

NSW Threatened Species Scientific Committee

Notice of the Determination for provisional listing of a critically endangered species on an emergency basis

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Determination for provisional listing, on an emergency basis, of the species, *Patersonia rosea* Branwhite as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1 of the Act. Provisional Listing of Critically Endangered species on an emergency basis is provided for by Part 4 of the Act.

What happens next?

This species will be listed as a Critically endangered species when the Provisional Listing Determination is published on the Legislation website www.legislation.nsw.gov.au.

In the near future the Committee will make a Preliminary Determination regarding this proposal which will be placed on public exhibition. Public submissions will be invited at that time.

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Chairperson
NSW Threatened Species Scientific Committee

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Determination for provisional listing of an endangered species on an emergency basis

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Determination for provisional listing, on an emergency basis, of the species, *Patersonia rosea* Branwhite as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1 of the Act. Provisional Listing of Endangered species on an emergency basis is provided for by Part 4 of the Act.

Summary of Conservation Assessment

Patersonia rosea Branwhite 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,ii,iii).

The main reasons for this species being eligible are (1) *Patersonia rosea* has restricted geographical range with an extent of occurrence of 16–32 km² and an area of occupancy of 16–32 km²; (2) is known from only one location, and potentially occurs at an additional threat-defined location, with the most serious plausible threat of habitat loss and degradation associated with urban and infrastructure expansion likely at the only known location; (3) ongoing losses of mature individuals due to roadside vegetation slashing and land clearing on private property; (4) a projected future ongoing decline due to increased urban runoff, trail-based fragmentation and disturbance of sensitive vegetation.

The NSW Threatened Species Scientific Committee has found that:

1. *Patersonia rosea* Branwhite in the family Iridaceae, is a conventionally accepted species by the NSW Herbarium and is included in PlantNET (2025). Described by Branwhite *et al.* (2023) as a “Loosely tufted rhizomatous perennial herb to c. 50 cm high. Leaves basal, linear to linear-ensiform, 23–66 cm long, 1.4–2.8 (–4.0) mm wide, dull green, with matted appressed fawn-coloured hairs on the faces, longer white hairs on the margins. Scapes (0.5–) 21–60 cm long, pubescent. Spathe pair 35–50 mm long, greyish-brown to mid-brown, with numerous close parallel veins. Perianth tube white 5–20 mm long; outer tepals, broadly elliptic-obovate, 16–25 (–30) mm long, 12–20 (–25) mm wide pink; inner lobes obovate to obcuneate, c. 2 mm long. Filaments 3.5–5.0 mm long, connate. Ovary ± cylindrical, hairy. Capsules narrowly ovoid to ellipsoid or narrowly obovoid, 13–21 mm long. Seeds cylindrical-fusiform to narrowly ovoid, 3.2–4.8 mm long, pale brown, aril extending from the non-attachment to almost the opposite end, linear, cream-stramineous when dry.”
2. *Patersonia rosea* is distinguished from congeners by the combination of the following characters: flowering stems usually slightly longer or slightly shorter (rarely much shorter) than the leaves and with a dense matted indumentum that tends to come off in patches except proximally and ± distally; leaves strictly basal,

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with flat blades mostly to 2.8 (–4.0) mm wide, hairy at least initially though often glabrescent; outermost spathe pair 35–50 mm long, the firmer-textured greyish-brown to mid-brown part with a partially persistent indumentum of densely matted short appressed hairs; floral tube hairy proximally; tepals pink; staminal filaments virtually fully connate into a cylindrical column; ovary hairy; seeds cylindrical-fusiform to narrowly ovoid, 3.2–4.8 mm long, pale brown, finely and closely striate, lacking a pit at one end, with a pale linear aril extending along one side of the seed for almost its entire length (Branwhite *et al.* 2023).

3. *Patersonia rosea* is endemic to New South Wales (NSW) and is known with certainty only from five subpopulations in the Charmhaven–Wyee area on the New South Wales central coast. A single specimen from Laurieton (NSW132266), c. 200 km further north, collected by J.L. Boorman in 1915 appears to be *Patersonia rosea* (Branwhite *et al.* 2023). Potential habitat for *Patersonia rosea* may also be present in the Charmhaven–Wyee area in the nearby Lake Macquarie and Munmorah State Conservation Areas, and Colongra Swamp Nature Reserve (Branwhite *et al.* 2023).
4. *Patersonia rosea* has a very restricted geographic distribution, with an extent of occurrence (EOO) of 16–896 km² and an area of occupancy (AOO) of 16–32 km² based on a 2 x 2 km grid (as recommended for assessing AOO by IUCN 2024). The lower bounds of the EOO and AOO are calculated from individuals recorded in 2022 and observations made in 2023 (R. Jobson pers. comm. 2025). The upper bounds of the estimated EOO and AOO are calculated from the hypothesised occurrences based on potentially suitable habitat in Lake Macquarie and Munmorah State Conservation Areas, and Colongra Swamp Nature Reserve, as well as the single record from 1915 at Laurieton. If the Laurieton subpopulation is treated as locally extinct, the estimate of EOO measured with a minimum convex hull polygon, enclosing known extant occurrences, is less than 16 km² (5.4 km²), but IUCN guidelines (2024) stipulate that EOO cannot be smaller than AOO. Accordingly, an EEO of 16–32 km² is applied to this determination.
5. *Patersonia rosea* is known to occur in dense sedgeland and ephemeral swamps with an open stratum of emergent sclerophyllous shrubs. These sedge-dominated patches occur within a matrix of open forest/woodland dominated by *Eucalyptus haemastoma* and/or *Angophora inopina* with a heathy understorey. Soils are grey sandy loam, over a poorly drained yellowish subsoil. These habitats are extensive on the coastal plains of the central coast between Lake Macquarie and Wyong (c. 7800 ha; see Bell and Driscoll 2016, Bell 2019 cited in Branwhite *et al.* 2023), although they are largely in private ownership with few dedicated conservation reserves. Other species commonly associated with *Patersonia rosea* include *Actinotus minor*, *Baeckea diosmifolia*, *Banksia oblongifolia*, *Blandfordia grandiflora*, *Comesperma ericinum*, *Cyathochaeta diandra*, *Epacris pulchella*, *Goodenia stelligera*, *Lambertia formosa*, *Lepyrodia scariosa*, *Pimelea linifolia*, *Ptilothrix deusta* and *Xanthorrhoea fulva*. *Patersonia rosea* commonly occurs with *P. sericea*, with *P. fragilis* and *P. glabrata* sometimes also occurring in the vicinity. Part of one *P. rosea* subpopulation occurs in a powerline easement where the vegetation is periodically slashed (Branwhite *et al.* 2023).

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6. All known extant occurrences of *Patersonia rosea* occur in a “regionally significant growth area” (DPE 2022a, Figure 11: Central Lakes district). Ongoing losses of mature individuals due to roadside vegetation slashing (Branwhite *et al.* 2023) and land clearing on private property is occurring. The Central Lakes district is planned to be the primary growth front between the Central Coast and Greater Newcastle (DPE 2022a). It is assumed that some plants of *P. rosea* will be destroyed by development given the descriptions provided in Central Coast Regional Plan 2041 (DPE 2022a) and the Interim Darkinjung Development Delivery Plan (DPE 2022b). Plants of *P. rosea* that will not be directly impacted by inappropriate development are projected to continue declining due to the planned increase in urban expansion (DPE 2022a) and the associated impacts on bushland adjacent to urban areas. ‘Clearing of native vegetation’ is a Key Threatening Process under the *Biodiversity Conservation Act 2016*. ‘Land clearance’ is a Key Threatening Process under the *Environment Protection and Biodiversity Conservation Act 1999*.
7. Continuing decline of subpopulations of *Patersonia rosea* is projected due to urban expansion and degradation of habitat quality from increased human visitation and urban runoff, leading to a significant loss of plant diversity within a few decades after fragmentation (Ramalho *et al.* 2014). Ongoing trail-based fragmentation and incursions into sensitive vegetation (e.g., wetlands) can cause direct loss of vegetation as well as introduce invasive weed species and plant pathogens (Ballantyne *et al.* 2014).
8. Under the *Biodiversity Conservation Act 2016* a species is eligible to be provisionally listed as, in the opinion of the NSW Threatened Species Scientific Committee:
 - (a) the species:
 - (i) although not previously known to have existed in New South Wales, is believed on current knowledge to be native to New South Wales, or
 - (ii) is subject to an immediate and significant threat of extinction, or
 - (iii) was presumed to be extinct or extinct in the wild but has been rediscovered, and
 - (b) the species is not listed in Schedule 1 as an endangered or critically endangered species.
9. *Patersonia rosea* Branwhite is eligible to be listed as a Critically Endangered species as, in the opinion of the NSW Threatened Species Scientific Committee, it is subject to an immediate and significant threat of extinction.

Assessment against *Biodiversity Conservation Regulation 2017* criteria

The Clauses used for assessment are listed below for reference

Overall Assessment Outcome:

Patersonia rosea Branwhite was found to be Critically Endangered under Clause 4.3(a)(d)(e i,ii,iii).

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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,ii,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, |
| | | (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. |

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

(Equivalent to IUCN criterion C)

Assessment Outcome: Endangered under Clause 4.4(b)(e i,ii, B)

| 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: Vulnerable under Clause 4.5(c)

| 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**

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| 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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Chairperson
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Supporting Documentation:

Collins TL (2025). Conservation Assessment of *Patersonia rosea* Branwhite (Iridaceae). NSW Threatened Species Scientific Committee.

References:

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