

NSW Threatened Species Scientific Committee

Notice of Preliminary Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Preliminary Determination to support a proposal to list the orchid *Prasophyllum caricetum* D.L.Jones as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1 of the Act. Listing of Critically Endangered species is provided for by Part 4 of the Act.

How to make a submission

The NSW TSSC welcomes public involvement in the assessment process and places preliminary determinations on public exhibition on the NSW TSSC pages on the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) website. This public exhibition provides an opportunity for the public to comment on this preliminary determination as well as provide any additional information that is relevant to the assessment.

Postal submissions regarding this Preliminary Determination may be sent to:
Secretariat
NSW Threatened Species Scientific Committee
Locked Bag 5022
Parramatta NSW 2124.

Email submissions in Microsoft Word or PDF formats to:
scientific.committee@environment.nsw.gov.au

Submissions close 3 July 2026

What happens next?

After considering any submissions received during the public exhibition period the NSW TSSC will make a Final Determination and a notice will be placed on the NSW DCCEEW website to announce the outcome of the assessment. If the Final Determination is to support a listing, then it will be added to the Schedules of the Act when the Final Determination is published on the legislation website. www.legislation.nsw.gov.au.

Privacy information

The information you provide in your submission may be used by the NSW TSSC in the assessment to determine the conservation status and listing or delisting of threatened or extinct species, threatened populations and threatened or collapsed ecological communities or to assess key threatening processes.

The NSW TSSC may be asked to share information on assessments with NSW Government agencies, the Commonwealth Government and other State and Territory governments to collaborate on national threatened species assessments using a common assessment method and to assist in the management of species and ecological communities.

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If your submission contains information relevant to the assessment it may be provided to state and territory government agencies and scientific committees as part of this collaboration.

If you wish your identity and personal information in your submission to be treated as confidential you must:

- *request your name be treated as confidential, and*
- *not include any of your personal information in the main text of the submission or attachments so that it can be easily removed.*

Professor Angela Moles, FRSN
Chairperson
NSW Threatened Species Scientific Committee

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Public exhibition period: 10/04/2026 - 3/07/2026

Preliminary Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Preliminary Determination to support a proposal to list the orchid *Prasophyllum caricetum* D.L.Jones as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1 of the Act. Listing of Critically Endangered species is provided for by Part 4 of the Act.

Summary of Conservation Assessment

Prasophyllum caricetum D.L.Jones was found to be Critically Endangered in accordance with the following provisions in the *Biodiversity Conservation Regulation 2017*: Clause 4.3(a)(d)(e i,iii) because: (1) it has a very highly restricted geographic distribution with an estimated extent of occurrence of 21 km², (2) the minimum number of threat-defined locations when considering the most serious plausible threat of herbivory and habitat degradation by feral pigs is one (range 1–3), and (3) there is an inferred continuing decline in habitat quality and number of mature individuals attributed to anthropogenic habitat degradation and damage to, or consumption of, stems, tubers and/or habitat by pigs, deer, rabbits and cattle.

The NSW Threatened Species Scientific Committee has found that:

1. *Prasophyllum caricetum* D.L.Jones (Cathcart leek orchid, family Orchidaceae, CHAH 2022a; PlantNET 2025) was described in Jones (2021) as: “Plants 250–500 mm tall. Free part of leaf to 250 x 4–8 mm. Spike 70–120 mm long, 5–25-flowered. Ovary shortly stalked, green, shiny. Flowers moderately crowded, unscented, 14–19 x 8–15 mm, green, petals white and purplish, labellum white, callus green. Dorsal sepal 7.5–12 x 3.5–4.5 mm, decurved. Lateral sepals fused or free, 7.5–12 x 1.5–2 mm, parallel or divergent, base humped. Petals 8–13 x 1.5–3 mm, widely spreading, with purplish central stripe, distal margins crinkly. Labellum sessile, ovate-oblong, recurved back on itself near middle, 8–14 x 4–6 mm, margins finely toothed, strongly wavy/crinkled. Callus ending just beyond labellum bend, apex raised, notched, papillate”. Although *Prasophyllum* sp. Majors Creek (Jones 11084) is noted as a synonym of *P. caricetum* (PlantNET 2025) and the specimen referred to in this phrase name was included in the original description of *P. caricetum* (Jones 2000), Jones (2019) has since distinguished that entity as the separate species *P. sandrae* (CHAH 2022b).
2. There are three known subpopulations of *Prasophyllum caricetum*. These occur in the Kybeyan-Gourock subregion of the South Eastern Highlands (IBRA region, Commonwealth DCCEEW 2024a, 2024b), north-east of Bombala in New South Wales (NSW). Records previously assigned to *P. caricetum* in four other localities are uncertain or considered misidentifications (D. Jones *in litt.* March 2025; M. Clements *in litt.* January 2025).
3. *Prasophyllum caricetum* has an estimated total population size of 4,035 (388–9,700) mature individuals (see Smith 2025 for details and assumptions). In January

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2025, 388 mature individuals were detected in a survey that did not cover all potential habitat, nor the entire flowering period of this species. The observations of population dynamics for *P. correctum* (Coates *et al.* 2006) were applied to derive a preliminary population size estimate for *P. caricetum*. A precautionary approach to this estimation was applied given that the actual flowering rate for this species may differ from *P. correctum*, and there is an inferred continuing decline in habitat quality and number of mature individuals for *P. caricetum*.

4. *Prasophyllum caricetum* has an estimated extent of occurrence (EOO) of 21 km², and an estimated area of occupancy (AOO) of 16 km². As recommended by IUCN (2024), AOO is based on 2 x 2 km grid cells, while EOO is based on a minimum convex polygon enclosing a cleaned dataset of current records for the species (ALA 2024; C. Steele *in litt.* December 2024; J. Miles *in litt.* December 2024; NSW Government 2024; RBGDT 2024; K.J. Smith, C. Portway and T.L. Collins pers. obs. January 2025).
5. Jones (2021) described *Prasophyllum caricetum* as “highly localised, growing among small shrubs, thick sedges and heath in seasonally wet flats and montane swamps in moist to wet, brown or black peaty loam”. The species flowers from late December to February (Jones 2000). Individuals that emerge in the vegetative (*i.e.*, leaf only) state appear grass-like, and as such, may be easily missed during surveys (Coates *et al.* 2006). Some individuals may not emerge at all during the flowering season, instead remaining dormant underground (NSW NPWS 2022), possibly due to waterlogging, drought, or competition from dense growth of grasses and sedges (Miles 2017, Miles 2019, Miles 2024). From observations of *P. correctum*, it is inferred that *P. caricetum* individuals can remain dormant for 1–5 years, and some mortality occurs among dormant tubers (Coates *et al.* 2006).
6. Based on the life history of other orchid species (Coates *et al.* 2006; Shefferson *et al.* 2020), and the small population size of *Prasophyllum caricetum*, it is inferred that very few *P. caricetum* seeds become mature adults. Assuming a seed is deposited in an area of suitable vegetation, soil, and climate, like other orchids, *Prasophyllum* species also require the presence of specific types of mycorrhizal fungi for germination and growth (Grant and Koch 2003; Freestone *et al.* 2023).
7. The lifespan of *Prasophyllum* species is uncertain; some deaths occur due to outside factors (*e.g.*, unsuitable environment, herbivory) but intrinsic mortality is poorly understood (Benson and McDougall 2005). For *P. caricetum* it is inferred that a single dropper is produced each year to form a replacement tuber (Pridgeon and Chase 1995), which is considered the same individual. The generation length of *P. caricetum* is uncertain; estimates of generation length for other *Prasophyllum* species range between 10–50 years (Commonwealth TSSC 2014; DELWP 2021, DELWP 2022; Commonwealth of Australia 2023).
8. The major threats to the persistence of *Prasophyllum caricetum* are herbivory and habitat degradation by feral animals and domestic cattle, and anthropogenic habitat degradation. The resilience of *P. caricetum* to these threats may be reduced by competition with exotic plants and human-induced changes to rainfall and fire regimes. ‘Predation, habitat degradation, competition and disease transmission by

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feral pigs, *Sus scrofa* Linnaeus 1758', 'Herbivory and environmental degradation caused by feral deer', 'Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)', 'Clearing of native vegetation', 'Invasion of native plant communities by exotic perennial grasses', 'Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants', 'Anthropogenic climate change', and 'High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition' are listed as Key Threatening Processes under the Act.

9. There is an inferred continuing decline in habitat quality and the number of mature *Prasophyllum caricetum* attributed to feral animal activities and domestic cattle. Areas affected by pig rooting were present in *P. caricetum* habitat in January 2025 (K.J. Smith pers. obs.). Grazing and trampling of potential habitat by domestic cattle was evident on the private property on the north side of the road in the Hains Swamp locality. Damage to flowering stems by grazing or trampling adversely affects an individual's ability to produce seed in a given year (McPherson 2004). Consecutive years of limited seed production, together with mortality caused by desiccation or consumption when tubers are unearthed, places subpopulations at increased risk of extinction (McPherson 2004). Adverse effects on *P. caricetum* from grazing, trampling, and/or digging by deer and rabbits are also suspected given evidence of their presence (K.J. Smith pers. obs. January 2025), and observations of rabbits digging up *Caladenia saggicola* (sagg spider orchid) tubers (Threatened Species Section 2017).
10. There is an inferred continuing decline in habitat and the number of mature *Prasophyllum caricetum* based on the direct anthropogenic threats present in the Hains Swamp subpopulation. A main road was constructed through the swamp, and excavated soil is present as mounds along the roadsides. This contrasts with the historical description of the Hains Swamp locality: Around 1999–2000 it was "in really good condition, quite wet and with a dense cover. There was also good grassy verge on both sides of the road that supported several species of orchid, and other monocots" (D.L. Jones in Miles 2020). In February 2019, *P. caricetum* in the Hains Swamp locality was described as locally common with 20–30 seen along a 50 m stretch of road reserve, and many others uncounted in the adjoining paddock, totalling an estimated 200–300 individuals (G.P. Phillips in RBGDT 2024; G.P. Phillips *in litt.* February 2025). Subsequently, in January 2020 the site was burnt and part of the roadside and adjoining area was bulldozed to serve as a firebreak (G.P. Phillips in RBGDT 2024; G.P. Phillips *in litt.* February 2025). In February 2021, it was estimated there had been a >75% reduction in this subpopulation of *P. caricetum* (G.P. Phillips in RBGDT 2024; G.P. Phillips *in litt.* February 2025). In January 2025, only 21 *P. caricetum* were detected in the Hains Swamp locality, none of which were found around the sites searched in 2019 and 2020.
11. *Prasophyllum caricetum* is considered to occupy 1–3 threat-defined locations based on the most serious plausible threat of herbivory and habitat degradation by feral pigs. Given that the core range of feral pigs can be many square kilometres (Wilson *et al.* 2023), it is possible that adverse effects occur simultaneously on all sites containing *P. caricetum* and that the species occupies a single threat-defined

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location. Moreover, the adverse effects of feral pigs may operate cumulatively across all three subpopulations within a single generation.

12. *Prasophyllum caricetum* D.L.Jones is eligible to be listed as a Critically Endangered species as, in the opinion of the NSW Threatened Species Scientific Committee, it is facing an extremely high risk of extinction in Australia in the immediate future as determined in accordance with the following criteria as prescribed by the *Biodiversity Conservation Regulation 2017*:

Assessment against *Biodiversity Conservation Regulation 2017* criteria

The Clauses used for assessment are listed below for reference.

Overall Assessment Outcome:

Critically Endangered under Clause 4.3(a)(d)(e i,iii)

**Clause 4.2 – Reduction in population size of species
(Equivalent to IUCN criterion A)**

Assessment Outcome: Data Deficient

(1) - The species has undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:			
	(a)	for critically endangered species	a very large reduction in population size, or
	(b)	for endangered species	a large reduction in population size, or
	(c)	for vulnerable species	a moderate reduction in population size.
(2) - The determination of that criteria is to be based on any of the following:			
	(a)	direct observation,	
	(b)	an index of abundance appropriate to the taxon,	
	(c)	a decline in the geographic distribution or habitat quality,	
	(d)	the actual or potential levels of exploitation of the species,	
	(e)	the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.	

**Clause 4.3 - Restricted geographic distribution of species and other conditions
(Equivalent to IUCN criterion B)**

Assessment Outcome: Critically Endangered under Clause 4.3(a)(d)(e i,iii)

The geographic distribution of the species is:			
	(a)	for critically endangered species	very highly restricted, or
	(b)	for endangered species	highly restricted, or
	(c)	for vulnerable species	moderately restricted,
and at least 2 of the following 3 conditions apply:			
	(d)	the population or habitat of the species is severely fragmented or nearly all the mature individuals of the species occur within a small number of locations,	
	(e)	there is a projected or continuing decline in any of the following:	
		(i)	an index of abundance appropriate to the taxon,
		(ii)	the geographic distribution of the species,

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		(iii)	habitat area, extent or quality,
		(iv)	the number of locations in which the species occurs or of populations of the species,
	(f)	extreme fluctuations occur in any of the following:	
		(i)	an index of abundance appropriate to the taxon,
		(ii)	the geographic distribution of the species,
		(iii)	the number of locations in which the species occur or of populations of the species.

Clause 4.4 - Low numbers of mature individuals of species and other conditions

(Equivalent to IUCN criterion C)

Assessment Outcome: Data Deficient

The estimated total number of mature individuals of the species is:			
	(a)	for critically endangered species	very low, or
	(b)	for endangered species	low, or
	(c)	for vulnerable species	moderately low,
and either of the following 2 conditions apply:			
	(d)	a continuing decline in the number of mature individuals that is (according to an index of abundance appropriate to the species):	
		(i)	for critically endangered species very large, or
		(ii)	for endangered species large, or
		(iii)	for vulnerable species moderate,
	(e)	both of the following apply:	
		(i)	a continuing decline in the number of mature individuals (according to an index of abundance appropriate to the species), and
		(ii)	at least one of the following applies:
		(A)	the number of individuals in each population of the species is:
			(I) for critically endangered species extremely low, or
			(II) for endangered species very low, or
			(III) for vulnerable species low,
		(B)	all or nearly all mature individuals of the species occur within one population,
		(C)	extreme fluctuations occur in an index of abundance appropriate to the species.

Clause 4.5 - Low total numbers of mature individuals of species

(Equivalent to IUCN criterion D)

Assessment Outcome: Not met

The total number of mature individuals of the species is:			
	(a)	for critically endangered species	extremely low, or
	(b)	for endangered species	very low, or
	(c)	for vulnerable species	low.

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**Clause 4.6 - Quantitative analysis of extinction probability
(Equivalent to IUCN criterion E)
Assessment Outcome: Data Deficient**

The probability of extinction of the species is estimated to be:			
	(a)	for critically endangered species	extremely high, or
	(b)	for endangered species	very high, or
	(c)	for vulnerable species	high.

**Clause 4.7 - Very highly restricted geographic distribution of species–
vulnerable species
(Equivalent to IUCN criterion D2)
Assessment Outcome: Vulnerable under Clause 4.7**

For vulnerable species,	the geographic distribution of the species or the number of locations of the species is very highly restricted such that the species is prone to the effects of human activities or stochastic events within a very short time period.
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Professor Angela Moles, FRSN
Chairperson
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Supporting Documentation:

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Expert Communications

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