



BushBlitz
SPECIES DISCOVERY PROGRAM



BUSH BLITZ SPECIES DISCOVERY PROGRAM



Dananbilla, Illunie, Koorawatha Nature Reserves NSW

November 2010



CARING FOR
OUR COUNTRY



What is Bush Blitz?

Bush Blitz is a four-year, multi-million dollar partnership between the Australian Government, BHP Billiton, and Earthwatch Australia to document plants and animals in selected properties across Australia's National Reserve System.

This innovative partnership harnesses the expertise of many of Australia's top scientists from museums, herbaria, universities, and other institutions and organisations across the country.

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Abbreviations

EPBC Act

Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

IBRA

Interim Biogeographic Regionalisation for Australia

NRS

National Reserve System

TSC Act

Threatened Species Conservation Act 1995 (New South Wales)



Summary

A two week Bush Blitz was conducted in Dananbilla, Illunie and Koorawatha nature reserves on the south-west slopes of New South Wales during November 2010. In total, 541 species were identified, of which 479 had not previously been recorded at the reserves. Added to previous records, 557 species are now known from these areas. Of these, 35 are putative species new to science, including 34 spiders and one snail. It is also highly likely that the 167 beetle 'morphospecies' collected include additional new taxa. Specimens identified tentatively as Peron's tree frog (*Litoria peronii*) and the giant banjo frog (*Limnodynastes interioris*) were lodged with the Australian Museum and might represent new taxa. The record of a copper-tailed skink (*Ctenotus taeniolatus*) is at the westerly limit of

the range of this species. Both the pink-tailed legless lizard (*Aprasia parapulchella*) and the superb parrot (*Polytelis swainsonii*), recorded on Koorawatha Nature Reserve and Illunie Nature Reserve respectively, are listed species under the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *New South Wales Threatened Species Conservation Act 1995* (TSC Act). The grey-crowned babbler (*Pomatostomus temporalis temporalis*), listed under the TSC Act, was also recorded on Dananbilla Nature Reserve. Fifty-seven weeds were identified across the reserves, and exotic pest fauna included three species of slug as well as feral sheep, brown hare and black rat. A number of the native plants and weeds recorded were uncommon in the region.



Some of the Bush Blitz Team, K Gillespie

Top row: Ainsley Seago, Abbey Throssell, Kevin Bonham, Will Kipling
Middle row: Kate Gillespie, Brendan Lepschi, Barbara Baehr, Ursula Baehr
Bottom Row: Karl Newport, Alexander Schmidt-Lebuhn, Alex Bush



Introduction

This is a report of the Bush Blitz program, which aims to survey recent additions to the National Reserve System (NRS). Bush Blitz is an initiative of the Australian Government, through the Australian Biological Resources Study in partnership with BHP Billiton and Earthwatch Australia. The Bush Blitz objectives are:

- + to promote, publicise and demonstrate the importance of taxonomy through the vehicle of species discovery;
- + to undertake a national species discovery program targeted at recently acquired properties of the National Reserve System of Australia;
- + to support the science of taxonomy in Australia through training of students and early career researchers, provision of grants for species description and resolution of taxonomically problematic, nationally important groups;
- + to promote partnerships between science, governments, industry and non-government organisations; and
- + to inform the National Reserve System, Reserve Managers and other stakeholders of the results of the Bush Blitz Project.

This survey was undertaken during November 2010. Three nature reserves — Dananbilla, Illunie and Koorawatha — were visited in an area on the south-west slopes of the Great Dividing Range, New South Wales, in close proximity to the towns of Young, Boorowa and Cowra. Land parcels recently added to each reserve were key target areas, and included: Waterfalls and Kooradale (additions to Koorawatha Nature Reserve); Hardy (addition to Dananbilla Nature Reserve); and Fern Hill (addition to Illunie Nature Reserve).



Flora books © P Hemming



Dr B Baehr © P Hemming



Reserves Overview¹

Dananbilla, Illunie, Koorawatha Nature Reserves

NSW Department of Premier and Cabinet

Date of purchase

Numerous purchases from 1998–2008

Area

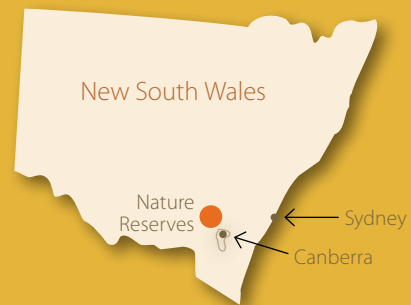
Combined area of 5385 ha

Description

These reserves form the Dananbilla–Illunie Protected Area Network and fall within the South West Slopes IBRA Bioregion, of which approximately 1% is protected in conservation reserves. The reserves are largely within a rural landscape in the Lachlan Catchment Management Area, which has been cleared extensively; less than 4% of native vegetation remains. This has resulted in a considerable loss of biodiversity, landscape function, and fragmentation of habitat in the region. All three reserves incorporate areas once used for cultivation and grazing. Sandstone was quarried from the Illunie Range and timber milling also took place in the area.

National Reserve System conservation values

The reserves provide a focus for off-reserve conservation measures such as conservation agreements, wildlife refuges and wildlife corridors. They protect a representative, though small, sample of ecosystems that existed prior to European settlement in the bioregion. Dananbilla Nature Reserve also encompasses the entire upper catchment of Bendick Murrell Creek.



The reserves support a woodland community of white box (*Eucalyptus albens*) and yellow box (*Eucalyptus melliodora*), often with Blakely's red gum (*E. blakelyi*), and an understorey of native grasses. White Box–Yellow Box–Blakely's Red Gum Woodland is listed under the *Threatened Species Conservation Act 1995* (TSC Act) as endangered in NSW and is listed nationally under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as critically endangered (named Grassy White Box Woodland). This community is one of the most highly fragmented and poorly reserved ecosystems in Australia; an estimated 400 ha remain in NSW.

Together the reserves contain around 200 species of native plants and a range of fauna, including 11 species listed under the TSC Act and two species listed under the EPBC Act. Many species of forbs² are found in the reserves, some in large populations. Forbs are regarded as indicators of sites in good condition. Many forbs that are declining in abundance across the broader landscape, in response to practices such as grazing and cultivation, can be found in these three reserves. These include yam daisy (*Microseris lanceolata*), bulbine lily (*Bulbine bulbosa*), small vanilla lily (*Arthropodium minus*), nodding chocolate lily (*Dichopogon fimbriatus*), common onion orchid (*Microtis unifolia*), donkey orchid (*Diuris* sp.) and *Lomandra filiformis*.

¹ Information from the Danabilla, Koorawatha, Illunie and Gungewalla Nature Reserves Plan of Management, NSW National Parks and Wildlife Service 2009, and the National Reserve Systems' applications and assessments.

² A forb is a herbaceous flowering plant that is not a grass, sedge or rush.



Methods

Collection and observation sites within each reserve were selected based on land classes, supplemented by identification of suitable microhabitats during the field visit. Site selection also depended on access, suitability for trapping and available time. Site locations were recorded using a global positioning system.

A number of taxonomic groups were identified as targets for study. All groups were surveyed in each reserve, apart from coleoptera which were only surveyed in Danabilla and Koorawatha reserves. Table 1 provides the taxonomic groups and the experts who undertook the work.



Copper Tailed Skink (*Ctenotus taeniolatus*) © A Bush

Table 1: Groups surveyed and personnel

Group	Common name	Expert	Affiliation
Arachnida	Spiders	Barbara Baehr	Queensland Museum
Coleoptera	Beetles	Ainsley Seago, Will Kipling	CSIRO Division of Entomology
Gastropoda	Snails	Kevin Bonham	Tasmanian Museum and Art Gallery, University of Tasmania
Odonata	Dragonflies	Abbey Throssell	Tasmanian Museum and Art Gallery, University of Tasmania
Amphibia	Frogs and Toads	Frank Lemckert, Tracey Brassil	Department of Industry and Investment (NSW)
Aves	Birds	Frank Lemckert, Tracey Brassil	Department of Industry and Investment (NSW)
Mammalia	Mammals	Frank Lemckert, Tracey Brassil	Department of Industry and Investment (NSW)
Reptilia	Reptiles	Frank Lemckert, Tracey Brassil	Department of Industry and Investment (NSW)
Vascular Plants	Vascular Plants	Brendan Lepschi, Bronwyn Collins, Dave Mallinson, Alexander Schmidt-Lebuhn	CSIRO Centre for Plant Biodiversity





A standard suite of survey techniques was used:

- + Vascular plants were collected by hand, then pressed and dried.
- + Spiders were collected by hand searching, litter sifting, and using small and large pit-fall traps filled with propylene glycol. Two fields of four large and five small pitfall traps were normally placed close together to cover different habitats.
- + Beetles were collected using three different bulk collection methods (ultraviolet lights, leaf litter sifting and pitfall trapping) as well as targeted hand collecting (nocturnal head lamps). All large-bodied beetles preserved with ethyl acetate; small-bodied beetles were preserved in ethanol. All spirit specimens were initially preserved in 100% ethanol to ensure preservation of DNA-rich tissues.
- + Snails and slugs were collected by hand searching, including turning of logs and rocks. In some areas, loose dirt under logs and rocks was dug to search for burrowing snails. Litter and moss/lichen samples were taken at some sites and searched back at the base camp using a pocket microscope. The site at which a new species was discovered was sampled twice to gain as much information as possible. Time spent sampling at each site varied, but was typically around 60–90 minutes. Each reserve was sampled on three separate days.
- + Dragonflies were surveyed near water, taking into account factors such as standing versus flowing water and surrounding vegetation. Sampling time at each site varied but was typically around 60–90 minutes. The Koorawatha, Dananbilla and Illunie reserves were each sampled on three different days, and the Fernhill conservation zone was sampled on part of one day. Adults were surveyed mainly by opportunistic aerial netting with occasional sweeping of vegetation near water. Immature forms were collected using dip nets. Collecting occurred at loosely defined sites of typically less than 1 hectare in area.



Dr Lemckert studying a bat © R Catullo

- + Mammals were surveyed using pitfall and drift-fence trap systems, Elliott traps and nocturnal road transects.
- + Bats were surveyed using harp traps and recording of calls.
- + Birds were recorded using opportunistic aural and visual surveys.
- + Reptiles were surveyed using targeted daytime habitat searches involving the turning of rocks and logs, and observation of active individuals; trapping in suitable habitat with pitfall and drift-fence lines and the additional use of shrimp traps to target snakes and dragon lizards; nocturnal road drives and walks to locate individuals active after sunset.
- + Frogs were surveyed using nocturnal aural and visual searches of available water bodies.

Collections were identified using the available literature and the holdings of museum collections and herbaria. Potential new species were photographed. Fauna specimens were deposited with the Australian Museum, apart from Odonata which were deposited with the Australian National Insect Collection, Canberra. Flora specimens were deposited with the Australian National Herbarium.

Final species lists were compiled using data supplied by the Australian Natural Heritage Assessment Tool, the *Atlas of NSW Wildlife* and the results of this Bush Blitz.



Results

The locational data are available to reserve managers.

Species Lists

Appendix A provides full, updated species lists for each reserve. Names in **bold brown text** are putative new species. Species marked with an asterisk (*) have not been previously recorded in that reserve. Species without an asterisk have been recorded previously and found again during this survey. Species with **blue squares** were not recorded on this survey, but are known from previous records for the reserve.

Table 2 provides a summary of the number of new records and putative new species for each reserve.

Table 3 provides a summary of the number of new records for each reserve by taxonomic group.

The exact identity of some of the *Cryptoblepharus* skinks could not be determined due to recent taxonomic revisions. In addition, very few species-level keys exist for Australian beetle groups, so it was possible to identify only five species. The remainder of the specimens collected have been identified to morphospecies that may represent multiple species new to science.

Nomenclature and taxonomy used in this report are consistent with the Australian Faunal Directory, the Australian Plant Name Index and the Australian Plant Census.

Table 2: Summary of new records and putative new species

Reserve	Species new to the reserve	Species new to science
Dananbilla	281	14
Illunie	152	10
Koorawatha	264	23

Table 3: Number of species newly recorded on this survey for each reserve by group

Group	Common name	Dananbilla	Illunie	Koorawatha
Arachnida	Spiders	21	13	39
Coleoptera	Beetles	114	–	69
Gastropoda	Snails	6	4	5
Odonata	Dragonflies	13	10	12
Amphibia	Frogs	6	5	5
Aves	Birds	3	11	10
Mammalia	Mammals	11	11	6
Reptilia	Reptiles	5	5	6
Vascular Plants	Vascular Plants	102	93	112





Rare and Threatened Species

Appendix B includes the listed species known from the reserves. Species marked with an asterisk (*) have not been recorded previously.

Exotic and Pest Species

Appendix C lists the exotic and pest species known from the reserves. Those marked with an asterisk (*) have not been recorded previously in the reserves. A summary of exotic pest flora and fauna species encountered during the study is provided in Table 4.



Danabilla Nature Reserve © BM Collins

Table 4: Total number of exotic and pest species encountered in each reserve

Reserve	Flora	Fauna
Dananbilla	24	4
Illunie	35	1
Koorawatha	33	2



Koorawatha Nature Reserve © T Brassil



Discussion

A total of 479 species were added to those known across the reserves and 35 putative species new to science were discovered; these await description and publication. A breakdown of the groups in which putative new species were discovered is given in Table 5.

Table 5: Putative new species by group

Group	Common name	Number of possible new species
Arachnida	Spiders	34
Coleoptera	Beetles	unknown *
Gastropoda	Snails	1
Amphibia	Frogs	0 ^

* The 167 beetle morphospecies collected may include species new to science; further analysis is required.

^ Individuals identified tentatively as Peron's Tree Frog (*Litoria peronii*) and Giant Banjo Frog (*Limnodynastes interioris*) may represent undescribed taxa.

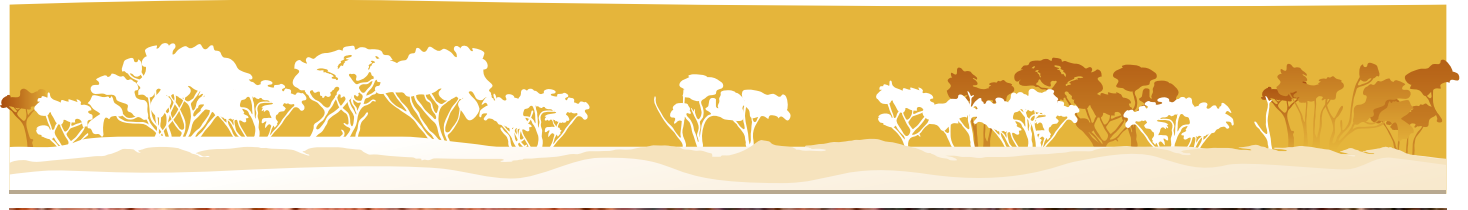
Rare and Threatened Species

The grey-crowned babbler (*Pomatostomus temporalis temporalis*) was located during the survey of Dananbilla Nature Reserve. It is listed as vulnerable under the TSC Act. The pink-tailed legless lizard (*Aprasia parapulchella*) was located in Koorawatha Nature Reserve. It, too, is listed as vulnerable under both the TSC Act and the EPBC Act; this is a new record within the region. This species has been recorded from less than 30 locations across NSW and so this record is of some importance, especially as it is located within a reserve. Many previously recorded locations have been lost to development. The superb parrot (*Polytelis swainsonii*) is listed as vulnerable under both the TSC Act and EPBC Act and was sighted twice in Illunie Nature Reserve. It had been recorded previously within this reserve and is not uncommon in the region.

Exotic and Pest Species

Few pest vertebrate species were detected during the Bush Blitz, although it is likely that more are present. Pest fauna are not regarded as a significant threat to reserve values due to the success of control programs and the relatively small numbers within the reserves. During the Bush Blitz, brown hare, sheep and black rat were observed in Dananbilla Nature Reserve. No vertebrate pest species were detected at Illunie. Three species of exotic slug were recorded in low numbers in the reserves. This was expected given the history of disturbance including grazing. All three species are considered to be agricultural pests but their impact on native ecosystems is unknown. Striped Field Slug (*Lehmannia nyctelia*) was found to be abundant in gardens of the Fernhill homestead, with greenhouse slug (*Milax gagates*) also present in low numbers. No known pest species of beetle, snail, dragonfly, damselfly or spider were recorded during this survey.





Thick-tailed Gecko (*Underwoodisaurus milii*) © R Catullo

Fifty-seven weed species were recorded in the reserves; however, no state or nationally listed weed species were encountered. A number of invasive species uncommon on the NSW south-west slopes were collected, namely french flax (*Linum trigynum*), poverty brome (*Bromus sterilis*), golden top grass (*Lamarckia aurea*), lesser snapdragon (*Misopates orontium*), bindii (*Soliva sessilis*), *Sisyrinchium* sp. (blue-eyed grass). A specimen of (*Holcus annuus*), collected from Illunie Nature Reserve, represents a new record for NSW: it was only known to be naturalised in South Australia and Victoria. A collection of yellow serradella (*Ornithopus compressus*), also from Illunie, is the first record from southern NSW of this uncommon weed, which occurs mainly around Sydney. At Illunie, it seems to have persisted on a site which has had significant disturbance in the past, and appears to have been cleared and cultivated at some point. Yellow serradella is unlikely to become a significant weed in the reserve; it is more of a problem in Western Australia where it favours sandy soils on the coast.

Other Points of Interest

Plants of particular interest recorded during this Bush Blitz expedition included gibbison's flannel flower (*Actinotus gibbonsii*), flannel flower (*Actinotus helianthi*), *Daviesia pubigera* (a pea), wire lily (*Laxmannia compacta*) and dwarf trigger plant (*Stylidium despectum*), all of which are uncommon on the south-west slopes of NSW. The specimen of *Cleistochloa rigida* is probably the most south-westerly recorded occurrence of this species.

Fifty-six species of spiders from 11 target families were recorded. About two-thirds of the collected species and five genera are possibly new to science and await formal description. No recent comprehensive revisions exist for spiders from the Corinnidae (corinnid sac spiders), Desidae (lace web spiders), Lycosidae (wolf spiders), Nemesiidae (trapdoor spiders), Oonopidae (goblin spiders) and Zoridae (wandering spiders) families, to which most of the new species are referable. Almost all of the collected spiders are medium-sized (5–20 mm body length), actively hunting ground spiders that do not make a web.

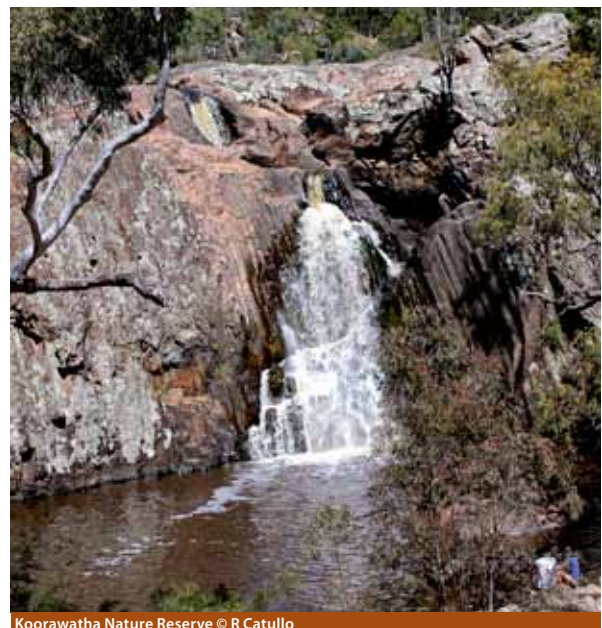


An unexpectedly ecologically diverse beetle fauna was present at the Koorawatha and Dananbilla reserves. Although the habitat is relatively fragmented and modified by roads and livestock, beetles and other insects from a wide variety of ecological niches were present. The diversity of beetle taxa collected from leaf litter is particularly striking, as this microhabitat — deep deposits of moist, decaying leaves and organic matter — requires a significant amount of older vegetation and minimal disturbance. Although current knowledge of the Australian beetle fauna is inadequate to determine precisely how many species are present — only three could be identified — it is highly probable that ‘morphospecies’ collected from both reserves include multiple undescribed species. The record of 167 morphospecies for Dananbilla and Koorawatha is a conservative estimate of the number of beetles present. Future collecting and investigation using DNA analysis and internal morphology are likely to reveal additional species. Illunie reserve was depauperate in beetle fauna, and no good collecting sites could be found.

A new species of land snail, a punctid, was also discovered. Only five native species were found during the survey, which is not surprising given the dryness of the area and the lack of wet forest habitat or limestone substrate. However, the finding of a new species shows that even areas of low diversity are worth surveying.

Dragonflies and damselflies were abundant, but diversity was very low with a total of 15 species recorded, all of them widespread. The absence of larger waterways limited species to those that prefer still, slow moving or transient water. As the reserves are surrounded by farmland, water quality may also have been an issue.

Records of vertebrates indicate a mix of eastern and western NSW species in the reserves, representing an interesting overlap of vertebrate distributions. For example, the record of a copper-tailed skink (*Ctenotus taeniolatus*) is at the westerly limit of the range for this species. The survey also provided an opportunity to collect information on the local frogs which may represent cryptic species within currently recognised very widespread species, in particular the smooth toadlet (*Uperoleia laevigata*) and Peron’s tree frog (*Litoria peronii*). Observations of Peron’s tree frog and giant banjo frog (*Limnodynastes interioris*) indicate that the animals detected may be members of undescribed taxa. The records obtained from this study will help to delineate the ranges of these possible new species. Large diurnal elapids (venomous snakes) were not observed at any time during the surveys, even though conditions were very suitable. This indicates the potential to detect additional species for all classes of vertebrates in all reserves during future surveys, although relatively few of these are expected to be birds.



Koorawatha Nature Reserve © R Catullo





Appendix A: Species Lists

Additional supplements containing the appendices for individual reserves are available to download from:

www.bushblitz.org.au

Nomenclature and taxonomy used in this appendix are consistent with that from the Australian Faunal Directory (AFD), the Australian Plant Name Index (APNI) and the Australian Plant Census (APC).

Current at April 2012



Fauna

Vertebrates

Birds					
Family	Species	Common name	Dananbilla	Illunie	Koorawatha
Acanthizidae	<i>Gerygone albogularis</i>	White-throated Gerygone			X *
Accipitridae	<i>Aquila audax</i>	Wedge-tailed Eagle	■		■
Artamidae	<i>Artamus cyanopterus</i>	Dusky Woodswallow	■		■
	<i>Cracticus nigrogularis</i>	Pied Butcherbird		X *	
	<i>Cracticus tibicen</i>	Australian Magpie	■	X *	■
	<i>Cracticus torquatus</i>	Grey Butcherbird	■		■
	<i>Strepera graculina</i>	Pied Currawong	■		■
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	X		■
	<i>Eolophus roseicapillus</i>	Galah	X		■
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	X		■
Climacteridae	<i>Climacteris affinis</i>	White-browed Treecreeper		X *	
	<i>Cormobates leucophaea</i>	White-throated Treecreeper	■		■
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	X		■
	<i>Phaps chalcoptera</i>	Common Bronzewing		X *	
Corcoracidae	<i>Corcorax melanorhamphos</i>	White-winged Chough	X	X *	■
Corvidae	<i>Corvus coronoides</i>	Australian Raven	■		■
Estrildidae	<i>Taeniopygia bichenovii</i>	Double-barred Finch			X *
Falconidae	<i>Falco peregrinus</i>	Peregrine Falcon			X *
Halcyonidae	<i>Dacelo novaeguineae</i>	Laughing Kookaburra		X *	
	<i>Todiramphus sanctus</i>	Sacred Kingfisher			X *
Maluridae	<i>Malurus cyaneus</i>	Superb Fairy-wren			X *
Meliphagidae	<i>Anthochaera carunculata</i>	Red Wattlebird	■		■
	<i>Lichenostomus chrysops</i>	Yellow-faced Honeyeater	X *	X *	X *
	<i>Philemon corniculatus</i>	Noisy Friarbird	■		■
Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater	■		X *

Key

X = Previously recorded on the reserve and found on this survey

X* = New record for this reserve

^ = Exotic/Pest

= EPBC listed

~ = TSC listed

○ = **Putative new species**

■ = *Previously recorded on the reserve but not found on this survey*





Birds					
Family	Species	Common name	Dananbilla	Illunie	Koorawatha
Monarchidae	<i>Grallina cyanoleuca</i>	Magpie-lark	■		X *
	<i>Myiagra inquieta</i>	Restless Flycatcher	■		■
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	■		■
Oriolidae	<i>Oriolus sagittatus</i>	Olive-backed Oriole	■		■
Pachycephalidae	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	■		■
	<i>Pachycephala rufiventris</i>	Rufous Whistler	X	X *	X *
Pardalotidae	<i>Pardalotus punctatus</i>	Spotted Pardalote	X *		
Petroicidae	<i>Eopsaltria australis</i>	Eastern Yellow Robin	X *		
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth		X *	
Pomatostomidae	<i>Pomatostomus superciliosus</i>	White-browed Babbler			■
	<i>Pomatostomus temporalis temporalis</i> ~	Grey-crowned Babbler (eastern subspecies)	X		■
Psittacidae	<i>Platycercus adscitus</i>	Pale-headed Rosella	■		■
	<i>Polytelis swainsonii</i> # ~	Superb Parrot		X *	
Rhipiduridae	<i>Rhipidura albiscapa</i>	Grey Fantail	■		X *
	<i>Rhipidura leucophrys</i>	Willie Wagtail	■		■
Strigidae	<i>Ninox novaeseelandiae</i>	Southern Boobook		X *	



Eastern Yellow Robin (*Eopsaltria australis*) © R Catullo



Frogs					
Family	Species	Common name	Dananbilla	Illunie	Koorawatha
Hylidae	<i>Litoria latopalmata</i>	Broad-palmed Frog		X *	X *
	<i>Litoria peronii</i>	Peron's Tree Frog	X *		X *
Myobatrachidae	<i>Crinia parinsignifera</i>	Eastern Sign-bearing Froglet	X *	X *	X *
	<i>Crinia signifera</i>	Common Eastern Froglet	X *	X *	X *
	<i>Limnodynastes interioris</i>	Giant Banjo Frog	X *		X *
	<i>Limnodynastes tasmaniensis</i>	Spotted Grass Frog	X *	X *	
	<i>Uperoleia laevigata</i>	Smooth Toadlet	X *	X *	



Peron's Tree Frog (*Litoria peronii*) © R Catullo

- Key
- X = Previously recorded on the reserve and found on this survey
 - X* = New record for this reserve
 - ^ = Exotic/Pest
 - # = EPBC listed
 - ~ = TSC listed
 - = **Putative new species**
 - = *Previously recorded on the reserve but not found on this survey*





Mammals					
Family	Species	Common name	Dananbilla	Illunie	Koorawatha
Bovidae	<i>Ovis aries</i> ^	Sheep (feral)	X *		
Dasyuridae	<i>Antechinus flavipes</i>	Yellow-footed Antechinus		X *	
	<i>Dasyurus maculatus</i> ~	Spotted-tailed Quoll		■	
Leporidae	<i>Lepus capensis</i> ^	Brown Hare	X *		
Macropodidae	<i>Macropus giganteus</i>	Eastern Grey Kangaroo	■	X	■
	<i>Wallabia bicolor</i>	Swamp Wallaby	X	X	■
Molossidae	<i>Mormopterus</i> "Species 4" (big penis)	–	X *	X *	
	<i>Mormopterus loriae ridei</i>	Little North-eastern Freetail Bat		X *	
	<i>Tadarida australis</i>	White-striped Freetail-bat	X *	X *	X *
Muridae	<i>Rattus rattus</i> ^	Black Rat			X *
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	■		■
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	X *	X *	X *
	<i>Chalinolobus morio</i>	Chocolate Wattled Bat	X *	X *	X *
	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	X *	X *	
	<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	X *		
	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat	X *	X *	
	<i>Vespadelus darlingtoni</i>	Large Forest Bat		X *	X *
	<i>Vespadelus regulus</i>	Southern Forest Bat	X *	X *	
	<i>Vespadelus vulturnus</i>	Little Forest Bat	X *	X *	X *



Yellow-footed Antechinus (*Antechinus flavipes*) © R Catullo



Reptiles					
Family	Species	Common name	Dananbilla	Illunie	Koorawatha
Gekkonidae	<i>Christinus marmoratus</i>	Marbled Gecko		X *	
	<i>Diplodactylus vittatus</i>	Wood Gecko			X *
	<i>Underwoodisaurus milii</i>	Thick-tailed Gecko			X *
Pygopodidae	<i>Aprasia parapulchella</i> # ~	Pink-tailed Legless Lizard			X *
Scincidae	<i>Cryptoblepharus australis</i>	Inland Snake-eyed Skink	X *		
	<i>Cryptoblepharus</i> sp.	–	X *		X *
	<i>Ctenotus taeniolatus</i>	Copper-tailed Skink		X *	
	<i>Egernia striolata</i>	Tree Skink	X *	X *	
	<i>Lerista bougainvillii</i>	South-eastern Slider	X *		X *
	<i>Morethia boulengeri</i>	South-eastern Morethia Skink	X *	X *	X *
	<i>Tiliqua rugosa</i>	Shingle-back	X		■
Varanidae	<i>Varanus varius</i>	Lace Monitor		X *	



Shingle-back lizard (*Tiliqua rugosa*) © A Bush

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Invertebrates



Male, Brentidae © A Seago



Beetles				
Family	Species	Dananbilla	Illunie	Koorawatha
Aderidae	unid. sp. 1	X *		
Anobiidae	unid. sp. 1	X *		
Anthicidae	unid. sp. 1	X *		
	unid. sp. 2	X *		
Archaeocrypticidae	nr <i>Wattianus</i>	X *		
Bolboceratidae	unid. sp. 1	X *		X *
Bothrideridae	unid. sp.	X *		
Brentidae	<i>Cordus</i> sp.	X *		
Byrrhidae	unid. sp. 1	X *		
Carabidae	<i>Abacetus</i> sp.	X *		
	Agonicini sp. 1			X *
	<i>Arthropterus</i> sp.			X *
	<i>Arthropterus</i> sp. 1	X *		
	Bembidiini sp. 1			X *
	<i>Bembidion</i> sp. 1	X *		X *
	<i>Bembidion</i> sp. 2	X *		X *
	Broscini gen. sp.			X *
	<i>Calosoma</i> sp. 1	X *		X *
	<i>Carenum</i> sp. 1			X *
	<i>Carenum</i> sp. 2	X *		
	<i>Carenum</i> sp. 3			X *
	<i>Catadromus</i> sp.			X *
	<i>Chlaenius</i> sp. 1	X *		X *
	<i>Chlaenius</i> sp. 2			X *
	<i>Cicindela (Myriochile)</i> sp.			X *
	<i>Cicindela</i> sp.	X *		
	Cicindelinae sp. 1			X *
	<i>Clivina</i> sp.			X *
	<i>Clivina</i> sp. 1			X *
	<i>Clivina</i> sp. 2	X *		
	<i>Clivina</i> sp. 3	X *		
	<i>Clivina</i> sp. 4	X *		
	<i>Craspedophorus</i> sp.			X *
	nr <i>Elaphrus</i> sp. 1			X *
	<i>Euryscaphus</i> sp.	X *		
	Harpalinae sp. 1			X *



Beetles				
Family	Species	Dananbilla	Illunie	Koorawatha
Carabidae	Harpalinae sp. 2			X *
	Harpalini sp. 1	X *		
	Harpalini sp. 2	X *		
	Harpalini sp. 3	X *		
	Harpalini sp. 4	X *		
	Harpalini sp. 5			X *
	Harpalini sp. 6	X *		
	<i>Homethes</i> sp.	X *		X *
	<i>Hypharpax</i> sp.	X *		
	Lebiinae sp. 1			X *
	Lebiini sp. 1			X *
	Lebiini sp. 2	X *		
	Lebiini sp. 3	X *		
	<i>Lecanomerus</i>	X *		
	<i>Loxandrus gagatinus</i>	X *		
	<i>Loxandrus</i> sp.			X *
	<i>Mecyclothorax</i> sp.	X *		X *
	<i>Notagonum</i> sp.	X *		
	<i>Oodes</i> sp.			X *
	<i>Oodes</i> sp. 1	X *		
	<i>Oodes</i> sp. 2	X *		
	Panagaeinae sp. 1			X *
	<i>Pentagonica</i> sp.	X *		
	<i>Pheropsophus verticalis</i>			X *
	<i>Promecoderus</i> sp.			X *
	<i>Pseudoceneus</i> sp.			X *
	<i>Rhytisternus</i> sp. 1			X *
	<i>Rhytisternus</i> sp. 2			X *
	<i>Sarticus cyaneocinctus</i>			X *
	<i>Sarticus</i> sp.			X *
	<i>Scopodes</i> sp.	X *		
<i>Simodontus</i> sp.			X *	
Cerambycidae	<i>Phoracantha synonyma</i>	X *		
Chrysomelidae	Galerucinae sp. 1	X *		
	Galerucinae sp. 2	X *		
	Eumolpinae sp. 1			X *
	Paropsinae sp. 1			X *

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Galerucinae © A Seago



Curculionidae © A Seago



Dytiscidae © A Seago

Beetles

Family	Species	Dananbilla	Illunie	Koorawatha
Coccinellidae	<i>Coccinella transversalis</i>			X *
Cucujidae	<i>Platysus</i> sp. 1	X *		
Curculionidae	Curculioninae sp. 1	X *		
	Entiminae sp. 1	X *		
	Entiminae sp. 2	X *		
	Entiminae sp. 3	X *		
	Entiminae sp. 4	X *		
Dytiscidae	Colymbetinae sp. 2	X *		
	Hydroporinae sp. 1	X *		
	Hydroporinae sp. 2	X *		
	Laccophilinae sp. 1	X *		
	Laccophilinae sp. 2	X *		
	nr <i>Platynectes</i> sp. 1	X *		
Elateridae	unid. sp. 1	X *		
	unid. sp. 2	X *		X *
	unid. sp. 3			X *
	unid. sp. 4	X *		
	unid. sp. 5	X *		
	unid. sp. 6	X *		
Gyrinidae	unid. sp. 1	X *		
Heteroceridae	unid. sp. 1	X *		X *
Hydrophilidae	sp. 3 nr <i>Berosus</i>	X *		
	sp. 11 nr <i>Berosus</i>	X *		
	Hydrophilinae sp. 1	X *		
	Hydrophilinae sp. 5	X *		
	Hydrophilinae sp. 7	X *		
	Hydrophilinae sp. 8	X *		
	Hydrophilinae sp. 10	X *		
	sp. 9 nr <i>Hydrophilus</i>	X *		
	Sphaeridiinae sp. 2	X *		
Sphaeridiinae sp. 7	X *			
Lycidae	<i>Porrostoma</i> sp. 1	X *		



Beetles				
Family	Species	Dananbilla	Illunie	Koorawatha
Melyridae	Malachiinae sp. 1	X *		
Nitidulidae	unid. sp. 1	X *		
Passalidae	Aulacocyclinae sp. 1			X *
Phalacridae	Phaenocephalinae sp. 1			X *
	unid. sp. 1			X *
	unid. sp. 2	X *		
Scarabaeidae	Aphodiinae sp. 1	X *		
	Aphodiinae sp. 2	X *		X *
	Aphodiinae sp. 4			X *
	nr <i>Heteronyx</i> sp. 1			X *
	Melolonthinae sp. 1	X *		
	Melolonthinae sp. 2	X *		
	Melolonthinae sp. 3	X *		
	Melolonthinae sp. 4	X *		
	<i>Onthophagus</i> sp. 1	X *		
	<i>Onthophagus</i> sp. 2	X *		
	<i>Onthophagus</i> sp. 3			X *
	Rutelinae sp. 1			X *
	nr <i>Semanopterus</i>			X *
	nr <i>Semanopterus</i> sp. 1	X *		
Sericini sp. 1	X *		X *	
Scirtidae	unid. sp. 1	X *		
	unid. sp. 2	X *		
	unid. sp. 3	X *		
Scraptidae	unid. sp. 1			X *

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Beetles				
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Silphidae	<i>Oxelytrum</i> sp. 1	X *		
Silvanidae	Brontinae sp. 1			X *
	Silvaninae sp. 1	X *		
Sphindidae	nr <i>Aspidiphorus</i> 1	X *		
Staphylinidae	Aleocharinae sp. 1	X *		X *
	Aleocharinae sp. 2	X *		X *
	Aleocharinae sp. 3	X *		
	Aleocharinae sp. 4	X *		
	Aleocharinae sp. 5	X *		
	Aleocharinae sp. 6	X *		
	Aleocharinae sp. 7	X *		
	Aleocharinae sp. 8	X *		
	Aleocharinae sp. 9	X *		
	Aleocharinae sp. 11	X *		
	Pselaphinae sp. 1			X *
	Pselaphinae sp. 2	X *		
	Scaphidiinae sp. 1	X *		
	Scydmaeninae sp. 1	X *		
	Scydmaeninae sp. 2	X *		
	Staphylininae sp. 1			X *
	Staphylininae sp. 2			X *
	Staphylininae sp. 3	X *		
	Staphylininae sp. 4			X *
	Staphylininae sp. 5	X *		
Staphylininae sp. 6			X *	
Staphylininae sp. 7			X *	
	nr <i>Thyreocephalus</i> sp. 1	X *		
Tenebrionidae	Alleculinae sp. 1	X *		
	Alleculinae sp. 2	X *		
	Alleculinae sp. 3	X *		
	<i>Euomma</i> sp.	X *		X *
	unid. sp. 1			X *
	unid. sp. 2	X *		
	unid. sp. 3			X *
	unid. sp. 4			X *
	unid. sp. 5			X *
Trogidae	unid. sp. 1	X *		
	unid. sp. 2	X *		
	unid. sp. 3			X *



Dragonflies

Family	Species	Dananbilla	Illunie	Koorawatha
Aeshnidae	<i>Adversaeschna brevistyla</i>	X*		X*
	<i>Hemianax papuensis</i>	X*	X*	
Coenagrionidae	<i>Austroagrion watsoni</i>	X*	X*	X*
	<i>Ischnura aurora</i>	X*	X*	X*
	<i>Ischnura heterosticta</i>		X*	X*
	<i>Xanthagrion erythroneurum</i>	X*	X*	
Gomphidae	<i>Austroepigomphus praeruptus</i>			X*
Hemicorduliidae	<i>Hemicordulia tau</i>	X*	X*	X*
Lestidae	<i>Austrolestes analis</i>	X*	X*	
	<i>Austrolestes aridus</i>	X*		X*
	<i>Austrolestes leda</i>	X*	X*	X*
Libellulidae	<i>Diplacodes bipunctata</i>	X*	X*	X*
	<i>Diplacodes haematodes</i>	X*		X*
	<i>Orthetrum caledonicum</i>	X*	X*	X*
Megapodagrionidae	<i>Austroargiolestes icteromelas</i>	X*		X*



Dragonfly specimens © P Hemming

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Elsothera funerea © K Bonham



Snails				
Family	Species	Dananbilla	Illunie	Koorawatha
Agriolimacidae	<i>Deroceras panormitanum</i> ^	X *		
Camaenidae	<i>Galadistes molong</i>	X *	X *	
Charopidae	<i>Elsothera funerea</i>	X *	X *	X *
Limacidae	<i>Lehmannia nyctelia</i> ^	X *		X *
Milacidae	<i>Milax gagates</i> ^		X *	
Punctidae	<i>Paralaoma caputspinulae</i>	X *	X *	X *
	<i>Paralaoma gelida</i>	X *		X *
	Punctidae sp. "ST New" (expected to be ST9)			○ *



Spiders				
Family	Species	Dananbilla	Illunie	Koorawatha
Corinnidae	gen n. 1, n. sp. 1	○ *		○ *
	gen n. 2, n. sp. 2		○ *	
	gen n. 2, n. sp. 3			○ *
	gen n. 3, n. sp. 4			○ *
	<i>Supunna funerea</i>		X *	X *
	Supunna n. sp. 5	○ *		
	Supunna n. sp. 6		○ *	
	<i>Supunna picta</i>	X *		X *
Desidae	gen n. 5, sp. n. 12			○ *
Hersiliidae	<i>Tamopsis eucalypti</i>			X *
	<i>Tamopsis fickerti</i>			X *
Lamponidae	<i>Lampona braemar</i>		X *	
	Lamponina n. sp. 35	○ *		
	<i>Longepi woodman</i>			X *
	<i>Notsodipus muckera</i>	X *		
	<i>Queenvic goanna</i>			X *
Lycosidae	Artoria n. sp. 30		○ *	
	Artoria n. sp. 31		○ *	
	Artoria n. sp. 32	○ *		
	Artoria n. sp. 33	○ *		○ *
	Artoria n. sp. 34	○ *		
	Lycosidae n. sp. 25			○ *
	Lycosidae n. sp. 27			○ *
	Tasmanicosa n. sp. 26	○ *	○ *	○ *
	Trochosa n. sp. 28		○ *	
	<i>Venonia micarioides</i>			X *
Miturgidae	gen n. 4, n. sp. 7			○ *
	gen n. 4, n. sp. 11	○ *		
	<i>Mituliodon tarantulinus</i>			X *
	<i>Miturga agelenina</i>			X *
	Miturga n. sp. 8	○ *		○ *
	Miturga n. sp. 9			○ *
	Miturga n. sp. 10			○ *
	<i>Mitzoruga insularis</i>	X *	X *	
Nemesiidae	Aname n. sp. 14	○ *		○ *
	Chenistonia n. sp. 13		○ *	○ *

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Spiders				
Family	Species	Dananbilla	Illunie	Koorawatha
Oonopidae	<i>Gamasomorpha n. sp. 22</i>			○ *
	<i>Myrmopopaea n. sp. 23</i>		○ *	○ *
	<i>Opopaea n. sp. 24</i>			○ *
Prodidomidae	<i>Molycrria dalby</i>	X *		X *
	<i>Myandra cambridgei</i>			X *
	<i>Nomindra kinchega</i>	X *		
Zodariidae	<i>Australutica n. sp. 16</i>	○ *		○ *
	<i>Habronestes bradleyi</i>			X *
	<i>Habronestes grahami</i>	X *		X *
	<i>Hetaerica n. sp. 17</i>			○ *
	<i>Holasteron aciculare</i>			X *
	<i>Neostorena n. sp. 18</i>	○ *	○ *	○ *
	<i>Neostorena n. sp. 19</i>	○ *		○ *
	<i>Neostorena n. sp. 20</i>			○ *
	<i>Pentasteron intermedium</i>			X *
	<i>Storena cyanea</i>			X *
	<i>Storena formosa</i>			X *
Zoridae	<i>Hestimodema n. sp. 15</i>	X *		
	<i>Hestimodema n. sp. 29</i>		○ *	



Grey Wolf Spider, Lycosidae © A Bush



Tamopsis eucalypti on eucalypt bark © B Baehr



Sisyrrinchium sp. weed from the family Iridaceae © A Schmidt-Lebuhn

Flora

Flowering Plants and Ferns				
Family	Species	Dananbilla	Illunie	Koorawatha
Apiaceae	<i>Actinotus gibbonsii</i>	X *		X *
	<i>Actinotus helianthi</i>			X *
	<i>Daucus glochidiatus</i>	X *	X *	
	<i>Hydrocotyle foveolata</i>		X *	
	<i>Hydrocotyle laxiflora</i>	X *	X *	X *
Asparagaceae	<i>Arthropodium fimbriatum</i> (<i>Dichopogon fimbriatus</i>)	X *		X *
	<i>Arthropodium fimbriatum</i>		X *	
	<i>Arthropodium minus</i>	X		X
	<i>Arthropodium strictum</i> (<i>Dichopogon strictus</i>)		X *	
	<i>Laxmannia compacta</i>			X *
	<i>Laxmannia gracilis</i>	X *		
	<i>Lomandra filiformis</i>		X	X

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Flowering Plants and Ferns				
Family	Species	Dananbilla	Illunie	Koorawatha
Asparagaceae	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	X *	X *	X *
	<i>Lomandra multiflora</i>		X *	
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	X *		
Asphodelaceae	<i>Bulbine bulbosa</i>	X *	X *	X *
Aspleniaceae	<i>Pleurosorus rutifolius</i>			X *
Asteraceae	<i>Arctotheca calendula</i> ^	X *		X *
	<i>Brachyscome gracilis</i>	X *	X	X *
	<i>Brachyscome willisii</i>	X *		X *
	<i>Calotis lappulacea</i>	X *		X *
	<i>Carduus pycnocephalus</i> ^		X *	X *
	<i>Carduus tenuiflorus</i> ^	X		
	<i>Centaurea melitensis</i> ^	X *		
	<i>Chrysocephalum apiculatum</i>	X *	X *	X *
	<i>Chrysocephalum semipapposum</i>	X		X
	<i>Cotula australis</i>	X *	X *	X *
	<i>Craspedia variabilis</i>	X		
	<i>Cymbonotus lawsonianus</i>	X *		
	<i>Euchiton gymnocephalus</i>	X *	X *	
	<i>Euchiton involucratus</i>	X		
	<i>Euchiton sphaericus</i>			X *
	<i>Hypochaeris glabra</i> ^	X *	X *	X *
	<i>Hypochaeris radicata</i> ^	X *	X *	X *
	<i>Leptorhynchus squamatus</i>		X	
	<i>Leptorhynchus squamatus</i> subsp. <i>squamatus</i>			X *
	<i>Microseris lanceolata</i>	X	X *	
	<i>Olearia tenuifolia</i>	X *		
	<i>Pseudognaphalium luteoalbum</i>	X		
	<i>Senecio bathurstianus</i>			X *
	<i>Senecio</i> cf. <i>queenslandicus</i>			X *
	<i>Senecio hispidulus</i>	X *		
	<i>Senecio pinnatifolius</i>	X		
	<i>Senecio quadridentatus</i>	X		
	<i>Solenogyne dominii</i>		X	X *
	<i>Soliva sessilis</i> ^		X *	
	<i>Stuartina muelleri</i>	X *	X *	X *
	<i>Tolpis barbata</i> ^	X *		X *
	<i>Triptilodiscus pygmaeus</i>	X *	X	X *
<i>Vittadinia cuneata</i>		X *		
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	X *			



Flowering Plants and Ferns

Family	Species	Dananbilla	Illunie	Koorawatha
Asteraceae	<i>Vittadinia cuneata</i> var. <i>hirsuta</i>			X*
	<i>Vittadinia gracilis</i>	X*		X*
	<i>Vittadinia muelleri</i>			X*
	<i>Xerochrysum viscosum</i>	X*	X*	X*
Boraginaceae	<i>Cynoglossum suaveolens</i>	X*		X*
	<i>Echium plantagineum</i> ^	X*	X*	
	<i>Myosotis discolor</i> ^		X*	
Brassicaceae	<i>Lepidium africanum</i> ^			X*
Campanulaceae	<i>Isotoma axillaris</i>	X*		X*
	<i>Lobelia gibbosa</i>	X*		
	<i>Wahlenbergia gracilentata</i>	X*		
	<i>Wahlenbergia gracilis</i>		X*	X
	<i>Wahlenbergia ?graniticola</i>	X*		
	<i>Wahlenbergia luteola</i>	X*		
	<i>Wahlenbergia stricta</i>	X*	X*	X*
Caryophyllaceae	<i>Arenaria leptoclados</i> ^			X*
	<i>Moenchia erecta</i> ^		X*	
	<i>Petrorhagia dubia</i> ^	X*	X*	
	<i>Polycarpon tetraphyllum</i> ^			X*
	<i>Silene gallica</i> var. <i>gallica</i> ^	X*	X*	X*
	<i>Stellaria media</i> ^			X*
Casuarinaceae	<i>Allocasuarina diminuta</i>		X	X*
	<i>Allocasuarina verticillata</i>		X*	X*
Celastraceae	<i>Stackhousia monogyna</i>	X*	X*	
Centrolepidaceae	<i>Centrolepis strigosa</i>		X*	X*
Chenopodiaceae	<i>Einadia nutans</i> subsp. <i>nutans</i>			X*
Colchicaceae	<i>Burchardia umbellata</i>		X	
	<i>Wurmbea dioica</i> subsp. <i>dioica</i>	X*		
Convolvulaceae	<i>Convolvulus angustissimus</i> subsp. <i>angustissimus</i>	X*		
Crassulaceae	<i>Crassula decumbens</i> var. <i>decumbens</i>	X*	X*	
	<i>Crassula sieberiana</i>	X*	X*	X*
Cupressaceae	<i>Callitris endlicheri</i>	X	X	X
Cyperaceae	<i>Carex appressa</i>	X*	X*	
	<i>Carex inversa</i>	X*		X*
	<i>Cyperus gunnii</i> subsp. <i>gunnii</i>		X*	

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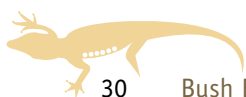
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Cyperaceae	<i>Isolepis hookeriana</i>	X *		X *
	<i>Isolepis victoriensis</i>	X *		
	<i>Lepidosperma laterale</i>	X *		X *
	<i>Schoenus apogon</i>		X *	
Dilleniaceae	<i>Hibbertia linearis</i>	X		
	<i>Hibbertia</i> sp.	X *	X *	
Droseraceae	<i>Drosera auriculata</i>	X *		
	<i>Drosera peltata</i>	X	X *	X *
Epacridaceae	<i>Brachyloma daphnoides</i>	X *		
	<i>Leucopogon attenuatus</i>	X		
	<i>Lissanthe strigosa</i> subsp. <i>subulata</i>	X *		
	<i>Melichrus erubescens</i>	X *		
	<i>Monotoca scoparia</i>			X *
Euphorbiaceae	<i>Phyllanthus occidentalis</i>	X *		
	<i>Poranthera microphylla</i>	X *		X *
	<i>Pseudanthus divaricatissimus</i>			X *
Fabaceae	<i>Acacia doratoxylon</i>			X
	<i>Acacia paradoxa</i>			X *
	<i>Acacia spectabilis</i>			X *
	<i>Acacia verniciflua</i>	X	X	
	<i>Daviesia pubigera</i>			X *
	<i>Dillwynia sericea</i>	X *	X *	
	<i>Glycine clandestina</i>			X *
<i>Glycine tabacina</i>	X *			



Rock Isotome (*Isotoma axillaris*) © A Schmidt-Lebuhn



Everlasting Daisy (*Chrysocephalum apiculatum*) © BM Collins



Flannel flower (*Actinotus helianthi*) © A Schmidt-Lebuhn

Flowering Plants and Ferns

Family	Species	Dananbilla	Illunie	Koorawatha
Fabaceae	<i>Hardenbergia violacea</i>		X *	
	<i>Indigofera adesmiifolia</i>			X
	<i>Indigofera australis</i>			X *
	<i>Ornithopus compressus</i> ^		X *	
	<i>Trifolium angustifolium</i> var. <i>angustifolium</i> ^	X *		X *
	<i>Trifolium arvense</i> ^			X *
	<i>Trifolium arvense</i> var. <i>arvense</i> ^	X *	X *	
	<i>Trifolium campestre</i> var. <i>campestre</i> ^	X *	X *	X *
	<i>Trifolium glomeratum</i> ^	X *	X *	X *
	<i>Trifolium striatum</i> ^		X *	X *
<i>Trifolium subterraneum</i> ^		X *	X *	
Gentianaceae	<i>Centaurium tenuiflorum</i> ^			X *
	<i>Cicendia filiformis</i> ^		X *	
Geraniaceae	<i>Erodium botrys</i> ^		X *	
	<i>Geranium molle</i> ^		X *	X *
	<i>Geranium retrorsum</i>			X *
	<i>Geranium solanderi</i> var. <i>solanderi</i>	X *	X *	

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Flowering Plants and Ferns				
Family	Species	Dananbilla	Illunie	Koorawatha
Goodeniaceae	<i>Dampiera lanceolata</i>	X *		X *
	<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	X *	X *	X *
	<i>Goodenia pinnatifida</i>	X *		X *
Haloragaceae	<i>Gonocarpus elatus</i>	X *		X *
Hemerocallidaceae	<i>Dianella</i> sp.		X *	
	<i>Stypandra glauca</i>	X	X *	X *
	<i>Tricoryne elatior</i>	X *	X	
Hypericaceae	<i>Hypericum gramineum</i>	X *	X *	
Iridaceae	<i>Sisyrinchium</i> sp. ^		X *	
Juncaceae	<i>Juncus bufonius</i> ^	X *	X *	X *
	<i>Juncus capitatus</i> ^		X *	
	<i>Juncus remotiflorus</i>	X *		X *
	<i>Juncus subsecundus</i>		X *	
	<i>Luzula</i> cf. <i>densiflora</i>		X *	
	<i>Luzula flaccida</i>			X *
Lamiaceae	<i>Ajuga australis</i>			X *
	<i>Scutellaria humilis</i>	X *		X *
Lauraceae	<i>Cassytha pubescens</i>	X *		
Lentibulariaceae	<i>Utricularia dichotoma</i>		X	
Linaceae	<i>Linum trigynum</i> ^	X *		
Loranthaceae	<i>Amyema miquelii</i>	X *	X *	
Lythraceae	<i>Lythrum hyssopifolia</i>		X *	
Malvaceae	<i>Brachychiton populneus</i> subsp. <i>populneus</i>	X *		
	<i>Sida corrugata</i>			X *
Myrtaceae	<i>Calytrix tetragona</i>	X *	X	
	<i>Eucalyptus dealbata</i>	X *	X	X *
	<i>Eucalyptus goniocalyx</i> subsp. <i>goniocalyx</i>			X *
	<i>Eucalyptus macrorhyncha</i> subsp. <i>macrorhyncha</i>		X *	
	<i>Eucalyptus microcarpa</i>			X *
	<i>Eucalyptus rossii</i>			X *
	<i>Eucalyptus sideroxylon</i> subsp. <i>sideroxylon</i>	X *		X *
	<i>Kunzea parvifolia</i>		X	
	<i>Leptospermum multicaule</i>		X	
Orchidaceae	<i>Caladenia cucullata</i>		X	
	<i>Caladenia fuscata</i>	X		
	<i>Diuris dendrobioides</i>	X		
	<i>Microtis arenaria</i>		X *	
	<i>Microtis parviflora</i>	X *		X *



Fruiting *Dodonaea boroniifolia* © A Schmidt-Lebuhn

Flowering Plants and Ferns

Family	Species	Dananbilla	Illunie	Koorawatha
Orchidaceae	<i>Microtis unifolia</i>	X *		
	<i>Pterostylis boormanii</i>	X *		X *
Orobanchaceae	<i>Orobanche minor</i> ^	X *		X *
	<i>Parentucellia latifolia</i> ^	X *	X *	
Oxalidaceae	<i>Oxalis radicata</i>	X *	X *	X *
Papaveraceae	<i>Papaver somniferum</i> ^		X *	X *
Pittosporaceae	<i>Cheiranthra linearis</i>	X *		
Plantaginaceae	<i>Gratiola pumilo</i>		X *	
	<i>Linaria pelisseriana</i> ^	X *	X *	
	<i>Misopates orontium</i> ^			X *
	<i>Plantago varia</i>	X *		
	<i>Veronica cf. plebeia</i>			X *
Poaceae	<i>Aira elegantissima</i> ^	X *	X *	X *
	<i>Amphibromus nervosus</i>		X *	
	<i>Austrostipa densiflora</i>	X *	X *	X *
	<i>Austrostipa scabra</i> subsp. <i>falcata</i>		X *	X *
	<i>Avena barbata</i> ^		X *	

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Flowering Plants and Ferns				
Family	Species	Dananbilla	Illunie	Koorawatha
Poaceae	<i>Briza maxima</i> ^		X *	X *
	<i>Briza minor</i> ^	X *	X *	
	<i>Bromus hordeaceus</i> ^		X *	
	<i>Bromus rubens</i> ^	X *		
	<i>Bromus sterilis</i> ^		X *	
	<i>Cleistochloa rigida</i>			X *
	<i>Cynosurus echinatus</i> ^			X *
	<i>Elymus scaber</i>		X *	
	<i>Holcus lanatus</i> ^			X *
	<i>Hordeum leporinum</i> ^			X *
	<i>Joycea pallida</i>	X		
	<i>Lamarckia aurea</i> ^			X *
	<i>Lolium rigidum</i> ^	X *	X *	
	<i>Microlaena stipoides</i> var. <i>stipoides</i>			X *
	<i>Poa labillardierei</i> var. <i>labillardierei</i>	X *		
	<i>Poa sieberiana</i> var. <i>sieberiana</i>		X *	X *
	<i>Rytidosperma fulvum</i>	X		
	<i>Rytidosperma pallidum</i>	X *		X *
	<i>Themeda triandra</i> (T. <i>australis</i>)	X		
	<i>Vulpia bromoides</i> ^		X *	
<i>Vulpia myuros</i> f. <i>myuros</i> ^			X *	
Polygonaceae	<i>Acetosella vulgaris</i> ^		X *	
	<i>Rumex brownii</i>	X *	X *	
Portulacaceae	<i>Calandrinia eremaea</i>			X *
Primulaceae	<i>Lysimachia arvensis</i> ^	X *	X *	X *
Proteaceae	<i>Grevillea floribunda</i>	X *		
	<i>Grevillea lanigera</i>			X
	<i>Grevillea ramosissima</i> subsp. <i>ramosissima</i>		X *	
Pteridaceae	<i>Cheilanthes sieberi</i>	X *	X *	X *
	<i>Pellaea falcata</i>			X *
Ranunculaceae	<i>Ranunculus pumilio</i>			X *
	<i>Ranunculus sessiliflorus</i> var. <i>sessiliflorus</i>		X *	
Rosaceae	<i>Acaena echinata</i>	X *	X *	
	<i>Aphanes australiana</i>		X *	
Rubiaceae	<i>Galium divaricatum</i> ^	X *	X *	X *
	<i>Galium gaudichaudii</i>		X	
	<i>Galium gaudichaudii</i> subsp. <i>gaudichaudii</i>	X *	X *	X *
	<i>Opercularia</i> sp.		X *	
	<i>Pomax umbellata</i>	X *		X *



Flowering Plants and Ferns

Family	Species	Dananbilla	Illunie	Koorawatha
Rutaceae	<i>Phebalium squamulosum</i> subsp. <i>squamulosum</i>			X *
Sapindaceae	<i>Dodonaea boroniifolia</i>		X *	
	<i>Dodonaea viscosa</i> subsp. <i>angustifolia</i>			X
Solanaceae	<i>Lycium ferocissimum</i> ^			X *
	<i>Solanum cinereum</i>			X
Stylidiaceae	<i>Stylidium despectum</i>		X *	
Urticaceae	<i>Parietaria debilis</i>	X *		X *
	<i>Urtica urens</i> ^			X *
Violaceae	<i>Hybanthus monopetalus</i>			X *



Wild flowers in bloom © A Bush

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Appendix B: Rare and Threatened Species

Additional supplements containing the appendices for individual reserves are available to download from:

www.bushblitz.org.au

Nomenclature and taxonomy used in this appendix are consistent with that from the Australian Faunal Directory (AFD).

Current at April 2012



Superb Parrot (*Polytelis swainsonii*) © Leo Berzins

Fauna

Species	Common name	Status	Dananbilla	Illunie	Koorawatha
<i>Aprasia parapulchella</i>	Pink-tailed Legless Lizard, Pink-tailed Worm-lizard	EPBC — Vulnerable, TSC — Vulnerable			X *
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	TSC — Vulnerable		■	
<i>Polytelis swainsonii</i>	Superb Parrot	EPBC — Vulnerable, TSC — Vulnerable		X *	
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler	TSC — Vulnerable	X		■

EPBC = refers to the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

TSC = refers to the *Threatened Species Conservation Act 1995* (New South Wales)

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Appendix C: Exotic and Pest Species

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Nomenclature and taxonomy used in this appendix are consistent with that from the Australian Faunal Directory (AFD), the Australian Plant Name Index (APNI) and the Australian Plant Census (APC).

Current at April 2012



Paterson's Curse (*Echium plantagineum*), Fernhill property © A Bush

Fauna

Species	Common name	Dananbilla	Illunie	Koorawatha
<i>Deroceras panormitanum</i>	Brown Field Slug	X *		
<i>Lehmannia nyctelia</i>	Striped Field Slug	X *		X *
<i>Lepus capensis</i>	Brown Hare	X *		
<i>Milax gagates</i>	Greenhouse Slug		X *	
<i>Ovis aries</i>	Sheep (feral)	X *		
<i>Rattus rattus</i>	Black Rat			X *

Key X = Previously recorded on the reserve and found on this survey
 X* = New record for this reserve





Flora

Species	Common name	Dananbilla	Illunie	Koorawatha
<i>Acetosella vulgaris</i>	Sorrel, Sheep Sorrel		X *	
<i>Aira elegantissima</i>	Delicate Hairgrass	X *	X *	X *
<i>Arctotheca calendula</i>	Capeweed, Cape Dandelion	X *		X *
<i>Arenaria leptoclados</i>	Lesser Thyme-leaved Sandwort			X *
<i>Avena barbata</i>	Bearded Oats		X *	
<i>Briza maxima</i>	Quaking Grass, Giant Shivery Grass		X *	X *
<i>Briza minor</i>	Shivery Grass, Small Shivery Grass, Quaking Grass	X *	X *	
<i>Bromus hordeaceus</i>	Soft Brome		X *	
<i>Bromus rubens</i>	Red Brome	X *		
<i>Bromus sterilis</i>	Sterile Brome		X *	
<i>Carduus pycnocephalus</i>	Slender Thistle		X *	X *
<i>Carduus tenuiflorus</i>	Winged Slender Thistle	X		
<i>Centaurea melitensis</i>	Maltese Cocksbur, Cocksbur Thistle, Saucy Jack	X *		
<i>Centaureum tenuiflorum</i>	Century Weed			X *
<i>Cicendia filiformis</i>	–		X *	
<i>Cynosurus echinatus</i>	Rough Dog's-tail			X *
<i>Echium plantagineum</i>	Paterson's Curse	X *	X *	
<i>Erodium botrys</i>	Long Storksbill		X *	
<i>Galium divaricatum</i>	Slender Bedstraw	X *	X *	X *
<i>Geranium molle</i>	Cranesbill Geranium		X *	X *
<i>Holcus lanatus</i>	Yorkshire Fog			X *
<i>Hordeum leporinum</i>	Barley Grass			X *
<i>Hypochaeris glabra</i>	Smooth Catsear	X *	X *	X *
<i>Hypochaeris radicata</i>	Catsear, Flatweed	X *	X *	X *
<i>Juncus bufonius</i>	Toad Rush	X *	X *	X *
<i>Juncus capitatus</i>	Capitate Rush		X *	
<i>Lamarckia aurea</i>	Goldentop			X *
<i>Lepidium africanum</i>	–			X *
<i>Linaria pelisseriana</i>	Pelisser's Toadflax	X *	X *	
<i>Linum trigynum</i>	French Flax	X *		
<i>Lolium rigidum</i>	Wimmera Ryegrass	X *	X *	
<i>Lycium ferocissimum</i>	African Boxthorn			X *



Species	Common name	Dananbilla	Illunie	Koorawatha
<i>Lysimachia arvensis</i>	Pimpernel	X *	X *	X *
<i>Moenchia erecta</i>	Erect Chickweed		X *	
<i>Misopates orontium</i>	Lesser Snapdragon			X *
<i>Myosotis discolor</i>	Forget-me-not		X *	
<i>Ornithopus compressus</i>	Yellow Serradella		X *	
<i>Orobanche minor</i>	Lesser Broomrape	X *		X *
<i>Parentucellia latifolia</i>	Red Bartsia	X *	X *	
<i>Papaver somniferum</i>	Opium Poppy		X *	X *
<i>Petrorhagia dubia</i>	Hairy Pink, Velvety Pink	X *	X *	
<i>Polycarpon tetraphyllum</i>	Four-leaved Allseed, Four-leaf Allseed			X *
<i>Silene gallica</i> var. <i>gallica</i>	French Catchfly, Small-flower Catchfly	X *	X *	X *
<i>Sisyrinchium</i> sp.	–		X *	
<i>Soliva sessilis</i>	Jo-jo, Bindyi, Lawn Burweed		X *	
<i>Stellaria media</i>	Common Chickweed			X *
<i>Tolpis barbata</i>	Yellow Hawkweed	X *		X *
<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaved Clover	X *		X *
<i>Trifolium arvense</i>	Hare's-foot Clover			X *
<i>Trifolium arvense</i> var. <i>arvense</i>	Hare's-foot Clover	X *	X *	
<i>Trifolium campestre</i> var. <i>campestre</i>	Hop Clover	X *	X *	X *
<i>Trifolium glomeratum</i>	Clustered Clover	X *	X *	X *
<i>Trifolium striatum</i>	Knotted Clover		X *	X *
<i>Trifolium subterraneum</i>	Subterranean Clover		X *	X *
<i>Urtica urens</i>	Small Nettle			X *
<i>Vulpia bromoides</i>	Squirrel Tail Fescue, Silver Grass		X *	
<i>Vulpia myuros</i> f. <i>myuros</i>	Rat's Tail Fescue			X *

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Woodland scenery in Koorawatha Nature Reserve © T Brassil





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Additional supplements available for this publication:

- + Dananbilla Nature Reserve
- + Illunie Nature Reserve
- + Koorawatha Nature Reserve

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FRONT COVER Giant Banjo Frog (*Lymnodynastes interioris*)
© R Catullo



Bush Blitz survey report

Central NSW + November 2010



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