

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 rufous scrub-bird *Atrichornis rufescens* (Ramsay, 1866) as an ENDANGERED SPECIES in Part 2 of Schedule 1 of the Act, and, as a consequence, to omit reference to the rufous scrub-bird *Atrichornis rufescens* (Ramsay, 1866) in Part 3 of Schedule 1 (Vulnerable Species). Listing of 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 27 May 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

NSW Threatened Species Scientific Committee

Public exhibition period: 27/02/2026 – 27/05/2026

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 rufous scrub-bird *Atrichornis rufescens* (Ramsay, 1866) as an ENDANGERED SPECIES in Part 2 of Schedule 1 of the Act, and, as a consequence, to omit reference to the rufous scrub-bird *Atrichornis rufescens* (Ramsay, 1866) in Part 3 of Schedule 1 (Vulnerable Species). Listing of Endangered species is provided for by Part 4 of the Act.

Summary of Conservation Assessment

The rufous scrub-bird *Atrichornis rufescens* (Ramsay, 1866) was found to be Endangered in accordance with the following provisions in the *Biodiversity Conservation Regulation 2017*: Clauses 4.2(1 b)(2 b,c) and 4.4(b)(d ii) because: 1) the species is inferred to have undergone a large reduction in its population size of approximately 58% over the past 10 years due to drought and high frequency fire, and these threats have not ceased; 2) there is a low total number of mature individuals (estimated at 2,050); and 3) continuing decline in the number of mature individuals is occurring, with a 29% decrease occurring within one generation (3.2 years).

The NSW Threatened Species Scientific Committee has found that:

1. The rufous scrub-bird *Atrichornis rufescens* (Ramsay, 1866) (family Atrichornithidae) is characterised as a small dark ground-dwelling bird with short and rounded wings, a long and rounded tail, strong legs, and a short wedge-shaped bill merging into a long flat forehead to give a characteristically triangular head profile (Higgins *et al.* 2001). Sexes differ in adult and immature plumages but are similar when juvenile (Higgins *et al.* 2001). There is no seasonal variation and only slight geographical variation in plumage and size (Higgins *et al.* 2001). Plumage is described as “adults mostly dark rufous-brown with faint darker barring, and with buff belly; male has obvious blackish triangle on chin, throat and breast joining large blackish patches on sides of upper belly, and bold white malar stripe along sides of chin and throat; female more buff below, with much smaller dark triangle (restricted to throat) and smaller dark patches on sides of belly. Juvenile plainer than adults: warmer dark red-brown and less clearly barred above, and uniformly light red-brown below, merging to greyish on chin and throat. Immatures similar to respective adult sexes; male separable in close view” (Higgins *et al.* 2001). Calls are diagnostically rich and powerful. Adults are 17 cm (17–18.5) in length with a wingspan c. 19 cm (Higgins *et al.* 2001).
2. There are two recognised subspecies of *Atrichornis rufescens*: *A. r. rufescens*, the northern variant, and *A. r. ferrieri*, the southern variant (Higgins *et al.* 2001). Both are included within this Determination.
3. *Atrichornis rufescens* is endemic to New South Wales (NSW) and Queensland. Both subspecies are currently known to occur east of the Great Dividing Range at elevations above 600 m (Higgins *et al.* 2001). The nominate subspecies is

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localised in extreme southeast Queensland and far northeast NSW, from Mistake Range in Queensland to south of the Gibraltar Range in NSW. Subspecies *ferrieri* occurs in central northeast NSW, from Dorrigo Plateau south to Barrington Tops (Higgins *et al.* 2001). The species' former range included lowland and coastal areas but it is now thought to be extinct in areas below 400 m above sea level (a.s.l.), and possibly below 600 m a.s.l., since European settlement (Smith 1977; Ferrier 1985; Higgins *et al.* 2001). It is also thought to be extinct around Wollumbin/Mount Warning, NSW, where it was last recorded in 1933 (Higgins *et al.* 2001). *Atrichornis rufescens* has a highly restricted geographic range. The extent of occurrence (EOO) and area of occupancy (AOO) were calculated using records of the species since 1990, as per Stewart *et al.* (2021) and Stuart *et al.* (2021). The EOO is calculated at 36,531 km², based on a minimum convex polygon enclosing all mapped occurrences of the species, the method of assessment recommended by IUCN (2024). The AOO is estimated to be 589 km², being the median value of two different AOO estimates. Both AOO estimates were derived using 2 x 2 km grid cells, the scale recommended by IUCN (2024). The upper bound of AOO was based on records of the species since 1990, resulting in an AOO of 768 km². The lower AOO estimate the effects of the 2019–2020 fires, which are estimated to have burnt 37% of all 1 x 1 km grid squares from which *Atrichornis rufescens* has been recorded since 1990 (Stewart *et al.* 2021) and 52% of all 1 x 1 km grid squares from which *A. r. ferrieri* has been recorded since 1990 (Stuart *et al.* 2021). Based on the intersection of 2 x 2 km grid squares encompassing all records and estimated survival, minimum estimates of AOO for each subspecies are 110 km² and 300 km², respectively (Stewart *et al.* 2021; Stuart *et al.* 2021). Combining these estimates gives a minimum estimated AOO of 410 km² for the species. However, given 4–5 years has passed since the 2019–2020 fires and there is some evidence of population recovery and recolonisation of burnt habitat (e.g., Hawkins 2022a, 2022b; Kerr *et al.* 2023), the minimum AOO of 410 km² is a likely underestimation of the current AOO. Similarly, the upper estimate of 768 km² is likely to be an overestimation of the current AOO. Therefore, the median value of 589 km² is considered a reasonable estimation of the current AOO.

4. *Atrichornis rufescens* has an estimated seven subpopulations, as defined by the IUCN (2024). *Atrichornis rufescens rufescens* has four of these seven recognised subpopulations: Lamington/Border Ranges, Gibraltar Ranges, Mount Barney, and Main Range (D. Stewart pers. comm. June 2024). *Atrichornis r. ferrieri* has three recognised subpopulations, all in NSW: Barrington Tops, Hastings Range, and Ebor/Dorrigo (Ferrier 1984; Stuart *et al.* 2021).
5. The population size of *Atrichornis rufescens* is currently estimated to include approximately 2,050 (1,850–2,690) mature individuals, with pervasive drought conditions from 2017–2019 followed by fires in 2019–2020 inferred to have resulted in a 58% (45–62%) decline in the population size of the species (Stewart *et al.* 2021; Stuart *et al.* 2021).
6. *Atrichornis rufescens* is confined to high-elevation areas dominated by subtropical, warm temperate, and cool temperate rainforests, wet eucalypt forests, and the ecotones of these forest types (Robinson 1977; Ferrier 1984; Ferrier 1985). The northern subspecies is confined to subtropical, warm temperate and cool temperate rainforests (Stewart *et al.* 2021), while the southern subspecies occurs

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most commonly in wet eucalypt forests, but also utilises subtropical, warm temperate and cool temperate rainforest (B. Hawkins *in litt.* July 2024). Within these forest types, habitat for *A. rufescens* is comprised of a combination of very dense ground cover, a moist microclimate, and deep leaf litter (Ferrier 1984; Ferrier 1985). Groundcover may include ferns, shrubs, vines, sedges, logs, and other debris (Ferrier 1985).

7. *Atrichornis rufescens* is a sedentary (*i.e.*, non-migratory) and diurnal species (Higgins *et al.* 2001; DESI 2024), and is shy and cryptic, more often heard than seen (Ferrier 1985; Higgins *et al.* 2001). The species is predominantly ground dwelling, seldom flying, and incapable of sustained flight when it does (Jackson 1920; Ferrier 1985; Higgins *et al.* 2001).
8. The breeding season for *Atrichornis rufescens* mostly occurs from September to December but may start as early as August and continue to as late as February (Ferrier 1985; Andren 2016; DESI 2024). Breeding males occupy permanent territories, ranging from 0.5–1.7 ha in area (Ferrier 1984; Stuart 2018). Territories are well-spaced, with a maximum of 4–6 territories per square kilometre, either as a function of social spacing mechanisms or the availability of suitable habitat (Ferrier 1984, Ferrier 1985). Turnover of territories appears to be slow, occurring on average every three years, with some territories remaining continuously occupied for decades, suggesting successive occupancy by multiple males (Andren *et al.* 2022). Juveniles are likely to disperse in search of territories, including through habitat unsuitable for breeding (Ekert 2005a, 2005b).
9. Females alone undertake nest-building, egg incubation, and feeding of chicks (Ferrier 1985). The dome-shaped nests are built close to the ground and are composed of dead leaves and grass lined with a cardboard-like wood pulp on the inside (Jackson 1921; Ferrier 1985). Clutches are comprised of two eggs and incubation is thought to be 36–38 days (Ferrier 1985). Fledglings leave the nest 3–4 weeks after hatching but continue to be fed by the mother for at least another three weeks (Ferrier 1985). Breeding typically takes place only once a year (Ferrier 1985). Age at first breeding in *A. rufescens* is estimated to be 1.5 years, with a maximum longevity of 8 years, and a generation length of 3.2 (2.4–4.0) years (Bird *et al.* 2020).
10. *Atrichornis rufescens* is threatened by high frequency and high severity fire regimes, drought, and the interaction of drought and fire. Habitat loss and disturbance from forestry activities may also threaten the species where it occurs within state forests. The species' life-history traits and habitat predispose it to predation by feral cats (*Felis catus*). 'High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition', 'Anthropogenic Climate Change', and 'Predation by the feral cat *Felis catus* (Linnaeus, 1758)' are listed as Key Threatening Processes under the Act.
11. *Atrichornis rufescens* occurs at one threat-defined location, as per the IUCN (2024) definition, due to the most serious plausible threat resulting in the lowest number of locations for the taxon being drought. Multiple historical droughts have been documented to have affected the entire species' range, including the 1982–1983 El Niño drought, the 1997–2009 Millennium drought, and the 2017–2019 drought

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(BOM 2024), which was estimated to have led to a 29% decline in the species' population size (Stewart *et al.* 2021; Stuart *et al.* 2021). Therefore, a single drought can operate on a scale that encompasses the entire species' distribution, resulting in a single threat-defined location.

12. From 2017–2019, drought conditions were estimated to have caused a population decline of 29% across the species' range (Stewart *et al.* 2021; Stuart *et al.* 2021). Following this drought, the 2019–2020 fires are inferred to have led to a further ~41% decline in the population size of the species, resulting in a total decline of 58% due to both drought and fire (Stewart *et al.* 2021; Stuart *et al.* 2021). High frequency fire has also been implicated in population declines of *Atrichornis rufescens*. Beyond the escarpment, in the Gibraltar Range and Carrai Plateau – once regarded as *A. rufescens* hotspots – recurrent fires appear to have led to the loss of the species a decade or more prior to the 2019–2020 fires (Gibraltar Range burnt in 2002 and 2014, and Carrai Plateau in 2003, 2007, 2009, and 2013; B. Hawkins *in litt.* July 2024). With limited dispersal ability and low reproduction rates, *A. rufescens* could take decades to recolonise unoccupied but suitable habitat in these central plateau areas from rainforest fire refugia as close as 5 km away (B. Hawkins *in litt.* July 2024).
13. Climate change projections indicate a future trend of increased fire weather and more frequent fires in southeast Australia (Dowdy *et al.* 2019; Jones *et al.* 2022). The Hunter, North Coast, and New England and North West regions in New South Wales and the Southern Downs and Scenic Rim LGAs in Queensland are projected to become hotter, have more high fire danger days, have more hot days over 35°C, have fewer cold nights under 2°C, and have a longer fire season by 2079 (BOM and CSIRO 2024; AdaptNSW 2024a; CSIRO 2024; The Long Paddock 2024). Regionally, time spent in drought is projected, with medium confidence, to increase over the course of the century (CSIRO 2024). Projections indicate increases in both the duration and frequency of extreme drought to 2070 (AdaptNSW 2024b; The Long Paddock 2024). It is plausible that these changes will lead to more frequent, intense, and severe fires, changes in fire season, reductions in habitat suitability, and increase the flammability of the species' habitat, which will in turn adversely affect the *Atrichornis rufescens* population in the future.
14. The rufous scrub-bird *Atrichornis rufescens* (Ramsay, 1866) is not eligible to be listed as a Critically endangered species.
15. The rufous scrub-bird *Atrichornis rufescens* (Ramsay, 1866) is eligible to be listed as an Endangered species as, in the opinion of the NSW Threatened Species Scientific Committee, it is facing a very high risk of extinction in Australia in the near 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:

The rufous scrub-bird *Atrichornis rufescens* was found to be Endangered under Clauses 4.2(1 b)(2 b,c) and 4.4(b)(d ii).

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Clause 4.2 – Reduction in population size of species

(Equivalent to IUCN criterion A)

Assessment Outcome: Endangered under Clause 4.2(1 b)(2 b,c)

(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: Vulnerable under Clause 4.3(c)(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)(d ii)

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: Not met

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
NSW Threatened Species Scientific Committee

Supporting Documentation:

Saunders M (2025) Conservation Assessment of *Atrichornis rufescens* (Ramsay, 1866) (Atrichornithidae). NSW Department of Climate Change, Energy, the Environment and Water.

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