</li> </ul> Past and future	Carousel Swamp subpopulations	Catastrophic	
Road, rail and firebreak maintenance <ul style="list-style-type: none"> <li>Grading, chemical spraying, construction of drainage channels and mowing of roadside vegetation reduce the health and number of plants</li> <li>Maintenance activities also encourage weed invasion</li> </ul> Past, present and future	Mogumber NR and South Eneabba NR subpopulations	Severe	
Weed invasion <ul style="list-style-type: none"> <li>Weeds suppress early plant growth by competing for soil moisture, nutrients and light. They also increase the fire hazard due to the easy ignition of high fuel loads, which are produced annually by many grass weed species.</li> <li>Tambookie grass (<i>Hyparrhenia hirta</i>) has been recorded at the Carousel Swamp subpopulations</li> </ul> Past, present and future	Entire	Severe	
Recreational activities <ul style="list-style-type: none"> <li>There are risks of trampling, clearing and damage from off-road vehicles, rubbish dumping and illegal camping</li> </ul> Past, present and future	The Bickley Rd, Kenwick subpopulation and the Carousel Swamp subpopulations	Moderate	
Inappropriate fire regimes. <ul style="list-style-type: none"> <li>There are negative post-fire effects due to habitat modification and weed invasion. Fire should therefore occur at appropriate intervals</li> </ul> Past, present and future	Entire	Moderate	

<p>Grazing (rabbits and kangaroos)</p> <ul style="list-style-type: none"> <li>Reduces recruitment and encourages weed invasion</li> </ul> <p>Past, present and future</p>	<p>Mogumber NR and the Eneabba NR subpopulations</p>	<p>Unknown</p>
<p>Poor recruitment</p> <ul style="list-style-type: none"> <li>Several subpopulation have little or no natural recruitment, possible due to a lack of suitable fire regimes</li> </ul> <p>Present and future</p>	<p>Several subpopulations</p>	<p>Severe</p>
<p>Utilities maintenance</p> <ul style="list-style-type: none"> <li>Maintenance activities may result in trampling, clearing and damage of plants and/or their habitat.</li> </ul> <p>Present and future</p>	<p>Carousel Swamp subpopulations (powerlines) and South Eneabba NR subpopulations (pipeline)</p>	<p>Moderate</p>
<p>Salinity</p> <ul style="list-style-type: none"> <li>Salinity due to the rise of the water table can be a detriment to non-salt tolerant species</li> <li>Rising salinity is known to be impacting on the Mogumber NR subpopulations.</li> </ul> <p>Present and future</p>	<p>Mogumber NR subpopulations</p>	<p>Catastrophic</p>
<p>Dieback disease (<i>Phytophthora cinnamomi</i>)</p> <ul style="list-style-type: none"> <li>May cause deaths of plants and/or degrade associated habitat</li> <li>It is unknown if the species is directly susceptible to <i>Phytophthora</i> dieback</li> </ul> <p>Future</p>	<p>South Eneabba NR subpopulations</p>	<p>Unknown – potentially catastrophic</p>
<p><b>Management and Recovery</b></p>		
<p>Is there a Recovery Plan (RP) or Conservation Management Plan operational for the species?</p>		<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>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).</p> <ul style="list-style-type: none"> <li>Department of Parks and Wildlife (DRAFT). <i>Interim Recovery Plan No. #: Eremophila glabra subsp. chlorella Interim Recovery Plan 2016–2021</i>. Department of Parks and Wildlife, Western Australia.</li> <li>Department of Conservation and Land Management (2004). <i>Interim Recovery Plan No. 154: Ferricrete floristic community (Rocky Springs type) 2003-2009</i>. Available from: <a href="http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/198-approved-interim-recovery-plans">www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/198-approved-interim-recovery-plans</a></li> <li>Department of Parks and Wildlife (2015). <i>Interim Recovery Plan No. 354: Clay pans of the Swan Coastal Plain (Community types 7, 8, 9 and 10a – Gibson et. al. 1994 and Clay pans with mid dense shrublands of Melaleuca lateritia over herbs) 2015-2020</i>. Available from: <a href="http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/198-approved-interim-recovery-plans">www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/198-approved-interim-recovery-plans</a></li> <li>Department of Conservation and Land Management (2000). <i>Interim Recovery Plan No. 57: Shrubland and woodlands on Muchea limestone 2000-2003</i>. Available from: <a href="http://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/198-approved-interim-recovery-plans">www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/198-approved-interim-recovery-plans</a></li> </ul>		

*List current management or research actions, if any, that are being undertaken that benefit the conservation of the species.*

- Land owners and land managers have been made aware of the locations and threatened status of *Eremophila glabra* subsp. *chlorella*.
- Declared Rare Flora markers have been installed on the road verge adjacent South Eneabba NR and along the water pipeline at South Eneabba NR.
- Print media (posters) have been produced and distributed.
- Seed collections were made between 2007 and 2013.
- The Botanic Gardens and Parks Authority are maintaining 17 plants grown from cutting material collected in August 1996
- In 2010 and 2011 monitoring of post-fire regeneration and recruitment was undertaken in Carousel Swamp subpopulations.
- Weed control was undertaken in 2011 to protect regenerating plants and seedlings post-fire
- Rubbish removal was undertaken at Carousel Swamp in 2011.

*List further recommended management or research actions, if any, that would benefit the conservation of the species.*

- Monitor subpopulations and habitat to identify population trends and potential management requirements.
- Undertake surveys in areas of potentially suitable habitat.
- Ensure long-term protection of habitat by seeking to have Carousel Swamp declared as a reserve.
- Install DRF markers on the firebreaks and road and rail reserves adjacent Mogumber Nature Reserve.
- Undertake weed control, including monitoring treatment to determine its effectiveness and revegetating sites to suppress weeds.
- Remove rubbish that has been dumped at Carousel Swamp and Bickley Rd, Kenwick.
- Collect and store seed to guard against the extinction of natural populations. Collections should aim to preserve the maximum range of genetic diversity as possible.
- Deter and prevent access into the species' habitat by installing barriers and educational signs, with a focus on preventing 4WD access at Carousel Swamp and Bickley Rd, Kenwick
- Undertake fire regeneration trials to determine if soil disturbance and fire are required to stimulate germination.
- Monitor the threat of grazing (rabbits and kangaroo), and if it is found to be a severe threat, implement the appropriate control measures.
- Develop and implement a fire management strategy, with recommendations on fire frequency, intensity and seasonality of prescribed burns, and the need, method of construction and maintenance of firebreaks. Monitor the impacts of fire using permanent quadrats.
- Determine the level of the species' susceptibility of *Phytophthora* dieback, and maintain disease hygiene during the installation and maintenance of firebreaks and when monitoring/surveying in habitat during wet soil conditions. Install dieback risk signs if required.
- Develop a translocation proposal and select a disease free translocation site.
- Research the biology and ecology of the species including: identifying pollinators and habitat requirements, seed viability, conditions necessary for natural germination, response to threats/disturbances, longevity of plants and other biological features.
- Liaise with land managers and Aboriginal communities to ensure that the species and its habitat is not accidentally damaged or destroyed

<ul style="list-style-type: none"> <li>• Map habitat critical to the survival of <i>Eremophila glabra</i> subsp. <i>chlorella</i></li> <li>• Promote awareness in the wider community</li> </ul>	
<b>Nomination prepared by:</b>	
<b>Contact details:</b>	
<b>Date submitted:</b>	7 July 2016
<i>If the nomination has been refereed or reviewed by experts, please provide their names and contact details:</i>	
Andrew Brown (Department of Parks and Wildlife)	

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 <i>*partial survey</i>	AOO	Site / habitat Condition	Threats (note if past, present or future)	Specific management actions
1a. 41 Lake St and 500 Grose Ave, Carousel Swamp, Cannington 115.9434, -32.0172	Western Power	2006: 20 individuals* 2008: 4 individuals* 2010: 3 individuals* 2011: 4 individuals		Burnt in January 2010	Vegetation clearing (past and future) Weed invasion (past, present and future) Road and firebreak maintenance (past, present and future) Recreational activities (past, present and future) Utility works (present and future) Inappropriate fire regimes (past, present and future) Poor recruitment (present and future)	Manage recreational activities and protect habitat as required Weed control Liaise with land managers to reduce threats Develop fire management plan
1b. 37 Lake St, Carousel Swamp, Cannington 115.9441, -32.0174	Private Property	2010: 2 individuals 2011: 2 individuals		Burnt in January 2010	Vegetation clearing (past and future) Weed invasion (past, present and future) Inappropriate fire regimes (past, present and future) Recreational activities (past, present and future)	Manage recreational activities and protect habitat as required Weed control Liaise with land managers to reduce threats Develop fire management plan
2a. Mogumber Nature Reserve 116.0448, -31.0611	Nature Reserve	2005: 30 individuals 2012: 5,362 individuals		Healthy	Grazing (rabbits, kangaroo) (past, present and future) Firebreak maintenance (past, present and future) Salinity (present and future)	Manage recreational activities and protect habitat as required Weed control Develop fire management plan



					Inappropriate fire regimes (past, present and future) Poor recruitment (present and future)	
2b. Road and Rail reserves, Mogumber Nature Reserve 116.0455, -31.0606	Road and Rail Reserves	2012: 604 individuals		Degraded	Road and rail maintenance (past, present and future) Inappropriate fire regimes (past, present and future) Weed invasion (past, present and future) Grazing (past, present and future)	Install DRF markers Develop fire management plan Weed control Protect habitat as required Liaise with land managers to reduce threats
3a. Rocky Spring Rd, adjacent South Eneabba Nature Reserve 115.2457, -29.907	Road Reserve	2010: 353 individuals		Burnt in December 2011	Inappropriate fire regimes (past, present and future) Pipeline maintenance (present and future) Weed invasion (past, present and future) Grazing (past, present and future) <i>Phytophthora</i> dieback (present and future)	Develop fire management plan Weed control Protect habitat as required Liaise with land managers to reduce threats Maintain dieback disease hygiene protocols
3b. South Eneabba Nature Reserve 115.2463, -29.9074	Nature Reserve	2009: 100 individuals 2010: 104 individuals		Burnt in December 2011	Pipeline maintenance (present and future) <i>Phytophthora</i> dieback (present and future) Grazing (past, present and future) Weed invasion (past, present and future) Inappropriate fire regimes (past, present and future)	Maintain dieback disease hygiene protocols Protect habitat as required Liaise with land managers to reduce threats Weed control Develop fire management plan
4a. Bickley Rd, Kenwick 115.9755, -32.0238	WA Planning Commission	1996: 15 individuals 2012: 4 individuals		Excellent	Recreational activities (past, present and future) Weed invasion (past, present and future)	Manage recreational activities and protect habitat as required Weed control

					Inappropriate fire regimes (past, present and future) Poor recruitment (present and future)	Develop fire management plan Liaise with land managers to reduce threats
4b. Brook Rd, Kenwick 115.9867, -32.0126	Private Property	2007: 4 individuals		Degraded	Vegetation clearing (past and future) Weed invasion (past, present and future)	Protect habitat as required Liaise with land managers to reduce threats Weed control



## Nomination of a Western Australian species for listing as threatened, change of status or delisting 2007 (updated 2016).

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

Answer all relevant sections, indicating when there is no information available. 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 or write “N/A”.

Some questions on the form have additional information in a **Help** box and these are marked with an asterisk (\*). If you require additional information, place your cursor in the text box into which you type your answer, press F1 and a Help box will pop-up.

<b>SECTION 1. NOMINATION</b>		
<b>1.1. Nomination information</b>		
Flora <input checked="" type="checkbox"/>	Fauna <input type="checkbox"/>	<b>Nomination for Delisting</b>
<b>1.2. Scientific Name*</b>		
<i>Eremophila glabra subsp. chlorella</i> (Gand.) Chinnock		
<b>1.3. Common Name*</b>		
<b>1.4. Current Conservation Status</b>		
Select one category for each of the five fields. If none, select ‘None’.		
International		
IUCN Red List None		
Categories and Criteria applicable to the highest rank category only e.g. B1ab(iv);D		
National ( <i>EPBC Act 1999</i> ) None		
State of WA Wildlife Conservation Notice None IUCN Ranking None		
Is the species listed as ‘Threatened’ in any other Australian State or Territory No <input checked="" type="checkbox"/> Yes <input type="checkbox"/>		
If Yes, list the States and/or Territories and the status for each		
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? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/>		
If yes, please provide details		
<b>1.5. Nominated Conservation Status</b>		
Select one category for each of the five fields. If none, select ‘None’.		
International		
IUCN Red List		
Categories and Criteria applicable to the highest rank category only e.g.		
National ( <i>EPBC Act 1999</i> ) <b>Endangered: 2ab(i,ii,iii,iv,v)</b>		
State of WA IUCN Status <b>Endangered (EN) 2ab(i,ii,iii,iv,v)</b>		

<p><b>1.6. Reasons for the Nomination</b></p> <p>Briefly summarise the reasons for the nomination in dot points. Please include details relevant to the IUCN Categories and Criteria where appropriate.</p> <ul style="list-style-type: none"> <li>• Reduction in population size (observed and estimated)</li> <li>• Continuing decline (observed) in the extent of occurrence; area of occupancy; area, extent &amp; quality of habitat &amp; number of subpopulation/locations; and number of mature individuals</li> <li>• Under imminent threat from development</li> <li>• Continued decline in habitat quality and possible interruption to important community processes</li> </ul> <p>Additional reasons applicable in 2007, but not current (2016):</p> <ul style="list-style-type: none"> <li>• Extent of occurrence &lt; 100 km<sup>2</sup></li> <li>• Area of occupancy &lt; 10 km<sup>2</sup></li> <li>• Population estimated to number &lt; 250 mature individuals and an observed decline within three years with an inferred decline projected</li> <li>• Population size recorded to be less than 50 mature individuals and highly restricted in habitat</li> </ul>
<p><b>SECTION 2. SPECIES</b></p>
<p><b>2.1. Taxonomy</b></p> <p>Describe the taxonomic history, using references, and describe the key distinguishing features that can be used to separate this taxa from closely related taxa.*</p> <p>A distinctive <i>Eremophila</i> that was described by Michel Gandoger in 1918 from specimens collected near the “Lower Canning River” by Alexander Morrison. It is now considered a subspecies of <i>Eremophila glabra</i> and has been given the name <i>Eremophila glabra</i> subsp. <i>chlorella</i> by Bob Chinnock of the Adelaide Herbarium.. Its Latin name refers to its greenish flowers, a feature that is shared by several other forms of <i>E. glabra</i>, however it is one of just two members of the complex found in the Perth area, the other being the coastal <i>Eremophila glabra</i> subsp. <i>albicans</i> which has grey, hairy leaves, dull yellow and red flowers and a coastal distribution. A closely related taxon occurs in the Moora-Dandaragan area but differs in being a spindly, upright shrub, in having hirsute new growth (glabrous when mature), in having smaller, glandular hairy flowers and in occupying a different habitat (wandoo or salmon gum woodlands). A third taxon in the group exists in the Arrowsmith area (possibly the var. <i>viridiflora</i>) but it differs in being a larger plant 2 m high by 4 m across, in having distinctly hairy leaves throughout its lifecycle and in having stellate hairs on the calyx and a glandular, hairy corolla (Brown in prep.).</p> <p>Is this species conventionally accepted?* No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> If no, explain why</p> <p>Describe any known hybridisation with other species in the wild, indicating where this occurs and how frequently.</p> <p>None observed.</p>
<p><b>2.2. Description</b></p> <p>Describe the physical appearance, habit, behaviour/dispersion and life history.*</p> <p>A perennial, sprawling shrub 20 cm to 1 m high by 0.5 to 3 m wide with green, glabrous leaves (when mature) 1 to 3 cm long by 3 to 5 mm wide and yellow-green flowers.</p>

<b>2.3. Distribution</b>	
Describe the distribution of the species <u>in Australia</u> and, if possible, attach a map. Known from two locations only within Australia:	
1. Carousel Swamp, Cannington 2. Mogumber Nature Reserve 3. Adjacent to South Eneabba Nature Reserve 4. Bickley Rd, Kenwick 5. Brook Road, Kenwick	
<b>2.4. Habitat</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.	
Non-biological habitat	Biological habitat
Winter-wet depressions, grey-brown sand over clay based sub-soils.	Low open heath.
Does the (fauna) species use refuge habitat e.g. in times of fire, drought or flood? Describe this habitat. N/A	
Is the species part of, or does it rely on, a listed threatened ecological community? Is it associated with any other listed threatened species?	
This species co-occurs with two threatened ecological communities (Muchea Limestone at Cannington; and <i>Corymbia calophylla</i> - <i>Kingia australis</i> woodlands on heavy soils of the Swan Coastal Plain, and Herb rich shrublands on clay pans and at Brixton Street).	
<b>2.5. Reproduction</b>	
Provide an overview of the breeding system. <b>For 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?	
Flowering may occur from June to August. It is likely that the subspecies is like other members of the <i>Eremophila glabra</i> complex in regenerating from soil-stored seed following fire. Flowers are both insect and bird pollinated.	
<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).	
No information has been recorded regarding the life expectancy or breeding success of this taxon. Two populations were known (Cannington and Kenwick) but despite survey effort in 2005 and 2006 the Kenwick population was not re-found. Only 20 plants are currently known from the Cannington site.	
<b>SECTION 3. INTERNATIONAL CONTEXT</b>	
<b>For species that are distributed both inside and outside Australia</b>	
<b>3.1. Distribution</b>	
Describe the global distribution. N/A	

<p>Give an overview of the global population size, trends, threats and security of the species outside of Australia.</p> <p>N/A</p>
<p>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?</p> <p>N/A</p>
<p><b>SECTION 4. CONSERVATION STATUS AND MANAGEMENT</b></p>
<p><b>4.1. Population</b></p>
<p>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? – give details.</p> <ul style="list-style-type: none"> <li>• The subspecies was thought to occur at Cannington, Kenwick, Gingin and Moora. However, Gingin &amp; Moora populations have recently been re-identified as a different subspecies of <i>Eremophila glabra</i> (Andrew Brown pers. comm.).</li> <li>• The Kenwick population was not found during surveys in 2005 and in 2006</li> <li>• <i>Eremophila glabra</i> subsp. <i>chlorella</i> was recorded as occurring in bushland adjoining Brixton Street by Bob Dixon (BGPA). About 15 plants were seen in 1996. No plants were found during surveys in 2005 and 2006.</li> <li>• <i>Eremophila glabra</i> subsp. <i>chlorella</i> is currently known from 5 extant populations comprising 6437 plants</li> </ul>
<p>Give 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?</p> <p>N/A</p>

How many locations do you consider the species occurs in and why?\*

Five extant populations due to reasons explained in 4.1.

For flora, and where applicable, for fauna, detail the location, land tenure, estimated number of individuals, area of occupancy, and condition, for each known location or occurrence.

Location	Land status	Date of most recent survey	Number of individuals at location	Area of occupancy at location	Condition of site
1a. Cannington	Private property	2011	3		Burnt Jan 2010
1b. Cannington	Private property	2011	1		Burnt Jan 2010
1c. Cannington	Private property	2011	2		Burnt Jan 2010
2a. South of Mogumber	CCWA	2012	5362		Healthy
2b. South of Mogumber	MRWA	2012	24		Degraded
2c. South of Mogumber	PTA	2012	184		Degraded
2d. South of Mogumber	LGA	2012	396		Degraded
5a. S of Eneabba	LGA	2010	353		Burnt Dec 2011
5b. S of Eneabba	CCWA	2010	104		Burnt Dec 2011
6. Kenwick	WAPC	2012	4		Excellent
7. Kenwick	Private property	2007	4		Degraded

Has the number of individuals been counted ☒, or is this an estimate ☐. Provide details of the method of determining the number of individuals.

Plants were counted during surveys in 2010, 2011 and 2012.

Has there been any known reduction in the number of locations, or is this likely in the future? – give details.

Yes. Previously known from between Brixton Street & Bickley Road Kenwick but not re-found when surveyed for in 2006. Remaining population is threatened by infrastructure development and on-going threats due to degraded habitat (weeds, etc).

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.\*

The extent of occurrence is less than 100km<sup>2</sup>. (2007)

What is the 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.\*

Less than 10km<sup>2</sup>. (2007)

Is the distribution of the species severely fragmented? Why?

Yes populations are separated by large areas of cleared land.

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.

All areas of known populations are critical to the long-term survival and recovery of this species.

#### 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.

Andrew Brown surveyed the known populations and similar habitat in the Kenwick area in June and July 2005-2006 during the species peak flowering time. Previously, numerous flora and vegetation surveys undertaken across the Swan Coastal Plain has failed to discover any additional populations of this subspecies. Further surveys since have uncovered additional population north of Perth.

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

*Eremophila* is a genus that is fairly distinct within the flora of the Swan Coastal Plain. It is easily distinguished from species in other common plant families and genera on the Plain (i.e. Myrtaceae, Proteaceae, Papilionaceae). Additionally, few areas of its preferred habitat are remaining in an area that has been largely cleared for development. Within this habitat it is easily recognised and distinguished by its typical *Eremophila* flowers that have an unusual yellow-green colour.

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.

Many general surveys of the Swan Coastal Plain have been undertaken with no new records of this species (Gibson et al 1994; Bush Forever 2000). Additionally, on-going and previous flora and vegetation surveys are undertaken for any land clearing or development.

Targeted surveys have been undertaken by Andrew Brown (expert on the *Eremophila* genus), who has surveyed similar habitat in the Kenwick-Maddington area and not found any additional populations.



### 4.3. Threats

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

1. How and where they impact this species.

Most known locations for this species are degraded and suffer from weed invasion (particularly Brixton Street has mixed tenure including UWA, private and WAPC. WAPC hold most of the tenure including the area where *Eremophila glabra* subsp. *chlorella* ms was found in the past.

2. What is 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?).

Little historic information is available for population numbers. Informal advice has been received by DEC that the Cannington site has been earmarked by the City of Canning for proposed infrastructure development.

3. What is its expected effect in the future (is there supporting research/information; is the threat only suspected; does it only affect certain populations?).

The outcome of the proposed development is unknown at this stage. However, any reduction in the population's extent or the surrounding habitat will adversely affect the long-term conservation of this species.

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

Location	Past threats	Current threats	Potential threats	Management requirements (see section 4.4)
1a. Cannington	Clearing, degraded habitat, weeds	Weeds	Firebreak maintenance, recreational activities	
1b. Cannington	Clearing, degraded habitat, weeds	Weeds	Firebreak maintenance, recreational activities	
1c. Cannington	Clearing, degraded habitat	Weeds	Firebreak maintenance, recreational activities	
2a. South of Mogumber	Clearing, grazing		Firebreak maintenance	
2b. South of Mogumber	Clearing, weeds	Weeds	Road maintenance	
2c. South of Mogumber	Clearing, grazing		Rail maintenance	
2d. South of Mogumber	Clearing, grazing		Road maintenance	
5a. S of Eneabba	Clearing, weeds, grazing	Weeds	Pipeline maintenance	
5b. S of Eneabba	Clearing, weeds	Weeds	Pipeline maintenance	
6. Kenwick	Clearing, weeds	Weeds		
7. Kenwick	Clearing, weeds	Weeds		

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.
No data available.
<b>4.4. Management</b>
Identify key management documentation for the species e.g. recovery plans, conservation plans, threat abatement plans etc.
Not applicable.
Does this species benefit from the management of another species or community? Explain.
Location 2 (Brixton Street) is now owned by WAPC but is not currently managed for conservation, fire and access control. Location 1 is privately held land and as such, is not managed for conservation.
How well is the species represented in conservation reserves or covenanted land? Which of these are actively managed for this species? Give details.
The only extant population is on privately held land that is proposed for development.
Are there any management or research recommendations that will assist in the conservation of the species? Give details.
Location 1 requires on-going management and restoration of its habitat. Security of tenure would be a priority for this population as the area has been consistently proposed for development.
<b>4.5. Other</b>
Is there any additional information that is relevant to consideration of the conservation status of this species?
N/A
<b>SECTION 5. NOMINATOR</b>
Nominator(s) name.
Signature(s) – This is not needed for emailed nominations as your email is proof of your identity.
Organisation (s)
Address
Telephone
Email
Date
20 <sup>th</sup> February 2007
If the nomination has been refereed or reviewed by experts, provide their names and contact details:
Andrew Brown, Coordinator (Threatened Flora) Species and Communities Branch Dept. of Environment and Conservation Locked Bag 104, Bentley Delivery Centre WA 6983

## SECTION 6. REFERENCES

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.

Brown, A.P. (in prep.) A Field Guide to the Eremophilas of Western Australia.

Gibson, N. (2005). *Threatened plant communities of Western Australia. 2, the seasonal clay-based wetland communities of the south west*. Pacific conservation biology. - Vol. 11 pp. 287-301

Gibson, N., Keighery, G. J., Burbidge, Allan H., Lyons, M. N. (1994) *A floristic survey of the southern Swan Coastal Plain*. Western Australia. Dept. of Conservation and Land Management, Australian Heritage Commission, Conservation Council of Western Australia.

Keighery, Bronwen, Keighery, G. J., Gibson, N. (1997). *Floristics of reserves and bushland areas of the Perth region (System 6). Parts XI-XV*. Wildflower Society of W.A., Nedlands, WA.

Keighery, B. J., Keighery, G. J., Gibson, N. (1997). *Floristics of reserves and bushland areas in the Perth region (system 6)*. Wildflower Society of Western Australia, Nedlands WA.

Western Australian Herbarium. Descriptions by the Western Australian Herbarium, Department of Environment and Conservation. Text used with permission (<http://florabase.calm.wa.gov.au/help/copyright>). Accessed on Tuesday, 20 February 2007.

## SECTION 7. RECOMMENDATION

### 7.1. Approval (to be completed by the TSSC Chair)

Is the nomination accepted? Yes ☐ No ☐

#### Status for the State of WA

IUCN Status

Categories and Criteria

Priority

DEC Region(s)

DEC District(s)

### 7.2. Non-approval

If nomination not accepted, give reasons.

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### 7.3. Date of recommended change of status

### 7.4. Comments

Were any conditions applied to the recommended change in conservation status? Provide details of actions required to be completed if nomination was deferred or rejected.

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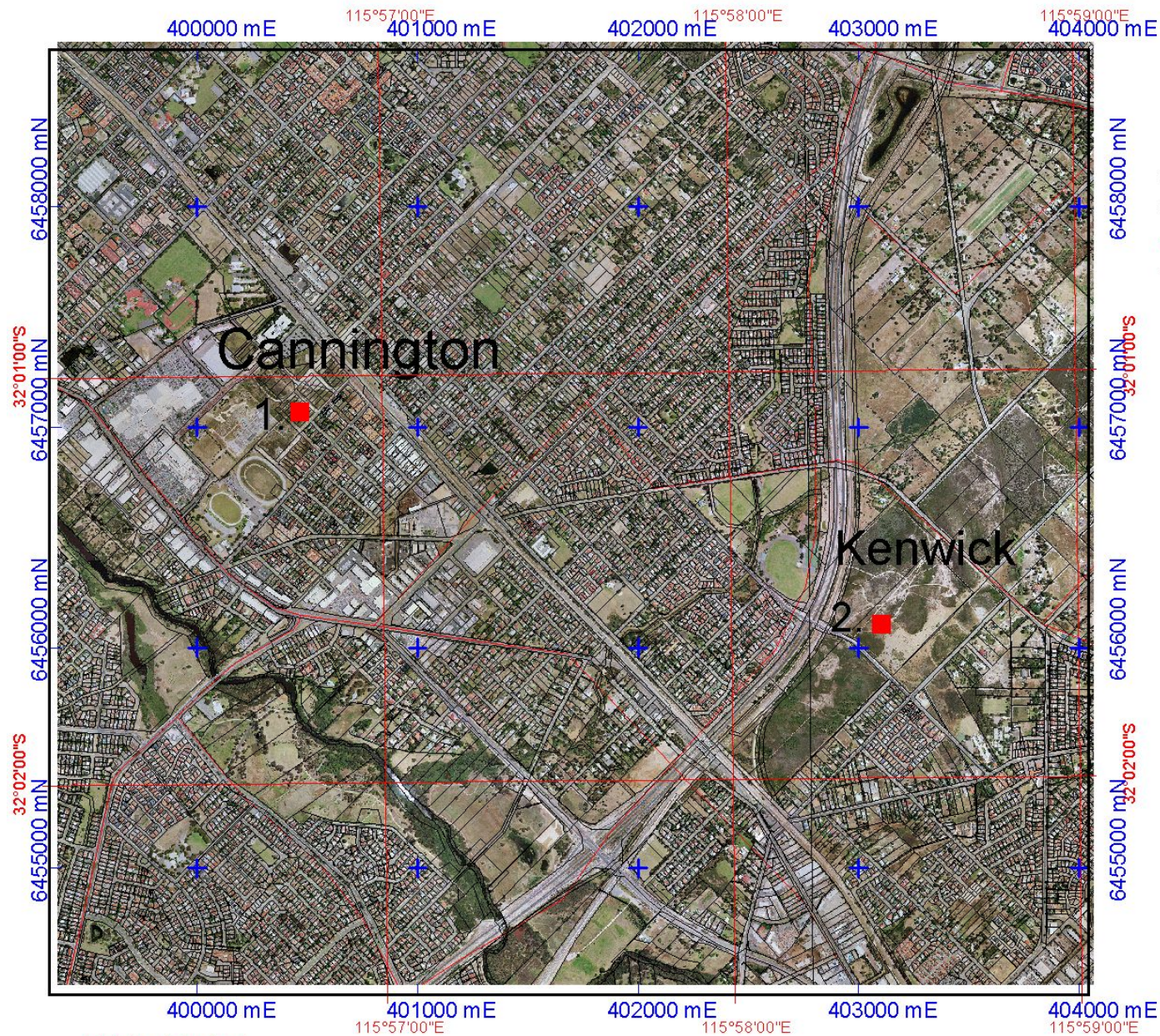
Were any management or research recommendations made for the species? Provide details.

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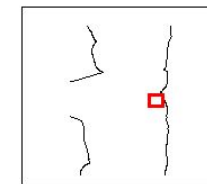




## Eremophila glabra chl

### Legend

- SWAN Road Lines**
- Road Bridge
  - Road Causeway
  - Road Ford
  - Road
  - Ferry Route
  - Foot Track
  - Road on Dam
  - Road Tunnel



Locality Map



Scale 1:25,000  
1cm represents 250m

Projection: Universal Transverse Mercator,  
MGA Zone 50. Datum: GDA94



Produced by VTC  
Under the Direction of  
Keiran McNamara Executive Director  
Department of Environment & Conservation.