REPTILES & AMPHIBIANS

Reptiles and Amphibians on a University Campus in a Peri-urban Area of Sydney, New South Wales, Australia

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Photographs by the author.

Abstract.—Building upon a previous species inventory published in 2004 and based on observations between 2008 and 2011, I herein describe the reptile and amphibian assemblage on a university campus in the northwestern corner of the Sydney metropolitan area, Australia, recording 26 species of reptiles in nine families (Chelidae, Agamidae, Carphodactylidae, Scincidae, Varanidae, Typhlopidae, Colubridae, Elapidae, Pythonidae) and 13 species of amphibians in three families (Pelodryadidae, Limnodynastidae, Myobatrachidae). Included are records of the Macquarie Turtle (*Emydura macquarii*) and Eastern Water Dragon (*Intellagama lesueurii lesueurii*), neither of which were considered indigenous to the campus in the previous inventory, and one observation of two Ornate Burrowing Frogs (*Platyplectrum ornatum*), which previously were thought to be only historically present at the site. Seven species predicted to be present on the campus by the previous inventory were confirmed by observations in this study. These observations demonstrate how green spaces on the periphery of one of the world's largest cities can harbor a diverse assemblage of reptiles and amphibians.

Sydney is the most populous city in Australia (Easthope and Randolph 2009). Current estimates place the population of Sydney at over 5 million residents, equating to more than 60 percent of the population of New South Wales. Rapid population increase and a long history of industrial activity have resulted in extensive land use change since the beginning of European settlement (Birch et al. 2015; Reid 2020). The Sydney metropolitan area covers 12,367 km^2, within which lie contrasting heavily developed areas in the inner city and large tracts of remnant natural areas and peri-urban areas at the peripheries. A large proportion of the Sydney metropolitan area comprises the Cumberland Plain, a relatively flat biogeographic region west of the Sydney central business district and surrounded by extensive sandstone plateaus such as the Blue Mountains and Hornsby Plateau. The region is characterized by low rolling hills and wide valleys supporting grassy eucalyptus woodlands on shale-derived soils (Wilkins et al. 2003). With more than 90% of the woodlands cleared for agriculture and urban development (Benson and Howell 1990), this resembles the pattern observed in other major cities (Z. Liu et al. 2016). Thus, the need to assess biodiversity in remnant habitats is important (Keast 1995; Shea 2010; Wotherspoon and Burgin 2010).

Only a small proportion of wildlife has adaptations that enable it to live in developed areas (Aronson et al. 2014). Consequently, green spaces, either remnant natural habitats or anthropogenic substitutes such as urban parks, represent highly valuable areas for biodiversity conservation in urban and peri-urban areas (Gallo et al. 2017; Lepczyk et al. 2017). University campuses often comprise large parcels of land with green spaces, including in some cases remnant natural areas (Bocsi et al. 2018). A recent review found published studies of animal and plant assemblages on over 300 university campuses globally (J. Liu et al. 2021).

In Sydney, the Western Sydney University has eight campus sites, three of which support remnant natural habitats on the Cumberland Plain. In particular, the Hawkesbury Campus supports 575 ha of remnant natural habitats, as well as large parcels of agricultural land dissected by roads and the main campus (Norris and Burgin 2011; Mo 2020). Reptilian and amphibian diversity at this site have been reported in a previous study (White and Burgin 2004), which drew on records maintained by a local herpetological society and resident university researchers. Species listed in that inventory were considered 'extant' if their presence was confirmed by recent records, 'historically present' if their presence was confirmed only by older records, and 'predicted' if no records existed for the species but its presence was considered possible based on suitable available habitats. This study builds on that species inventory using the author's observations on the campus over a four-year period from 2008 to 2011.

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Methods

The Western Sydney University Hawkesbury Campus (33°37'S, 150°45'E) is situated in the Hawkesbury region township of Richmond in the northwestern corner of the Sydney metropolitan area (Fig. 1). The site comprises a main campus in which buildings interspersed with lawns and mulched areas are surrounded by a network of paddocks comprising sections of grassland and woodland remnants. The Yarramundi, Richmond, Blacktown, and Clarendon Paddocks are named after the townships located in their direction from the main campus, and the Rickaby Paddocks are named after Rickaby Creek, which forms its eastern boundary. Three main vegetation communities are present in the woodland remnants: Castlereagh Scribbly Gum Woodland dominated by Scribbly Gum (*Eucalyptus sclerophylla*) and Narrow-leafed Apple (*Angophora bakeri*), Shale Gravel Transition Forest dominated by Broad-leaved Ironbark (*E. fibrosa*) and Grey Box (*E. moluccana*), and Castlereagh Swamp Woodland dominated by White Feather Honeymyrtle (*Melaleuca decora*) (Benson 1992). Ephemeral wetlands occur in the Yarramundi, Blacktown, Clarendon, and Rickaby Paddocks (Fig. 2). Farm dams occur in the Yarramundi, Richmond, Blacktown, Clarendon, and Rickaby Paddocks.

I visited the campus regularly between 2008 and 2011, actively searching for reptiles and amphibians and recording opportunistic encounters during other activities. Active searching included patrolling walking tracks, roads, and the edges of ephemeral wetlands, turning over surface debris, spotlighting, and listening for frog calls. During 2008–2011, mean annual precipitation was 719 mm (UWS Hawkesbury weather station), and monthly mean precipitation ranged from 19 mm (August) to 153 mm (February). Daily maximum temperatures were generally highest in January (mean daily maximum 30.6 °C) and lowest in August (mean daily minimum 4.0 °C).

Reptiles and amphibians observed were compared to those recorded by White and Burgin (2004). I also searched

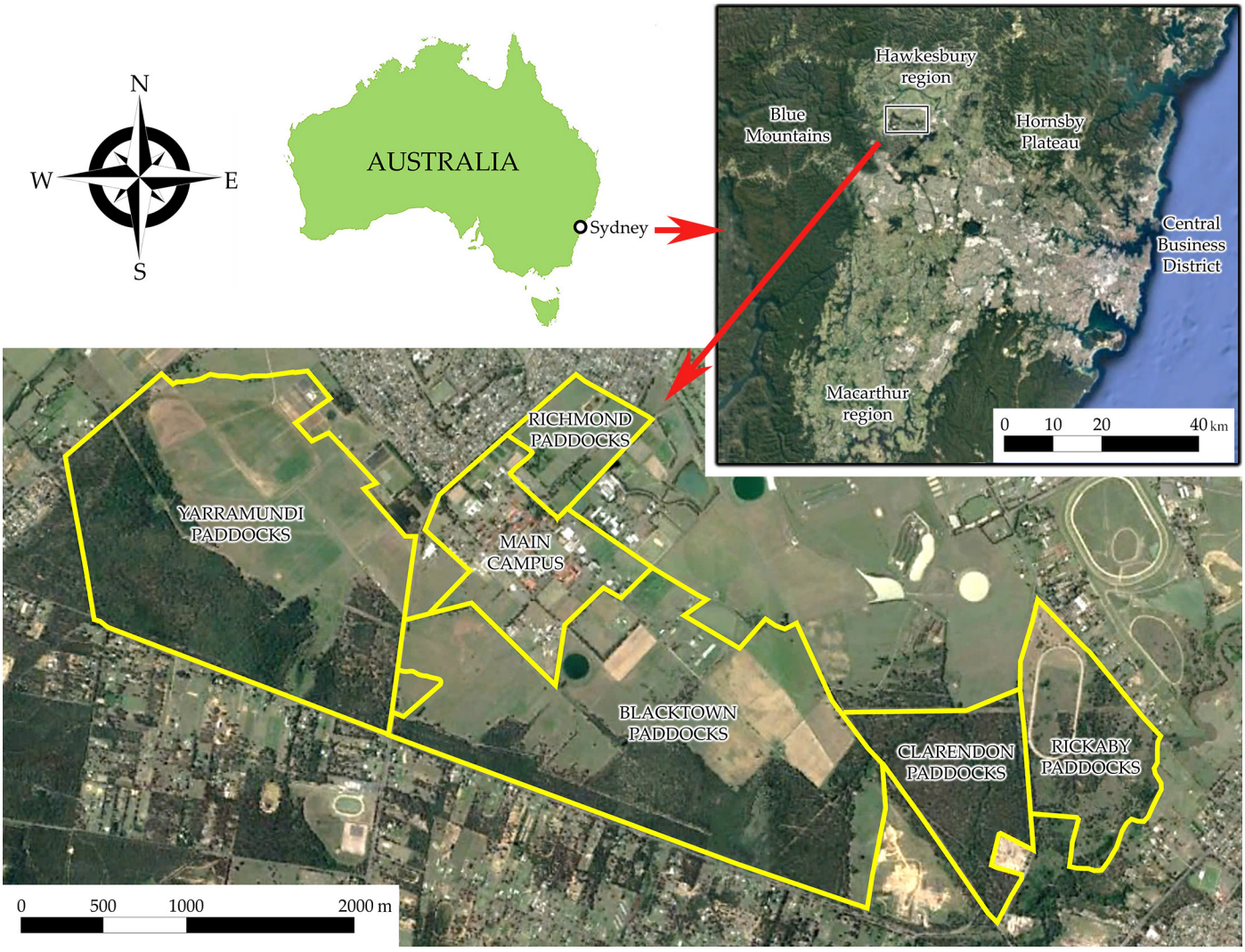

Fig. 1. Areas of the Western Sydney University Hawkesbury Campus referred to in this study. The inset map shows the location of the campus within the Sydney metropolitan area.

citizen-science applications (Atlas of Living Australia, Bionet, iNaturalist) for records of additional species but found none.

Results

I recorded 26 species of reptiles in nine families (Cheluidae, Agamidae, Carphodactylidae, Scincidae, Varanidae, Typhlopidae, Colubridae, Elapidae, Pythonidae), compared to 16 species considered extant and nine species predicted to occur by White and Burgin (2004) (Table 1). I recorded 13 species of amphibians in three families (Pelodryadidae, Limnodynastidae, Myobatrachidae), compared to 11 species considered extant and one species considered historically present by White and Burgin (2004) (Table 2). Based on the present study, the Yarramundi, Blacktown, and Rickaby Paddocks were the most species diverse sections of campus (Fig. 3), with five, four, and three species recorded only in those paddocks, respectively.

Family Chelidae (freshwater turtles).—I recorded two species of freshwater turtles (Fig. 4). The Eastern Snake-necked

Fig. 2. Ephemeral wetlands and remnant woodlands in the Blacktown Paddocks on the Western Sydney University Hawkesbury Campus.

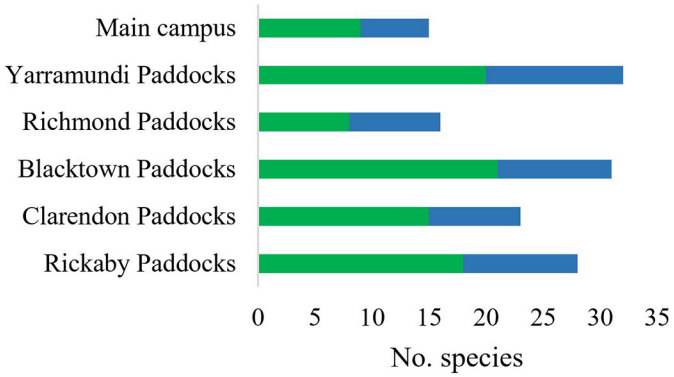

Fig. 3. Numbers of reptilian and amphibian species recorded in each section of the study site.

Fig. 4. Freshwater turtles: Eastern Snake-necked Turtle (*Chelodina longicollis*) (left) and Macquarie Turtle (*Emydura macquarii*) (right).

Fig. 5. Three agamid lizards: Eastern Bearded Dragon (*Pogona barbata*) (left), Jacky Dragon (*Amphibolurus muricatus*) (center), and Eastern Water Dragon (*Intellagama lesueurii lesueurii*) (right).

Table 1. A comparison of reptilian species listed by White and Burgin (2004) and those recorded during the present study.

Species	White and Burgin (2004)	Present study
Chelidae		
Eastern Snake-necked Turtle (*Chelodina longicollis*)	Extant	Recorded
Macquarie Turtle (*Emydura macquarii*)	Never present	Recorded
Agamidae		
Jacky Dragon (*Amphibolurus muricatus*)	Predicted	Recorded
Eastern Water Dragon (*Intellagama lesueurii lesueurii*)	Never present	Recorded
Eastern Bearded Dragon (*Pogona barbata*)	Extant	Recorded
Carphodactylidae		
Wood Gecko (*Diplodactylus vittatus*)	Predicted	Recorded
Pygopodidae		
Common Scaly-foot (*Pygopus lepidopodus*)	Predicted	Not recorded
Scincidae		
Red-throated Skink (*Acritoscincus platynotus*)	Not mentioned	Recorded
Greater Bar-sided Skink (*Concinnia tenuis*)	Extant	Recorded
Elegant Snake-eyed Skink (*Cryptoblepharus pulcher pulcher*)	Extant	Recorded
Eastern Striped Skink (*Ctenotus robustus*)	Predicted	Recorded
Copper-tailed Skink (*Ctenotus taeniolatus*)	Extant	Recorded
Eastern Water Skink (*Eulamprus quoyii*)	Extant	Recorded
Dark-flecked Garden Sunskink (*Lampropholis delicata*)	Extant	Recorded
Pale-flecked Garden Sunskink (*Lampropholis guichenoti*)	Extant	Recorded
Three-toed Skink (*Saiphos equalis*)	Predicted	Recorded
Weasel Skink (*Saproscincus mustelinus*)	Extant	Recorded
Eastern Blue-tongued Skink (*Tiliqua scincoides scincoides*)	Extant	Recorded
Varanidae		
Lace Monitor (*Varanus varius*)	Extant	Recorded
Typhlopidae		
Blackish Blindsnake (*Anilios nigrescens*)	Predicted	Recorded
Colubridae		
Green Treesnake (*Dendrelaphis punctulatus*)	Extant	Recorded
Elapidae		
Golden-crowned Snake (*Cacophis squamulosus*)	Predicted	Recorded
Yellow-faced Whipsnake (*Demansia psammophis*)	Extant	Recorded
Red-naped Snake (*Furina diadema*)	Predicted	Recorded
Black-bellied Swampsnake (*Hemiaspis signata*)	Predicted	Not recorded
Red-bellied Blacksnake (*Pseudechis porphyriacus*)	Extant	Recorded
Eastern Brownsnake (*Pseudonaja textilis*)	Extant	Recorded
Pythonidae		
Diamond Python (*Morelia spilota spilota*)	Extant	Recorded

Table 2. A comparison of amphibian species listed by White and Burgin (2004) and those recorded during the present study. Note that the Screaming Treefrog (*Litoria. quiritatus*) was listed as the Bleating Treefrog (*L. dentata*) by White and Burgin (2004); the local populations were recently reclassified by Rowley et al. (2021).

Species	White and Burgin (2004)	Present study
Pelodryadidae		
Screaming Treefrog (*Litoria quiritatus*)	Extant	Recorded
Eastern Dwarf Treefrog (*Litoria fallax*)	Extant	Recorded
Broad-palmed Rocket Frog (*Litoria latopalmata*)	Never present	Recorded
Peron's Treefrog (*Litoria peronii*)	Extant	Recorded
Tyler's Treefrog (*Litoria tyleri*)	Extant	Recorded
Verreaux's Treefrog (*Litoria verreauxii*)	Extant	Recorded
Common Green Treefrog (*Ranoidea caerulea*)	Extant	Recorded
Limnodynastidae		
Eastern Banjo Frog (*Limnodynastes dumerilii*)	Extant	Recorded
Striped Marsh Frog (*Limnodynastes peronii*)	Extant	Recorded
Spotted Grassfrog (*Limnodynastes tasmaniensis*)	Extant	Recorded
Ornate Burrowing Frog (*Platyplectrum ornatum*)	Historically recorded	Recorded
Myobatrachidae		
Common Eastern Froglet (*Crinia signifera*)	Extant	Recorded
Smooth Toadlet (*Uperoleia laevigata*)	Extant	Recorded

Turtle (*Chelodina longicollis*) was present in all sections of the campus, either at farm dams, ephemeral wetlands, or migrating overland. This included the main campus where individuals were typically far from the nearest body of water. The Macquarie Turtle (*Emydura macquarii*), was not considered indigenous to the campus by White and Burgin (2004); however, I found one individual at a farm dam in the Blacktown Paddocks.

Family Agamidae (agamids or dragons).—I recorded three species of agamids (Fig. 5). The Eastern Bearded Dragon (*Pogona barbata*) was present in all sections of the campus except the main campus. It was most frequently observed basking on roads and tracks adjacent to grassland and cleared areas, but some individuals were on fenceposts, tree stumps, and in woodlands. The Jacky Dragon (*Amphibolurus muricatus*) was also widespread, occurring in the Yarramundi, Blacktown, Clarendon, and Rickaby Paddocks, although observations of this species were limited to woodlands. A population of Eastern Water Dragons (*Intellagama lesueurii lesueurii*) was frequently recorded along Rickaby Creek despite not being considered indigenous to the campus by White and Burgin (2004).

Family Carphodactylidae (southern padless geckos).—I recorded only one gecko, a Wood Gecko (*Diplodactylus vittatus*; Fig. 6) found under a fallen log in a woodland remnant in the Yarramundi Paddocks.

Family Pygopodidae (legless lizards).—I found no legless lizards, but White and Burgin (2004) considered the Common Scaly-foot (*Pygopus lepidopodus*) possibly present on the campus.

Family Scincidae (skinks).—I recorded 11 species of skinks (Figs. 7–9). Five species (Elegant Snake-eyed Skink, *Cryptoblepharus pulcher pulcher*; Dark-flecked Garden Sunskink, *Lampropholis delicata*; Pale-flecked Garden Sunskink, *L. guichenoti*; Eastern Water Skink, *Eulamprus quoyii*; and Eastern Blue-tongued Skink, *Tiliqua scincoides scincoides*) were found in all sections of the campus. These species

Fig. 6. A Wood Gecko (*Diplodactylus vittatus*) found beneath a fallen log.

Fig. 7. Small skinks that thrive in developed areas: Elegant Snake-eyed Skink (*Cryptoblepharus pulcher pulcher*) (left), Dark-flecked Garden Sunskink (*Lampropholis delicata*) (center), and Pale-flecked Garden Sunskink (*Lampropholis guichenoti*) (right).

Fig. 8. Skinks widely distributed on the campus: Eastern Water Skink (*Eulamprus quoyii*) (top left), Eastern Blue-tongued Skink (*Tiliqua scincoides scincoides*) (top right), Greater Bar-sided Skink (*Concinnia tenuis*) (bottom left), and Weasel Skink (*Saproscincus mustelinus*) (bottom right).

were easily visible basking and foraging in exposed locations. The Greater Bar-sided Skink (*Concinnia tenuis*) and Weasel Skink (*Saproscincus mustelina*) were more cryptic but also widespread. I recorded the former on the main campus and in the Yarramundi, Blacktown, Clarendon, and Rickaby Paddocks, usually on walls of buildings or in woody debris. I recorded the latter in the Yarramundi, Blacktown, Clarendon, and Rickaby Paddocks, always beneath surface debris. I observed a single Copper-tailed Skink (*Ctenotus taeniolatus*) retreating from a basking site on a woodland edge in the Yarramundi Paddocks. The Eastern Striped Skink (*C. robustus*) and Three-toed Skink (*Saiphos equalis*) were both predicted to occur at the study site by White and Burgin (2004). I confirmed the presence of Eastern Striped Skinks in the Yarramundi, Blacktown, and Rickaby Paddocks, all sheltering beneath surface debris, and a pair of Three-toed Skinks found beneath a fallen log in the Rickaby Paddocks. The Red-throated Skink (*Acritoscincus platynotus*), not included in the White and Burgin (2004) inventory, was recorded basking and sheltering beneath surface debris in the Yarramundi and Blacktown Paddocks.

Family Varanidae (monitors or goannas).—I recorded only one varanid species, the Lace Monitor (*Varanus varius*). I

Fig. 9. Skinks recorded from few individuals: Copper-tailed Skink (*Ctenotus taeniolatus*) (top left), Eastern Striped Skink (*Ctenotus robustus*) (top right), Three-toed Skink (*Saiphos equalis*) (bottom left), and Red-throated Skink (*Acritoscincus platynotus*) (bottom right).

observed only adults (Fig. 10) in the Yarramundi, Blacktown, Clarendon, and Rickaby Paddocks.

Family Typhlopidae (blindsnakes).—I recorded only one species of blindsnake. The Blackish Blindsnake (*Anilios nigrescens*) was predicted to occur in the study site by White and Burgin (2004), which I confirmed by observing five individuals (Fig. 11). All were found beneath surface debris in the Yarramundi, Blacktown, Clarendon, and Rickaby Paddocks. Two Blackish Blindsnakes recorded in the Blacktown Paddocks were under the same piece of discarded corrugated iron.

Family Colubridae (colubrids).—I recorded only one species of colubrid, observing a single Green Treesnake (*Dendrelaphis punctulatus*) stationary in a tree in the Blacktown Paddocks.

Family Elapidae (elapids).—I recorded five species of elapids (Figs. 12–13), the most frequently observed of which was the Red-bellied Blacksnake (*Pseudechis porphyri-*

Fig. 10. An adult Lace Monitor (*Varanus varius*) at a farm dam.

Fig. 11. A Blackish Blindsnake (*Anilios nigrescens*) in hand.

acus), encountered in all sections of the campus. Most were in ephemeral wetlands and near farm dams in the paddock sections; however, some were basking or moving through grassland, farm buildings, and the lawns of the main campus. The second most frequently observed elapid was the Eastern Brownsnake (*Pseudonaja textilis*), recorded in all sections except the Richmond Paddocks. Like Red-bellied Blacksnakes, Eastern Brownsnakes were occasionally encountered moving across lawns of the main campus. The Yellow-faced Whipsnake (*Demansia psammophis*) was recorded under surface debris in woodland remnants in the Yarramundi, Blacktown, Clarendon, and Rickaby Paddocks. The Golden-crowned Snake (*Cacophis squamulosus*) and Red-naped Snake (*Furina diadema*), each observed only once, were predicted to occur at the study site by White and Burgin (2004). The Golden-crowned Snake was under a discarded tractor tire near a farm building in the Blacktown Paddocks, and the Red-naped Snake was under a piece of discarded corrugated iron in a woodland remnant in the Yarramundi Paddocks. White and Burgin (2004) also predicted that a sixth species

Fig. 12. Elapids recorded from multiple individuals: Red-bellied Blacksnake (*Pseudechis porphyriacus*) (left), Eastern Brownsnake (*Pseudonaja textilis*) (center), and Yellow-faced Whipsnake (*Demansia psammophis*) (right).

Fig. 13. Elapids recorded from single individuals: Golden-crowned Snake (*Cacophis squamulosus*) (left) and Red-naped Snake (*Furina diadema*) (right).

Fig. 14. A Diamond Python (*Morelia spilota spilota*) removed from a farm building.

Fig. 15. One of four Broad-palmed Rocket Frogs (*Litoria latopalmata*) found during spotlighting.

of elapid, the Black-bellied Swampsnake (*Hemiaspis signata*) could occur at the site.

Family Pythonidae (pythons).—I recorded only one species of python. A single Diamond Python (*Morelia spilota spilota*) was in a farm building in the Blacktown Paddocks, and later released nearby (Fig. 14).

Family Pelodryadidae (treefrogs).—I recorded seven species of treefrogs, including one species not included in the White and Burgin (2004) inventory. I recorded four Broad-palmed Rocket Frogs (*Litoria latopalmata*) on one occasion while spotlighting at a farm dam in the Yarramundi Paddocks (Fig. 15). Four species (Common Green Treefrog, *Ranoidea caerulea*; Peron's Treefrog, *L. peronii*; Screaming Treefrog, *L. quiritatus*; and Verreaux's Treefrog, *L. verreauxii*; Fig. 16) were abundant and found in all sections of the campus through spotlighting, lifting surface debris, and hearing calls. The Common Green Treefrog and Peron's Treefrog appeared to permanently reside within the main campus by retreating inside buildings. The Screaming Treefrog and Verreaux's Treefrog were recorded only on the main campus during and immediately following rain. Eastern Dwarf Treefrogs (*Litoria fallax*) (Fig. 16) were found by spotlighting and hearing calls in all paddock sections but only at farm dams and ephemeral wetlands when water was present. Tyler's Treefrogs (*Litoria tyleri*) (Fig. 16) were recorded by spotlighting and hearing calls in the Yarramundi and Blacktown Paddocks, always in trees and shrubs within ephemeral wetlands when water was present.

Family Limnodynastidae (Australian groundfrogs).—I recorded four species of Australian groundfrogs (Fig. 17). The Striped Marsh Frog (*Limnodynastes peronii*) was the most abundant and was found in all sections of the campus. They were almost continually detectable through their calls, and observed at night through spotlighting and during the day by lifting surface debris. The Spotted Grassfrog (*Limnodynastes tasmaniensis*) was recorded in the Yarramundi, Richmond, Blacktown, and Rickaby Paddocks, particularly near farm dams or in areas of plentiful surface debris. I recorded only one Eastern Banjo Frog (*Limnodynastes dumerilii*) on a road adjacent to woodland in the Rickaby Paddocks while spotlighting. The Ornate Burrowing Frog (*Platyplectrum ornatum*) was listed by White and Burgin (2004) as historically present; I encountered two individuals by spotlighting at a farm dam in the Yarramundi Paddocks.

Family Myobatrachidae (Australian waterfrogs).—I recorded two species of Australian waterfrogs (Fig. 18). Common Eastern Froglets (*Crinia signifera*) were the most abundant and were found in all sections of the campus. They were almost continually detectable through their calls, and observed visually at night through spotlighting and during the day in shallow puddles on roads and in ephemeral wetlands. Smooth Toadlets (*Uperoleia laevigata*) were beneath surface debris in woodland remnants in the Yarramundi, Blacktown, Clarendon, and Rickaby Paddocks. I also heard them calling at farm dams but did not visually observe them there.

Discussion

Of the two species that were previously not thought to occur on the campus by White and Burgin (2004), the Eastern Water Dragon was present only along Rickaby Creek, and

Fig. 16. Treefrogs recorded from multiple observations: Common Green Treefrog (*Ranoidea caerulea*) (top left), Peron's Treefrog (*Litoria peronii*) (top center), Screaming Treefrog (*Litoria quiritatus*) (top right), Verreaux's Treefrog (*Litoria verreauxii*) (bottom left), Eastern Dwarf Treefrog (*Litoria fallax*) (bottom center), and Tyler's Treefrog (*Litoria tyleri*) (bottom right).

Fig. 17. Australian groundfrogs: Striped Marsh Frog (*Limnodynastes peronii*) (top left), Spotted Grassfrog (*Limnodynastes tasmaniensis*) (top right), Eastern Banjo Frog (*Limnodynastes dumerilii*) (bottom left), and Ornate Burrowing Frog (*Platyplectrum ornatum*) (bottom right).

Fig. 18. Australian waterfrogs: Common Eastern Froglet (*Crinia signifera*) (left) and Smooth Toadlet (*Uperoleia laevigata*) (right).

was notably absent at farm dams, despite occurring prolifically in other locations where bodies of water are limited to non-flowing ponds (Piza-Roca et al. 2018). Consequently, this isolated population could easily be missed during cursory surveys. This might also be the case for the Macquarie Turtle, although one or more individuals might have been released from other locations subsequent to the 2004 report. These turtles have been readily observed at other frequently patrolled locations where the species had been confidently considered absent (White and Burgin 2004; Mo 2018).

I also recorded the Ornate Burrowing Frog, which the White and Burgin (2004) inventory listed as historically present based on available records. Considering that only two individuals were observed over a four-year period despite repeated follow-up spotlighting of the farm dam where they were first located, the species appears to be uncommon on the campus.

In contrast, where the species is abundant, frogs are readily found at the edges of farm dams and ephemeral wetlands on warm evenings (Mo 2014). Regardless, the detection of these Ornate Burrowing Frogs highlights the importance of spotlighting as a survey technique for frogs (Heard et al. 2006). Two other species (Broad-palmed Rocket Frog and Eastern Banjo Frog) also were detected exclusively by spotlighting. Acoustic surveys for determining the presence of frog species are also valuable (Measey et al. 2017; Xie et al. 2018); 10 of the 13 anuran species I recorded were identified by their calls.

I also confirmed the occurrence of seven species (Jacky Dragon, Wood Gecko, Eastern Striped Skink, Three-toed Skink, Blackish Blindsnake, Golden-crowned Snake, Red-naped Snake) that the White and Burgin (2004) inventory predicted for the campus but did not find. Six were recorded solely by lifting surface debris, which highlights the importance of this technique during herpetological surveys (Reading 1997). An additional four species also were recorded exclusively by lifting surface debris, three species of reptiles (Weasel Skink, Copper-tailed Skink, Yellow-faced Whipsnake) and one species of amphibian (Smooth Toadlet). Nevertheless, some evidence (Sung et al. 2011; McKnight et al. 2015) suggests that survey techniques such as pitfall and funnel traps along drift fences and turtle traps are more effective at sampling reptilian and amphibian assemblages. These techniques were not deployed during the present study owing to its opportunistic nature. Had techniques such as pitfall or funnel traps (Read and Moseby 2001; Jenkins et al. 2003) been used, I might have learned more about the local distribution of the Wood Gecko. Similarly, the use of fyke nets or hoop-net traps for turtles (Vogt 1980; Gulette et al. 2019) might have resulted in more evidence of Macquarie Turtles on the campus. Also, because traps were not employed, the present study was likely biased toward detecting larger diurnally active species as opposed to smaller, cryptic, or nocturnal taxa (Silveira et al. 2003).

A number of the species recorded were reptiles such as Dark-flecked Garden Sunskinks, Pale-flecked Garden Sunskinks, and Eastern Blue-tongued Skinks, which are known to be common in urban environments (Koenig et al. 2001; Prosser et al. 2006; Moule et al. 2016). These species almost certainly would have a higher likelihood of detection during an opportunistic study than species that are sensitive to anthropogenic landscape changes. Some species also have increased visibility due to behavioral factors; for example, overland movements by Eastern Snake-necked Turtles seeking new wetlands and refuge sites (see Stott 1987; Kennett and Georges 1990) increase the frequency of human-turtle encounters. Nevertheless, this study clearly demonstrates how green spaces on the periphery of one of the world's largest cities can harbor a diverse assemblage of reptiles and amphibians.

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