

# NSW Threatened Species Scientific Committee

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## Notice and reasons for the Final Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016* (the Act), has made a Final Determination to list the frog, Sloane's Froglet *Crinia sloanei* Littlejohn (1958) as an ENDANGERED SPECIES in Part 2 of Schedule 1 of the Act and, as a consequence, to omit reference to *Crinia sloanei* Littlejohn (1958) from Part 3 of Schedule 1 (Vulnerable species) of the Act. Listing of Endangered species is provided for by Part 4 of the Act.

The NSW Threatened Species Scientific Committee is satisfied that Sloane's Froglet *Crinia sloanei* Littlejohn (1958) has been duly assessed by the Commonwealth Threatened Species Scientific Committee under the Common Assessment Method (DAWE 2022) and is eligible to be listed in accordance with section 4.4(4) of the Act on the basis of the risk of extinction in NSW. The acceptance of the Common Assessment Method is provided for in section 4.14 of the Act.

## Summary of Conservation Assessment

The NSW Threatened Species Scientific Committee accepts the assessment outcome of the Commonwealth Threatened Species Scientific Committee in its Conservation Advice for Sloane's Froglet *Crinia sloanei* Littlejohn (1958) (CTSSC 2019).

Sloane's Froglet *Crinia sloanei* Littlejohn (1958) was found to be Endangered in accordance with the following provisions in the *Biodiversity Conservation Regulation 2017*: Clause 4.3(b)(e)(ii)(iii)(iv)

The NSW Threatened Species Scientific Committee has found that:

1. Sloane's Froglet *Crinia sloanei* Littlejohn (1958) is a small ground-dwelling frog belonging to the family Myobatrachidae. Males average about 15.6 mm snout-to-vent length (SVL) in size, with females being slightly bigger at 17.6 mm SVL (Littlejohn 1958). The froglet has a brown or brownish-grey back often with darker brown or olive markings and males may also have orange- or ochre-coloured spots. The belly is white and peppered with small black spots. The throat of females is white, while breeding males have a greyish-green lower jaw and a pale grey throat. There is no webbing on the feet and toepads are absent. Eggs are pigmented and laid individually attached to blades of grass or other submerged vegetation. Tadpoles grow to 25 mm and are light grey or brown all over with scattered dark flecks (Anstis 2013; Knight 2013a). *Crinia sloanei* (Sloane's Froglet) Conservation Advice Page 2 of 10 Sloane's Froglet tadpoles are difficult to distinguish from those of *C. signifera* (Common Eastern Froglet) and *C. parinsignifera* (Plains Froglet) (Anstis 2013). Adult froglets are hard to see so they are best identified by their call. The male call is a distinctive sharp 'eahh', and the males usually call from shallow areas of wetland with thin stemmed vegetation (Knight 2013a). The appearance and call of Sloane's Froglet is similar to two other *Crinia* species (*C. parinsignifera* and *C. deserticola*), and it is likely that there have been considerable misidentifications and incorrect records for Sloane's Froglet in

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NSW (Spark 2015), particularly with *C. deserticola*, in the north of its range (NSW TSSC 2018).

2. Sloane's Froglet is endemic to the Murray-Darling Basin from where it has been recorded at widely scattered locations in north central Victoria and central western New South Wales. Nearly three quarters of database records are from the Riverina Bioregion which straddles southern New South Wales and Central Victoria, with a further 18 percent of records within the NSW South Western Slopes.
3. Sloane's Froglet has a highly restricted geographical distribution with an Extent of Occurrence (EOO) of 700 km<sup>2</sup> and an Area of Occupancy (AOO) of 90 km<sup>2</sup>. Historically, the distribution of Sloane's Froglet has contracted from extending throughout much of inland New South Wales and northern Victoria (an EOO of approximately 156,000 km<sup>2</sup>) to currently restricted to a very small area of New South Wales along a subsection of the Murray River: near Albury and Corowa and a series of disjunct populations at Wangaratta, Chiltern, Little Lake Charm Moodies Swamp near Cobram, Waggaradall and Murchison (D. Hunter pers. comm; unpublished data Department of the Environment and Energy 2017; FrogID 2023; Knight 2013a; Spark 2015).
4. Continuing decline has been estimated and is projected in its geographic distribution, number of locations, and the extent and quality of habitat from land clearing and development, intensive agricultural practices and extreme drought. Extensive surveys in 2013 only located the froglet at a few general locations and relatively large populations were only recorded in ponds and depressions found within rural residential or peri-urban areas in the Albury – Thurgoona, Howlong and Corowa - Wahgunyah and Rutherglen areas (Knight 2013b). The Albury – Thurgoona population in an ongoing state of decline with local extinctions at six areas where it would not be expected to recolonise due to ongoing habitat loss, degradation and isolation (D. Hunter pers. comm.). Ninety five percent of all Sloane's Froglets recorded since 2000 have been in these three stronghold areas. It is unclear why rural residential areas are the remaining stronghold of the species, but it may be related to the provision of dams and ponds in these areas, generally less intensive agricultural practices, and greater proportion of remnant wetland habitat areas.
5. Sloane's Froglet lives and breeds in temporary and permanent waterbodies including oxbows off creeks and rivers, farm dams, large and small natural wetlands, constructed frog ponds and temporary puddles. It prefers wetlands that contain riparian and aquatic vegetation. Most often it has been found in waterbodies that contain grasses and reeds that are of medium height and have small stem diameters, such as couch (*Elymus repens*), watercouch (*Paspalum pasplodes*) or the Common Spikerush (*Eleocharis acuta*). Waterbodies containing this type of vegetation are essential for Sloane's Froglet as it lays its eggs attached to vegetation (Knight 2013b). Gilgai and other depressions are favoured habitat on clay plains, while elsewhere they are generally restricted to temporary ponds in the river valley and up to 8 km on either side of large rivers (Littlejohn 1958). As well as requiring particular breeding habitat, like most amphibian species, Sloane's Froglet needs connections between breeding and refuge sites. The variable

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climate of inland Australia means that for Sloane's Froglet to survive it has to move across the landscape when it is wet. Sloane's Froglet uses roadside drains, table drains, irrigation channels and inundated grasslands to move from one area to another (Knight 2013b).

6. Sloane's Froglet habitat is strongly associated with ecological communities that have been listed nationally as Critically Endangered. They were listed because they are threatened by intensive agricultural land use and high rates of clearing. These are the Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains, the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. They are also known from the Endangered Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and the Derived Native Grasslands of South-eastern Australia ecological communities.
7. The peak calling time for males is from June to August, though they will also call throughout spring and after summer rains. Males usually call while floating in water of temporary ponds or shallow inundated areas connected to larger wetlands. Females lay small eggs individually and may lay fewer than 30 eggs in total. Hatching occurs 10 days after laying and metamorphosis may occur in late spring to autumn if breeding takes place in winter or spring (Anstis 2013). It is unknown whether a female may lay multiple clutches in a year. Preferred breeding sites are shallow natural or constructed pools to 20 cm depth containing emergent vegetation.
8. The generation length of Sloane's Froglet is unknown but is likely to be between 18 months and three years. A related species, *Crinia signifera*, is known to live for four years reaching sexual maturity in 18 months to two years (Bull and Williamson 1996).
9. Sloane's Froglet is threatened by habitat loss and degradation, agricultural chemicals, extreme drought and the Amphibian chytrid fungus. The entire known range of Sloane's Froglet occurs across highly cleared and developed landscapes with clearing rates amongst the highest for either NSW or Victoria. As a consequence, the natural habitat of this species has been substantially impacted (Knight 2013a). Remnant populations are subject to significant habitat loss and disturbance associated with agricultural clearing and ploughing and urban and industrial development (D. Hunter pers. comm; Knight 2013a). Over a decade of targeted conservation management for this species since has slowed the rate of decline from development in urban growth areas, particularly in the Albury area (D. Hunter pers. comm.).
10. Trampling or destruction of habitat by grazing and the deterioration of water quality in wetlands by stock is inferred to threaten this species with the distribution of Sloane's Froglet corresponding to the heaviest stock grazed environments in Australia.
11. Sloane's Froglets may be negatively impacted by the alteration to the natural flow regimes of rivers, streams, floodplains and wetlands. The species' natural range occurs in the Murray Darling Basin the location of the most highly regulated and

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altered river system in Australia. Major dams occur in all catchments where Sloane's Froglet occurs or has occurred. Specific factors likely to impact the frogs include loss of wetlands associated with removal of water for irrigation and lowered water tables.

12. Severe drought is inferred to have contributed to the broad scale decline of Sloane's Froglet. The susceptibility of Sloane's Froglet to extreme drought is exacerbated by ongoing habitat degradation and fragmentation where this species historically occurred.
13. The application of fungicides, fertilisers, herbicides and pesticides to land adjoining known frog populations poses the risk of these entering and contaminating habitat areas or causing direct harm to the individual animals. Many frog species are sensitive to commonly used agricultural chemicals (Mann *et al.* 2009).
14. *Chytridiomycosis* is an infectious disease caused by the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) that affects amphibians worldwide, causing mass die-offs and some species extinctions (DoEE 2016). It has been detected in Sloane's Froglet and tests of 14 individual Sloane's Froglets from Thurgoona and Corowa undertaken in 2011 showed that 10 tested positive, a high rate of infection. However, it is difficult to know what influence the pathogen is having without recorded mortalities and noting that some species of frog have been shown to persist despite high rates of chytrid infection (Retallick *et al.* 2004; Riley *et al.* 2013).
15. Sloane's Froglet *Crinia sloanei* Littlejohn (1958) is not eligible to be listed as a Critically Endangered species.
16. Sloane's Froglet *Crinia sloanei* Littlejohn (1958) 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*:

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## Assessment against *Biodiversity Conservation Regulation 2017* criteria

The Clauses used for assessment are listed below for reference.

**Overall Assessment Outcome: Endangered under Clause 4.3(b)(e)(ii)(iii)(iv)**

### Clause 4.2 – Reduction in population size of species

**(Equivalent to IUCN criterion A)**

**Assessment Outcome: Data deficient OR Not met**

<b>(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:</b>			
	(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.
<b>(2) - The determination of that criteria is to be based on any of the following:</b>			
	(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: Endangered under Clause 4.3(b)(e)(iii)(iv)**

<b>The geographic distribution of the species is:</b>			
	(a)	for critically endangered species	very highly restricted, or
	(b)	for endangered species	highly restricted, or
	(c)	for vulnerable species	moderately restricted.
<b>and at least 2 of the following 3 conditions apply:</b>			
	(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 Clause C)**

**Assessment Outcome: Data deficient**

<b>The estimated total number of mature individuals of the species is:</b>			
	(a)	for critically endangered species	very low, or
	(b)	for endangered species	low, or
	(c)	for vulnerable species	moderately low.
<b>and either of the following 2 conditions apply:</b>			
	(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: Data deficient**

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

**Clause 4.6 – Quantitative analysis of extinction probability (Equivalent to IUCN criterion E)**

**Assessment Outcome: Data Deficient**

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

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## Clause 4.7 – Very highly restricted geographic distribution of species–vulnerable species

(Equivalent to IUCN criterion D2)

**Assessment Outcome: Clause 4.7 is 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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Senior Professor Kristine French  
Chairperson  
NSW Threatened Species Scientific Committee

### Supporting Documentation:

Cth TSSC (2019) Conservation Advice *Crinia sloanei* (Sloane's Froglet). Available at: <https://www.environment.gov.au/biodiversity/threatened/species/pubs/59151-conservation-advice-04072019.pdf> (accessed on 15 December 2022)

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Department of the Environment and Energy (2016). Threat abatement plan for infection of amphibians with chytrid fungus resulting in chytridiomycosis, Commonwealth of Australia 2016. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/infection-amphibians-chytrid-fungus-resulting-chytridiomycosis-2016>

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FrogID (2023) FrogID dataset 3.0. Available at: <https://www.frogid.net.au/explore> (accessed on 2 February 2023)

Knight A (2013a) The distribution of Sloane's froglet, *Crinia sloanei*, in southern NSW and northern Victoria: a review of historical distribution records and results from surveys undertaken from 2010 to 2013. Institute of Land, Water and Society, Charles Sturt University Albury.

Knight A (2013b) Sloane's Froglet, *Crinia sloanei*- Fact sheet. Albury Conservation Company, Albury.

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- Spark P (2015). Survey of eight wildlife atlas locations for Sloane's froglet -*Crinia sloanei* between Dubbo and Mungindi. Office of Environment and Heritage (NSW).