

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)*

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

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"/>
A.	Population size reduction	•
B.	Geographic range	•
C.	Small population size and decline	•
D.	Very small or restricted population	•
E.	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>Stylidium applanatum</i>			
Common name:	Flat-leaved Triggerplant			
Family name:	Stylidiaceae	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	2014	Critically Endangered	B1ab(iii)+B2ab(iii)
	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"> this assessment meets the standard of evidence required by the Common Assessment Method to document the eligibility of the species under the IUCN criteria; 			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Comments:				
<ul style="list-style-type: none"> surveys of the species were adequate to inform the assessment; 			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Comments:	There have been no further surveys of the species since nomination.			
<ul style="list-style-type: none"> 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. 			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Comments:	Assessment is consistent, criteria remains current.			
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"/>			
What are the IUCN Red List criteria that support the recommended conservation status category?	B1ab(iii)+B2ab(iii)				
Eligibility against the IUCN Red List criteria (A, B, C, D and E)					
<i>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.</i>					
A.	Population size reduction (evidence of decline)	<ul style="list-style-type: none"> There is insufficient information available to reliably show rate of decline within the known subpopulation as it has only been fully surveyed on one occasion in 2013. 			
B.	Geographic range (EOO and AOO, number of locations and evidence of decline)	<ul style="list-style-type: none"> Currently known from 1 location, with an area of occupancy of 4km² using the 2x2 km grid system. The combined area of the populations is is <1 km². Decline in condition of habitat due to drought, weeds, grazing and erosion. Meets CR:B1ab(iii)+B2ab(iii) 			
C.	Small population size and decline (population size, distribution and evidence of decline)	<ul style="list-style-type: none"> Known from 800 mature individuals. Subpopulation only fully surveyed in 2013 therefore, long term population trends are not able to be determined. 			
D.	Very small or restricted population (population size)	<ul style="list-style-type: none"> 800 mature individuals. Meets VU: D1 			
E.	Quantitative analysis (statistical probability of extinction)	<ul style="list-style-type: none"> No data 			
Summary of assessment information					
EOO	4 km ²	AOO	4 km ²	Generation length	-
No. locations	1	Severely fragmented	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>		
No. subpopulations	1	No. mature individuals	800		
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		Extent		Impact	

<i>(describe the threat and how it impacts on the species. Specify if the threat is past, current or potential)</i>	<i>(give details of impact on whole species or specific subpopulations)</i>	<i>(what is the level of threat to the conservation of the species)</i>
Refer to table at end.		
Management and Recovery		
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"> Department of Parks and Wildlife (in prep) <i>Stylidium appianatum</i> Draft Interim Recovery Plan 2016–2021. Interim Recovery Plan No. #. Department of Parks and Wildlife, Western Australia. 		
<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"> Liaise with private land owners to protect the remnant vegetation on which the species occurs, including through the placement of a National Trust covenant on the property; Liaise with road managers to minimise disturbance to remnant vegetation when maintaining road; Installation of markers at road reserve to protect habitat when maintaining road; Monitor the population for evidence of rabbit, kangaroo or weed impacts, or changes in plant or site health; Protect the site from fire unless required for ecological reasons, and implement early intervention in any wildfires which may threaten the site; Survey for additional populations. 		
<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"> Protect the existing population from accidental damage from haulage vehicles and gravel extraction by installing fencing; Control rabbits if evidence of a rabbit population or herbivory noted; Control infestations of weeds that might impact the population; Erect protective fencing if kangaroo herbivory noted as a significant threat; Collect seed for storage and <i>ex situ</i> propagation; Establish new populations on secure tenure through implementation of translocations; Monitor the impact of erosion by installing markers around the boundary of the affected area. <p>Research</p> <ul style="list-style-type: none"> Determine species genetic diversity and pollination ecology; Determine seed germination requirements and viability; Determine fire response of the species (through installation of permanent quadrats at previously burnt area). 		
Nomination prepared by:		
Contact details:		
Date submitted:	4/7/2016	
<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 subpopulat ion	Site / habitat Condition	Threats <i>(note if past, present or future)</i>	Specific management actions
Middleton Rd and adjacent private property Lot 19769, SSE of Corrigin	Private property and Shire road reserve	2007: 300 2013: 800	<1 km ²	Good, although a decline in rainfall has impacted on the habitat.	Past <ul style="list-style-type: none"> • Land clearing for agriculture • Gravel extraction Current <ul style="list-style-type: none"> • Accidental destruction by vehicles • Gravel extraction Future <ul style="list-style-type: none"> • Rabbits • Kangaroos • Altered hydrology/erosion • Fire • Weeds • Drought/ climate change • Road maintenance 	As above



Department of
Parks and Wildlife



Form to nominate a Western Australian species for listing as threatened, change of category or delisting 2014 (updated 2016).

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:

DPaW 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

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

Species and Communities Branch
Department of Parks and Wildlife
Locked Bag 104
BENTLEY DC WA 6983

Telephone: (08) 9334 0455
Email: tssc@dpaw.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. DPaw staff can advise you on how to fill out the form and may be able to supply additional, unpublished information.

SECTION 1. NOMINATION					
1.1. Nomination for:					
Flora <input checked="" type="checkbox"/>	Fauna <input type="checkbox"/>	as: Threatened / DRF <input type="checkbox"/> Change of category <input type="checkbox"/> Delisting <input type="checkbox"/>			
1.2. Scientific Name					
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>Stylidium applanatum</i> Wege					
1.3. Common Name					
Flat-leaved triggerplant					
1.4. Family Name					
Stylidiaceae					
1.5. Current Conservation Status. If none, type 'None'.					
	IUCN Red List Category e.g. Vulnerable		IUCN Red List Criteria e.g. B1ab(iv); D1		
International IUCN Red List	None		None		
National EPBC Act 1999	None		None		
State of Western Australia	[Critically endangered]		B1ab(iii)+2ab(iii)		
State of WA Priority	1 <input checked="" type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
1.6. Nominated Conservation Status.					
	IUCN Red List Category e.g. Vulnerable		IUCN Red List Criteria e.g. B1ab(iv); D1		
State of Western Australia	Critically Endangered		B1ab(iii)+2ab(iii)		
State of WA Priority	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
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"/> Details:					
1.7. Reasons for the Nomination.					
Briefly summarise the reasons for the nomination in dot points. Please include details relevant to the IUCN Category and each Criteria.					
<i>Stylidium applanatum</i> is a distinctive triggerplant endemic to the Avon Wheatbelt in south-west Western Australia, a region characterised by high levels of land clearing and habitat fragmentation.					
The species is not known from within the conservation estate. The only known population is from a small, disturbed bushland remnant on private property that is surrounded by farmland.					
The species has a small area of occupancy and extent of occurrence. A survey in 2013 estimated 800 plants across an area < 1 km ² .					
The population has previously been impacted by gravel extraction and may have been recently impacted by vehicles, altered hydrology (by past machine work), and poor seasonal conditions. Potential additional threats are accidental destruction (e.g. by further gravel extraction), inappropriate fire regimes (fire may be needed to stimulate flowering and recruitment), climate change, grazing and weed invasion.					
<i>Stylidium applanatum</i> satisfies the following IUCN Criteria for Critically Endangered: B1, extent of occurrence is <100 km ² ; B2, area of occupancy is < 10 km ² and (a) only 1 location and (b) continuing decline observed (and projected) in (iii) quality of habitat.					

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.

Stylidium applanatum was formally named by Wege (2007) as part of a strategic taxonomy initiative targeting taxa of conservation concern (Nuytsia 17). It is a highly distinctive triggerplant that can be distinguished from all other species in the genus by the following combination of characters: a non-stilted perennial habit with compact, shallowly buried stems and a flat (i.e. adpressed to the soil surface) rosette of oblanceolate and glabrous leaves; scapes with scattered sterile bracts; a clavate to oblong hypanthium; yellow, laterally-paired corolla lobes with blunt, maroon-tipped throat appendages; a column 9.5–12 mm long. It is the only triggerplant in the Avon Wheatbelt with broad leaves arranged in a flat leaf rosette.

Molecular phylogeny data (Wege et al., unpublished data) supports this species as belonging to sect. Saxifragoidea; however, its precise systematic affinities are unclear. A specimen of *S. applanatum* (PERTH 05023092) was confused by A. Lowrie (in sched. 22/9/1999) with *S. glabrifolium*, a poorly known species from near New Norcia and has a similarly flat leaf rosette; however, *S. glabrifolium* can be readily distinguished by its smaller flowers (shorter hypanthium, shorter calyx lobes and much shorter column) and different throat appendage morphology (6 oblong appendages with entire, bi- or trifurcate tips). *Stylidium applanatum* also similar to *S. korijekup*, a poorly known species from the Whicher scarp with a more distinctly geophytic habit (stems cormaceous and deeply buried), ovate leaves with cordate bases and distinct and long petioles, and oblong throat appendages.

The holotype of *S. applanatum* is J.A. Wege, R. Butcher & C. Wilkins JAW 392 (PERTH 06962610).

Proposed common name: flat-leaved triggerplant.

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 ☒

Stylidium applanatum is recognised on Western Australia's vascular plant census and is a highly distinctive species.

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

It grows in sympatry with *Stylidium caricifolium* and *S. eriopodum* without hybridisation. Hybridisation is rare in *Stylidium*.

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).

The following description has been updated from Wege (2007).

Rosetted perennial herb 12–35 cm high, with compact, shallowly buried stems, stilt roots absent. Glandular trichomes 0.2–0.4 mm long, stalks translucent to yellowish, heads dark yellow to black, turbinate or subglobose; eglandular trichomes absent. Leaves rosulate, adpressed to soil, oblanceolate, flat in T.S., apex subacute, margin entire, 1.5–4 cm long, 2.5–6 mm wide, glabrous. Scapes 10–35 cm high, 0.5–1.7 mm wide, with scattered or a pseudowhorl of sterile bracts, glabrous; sterile bracts 3.5–6.5 mm long, glabrous. Inflorescence paniculate or racimiforme, 5–30-flowered, 1–3 flowers per unit, branches glabrous or glandular-hairy; bracts narrowly ovate, 2.5–6 mm long, apex subacute, margin entire, glabrous or sparingly glandular-hairy along margin; prophylls similar but smaller; pedicels 6–17 mm long, distally glandular-hairy. Hypanthium clavate to oblong, 2.8–5 mm long, 1–1.5 mm wide, glabrous. Calyx lobes free, 3–4.5 mm long, 0.8–1.5 mm

wide, apex obtuse to subacute, margin entire, glabrous. Corolla tube c. 1 mm long; lobes pale yellow, paired laterally, c. equal in size, narrowly ovate to oblong with the anterior lobes arcuate on the anterior edge, 5–6.5 mm long, 2.5–3.3 mm wide, glabrous. Labellum reflexed and angled across the calyx lobes, ovate, c. 0.7 mm long, c. 0.5 mm wide, with a terminal appendage 1.2–1.5 mm long and lateral appendages 0.2–0.5 mm long, glabrous. Throat appendages 8, quadrate to oblong, truncate, \pm emarginate, yellow with maroon tips, 0.4–0.8 mm high, subtended by 3 yellow mounds. Column 9.5–12 mm long, glabrous; stigma sessile, entire. Mature capsules and seed not viewed. (see Appendix 1 for photographs)

Seed is small and would simply drop to the ground once the capsules open. Individuals therefore tend to group together in small patches (see Appendix 1). The leaves are presumed to brown off during the summer months as the plant enters dormancy, possibly with the exception of the cluster of small, bract-like leaves in the centre of the rosette which are likely to function in protecting the growing tips of the stem. The stem is compact, thickened, and shallowly buried (the plants are hemicryptophytes) and fleshy root tubers are present. Plants may have the capacity to resprout following a fire; however, fire response data is lacking. Individuals are assumed to live for a number of years (precise life history data is lacking).

This species does not flower in drought conditions. Furthermore, in good seasonal conditions only a small proportion of individuals have been observed flowering.

2.3. Distribution

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

Known from a single occurrence on private property SSE of Corrigin in Western Australia's Avon Wheatbelt (see Appendix 1).

2.4. Habitat

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.

Non-biological habitat

Hard grey clay with lateritic gravel. Hillslope.

Biological habitat

Eucalyptus macrocarpa and *E. pluricaulis* shrubland with *Banksia*, *Allocasuarina*, *Santalum* and both *Stylidium caricifolium* and *S. eriopodum*. Grows in more open areas of habitat.

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?

Associated with the Threatened species *Guichenotia seorsiflora*.

2.5. Reproduction

Provide an overview of the breeding system.

For fauna: 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 flora: 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?

Stylidium appianatum has been recorded flowering in late September and October (peak flowering is around the second week of October), and seed has been collected in November (on 17/11/2007).

Seed viability has not been tested (A. Crawford, pers. comm.).

Triggerplants rely on insects for cross pollination, transferring pollen between flowers and individuals by means of a rapid moving floral column. Pollinator data is lacking for *S. applanatum* but based on observations of other species with similar floral morphologies, it is likely to be pollinated by beeflies and/or native solitary bees.

Todd Erickson, whilst making a seed collection for the Threatened Flora Seed Centre in 2007, noted that 75% plus of plants had either not set fruit or had failed to produce scapes (PERTH 07829655). Bert Hort, during a targeted survey in good seasonal conditions in October 2013, similarly observed that c. 80 % of the population was not flowering. Juliet Wege failed to find any flowering plants upon inspecting the population in mid-October in 2012 during drought conditions. She observed that a few individuals had started to produce flowering scapes but that these had completely withered in the absence of adequate rainfall. Relatively few plants were seen at this time - presumably the majority of individuals had died become dormant by dying back to their stem stock in the absence of rain.

It is possible that fire would stimulate flowering in *S. applanatum*. This is certainly the case in other triggerplant species with a geophytic/hemicryptophytic habit (e.g. *S. carnosum*, *S. yilgarnense*, *S. korijekup*). However, the stem stock is very shallowly buried and therefore a hot fire has the potential to damage or kill plants.

2.6. Population dynamics

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.

Seedlings have not been observed. Disturbance such as fire may be required for seedlings to establish. Longevity of plants is unknown. Observational data for 2012 and 2013 suggests that plants can cope with a drought year by dying back to their stem stock and regenerating the following year following good season rain. It is not known how plants are impacted by successive years of drought.

Questions 2.7 and 2.8 apply to fauna nominations only

2.7. Feeding

Summarise food items or sources and timing/availability.

N/A

Briefly describe feeding behaviours, including those that may make the species vulnerable to threatening processes.

N/A

2.8. Movements

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

SECTION 3. INTERNATIONAL CONTEXT

For species that are distributed both in Australia and in other countries.

3.1. Distribution

Describe the global distribution.

N/A

Provide an overview of the global population size, trends, threats and security of the species outside of Australia.

N/A

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?

N/A

SECTION 4. CONSERVATION STATUS AND MANAGEMENT

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.

4.1. Population

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).

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)

Only a single population is currently known. Note that a herbarium record from 'Doyle's Farm' (PERTH 04669517) is likely to correspond to the known population, although this has not been verified.

The known population was surveyed in October 2013 by Bert Hort who walked the entire remnant at this location and estimated 800 plants.

How many subpopulations or locations do you consider the species occurs in and why?

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

There is one population/one location for this species (no subpopulations).

Provide locations of: captive/propagated occurrences or *ex situ* 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?

There are no living plants in cultivation, however, seed has been banked at DPaW's Threatened Flora Seed Centre (see section 4.4 below).

For flora, and where applicable, for fauna, 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.

Note: the three surveys below relate to the same population.

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
23/10/2013	1.3 km E along Middleton Rd from Whittington Rd (= 4.8 km E from Corrigin South Road). Both sides of road, including	Freehold Lot 19769 on Plan 228734, AL 19769 Owners Peter & Catherine Doyle, PO Box 109 Corrigin WA 6375	c. 800 (c. 20% in flower)	< 1 km ²	

	the old gravel scrape 32 31 06.1S 117 55 55.6 E	ph 98809048, mob 0427809044			
17/10/2012	As above	As Above	Relatively few individuals seen (none of which were in flower).	Not able to be determined. Survey abandoned due to drought.	Poor. Some evidence of vehicle tracks. Drought conditions.
24/09/2010	As above	As above	Numerous healthy rosettes observed in gravel scrape area.	Opportunistic stop to obtain photographs; survey not conducted (plants not yet in flower)	

What is the total area of occupancy (in km²) 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.

The population is surrounded by farm land and the estimated area of occupancy (AOO) is < 1 km². This was calculated by determining the approximate area within which the plants occur (length x width). Using the 2kmx2km IUCN method, the AOO is 4km². The plants are scattered within this habitat, often grouping together in small patches.

What is the extent of occurrence (in km²) 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 4 square km. There is only one location for this species so the extent of occurrence is the AOO within which the plants at this location are known to occur.

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.

This species is only known from a single occurrence and this population is therefore essential to the long term survival of this species.

Is the distribution of the species severely fragmented? Why?

This species is only known from a single occurrence in a highly fragmented landscape.

Is the taxon subject to extreme fluctuations? If so, provide evidence.

Numbers of flowering individuals in any given year fluctuate according to seasonal conditions.

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.

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

No data available.

Has there been a decline in the size of the population (number of mature individuals)?
No data available.
- 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.
No data available.
- 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.
No data available.
Has there been a decline in the number of locations, extent of occurrence or area of occupancy?
No data available.
Has there been a decline in the area or quality of habitat?
Yes, Wege made a general observation of habitat decline in 2012 (as compared with previous visits to the site in 2010 and 1997), partly as a result of the drought conditions, although vehicle use in the gravel pit area where plants are known to occur was observed (see Appendix 1).
4.2. Survey effort 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.
Surveys should be conducted during the day and on foot. While best surveyed in early to mid-October during flowering, the leaf rosettes (which tend to cluster together) are highly distinctive and could be picked up in targeted surveys during winter (providing there has been adequate rainfall) or in late spring (after flowering but before the leaves brown off).
Provide details on the distinctiveness and detectability of the species, or the distinctiveness of its habitat, that would assist survey success.
Although a small herb, this species is readily detectable due to its distinct rosetted habit. There are no other triggerplants in the Avon Wheatbelt with this habit form. It is not known whether the associated species (in particular <i>Eucalyptus macrocarpa</i> and <i>Guichenotia seorsiflora</i>) are habitat indicators. Note that species of <i>Stylidium</i> often display a high degree of specificity with regards to soil type and position in the landscape. Hard clay soils will be indicative.
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 known population was surveyed in October 2013 by Bert Hort who walked the entire remnant at this location. Bert has also intensively surveyed other accessible remnants in the district (DPaW estate, UCL and some private property) with similar soil/vegetation associations over the past three years. The size of the 'patch' that he has covered is an area of some 200,000 ha. Juliet Wege has conducted a number of ad hoc surveys for <i>S. applanatum</i> over the past 10 years, concentrating on small, roadside fragments surrounding the known population and has failed to find additional populations. Ryonen Butcher (WA Herbarium) failed to find any plants on a collecting trip to the water reserve immediately west of Corrigin in Spring 2006. There are no other species of <i>Stylidium</i> in the Avon Wheatbelt with a flat, smooth leaf rosette. The leaf rosette is conspicuous relative to triggerplants with a tufted habit, which are more difficult to see

when sterile since they blend into surrounding vegetation. Triggerplants are iconic plants that tend to be collected when seen and the fact that *S. applanatum* has not been picked up in Wheatbelt surveys, by regional collectors, or opportunistically is highly suggestive of its rarity.

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?).

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

Location	Past threats	Current threats	Potential threats	Management requirements (see section 4.4)
Property of P. & C. Doyle, Middleton Rd	Land clearing for agriculture; gravel extraction.	Accidental destruction by vehicles; gravel extraction (owners are planning to extract 15-20 truck loads of gravel in Feb. 2014 from 300-400 m away)	Grazing by rabbits and kangaroos; altered hydrology (by past machine work); repeated seasons of drought/long-term climate change; inappropriate fire regimes; weed invasion.	Fencing.

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.

Data not available.

4.4. Management

Identify key management documentation for the species e.g. recovery plans, conservation plans, threat abatement plans etc.

DPaW's Threatened Flora Seed Centre made a collection of 501 seed in 2007 (accession number 02536), with a further 55 seed duplicated with Kew at the Millennium Seed Bank (A. Crawford, pers. comm.).

Does this species benefit from the management of another species or community? Explain.

Rare flora markers are in place for *Guichenotia seorsiflora*, aiding management of *S. applanatum*.

How well is the species represented in conservation reserves or covenanted land? Which of these are actively managed for this species? Provide details.

This species is not known from within the conservation estate or covenanted land.

Are there any management or research recommendations that will assist in the conservation of the species? Provide details.

Research on general attributes of this species' biology and ecology would better inform management (e.g. genetic diversity, seed viability and germination, fire response, pollination ecology). Fencing of the population, or parts of the population, would be prudent.

Management requirements include:

- Maintain liaison with the landowner and Shire of Corrigin to ensure appropriate management of the site;
- Protect the site from fire unless required for ecological reasons, and implement early

intervention in any wildfires which may threaten the site;

- Protect the existing population from vehicle damage through installation of fencing;
- Monitor the population for evidence of rabbit, kangaroo or weed impacts, or changes in plant health;
- Control rabbits if evidence of a rabbit population or herbivory noted;
- Control infestations of weeds that might impact the population;
- Erect protective fencing if kangaroo herbivory noted as a significant threat;
- Collect and store seed;
- Establish new populations in more secure locations, if a suitable location can be found;
- Survey any newly identified areas of suitable habitat;
- Monitor the impact of erosion by installing markers around the boundary of the affected area.

4.5. Other

Is there any additional information that is relevant to consideration of the conservation status of this species?

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SECTION 5. NOMINATOR

Nominator(s) name(s)	
Organisation(s)	
Address(s)	
Telephone number(s)	
Email(s)	
Date	14 February 2014

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

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.

Crawford, A. (13 February 2014), email correspondence re: seed accession in the Threatened Flora Seed Centre.

Hort, B. (23 October 2013). Threatened and Priority Flora report form for *Stylidium applanatum*.

Wege JA (2007) New species and new concepts in Stylidium (Stylidiaceae). *Nuytsia* 17: 415–432

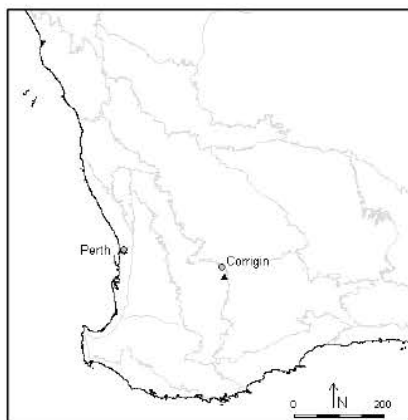
Appendix 1. Photographs (by J. Wege) of *Stylidium applanatum* and habitat, and distribution maps



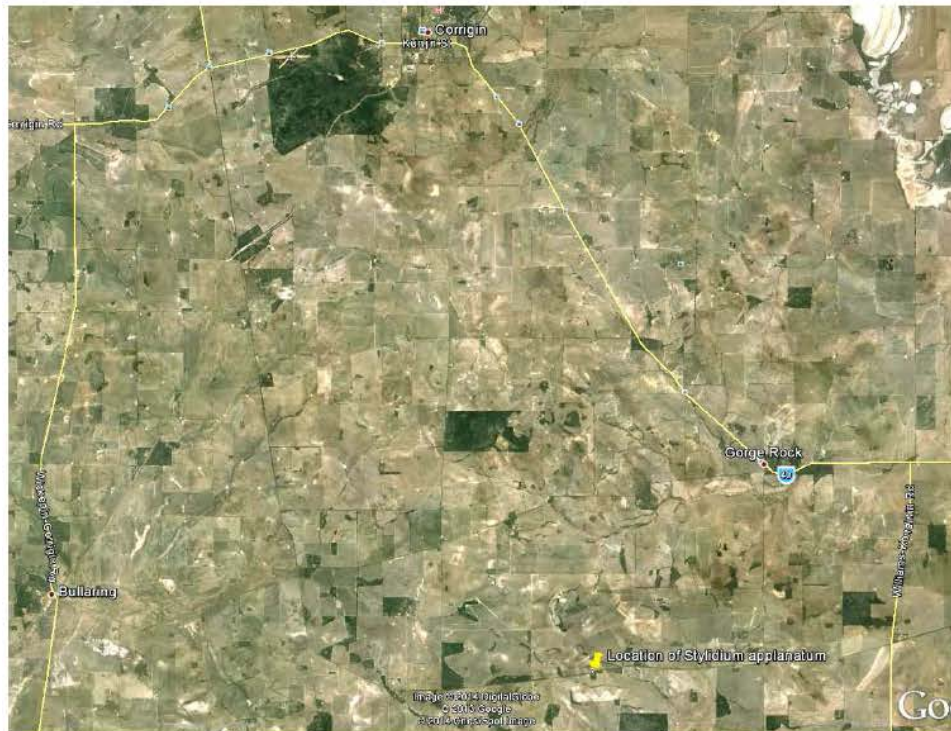
(left) flat leaf rosettes showing the tendency of individual plants to group together; (centre) a cluster of flowering plants; (right) flower showing the pale yellow, laterally-paired corolla lobes with maroon-tipped throat appendages.



(left) habitat in drought conditions in 2012, with *Eucalyptus macrocarpa* emergents; (right) evidence of vehicle tracks through the population to the north of Middleton Rd.



location in south-west Western Australia



location of bush remnant SSE of Corrigin, indicated by yellow pin



Detail of the private property bush remnant, with a yellow pin marking the rough centre of the population. Plants are found to the south and north of Middleton Rd, including the old gravel scrape area to the NW of the yellow pin.