

# NATIVE FAUNA OF THE GREATER BLUE MOUNTAINS WORLD HERITAGE AREA

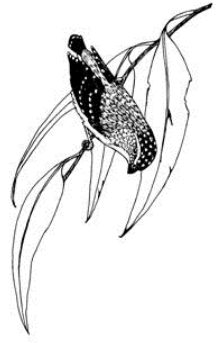


**FROGS**

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# **NATIVE FAUNA OF THE GREATER BLUE MOUNTAINS WORLD HERITAGE AREA**

## **FROGS**

**Version 5**

**Judy Smith and Peter Smith**

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**Australian Government**

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Cover illustration of Blue Mountains Tree Frog by Kate Smith [katesmithart@gmail.com](mailto:katesmithart@gmail.com)

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### Introduction

The Greater Blue Mountains World Heritage Area comprises eight reserves: Blue Mountains, Gardens of Stone, Kanangra-Boyd, Nattai, Thirlmere Lakes, Wollemi and Yengo National Parks, and Jenolan Karst Conservation Reserve. The area was inscribed on the World Heritage List in 2000 because its natural values, including the diversity of its fauna, were considered to be outstanding at international level.

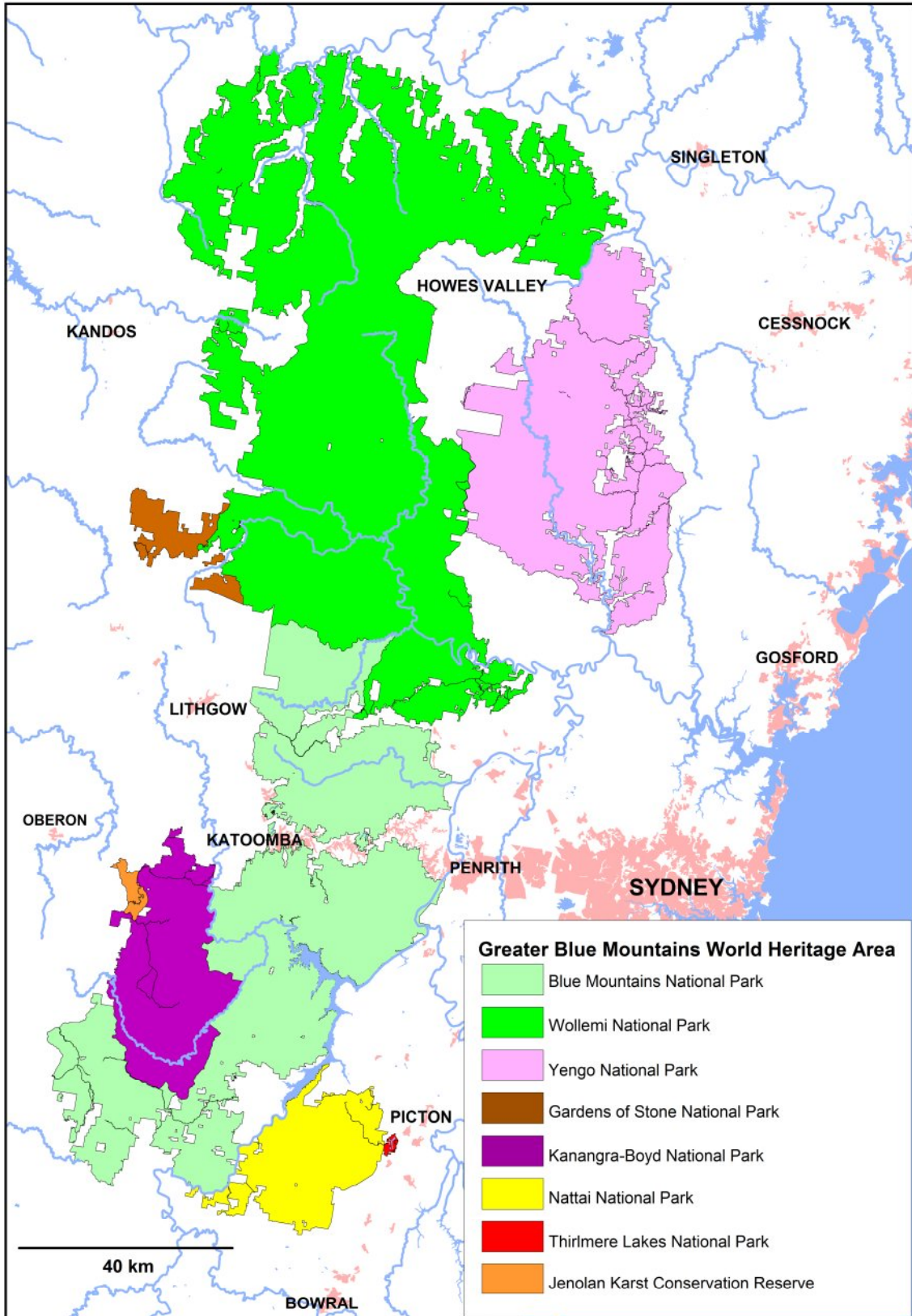
In 1998, when the nomination of the Greater Blue Mountains Area for inscription on the World Heritage List was prepared for the Australian Government, it was well known that the area provided habitat for a wide variety of mammals, birds, reptiles and frogs. However, details of the vertebrate fauna were sketchy. The nomination indicated that about 400 native terrestrial vertebrate fauna species had been recorded in the area, including 52 mammal, 265 bird, 63 reptile and more than 30 frog species.

Over the last few years, in an attempt to gain a clearer understanding of the vertebrate fauna, we have prepared four annotated checklists, one each for the native mammals, birds, reptiles and frogs in the Greater Blue Mountains World Heritage Area. The four checklists document the species that we consider to have been reliably recorded in each of the eight constituent reserves since the time of European settlement. Details of their conservation status at national and state level, and their habitat, distribution and relative abundance in the World Heritage Area are provided for each species.

The checklists indicate that at least 432 native terrestrial vertebrate fauna species have been recorded in the Greater Blue Mountains World Heritage Area. This number includes 36 frog species, one of which is represented by two subspecies. Seven are threatened species. At least five species have shown marked declines in the WHA in recent times. A major factor in the declines is a global epidemic of a frog disease caused by a chytrid fungus (NSW Scientific Committee 2003).

There are still many gaps in our knowledge of the fauna of the Greater Blue Mountains World Heritage Area. Updating the checklists is an on-going process. If you have additional records or other information, your feedback would be very welcome.

Judy and Peter Smith



## Native frog species recorded in the Greater Blue Mountains World Heritage Area

Status in NSW and Commonwealth legislation: E = endangered, V = vulnerable

GBMWA reserves: BMNP = Blue Mountains National Park, GOSNP = Gardens of Stone National Park, JKCR = Jenolan Karst Conservation Reserve, KBNP = Kanangra-Boyd National Park, NNP = Nattai National Park, TLNP = Thirlmere Lakes National Park, WNP = Wollemi National Park, YNP = Yengo National Park

Species nomenclature follows Cogger (2014). 'Recent' records are 2000 or later, otherwise the date of the last record is specified.

Common name	Scientific name	Family	Status		Records in Greater Blue Mountains World Heritage Area reserves								
			NSW	Aus	BMNP	GOSNP	JKCR	KBNP	NNP	TLNP	WNP	YNP	
Tusked Frog	<i>Adelotus brevis</i>	Limnodynastidae			recent							recent	
Giant Burrowing Frog	<i>Heleioporus australiacus</i>	Limnodynastidae	V	V	recent				1959			recent	recent
Fletcher's Frog	<i>Lechriodus fletcheri</i>	Limnodynastidae										1997	
Eastern Banjo Frog	<i>Limnodynastes dumerilii</i> subspecies <i>dumerilii</i> subspecies <i>grayi</i>	Limnodynastidae			recent recent	recent		recent		recent	recent	recent	recent
Brown-striped Frog	<i>Limnodynastes peronii</i>	Limnodynastidae			recent		recent	1997	recent	recent	recent	recent	recent
Spotted Grass Frog	<i>Limnodynastes tasmaniensis</i>	Limnodynastidae			recent	recent	recent	recent				recent	
Sudell's Frog	<i>Neobatrachus sudelli</i>	Limnodynastidae										recent	
Ornate Burrowing Frog	<i>Platyplectrum ornatum</i>	Limnodynastidae										recent	recent
Common Eastern Froglet	<i>Crinia signifera</i>	Myobatrachidae			recent	recent	recent	recent	recent	recent	recent	recent	recent
Stuttering Frog	<i>Mixophyes balbus</i>	Myobatrachidae	E	V	recent		1974			1973		recent	
Great Barred Frog	<i>Mixophyes fasciolatus</i>	Myobatrachidae										recent	recent
Giant Barred Frog	<i>Mixophyes iteratus</i>	Myobatrachidae	E	E	1967							recent	
Haswell's Froglet	<i>Paracrinia haswelli</i>	Myobatrachidae									recent		
Red-crowned Toadlet	<i>Pseudophryne australis</i>	Myobatrachidae	V		recent					recent	recent	recent	recent
Brown Toadlet	<i>Pseudophryne bibronii</i>	Myobatrachidae			recent	recent	1979	recent	recent	1997	recent	recent	recent
Dusky Toadlet	<i>Uperoleia fusca</i>	Myobatrachidae			recent							recent	recent
Smooth Toadlet	<i>Uperoleia laevigata</i>	Myobatrachidae			recent		pre 1950	1997	recent			recent	recent
Tyler's Toadlet	<i>Uperoleia tyleri</i>	Myobatrachidae								undated			
Green and Golden Bell Frog	<i>Litoria aurea</i>	Hylidae	E	V									1963
Booroolong Frog	<i>Litoria booroolongensis</i>	Hylidae	E	E				1998				1980	
Green Tree Frog	<i>Litoria caerulea</i>	Hylidae				recent						recent	recent
Red-eyed Tree Frog	<i>Litoria chloris</i>	Hylidae										recent	recent
Blue Mountains Tree Frog	<i>Litoria citropa</i>	Hylidae			recent		pre 2000	recent	recent	1969	recent		

Common name	Scientific name	Family	Status		Records in Greater Blue Mountains World Heritage Area reserves							
			NSW	Aus	BMNP	GOSNP	JKCR	KBNP	NNP	TLNP	WNP	YNP
Bleating Tree Frog	<i>Litoria dentata</i>	Hylidae			recent	recent		recent	recent	recent	recent	recent
Brown Tree Frog	<i>Litoria ewingii</i>	Hylidae			recent							
Eastern Dwarf Tree Frog	<i>Litoria fallax</i>	Hylidae			recent				recent	recent	recent	recent
Freycinet's Frog	<i>Litoria freycineti</i>	Hylidae										1997
Broad-palmed Frog	<i>Litoria latopalmata</i>	Hylidae			recent	recent					recent	recent
Lesueur's Frog	<i>Litoria lesueuri sens. str.</i>	Hylidae			recent	recent					recent	recent
Littlejohn's Tree Frog	<i>Litoria littlejohni</i>	Hylidae	V	V	recent			pre 2000			recent	
Leaf Green River Tree Frog	<i>Litoria nudidigita</i>	Hylidae			recent		recent	recent				
Peron's Tree Frog	<i>Litoria peronii</i>	Hylidae			recent	recent		recent	recent	recent	recent	recent
Leaf Green Tree Frog	<i>Litoria phyllochroa sens. str.</i>	Hylidae			recent	recent	recent	recent	recent		recent	recent
Tyler's Tree Frog	<i>Litoria tyleri</i>	Hylidae			recent					recent	recent	recent
Verreaux's Tree Frog	<i>Litoria verreauxii verreauxii</i>	Hylidae			recent	recent	recent	recent	recent	recent	recent	
Wilcox's Frog	<i>Litoria wilcoxi</i>	Hylidae			recent	recent	recent	recent	recent		recent	recent



## **Native Frog Species Recorded in the Greater Blue Mountains World Heritage Area**

Species nomenclature follows Cogger (2014). The reserves in which each species has been recorded are listed: Blue Mountains (BM), Gardens of Stone (GOS), Kanangra-Boyd (KB), Nattai (N), Thirlmere Lakes (TL), Wollemi (W) and Yengo (Y) National Parks and Jenolan (J) Karst Conservation Reserve. Unless otherwise indicated, there are recent records from each reserve listed. 'Recent' records are 2000 or later. If there are no recent records for a reserve, the date of the last record is shown. Status refers to threatened species listings under NSW and Commonwealth legislation. Terminology for vegetation types follows Keith (2004).

### **Family LIMNODYNASTIDAE**

#### **Tusked Frog *Adelotus brevis***

Reserves: BM, W

Rare resident at southern edge of its range. Typically associated with permanent or semi-permanent ponds and watercourses in wet sclerophyll forest and rainforest. Has declined greatly in recent years at higher elevations in northern NSW (Anstis 2013). Recent records (2007) and older ones (1977-78) from south-eastern Wollemi NP between Angorawa Creek and Culoul Range (DECC 2008b and Australian Museum specimens). Recorded in Blue Mountains NP from a 1977 sighting at Euroka Clearing (BioNet Atlas record) and from calls heard at Blue Gum Swamp Creek in 2007 and 2017 (Darryl McKay). Recorded in the past in or near Blue Mountains NP at Springwood (Moore 1961).

#### **Giant Burrowing Frog *Heleioporus australiacus***

**Status: vulnerable (NSW and Commonwealth)**

Reserves: BM, KB (1959), W, Y

Uncommon resident with a localised distribution. More common at lower elevations and most frequently recorded in north-east of WHA. Reaches the western and northern limits of its distribution at the western escarpment of the Blue Mountains and the southern escarpment of the Hunter Valley. A burrowing frog that in the Sydney Basin is typically associated with streams in sandstone forests, but may also occur in upland swamps. More common in the Sydney Basin in the past (Anstis 2013).

Recent records include vicinity of Linden Creek and Donnas Track (Blue Mountains NP); Hayes Creek, Reubens Fire Trail, Tootie Creek, Angorawa Creek, Grassy Hill Track, Mt Coricudgy, Myrtle Creek, Cottage Creek, Numietta Creek, Gaspers Creek, and between Little Tootie and Bowen Hill (Wollemi NP); and Old Bulga Road and Partridge Creek (Yengo NP). Older records in or near Blue Mountains NP include Buralow Creek, Murphys Glen, Williams Ridge, Hazelbrook, Lawson and Leura (Smith and Smith 1990). Only record from Kanangra-Boyd NP an Australian Museum specimen collected at Kanangra Walls in 1959.

### **Fletcher's Frog *Lechriodus fletcheri***

Reserves: W (1997)

Rare resident at southern edge of its range. Usually associated with wet sclerophyll forest and rainforest, breeding in small temporary ponds and in still pools along small creeks. Recorded in 1997 in the vicinity of Hunter Main Trail about 1.5 km east of Three Ways in north-eastern Wollemi NP (DEC 2005a). This population may be disjunct from the main distribution of the species. The closest known populations are at Barrington Tops and Mount Royal (90 km to north-east) and at the Watagans (70 km to south-east).

### **Eastern Banjo Frog *Limnodynastes dumerilii dumerilii* and *L. dumerilii grayi***

Reserves: BM, GOS, J, KB, N, TL, W, Y

Common, widespread resident recorded from every WHA reserve. Most frequently recorded in Wollemi, Blue Mountains and Yengo NPs. May be found in various habitats, including disturbed habitats such as farmland. Breeds in permanent or semi-permanent ponds and stream pools. Recent records include vicinity of Coco and Airly Creeks, Carne Creek and Glow Worm Tunnel Road (Gardens of Stone NP); Angorawa Creek, Bylong Creek, Blackwater Creek, Lee Creek and Ganguddy Creek (Wollemi NP); and Old Bulga Road, Putty Road, Darkey Creek and Partridge Creek (Yengo NP).

Two subspecies, *dumerilii* and *grayi*, have been recorded within the WHA, but there is some uncertainty about their relative distributions and abundance. Both subspecies have been reported widely in the WHA, from south to north and at both lower and higher elevations (e.g. DEC 2005a, DEC 2005b, DEC 2007, DECC 2008a, OEH 2012a, OEH 2012b). In some cases, both subspecies have been recorded at the same location, e.g. Ganguddy Creek in Wollemi NP (DEC 2007) and Old Bulga Road in Yengo NP (DEC 2005b). Subspecies *grayi* is at the western limit of its distribution.

### **Brown-striped Frog *Limnodynastes peronii***

Reserves: BM, J, KB (1997), N, TL, W, Y

Common, widespread resident, recorded from all WHA reserves except Gardens of Stone NP. Found within the WHA in association with permanent or temporary ponds, still stream pools and former farm dams. Also commonly found around human habitation on the fringes of the WHA.

### **Spotted Grass Frog *Limnodynastes tasmaniensis***

Reserves: BM, GOS, J, KB, W

Uncommon resident, more frequent in western part of WHA. Typically associated with open grassy habitats, natural or cleared, breeding in permanent or temporary ponds and marshy areas.



### **Sudell's Frog *Neobatrachus sudelli***

Reserves: W

Rare resident. A species of western NSW that is at the eastern edge of its range. A burrowing frog associated with grassy woodland and shrub/grass dry sclerophyll forest. Breeds in marshy areas and in permanent or temporary ponds. Recorded in 2004 on the boundary of Wollemi NP in the Doyles Creek valley following heavy rain (DEC 2005a).

### **Ornate Burrowing Frog *Platyplectrum ornatum***

Reserves: W, Y

Uncommon resident. At southern edge of its range in coastal NSW (occurs further south on western side of Great Dividing Range). A burrowing frog found in a variety of habitats, both natural and disturbed, breeding in permanent or temporary ponds, puddles and marshy areas. Recorded from various locations in Wollemi and Yengo NPs.

## **Family MYOBATRACHIDAE**

### **Common Eastern Froglet *Crinia signifera***

Reserves: BM, GOS, J, KB, N, TL, W, Y

Common resident. Easily the most abundant frog across the WHA, recorded in all reserves. Found in most habitats, breeding in temporary or permanent ponds, puddles, marshy areas and stream pools. Calls throughout the year.

### **Stuttering Frog *Mixophyes balbus***

**Status: endangered (NSW); vulnerable (Commonwealth)**

Reserves: BM, J (1974), N (1973), W

Rare resident at the western edge of its range. Associated with flowing streams, typically in wet sclerophyll forest or rainforest. The southern form (south from Barrington Tops – the form that occurs in the WHA), which may be a separate species, has declined greatly in recent times, while the northern form (north from Barrington Tops) has been more stable (Anstis 2013).

The few recent records include the Mt Werong area (Blue Mountains NP) in 2001-04 (BioNet Atlas) and 2018 (Australian Museum specimen), where it occurs in both east-flowing and west-flowing streams. Also sighted at Victoria Falls (Blue Mountains NP) in 2002 but subsequent surveys have failed to relocate the species at that location (DECC 2008a). Other recent records have come from Wollemi NP at Blackwater Creek in 2005 and Canobla Creek in 2007 (BioNet Atlas). The Blue Mountains NP and Wollemi NP populations are the only known extant high elevation populations south of the Hunter Valley.

The species was formerly more common and widespread in the WHA region, recorded in Nattai NP in 1973 and Jenolan KCR in 1974 (Australian Museum specimens). Other old (pre-1990) records in or near the WHA include Kurrajong Heights, Blue Gum Swamp Creek, Faulconbridge, Linden, upper Grose River, Mount Irvine, Mount Wilson, Newnes Plateau

and the Coxs River Valley (Smith and Smith 1990). Few recent records and the species may now be on the verge of local extinction.

### **Great Barred Frog *Mixophyes fasciolatus***

Reserves: W, Y

Rare resident at western edge of its range. Associated with riparian rainforest and wet sclerophyll forest, breeding in stream pools and permanent ponds. Recorded in 2005 in Parsons Creek at the junction of Wollemi and Yengo NPs (DEC 2005a), and in Darkey Creek in Yengo NP (DEC 2005b).

### **Giant Barred Frog *Mixophyes iteratus***

**Status: endangered (NSW and Commonwealth)**

Reserves: BM (1967), W

Rare resident at southern edge of its range. Associated with riparian rainforest and wet sclerophyll forest, breeding in permanent or semi-permanent stream pools. Recorded in 2014 at the Colo River in Wollemi NP (Matt McCaffery). A series of specimens at the Australian Museum was collected in 1967 in the Explorers Range area of Blue Mountains NP. Antis (2013) mentions Warrimoo as the southern limit of the species.

### **Haswell's Frog *Paracrinia haswelli***

Reserves: TL

Rare, recorded at Thirlmere Lakes NP in 1997 during a National Parks and Wildlife Service fauna survey (BioNet Atlas) and in 2001 (Australian Museum specimen). A coastal species at the western edge of its range. Inhabits swamps, heath and shrubby dry sclerophyll forest, breeding in marshy areas and in permanent or temporary ponds.

### **Red-crowned Toadlet *Pseudophryne australis***

**Status: vulnerable (NSW)**

Reserves: BM, N, TL, W, Y

Common resident, recorded widely in Hawkesbury and Narrabeen sandstone areas of WHA. The species has a restricted distribution, confined to the Sydney Basin. Reaches the western and northern limits of its distribution at the western escarpment of the Blue Mountains and the southern escarpment of the Hunter Valley. Forms small colonies in temporary watercourses and soaks on sandstone ridges and slopes, and in the headwaters of creeks. Found on both Hawkesbury and Narrabeen sandstones. In Wollemi NP it has been recorded in seepage areas at the base of pagoda formations. Also found occasionally in other habitats including volcanic diatremes, deep sandy alluvium and rainforest.

### **Brown Toadlet *Pseudophryne bibronii***

Reserves: BM, GOS, J (1979), KB, N, TL (1997), W, Y

Moderately common resident, recorded in every WHA reserve. The lowland form of the species appears to be declining, but the highland form appears to be more stable. Typically associated with areas of higher soil fertility, breeding in permanent or temporary ponds, soaks and creeks. Rarely found in sandstone habitats. The highland form is common in Kanangra-Boyd NP, while the Burragorang and Nattai Valleys provide refuges for the lowland form (DECC 2007b). Other recent localities include Crown Creek and Glow Worm Tunnel Road (Gardens of Stone NP); Gibba Swamp, Culoul Range, Gospers Creek (Wollemi NP); Pierces Hole, Mount Yengo, Wallabadah Valley (Yengo NP); and Murrui Range (Blue Mountains NP). Specimens were collected in Jenolan KCR in the past (Australian Museum specimens 1969-79) but no recent records.

### **Dusky Toadlet *Uperoleia fusca***

Reserves: BM, W, Y

Rare resident at southern limit of its distribution. Appears to favour wet sclerophyll forest but also occurs in other habitats, including farmland. Breeds in marshy areas and permanent or temporary ponds. Restricted to north-eastern part of WHA, where it has been recorded from scattered locations. One recent location at the southern end of its distribution is Vale of Avoca (Blue Mountains NP close to adjacent farmland).

### **Smooth Toadlet *Uperoleia laevis***

Reserves: BM, J (pre 1950), KB (1997), N, W, Y

Uncommon, widespread resident. Appears to favour dry sclerophyll forest and grassy woodland. Also occurs in farmland. Breeds mostly in permanent ponds and may be found in former farm dams within the WHA. Only known in Jenolan KCR from an undated Australian Museum specimen collected before 1950, probably many years before.

### **Tyler's Toadlet *Uperoleia tyleri***

Reserves: TL (undated)

Rare, only known within the WHA from an undated Australian Museum specimen collected at Thirlmere Lakes, where it is at the western limit of its distribution. Occurs in various habitats, breeding in permanent or temporary ponds and in swamps.

## **Family HYLIDAE**

### **Green and Golden Bellfrog *Litoria aurea***

**Status: endangered (NSW); vulnerable (Commonwealth)**

Reserves: Y (1963)

Likely to be extinct in WHA. Only record is two specimens at the Queensland Museum

collected in 1963 about 35 km north of Wisemans Ferry in what is now Yengo NP. The species has declined dramatically throughout its range (Anstis 2013). It was once a common frog in the Sydney region but now only small isolated populations remain (White and Pyke 1996). Found in ponds, marshy areas or along watercourses, especially where there are bulrushes or spikerushes.

### **Booroolong Frog *Litoria booroolongensis***

**Status: endangered (NSW and Commonwealth)**

Reserves: KB (1998), W (1980)

Rare resident found along rocky watercourses. Has declined in east-flowing streams and is now found mainly west of the Great Dividing Range. At eastern edge of its range. There have been drastic declines in northern NSW since the 1980s and the species also appears to be declining in the southern parts of its range (Anstis 2013). Recorded from Wollemi Creek and Simpson Gorge (Wollemi NP) in 1979-80 and Morong Falls (Kanangra-Boyd NP) in 1976 (Australian Museum specimens). Also recorded from Beefsteak Creek and Little River in Kanangra-Boyd NP in 1998 (DEC 2004a). There appear to have been no records within the WHA since then. In the 1980s, it was considered moderately common in the Coxs River Valley, including Kanimbla and Megalong Valleys (Smith and Smith 1990).

### **Green Tree Frog *Litoria caerulea***

Reserves: GOS, W, Y

Rare resident in the three northernmost reserves of the WHA. May once have occurred in the south of the WHA as well, but no records found. The species is declining in the Greater Southern Sydney region, where it is now extremely rare and a species of high conservation priority (DECC 2007b). Found in a variety of habitats, including built structures, breeding in still water bodies, large or small, permanent or temporary, natural or artificial. Recent locations include Coco Creek, Crown Creek and Halfway Hollow (Gardens of Stone NP), and Gibba Swamp and New Blue Gum Creek (Wollemi NP).

### **Red-eyed Tree Frog *Litoria chloris***

Reserves: W, Y

Rare resident at southern edge of its range. Typically associated with wet sclerophyll forest and rainforest, living in trees and coming down to breed in temporary or permanent ponds and stream pools. Recorded from north-eastern corner of Wollemi NP in 1997 (Raspberry Junction) and 2005 (Hayes Creek) (DEC 2005a). Also recorded in Yengo NP in 2016 (George Madani).

### **Blue Mountains Tree Frog *Litoria citropa***

Reserves: BM, J (pre 2000), KB, N, TL (1969), W

Moderately common resident at northern edge of its range. Despite the name, the species has

a distribution extending beyond the Blue Mountains to eastern Victoria. Found at scattered locations in the WHA near permanent bodies of either still or flowing water, typically in sandstone geology. Recent records include Blackwater, Ovens and Numietta Creeks (Wollemi NP), and Galong and Sliprail Creeks (Blue Mountains NP). Australian Museum specimens are the only records for Jenolan KCR (two undated specimens collected before 2000) and Thirlmere Lakes NP (1969 specimen).

### **Bleating Tree Frog *Litoria dentata***

Reserves: BM, GOS, KB, N, TL, W, Y

Moderately common, widespread resident recorded from every reserve except Jenolan KCR. More common at lower elevations. Found beside permanent or temporary ponds, streams and swamps, and also in trees well away from water.

### **Brown Tree Frog *Litoria ewingii***

Reserves: BM

Rare resident at northern edge of its range. Found in a variety of habitats, often well away from water, but breeding in temporary or permanent ponds and stream pools. Recorded in the higher parts of southern Blue Mountains NP in the Bindook Creek area in 2003-04 (DECC 2007a) and at Wombeyan Falls in 2016 (Judy and Peter Smith).

### **Eastern Dwarf Tree Frog *Litoria fallax***

Reserves: BM, N, TL, W, Y

Moderately common resident at western edge of its range. Associated with permanent or semi-permanent ponds and swamps. Typically found in lower elevation sites on eastern side of WHA, such as Burralow Swamp and Euroka Clearing (Blue Mountains NP), and Wheeny Creek (Wollemi NP), but also occurs in the Wolgan and Capertee Valleys on the western side of Wollemi NP.

### **Freycinet's Frog *Litoria freycineti***

Reserves: Y (1997)

Rare resident at western edge of its range. The only record is from Finchley Campground (Yengo NP) in a National Parks and Wildlife Service fauna survey in 1997 (BioNet Atlas). Associated with swamps, watercourses and temporary ponds in either heath or forest.

### **Broad-palmed Frog *Litoria latopalmata***

Reserves: BM, GOS, W, Y

Moderately common resident in northern half of WHA. At southern edge of its range in coastal NSW (occurs further south on western side of Great Dividing Range). Associated with

permanent or semi-permanent ponds, swamps and watercourses, and may also be found well away from water.

### **Lesueur's Frog *Litoria lesueuri sens. str.***

Reserves: BM, GOS, W, Y

Moderately common resident at northern edge of its range. Typically found along rocky, shady watercourses. *Litoria lesueuri* was formerly a more broadly defined species, but has recently been split into two separate species, *L. lesueuri sens.str.* and *L. wilcoxi* (Donnellan and Mahony 2004). *L. lesueuri sens.str.* has a more southerly distribution and *L. wilcoxi* a more northerly distribution. The two species overlap in the WHA and have been recorded together, for example, at McDonald River in Yengo NP. However, there is uncertainty about their relative distributions since older *L. lesueuri* records could be either species. There is also uncertainty about how reliably the two species can be distinguished on morphological features. *L. lesueuri sens.str.* has been identified genetically from Glenbrook Creek in Blue Mountains NP (Donnellan and Mahony 2004), and morphologically from three other WHA reserves.

### **Littlejohn's Tree Frog *Litoria littlejohni***

**Status: vulnerable (NSW and Commonwealth)**

Reserves: BM, KB (pre 2000), W

Rare resident at western edge of its range. Found in upland swamps, temporary or permanent ponds, and along watercourses. Recent localities include a tributary of Bowen Creek in Wollemi NP (DECC 2008b), and Ingar Swamp in Blue Mountains NP (DECC 2007b). Specimens were collected between Bell and Mount Tomah (Blue Mountains NP) in 1962 (Queensland Museum) and 1972 (Australian Museum), and there are old, undated specimens from Kanangra-Boyd NP (Australian Museum). Recorded recently just west of Blue Mountains NP near Dargan (Grant Webster).

### **Leaf Green River Tree Frog *Litoria nudidigita***

Reserves: BM, J, KB

Rare resident at higher elevations at southern end of WHA. At northern edge of its range. Associated with flowing streams, mostly in forested areas. Only recently recognised as a separate species; formerly included in *L. phyllochroa* (Donnellan *et al.* 1999). Recorded from Jenolan River in Jenolan KCR (David Coote), from Morong Creek and Spring Creek in Kanangra-Boyd NP (DEC 2004a), and from Mt Werong Creek and Abercrombie River in the south-western corner of Blue Mountains NP (DECC 2007a).

### **Peron's Tree Frog *Litoria peronii***

Reserves: BM, GOS, KB, N, TL, W, Y

Common, widespread resident, recorded from every WHA reserve except Jenolan KCR.



More common at lower elevations. Breeds in permanent or semi-permanent ponds and stream pools. Often calls and shelters in tree hollows well away from water. Also common in adjacent urban and rural areas, breeding in farm dams and garden ponds.

**Leaf Green Tree Frog *Litoria phyllochroa sens. str.***

Reserves: BM, GOS, J, KB, N, W, Y

Common, widespread resident, recorded from every WHA reserve except Thirlmere Lakes NP. At southern edge of its range. Associated with flowing streams, mostly in shady, forested areas. *Litoria phyllochroa* was formerly a more broadly defined species with northern and southern forms with different calls. These were distinguished as two separate species in 1999: *L. phyllochroa sens. str.* (northern form) and *L. nudidigita* (southern form). The two species overlap in the WHA and earlier records of *L. phyllochroa* may include *L. nudidigita*. Subsequent records suggest that *L. phyllochroa sens. str.* is much more common and widespread in the WHA than *L. nudidigita*.

**Tyler's Tree Frog *Litoria tyleri***

Reserves: BM, GOS, TL, W, Y

Uncommon resident at the western edge of its range. Mainly found in the eastern half of the WHA, but also in the Wolgan Valley (Gardens of Stone NP) on the western side of the WHA. Usually found near permanent or semi-permanent ponds, swamps and watercourses.

**Verreaux's Tree Frog *Litoria verreauxii verreauxii***

Reserves: BM, GOS, J, KB, N, TL, W

Common, widespread resident recorded from every WHA reserve except Yengo NP. Associated with permanent or semi-permanent ponds, swamps and watercourses in a variety of vegetation types. One of the few frog species to call in winter, when it may be heard even at higher elevations.

**Wilcox's Frog *Litoria wilcoxi***

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common resident at southern edge of its range. Typically breeds along rocky watercourses, but tends to move away from watercourses in winter. *Litoria wilcoxi* has only recently been distinguished as a separate species from *L. lesueuri* (Donnellan and Mahony 2004). Recent records, distinguishing between the two species morphologically, suggest that *L. wilcoxi* is the more common, more widespread species in the WHA, but there is uncertainty about how reliably they can be distinguished on morphological features, especially in the WHA, where their distributions overlap (Donnellan and Mahony 2004).

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### **Online Databases**

Records from these databases were treated with caution. Any records that we considered doubtful were ignored.

NSW BioNet Atlas (formerly Atlas of NSW Wildlife) (<http://www.bionet.nsw.gov.au>). Last checked December 2018.

Atlas of Living Australia (<http://www.ala.org.au>). Incorporates records from many sources, including specimen records from Australian and international museums. Last checked December 2018.

Online Zoological Collections of Australian Museums (OZCAM) (<http://ozcam.org.au>). Mainly consulted for further information on museum records in the Atlas of Living Australia.

### ***People***

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