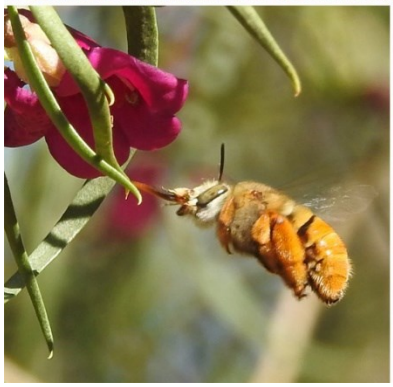
Tjiwarl Country, Western Australia 2023: Bush Blitz expedition report



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Department of Climate Change, Energy, the Environment and Water

BHP

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Cataloguing data

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Bush Blitz is coordinated by Parks Australia, which is part of the Australian Government Department of Climate Change, Energy, the Environment and Water. The program is a partnership between the Australian Government, BHP and Earthwatch Australia.

Research agencies involved in this Bush Blitz were the Western Australian Museum, the Western Australian Herbarium, the South Australian Museum, the Australian National University, the University of New South Wales, the University of Western Australia and Biologic Consultants.

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Front cover images: (from top, clockwise) field of *Schoenia cassiniana* at Wanjarri Nature Reserve © Copyright, Earthwatch; daisies (*Myriocephalus* sp.) and Western Argus Monitor (*Varanus panoptes rubidus*) © Tracey Johnson, Copyright, DBCA, teddy bear bee *Amegilla (Asaropoda) scoparia* © Copyright, Bush Blitz.

Acknowledgements

Bush Blitz acknowledges the Traditional Owners of Country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures, and to their Elders both past and present. Bush Blitz would like to thank Leinster Village (BHP Nickel West) for providing accommodation and meals for the expedition team. We would also like to thank the Tjiwarl Aboriginal Corporation, Tjiwarl native title holders, Tjiwarl rangers (particularly Felicity Harris), Department of Biodiversity, Conservation and Attractions (WA) Kalgoorlie office, BHP Nickel West and station managers for facilitating access to sites and assisting with logistics, safety, collections and knowledge on Country. Thanks also to the expedition team, Millstream Productions, for filming and photography, and Fortescue Helicopters, for providing safe and efficient transport.

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From 28 August to 8 September 2023, Bush Blitz led an expedition to Tjiwarl Country in Western Australia.

Surveys and collections filled knowledge gaps, provided important material for future genetic and taxonomic studies, and extended the known ranges of species, adding some new records for Western Australia.

At least 602 species were recorded during the Bush Blitz and 65 of those may be completely new to science (10 bees, 4 wasps, 39 true bugs, 5 spiders, 1 pseudoscorpion, 3 crustaceans, 2 molluscs and 1 plant). Many unnamed or informal invertebrate taxa were collected. These may assist scientists to revise, compare and describe species in the future.

Of the vascular plant species observed, 2 are conservation-listed in Western Australia and 4 are weeds. Although one pest insect was recorded, it is native to Australia and not considered a pest in natural areas.

Highlights of the expedition include:

- collecting a Mottled Ground Gecko (*Lucasium squarrosum*), which will help with taxonomic investigations of the species
- recording a huge diversity of native bees (90 species), most of which are new records for Tjiwarl Country
- discovering 3 new crustaceans from stygofaunal surveys of wells and bores, including 2 new genera of amphipod
- collecting over 1000 individual wasp specimens, including at least 4 new species and new records for Western Australia
- collecting 107 true bug species, 39 of which are probably new to science
- collecting various burrowing spiders and recording details of their burrows, including some that are likely to be new species
- discovering many live populations of freshwater snails, including a potentially new species of freshwater limpet
- filling significant geographical gaps in plant collections for the region, including 34 plant taxa vouchered for the first time from Wanjarri Nature Reserve
- finding an all-white morph of Pink Velleia (*Goodenia rosea*) and recording Low Bluebush (*Maireana planifolia*), a plant only collected twice before on Tjiwarl County, most recently 30 years ago.

Introduction

About Bush Blitz

The Bush Blitz program documents plants and animals in selected properties across Australia to support the discovery of new species, complement and complete existing collections, and provide information to support land management and conservation.

Bush Blitz is an initiative of the Australian Government, through Parks Australia, in partnership with BHP and Earthwatch Australia. 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.

An estimated 580,000 to 680,000 species are found in Australia (Chapman 2009), but three-quarters of this biodiversity is yet to be identified. Around 45% of continental Australia and over 90% of our marine area have never been comprehensively surveyed by scientists. Increasing our understanding of Australia's biodiversity is critical for conservation, biosecurity, agriculture, human and animal health and many other activities.

Since the Bush Blitz program began in 2010, more than 1,900 species have been discovered during Bush Blitz expeditions across Australia.

In addition to species discovery, Bush Blitz objectives include raising public awareness of biodiversity, and improving environmental, social and educational outcomes for local and Indigenous communities. While some of these objectives are met during expeditions – through Bush Blitz TeachLive, teacher workshops and community days – they are out of scope for this report.

About this report

This report summarises the initial scientific findings of an expedition to Tjiwarl Country in Western Australia. Information in this report has been extracted from the scientific reports provided by expedition members. Locational data for all flora, fauna and funga records have been provided to land managers. Unless these data are considered sensitive, they will be publicly available through the Atlas of Living Australia (ALA).

Tjiwarl Country Bush Blitz

Bush Blitz led an expedition to Tjiwarl Country from 28 August to 8 September 2023, to collect and record plants and animals living there.

Tjiwarl Country covers over 1.3 million hectares of land and waters situated roughly between Leinster and Wiluna, in the northern goldfields region of Western Australia. Tjiwarl Country includes the stations Mount Keith, Yeelirrie, Albion Downs, Altona, Booylgoo Springs, Depot Springs and Agnew, proposed conservation reserves Kaluwiri and Yakabindie, and the Wanjarri Nature Reserve.

Tjiwarl Country is the subject of the Tjiwarl Determination. The Tjiwarl native title holders are many families connected by Culture and Country. Tjiwarl Aboriginal Corporation represents the native title holders and protects their native title rights and interests. The Healthy Country

Program is designed to preserve the significant cultural and natural resources on Tjiwarl Country. This includes land management activities delivered by the Ranger Program, collaboration with state government and mining and exploration companies, and return to Country camping trips that provide opportunities for families to practice Culture and intergenerational knowledge transfer. Tjiwarl Aboriginal Corporation provides further information on Tjiwarl Country.

Tjiwarl Country is in the Murchison bioregion of Western Australia. It includes a mosaic of habitats and varies from pastoral lands managed by mining companies to high quality natural environments. The study area was predominantly characterised by spinifex grasslands and mulga complexes. Other habitats included sand dunes, clay pans, salt lakes and mallee shrublands.

Figure 1 Bush Blitz and Tjiwarl rangers discussing potential sites

Photograph: © Copyright, Paige James.

Most of the sites visited were on pastoral leases held by mining companies for production and exploration. Wanjarri Nature Reserve was a pastoral lease until 1971, when it was destocked and protected. Now managed by the Department of Biodiversity, Conservation and Attractions (DBCA), the 53,000-hectare reserve has high conservation value and supports habitat for a range of animals, including threatened birds (WA Government 1996). During the expedition we worked closely with Tjiwarl rangers, DBCA staff and station managers.

The climate on Tjiwarl Country is arid, with most rain falling in winter. The expedition took place in late winter–early spring, and the timing of rainfall impacted collecting for some groups. For example, stygofauna collecting was below expectation due to lower water levels, many plant

species had completed flowering and were lacking good reproductive material and there were few fungi to collect.

Previous surveys and pre-trip expectations

Fauna

Tjiwarl Country has been occasionally surveyed for vertebrates. Lizards, in particular, are known to have some of the highest species richness in this part of the western arid zone.

The invertebrate groups targeted on this expedition are highly diverse groups that contain many undescribed species. For example, the Hymenoptera (bees, wasps and ants) of Australia are extremely diverse with over 12,000 described species and an estimated 70% of species yet to be described. There may be more than 3,000 Australian true bug species in the family Miridae and most are undescribed. The insects of Tjiwarl Country have been understudied, with limited publicly available records. For example, an ALA search of the study area resulted in 353 records for native bees, including only 9 identified species. The expedition aimed to fill some of these knowledge gaps.

There are 2 types of spider in Australia – 'modern' spiders (Aranemorphae) include the vast majority of spiders, and 'ancient' spiders (Mygalomorphae) include tarantulas and trapdoor spiders. For this expedition, the focus was on arachnids that live in burrows and under bark or rocks, particularly mygalomorph spiders. Sedentary arachnids, especially burrowing species, include many groups that tend to have small natural ranges, making them both diverse over relatively small areas, and vulnerable because they have limited ability to move out of harm's way or recolonise altered environments. Before the expedition, WA Museum held a relatively large collection of spiders from the region. However, many of the specimens were collected using pitfall traps. For mygalomorph spiders, pitfall traps capture mostly male spiders, who leave their burrows when they become adults in order to find a mate. In addition to looking for previously undocumented species, this expedition provided an opportunity to find and collect female spiders, and to document burrow architecture that match males already in the museum collection.

Stygofauna are invertebrates that live in underground water. WA Museum has extensively surveyed Tjiwarl Country for stygofauna species for more than 20 years. Stygofauna particularly exist in aquifers associated with calcrete deposits. Calcrete aquifers each have a unique fauna because they are isolated waterbodies with lots of water-filled spaces (high hydrological conductivity) to harbour unique aquatic ecosystems. The high hydrological conductivity also means they are a valuable resource for mining activities. Unsustainable water extraction from these calcrete aquifers may cause extinction of stygofauna species.

Flora

Prior to the expedition, the region had been reasonably well surveyed for flora, with around 4,099 vouchered specimens, comprising 918 taxa, in the Australasian Virtual Herbarium.

Study area

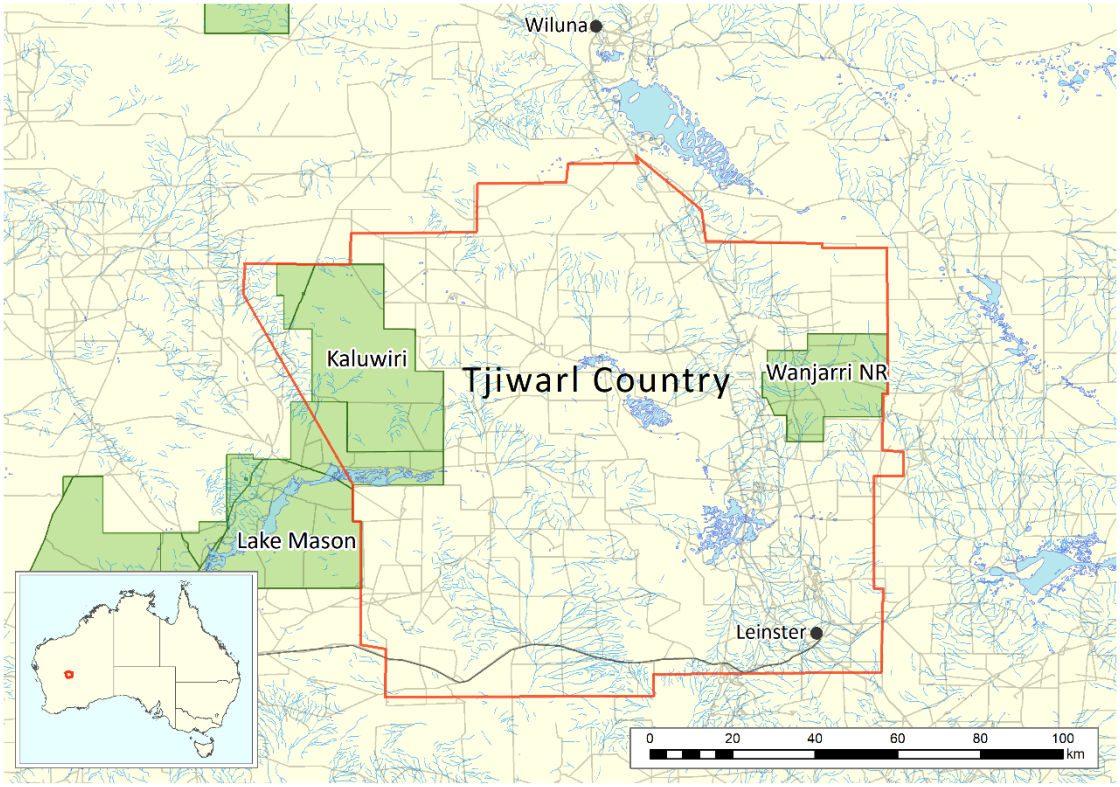
The study area was Tjiwarl Country, including pastoral leases, proposed conservation reserves and Wanjarri Nature Reserve. Base camp was at BHP's Nickel West facilities in Leinster. From here, the team accessed sites by 4WD or helicopter.

Figure 2 Expedition team travelling to a site in 4WD vehicles

Photograph: © Copyright, Mitzy Pepper.

Map 1 shows Tjiwarl Country and the locations of Lake Mason, Leinster, Kaluwiri, Wanjarri Nature Reserve and Wiluna.

Map 1 Locations visited, 28 August to 8 September 2023



Note: For a map of collection sites see Appendix B.

Expedition team

Logistics

Bush Blitz provided the logistical coordination and overall leadership for the expedition. The team from Parks Australia consisted of Kate Grarock (expedition leader), Jo Harding, Helen Cross and Bryan Lessard.

Scientific

The Western Australian Museum (WA Museum) and the Western Australian Herbarium (WA Herbarium) were the host institutions for this Bush Blitz, providing the core group of personnel and accessioning the specimens into their collections. Other experts who conducted fieldwork are included in Table 1.

In addition, Professor Morten Allentoft joined the expedition to explore the feasibility of incorporating environmental DNA (eDNA) monitoring into Bush Blitz expeditions. Morten leads the Trace and Environmental DNA (TrEnD) Laboratory at Curtin University and has a strong personal interest in reptiles. Reptiles are difficult to monitor with eDNA because they shed very little DNA into the environment. However, as 40% of our terrestrial vertebrates are reptiles, this technology could be useful in Australia if we find solutions to the limitations. While assisting the herpetology team with trapping and monitoring, Morten gained valuable insight into the logistics required to include eDNA monitoring on future Bush Blitz expeditions.

Field assistants

Scott Wilson and Sandra McCullough (Earthwatch Australia) coordinated 8 BHP employees who assisted scientists in the field. In addition, 11 Tjiwarl rangers and 10 DBCA rangers assisted with fieldwork.

Figure 3 Some members of the expedition team

Photograph: © Copyright, Bush Blitz.

Methods

Taxonomic groups studied and personnel

A number of taxonomic groups were selected as targets for study. Table 1 lists the groups surveyed and the personnel who undertook the fieldwork, made identifications and reported on the findings.

Table 1 Taxonomic groups surveyed and personnel

Group	Common name	Personnel and affiliation
Vertebrata	Mammals, birds, reptiles and frogs	Paul Doughty (WA Museum) Ryan J Ellis (Biologic Consultants) Kailah M Thorn (WA Museum) Mitzy Pepper (ANU)
Hymenoptera (Apoidea) and stygofauna	Bees and stygofauna	Remko Leijs (SA Museum)
Hymenoptera	Wasps	Ben Parslow (SA Museum)
Heteroptera	True bugs	Gerry Cassis (UNSW) Nikolai Tatarnic (WA Museum) Bevan Buirchell (WA Museum)
Arachnida	Spiders	Jeremy Wilson (University of WA)
Mollusca	Molluscs	Corey Whisson (WA Museum)
Flora	Vascular plants	Shelley James (WA Herbarium) Robert Davis (WA Herbarium) Renee Gugiatti (WA Herbarium)

Other personnel assisted with surveys, reporting and making identifications. These personnel and their roles are mentioned in the individual scientific reports for each taxa group.

Additional taxa were collected opportunistically. For example, Jeremy Wilson collected other arachnids and myriapods, Corey Whisson collected crustaceans and Bryan Lessard (ABRS), who attended the expedition to assist the Bush Blitz team, collected flies.

Site selection and collection methods

All scientific teams surveyed 2 standard survey sites, selected to represent different habitat types within Tjiwarl Country. The use of standard survey sites provides a unique opportunity to examine broad-spectrum biodiversity. Among other benefits, it allows land managers to use these sites for ongoing monitoring and generates a national dataset that can be used to underpin conservation and land management decisions.

Following consultation with Tjiwarl and DBCA rangers and BHP Nickel West, the standard survey sites were established to allow easy access during and after the expedition. Each standard survey site was centred on a point but the actual area surveyed varied between taxa. Standard methodologies were used to sample these sites.

Apart from standard survey sites, site selection and collection methods were left to the discretion of the individual scientific teams, with guidance from the Tjiwarl and DBCA rangers.

When selecting sites, they usually prioritised areas that were under-surveyed and had high potential for new or significant discoveries. They also considered the suitability of a site based on access, physical features, soil type, habitat type and condition, and the presence of flowering plants and water.

Site locations were recorded using global positioning systems. Specific details about site selection and collection methods can be found in the scientific reports.

Identification and curation

The specimens taken were identified using the holdings of museums and herbaria and available literature (references are provided in the scientific reports).

Fauna specimens were deposited at the WA Museum, with the exception of some Heteroptera specimens that were deposited in the UNSW entomology collection. Vascular plants were deposited at the WA Herbarium, and duplicate specimens were lodged at the Australian National Herbarium.

Results

Summary of records

Preliminary results indicate that at least 602 species were recorded during the Bush Blitz, including approximately 65 putative new species – these await formal identification. One native pest and 4 weed species were also recorded.

Table 2 provides a summary of the fauna, flora and funga records made on the expedition.

Table 2 Summary of fauna, flora and funga records

Group	Common name	Total species recorded	Putative new species	Threatened species	Introduced and pest species
Mammalia	Mammals	5	0	0	0
Aves	Birds	1	0	0	0
Reptilia	Reptiles	30	0	0	0
Amphibia	Frogs	1	0	0	0
Hymenoptera	Bees	90	10	0	0
	Wasps	79	4	0	0
Diptera	Flies	7	0	0	0
Coleoptera	Beetles	4	0	0	0
Heteroptera	True bugs	107	39	0	1
Arachnida	Spiders	47	5	0	0
	Mites	3	0	0	0
	Scorpions	4	0	0	0
	Pseudoscorpions	5	1	0	0
Crustacea	Crustaceans	5	3	0	0
Myriapoda	Centipedes	3	0	0	0
Mollusca	Molluscs	5	2	0	0
Vascular flora	Flowering plants	205	1	0	4
Fungi	Fungi	1	0	0	0
Total		**602**	**65**	**0**	**5**

Note: Threatened species include those listed as threatened under the Commonwealth EPBC Act or an equivalent listing under the *Biodiversity Conservation Act 2016* (WA). Introduced and pest species may include species that are native to Australia.

Species lists

Lists of all species recorded during the expedition (Appendix A) were compiled using data from participating institutions.

Some specimens were only able to be identified to family or genus level. This is partly because identification of specimens is very time-consuming, with detailed microscopic examination needed in many cases. Some groups are also 'orphans' – currently no experts are working on

them or are available to work on them and the taxonomic literature is out of date. Species-level identification is therefore not possible for these groups.

Unidentified Bush Blitz specimens are held in institutional collections where they are available for future study. Collections hold many such specimens, among them species not yet described (unnamed species) as well as described species that have not yet been identified. A key component of Bush Blitz is the funding of taxonomic work on specimens collected during Bush Blitz expeditions.

Nomenclature and taxonomic concepts used in this report are consistent with the Australian Faunal Directory, World Spider Catalog, Australian Plant Name Index, Australian Plant Census, the Australian Fungi List and the World Register of Marine Species.

Discussion

Putative new species

Here we use the term 'putative new species' to mean an unnamed species that, as far as can be ascertained, was identified as a new species as a direct result of this Bush Blitz. A putative new species is confirmed as a new species once it is named and its description is published.

Approximately 65 putative new species were discovered during the expedition. Further research may reveal additional new species in the material collected.

Bees

At least 10 of the bee species collected during the expedition are thought to be new to science. This number is likely to increase with further identification of the collected specimens, especially in the genera *Leioproctus* (hairy colletid bees), *Hylaeus (Prosopisteron)* and *Hylaeus (Pseudhylaeus)* (masked bees). There are no, or no complete, identification keys for the species in these groups. For example, for *Hylaeus (Pseudhylaeus)* none of the images in the online identification tool PaDIL for pollinators matched the species collected during the expedition.

Wasps

At least 4 wasp species were collected for the first known time during this expedition. The actual number is expected to increase once specimens have been examined by specialists on the different families and genera.

Distinctive colouration and size separate *Aphelotoma* BBTJI-sp1 from described species of *Aphelotoma*. The 2 described species of parasitoid wasp *Phanaustrotoma* are restricted to tropical habitats in Northern Queensland. One of the 2 new species of ghost wasp *Gasteruption* is shown in Figure 4.

Figure 4 New species of *Gasteruption* wasp

Photograph: © Copyright, Ben Parslow.

True bugs

Of the 107 true bug species collected during the expedition, 39 are thought to be new to science, including 36 mirids (plant bugs), 2 pentatomids (stink bugs) and 1 reduviid (assassin bugs).

Crustaceans

Stygofaunal surveys of wells and bores revealed 2 new genera and species of amphipod and a new species from the poorly known family Bathynellidae.

Spiders

At least 5 of the spiders collected on the expedition are thought to be new to science.

Poecilipta sp. nov. "carnarvon spp. grp" (Figure 5) is in a family of araneomorph spiders that are sometimes called corinnid sac spiders. These spiders mimic green ants.

Figure 5 New species of *Poecilipta* spider

Photograph: © Copyright, Jeremy Wilson.

The other 4 putative new species are mygalomorph spiders and details of their burrows were recorded. Figure 6 shows the burrow of a putative new species of wishbone spider, *Aname* sp. nov. "silky", which places silk around the entrance, sometimes attached to nearby grass or leaf-litter.

Figure 6 Burrow of new spider species *Aname* sp. nov. "silky"

Photograph: © Copyright, Jeremy Wilson.

Pseudoscorpions

Pseudoscorpions, also known as false scorpions or book scorpions, resemble tiny scorpions. Australia has more than 170 described species, but there are likely to be many more.

Synsphyronus sp. nov. "PSE241" doesn't match any known described or undescribed species from the region and is thought to be a new species.

Molluscs

There were 2 putative new mollusc species discovered during the expedition.

Shells of the salt-lake snail *Coxiella* aff. *gilesi* were found at Lake Miranda, apparently restricted to a small pocket in the north-east section. Recent molecular work suggests that *Coxiella gilesi* is a species complex comprising many undescribed species. Given the Lake Miranda specimens are a new record, found 230 km from the nearest un-named lineage, and the genus *Coxiella* is known to contain short-range endemic species, the Lake Miranda population is probably a new species. Live specimens are needed so this can be confirmed with genetic sequencing. This discovery is surprising given the size of the lake and likely historical surveys associated with mining activities.

Figure 7 Shell of putative new snail *Coxiella* aff. *gilesi* and the site at Lake Miranda where it was collected in high numbers

Photograph: © Copyright, WA Museum.

The tiny freshwater limpet *Ferrissia* sp. was collected from one site at Dingo Pool Lower. This is a new record for the area and a significant range extension for the genus. The taxonomy of this group needs revision, but given this record is 538 km from other records, it is potentially new. As live specimens were collected, this will be confirmed through genetic sequencing.

Plants

A putative new vascular plant species was identified during the expedition but further study is needed to confirm this. *Eremophila* aff. *glutinosa* is thought to be a new taxon, as a specialist was unable to identify it.

Threatened species

Approximately 92% of Australian plants, 87% of mammals, 93% of reptiles and 45% of birds are endemic (Chapman 2009). Changes to the landscape resulting from human activity have put many of these unique species at risk. Over the last 200 years, many species have gone extinct; many others are considered to be threatened – that is, at risk of extinction.

Although few invertebrates are listed as threatened, many species may be at risk. For example, the small range of stygofaunal species makes them extremely vulnerable to water extraction from aquifers. Similarly, mygalomorph spiders are vulnerable because they are long-lived, with low dispersal ability and high habitat specificity.

Vascular plants

While no threatened species were recorded during the expedition, 2 conservation-listed taxa were observed. In Western Australia, plants that may be threatened or near threatened, but are data deficient or have not yet been adequately surveyed to be listed under the Wildlife Conservation (Rare Flora) Notice, are added to the Priority Flora List under Priorities 1, 2 or 3. The 3 categories are ranked in order of priority for survey and evaluation of conservation status, so that consideration can be given to their declaration as threatened flora. Both of the conservation-listed species recorded are in Priority 3 of the Priority Flora List.

Euryomyrtus inflata is a small spreading shrub with white-pink flowers, only found in the Murchison bioregion. This record is from the eastern-most range of the species.

Sauropus sp. Woolgorong is a small sticky shrub primarily found in red sands of the Murchison bioregion. The collection made was a new population record for Kaluwiri. All *Sauropus* taxa in Western Australia are now recognized as the genus *Synostemon*, and when this phrase name is updated, it is likely to be described as a subspecies of *Synostemon ramosissimus*.

Introduced and pest species

Conservation reserves help to protect Australia's rare and threatened ecosystems and provide refuge for species at risk. Invasive species can have a major impact on already vulnerable species and ecosystems, as well as economic, environmental and social impacts. The inclusion of introduced and pest species records as part of this report is designed to provide land managers with baseline information to assist with further pest management programs.

Although no introduced or pest vertebrate species were recorded during the expedition, there was significant evidence of the impact of grazing cattle at most locations, including at Kaluwiri. There were also signs of recent cattle access at Wanjarri Nature Reserve, and scientists noted the importance of ensuring intact fencing of the reserve and adjacent waterways.

Invertebrates

Table 3 lists the only pest invertebrate species collected or observed in the study area.

Although considered a pest of crops, Rutherglen Bug (*Nysius vinitor*) is a native true bug, found throughout Australia. Its collection in natural areas of the Tjiwarl region is not unexpected and not a concern.

Notably, no invasive European Wasps (*Vespula germanica*) or European Honey Bees (*Apis mellifera*) were found during the expedition.

Table 3 Pest invertebrate species – true bugs

Group	Family	Species	Common name	Comments
True bugs	Lygaeidae	*Nysius vinitor*	Rutherglen Bug	2 specimens found near Yakabinda Well; pest of crops; one of the most common bugs in Australia

Vascular plants

In general, sites were free from weed species, except for heavily human-impacted and disturbed areas such as roadsides.

Table 4 lists the weeds that were recorded during this expedition. The botanists recorded 3 weeds at their survey sites and Prickly Paddy Melon (*Cucumis myriocarpus*) was observed at a survey site for molluscs.

Table 4 Non-gazetted weeds

Family	Species	Common name	Location
Brassicaceae	*Sisymbrium orientale*	Indian Hedge Mustard	Floodway along Goldfields Hwy, approx. 25 km north from Leinster turnoff; locally frequent; a widely distributed introduced herbaceous environmental weed
Convolvulaceae	*Cuscuta epithymum*	Lesser Dodder	Kaluwiri; locally frequent; a widely distributed introduced parasitic plant
Cucurbitaceae	*Cucumis myriocarpus*	Prickly Paddy Melon	Observed at Logan Spring; native to southern Africa; widely naturalised in Australia
Polygonaceae	*Rumex vesicarius*	Ruby Dock	Kathleen Mine; along major roads; common; encroaching on Wanjarri Nature Reserve

Ruby Dock (*Rumex vesicarius*) is an environmental weed invading large areas of arid Australia. The proximity of populations of Ruby Dock along the Goldfields Highway, and encroachment into the Wanjarri Nature Reserve is of concern. As a disturbance opportunist, with rapid spread, the botanists make recommendations for managing this weed in Wanjarri Nature Reserve and surrounding areas.

Range extensions

There were many new records for Tjiwarl Country and some for Western Australia. These records extended the known range of many species.

Due to limited records for the area, nearly all invertebrates identified to species level represent range extensions or infill in distribution. The ability to detect actual range extensions, such as those due to climate change, is only possible with the availability of fine scale distributional data that include time series, which are only available for the most well-studied groups.

Many of the plants collected filled a significant geographical gap in collections for the region, including 34 plant taxa vouchered for the first time from Wanjarri Nature Reserve. New plant records also included conservation-listed taxa, weeds and 31 new records for Kaluwiri.

The most notable range extensions are listed in Table 5, with the estimated size of the range extension included under Comments, where provided.

Table 5 Range extensions

Group	Family	Species	Comments
Wasps	Gasteruptiidae	*Gasteruption genale*	~480 km; Leinster; a widely distributed species
	Gasteruptiidae	*Gasteruption leptothecus*	>2800 km; Sir Samuel; species is recorded from type material in ACT and Tasmania; likely to be more broadly distributed
	Gasteruptiidae	*Gasteruption zebriforme*	~550 km; Sir Samuel; species recorded from around southwestern Australia, closer to Perth
	Gasteruptiidae	*Pseudofoenus cardaleae*	~417 km; Sir Samuel; most northern record of the species
	Gasteruptiidae	*Pseudofoenus feckneri*	~596 km; Sir Samuel and Wanjarri NR; most western record of the species
	Ichnumonidae	*Labium centrale*	~1553 km; Sir Samuel and Wanjarri NR; recorded from near Lake Eyre, SA; most western record of the species

Group	Family	Species	Comments
	Ichnumonidae	*Lissopimpla excelsa*	357 km; Yakabinda Well; closest record is Kalgoorlie, WA
	Pompilidae	*Cryptochilus bicolor*	413 km; Yakabinda Well; closest record is Goldfields Woodlands Conservation Park, WA
	Specidae	*Prionyx globosus*	381 km; Sir Samuel and Wanjarri NR; closest record is Kalgoorlie, WA
Molluscs	Gastrocoptidae	*Gastrocopta* cf. *margaretae*	Logan Spring; infill; nearest museum record for this species is 50 km eastward
	Planorbidae	*Ferrissia* sp.	Dingo Pool Lower; significant range extension; nearest museum record for *Ferrissia* is 538 km northward
	Planorbidae	*Isidorella* cf. *newcombi*	Several locations; significant infill; nearest museum record for *Isidorella* is 58 km northward
	Pupillidae	*Pupoides* cf. *myoporinae*	Lake Miranda, Lake Mason East; significant infill; nearest museum record is 75 km eastward
	Tomichiidae	*Coxiella* aff. *gilesi* n.sp.	First record for Lake Miranda; significant infill; nearest museum record for *Coxiella* is 98 km northward
Vascular plants	Asteraceae	*Centipeda pleiocephala*	Dingo Pool; >150 km
	Asteraceae	*Chrysocephalum puteale*	New record for Wanjarri NR; >75 km
	Asteraceae	*Dielitzia tysonii*	New record for Wanjarri NR; >100 km
	Asteraceae	*Feldstonia nitens*	Range extension and new record for Wanjarri NR; approx. 17 km W
	Asteraceae	*Schoenia cassiniana*	New record for Wanjarri NR; 50 km
	Asteraceae	*Senecio quadridentatus*	New record for Kaluwiri; 320 km N range extension
	Brassicaceae	*Sisymbrium orientale*	Goldfields Hwy, approx. 25 km north from Leinster turnoff; 90 km
	Chenopodiaceae	*Sclerolaena convexula*	Track towards McFarlanes Find Mine; >50 km
	Chenopodiaceae	*Tecticornia pterygosperma* subsp. *pterygosperma*	Lake Miranda; 70 km
	Fabaceae	*Muelleranthus stipulatus*	New record for Wanjarri NR; approx. 90 km S
	Fabaceae	*Swainsona elegantoides*	New record for Kaluwiri; >50 km
	Frankeniaceae	*Frankenia cinerea*	Lake Miranda; >50 km
	Goodeniaceae	*Goodenia glandulosa*	New record for Murchison; Albion Downs–Yeelirrie Rd; 455 km SE
	Goodeniaceae	*Goodenia havilandii*	New record for Wanjarri NR; >70 km
	Goodeniaceae	*Goodenia nuda*	New record for Kaluwiri and Murchison; 330 km N
	Goodeniaceae	*Scaevola restiacea* subsp. *restiacea*	Agnew–Sandstone Rd; 130 km range extension
	Haloragaceae	*Gonocarpus nodulosus*	Approx. 3.2 km N from Albion Downs; >60 km
	Loranthaceae	*Amyema fitzgeraldii*	Leinster; >50 km
	Malvaceae	*Androcalva loxophylla*	New record for Wanjarri NR; >50 km
	Malvaceae	*Androcalva luteiflora*	New record for Kaluwiri; >100 km
	Malvaceae	*Sida cardiophylla*	Albion Downs Rd; >100 km
	Marsileaceae	*Marsilea drummondii*	New record for Kaluwiri; >100 km

Group	Family	Species	Comments
	Montiaceae	*Calandrinia balonensis*	Albion Downs Rd; >150 km S range extension
	Phyllanthaceae	*Poranthera leiosperma*	Range extension for Murchison; Albion Downs Rd; approx. 35 km NW
	Poaceae	*Neurachne minor*	New record for Wanjarri NR; 70 km
	Polygonaceae	*Rumex vesicarius*	Kathleen Mine; 50 km
	Rubiaceae	*Pomax ammophila*	New record for Wanjarri NR; approx. 100 km
	Scrophulariaceae	*Eremophila fraseri* subsp. *fraseri*	Range extension for Murchison; 35 km E; Goldfields Hwy
	Solanaceae	*Solanum ashbyae*	South of Wanjarri NR boundary; 80 km
Fungi	Polyporaceae	*Pycnoporus coccineus*	New record for Wanjarri NR; >200 km

Other significant findings

This expedition resulted in the collection of a wealth of data and materials important for naming undescribed species and a wide range of other research. For most of the species collected, this includes material preserved for future DNA or other tissue analysis.

Vertebrates

Overall, the diversity of vertebrates on pastoral properties was lower than expected. In contrast, the Wanjarri Nature Reserve appeared to be a healthy refuge for arid zone reptiles.

The most interesting find was a Mottled Ground Gecko (*Lucasium squarrosum*), shown in Figure 8. The only specimen recorded was photographed alive before vouchering. A research project is proposed to further investigate its taxonomy.

Figure 8 Mottled Ground Gecko (*Lucasium squarrosum*)

Photograph: © Copyright, Ryan Ellis.

Bees

Of the 90 species of native bees recorded during the expedition, almost all were new records for Tjiwarl Country. However, these findings are just a snapshot of the potential bee biodiversity of the area. Most species were only encountered in low numbers, perhaps because of the dry conditions the area experienced in recent years.

Wasps

The expedition increased the knowledge of Hymenoptera diversity in Western Australia, with over 1000 individual specimens collected. It also highlighted the impact of pastoral grazing on habitat quality, particularly in reduced understory plant diversity. Wanjarri Nature Reserve, identified as the highest-quality habitat, showed signs of recent cattle access, urging a need for grazing management to preserve flora and support invertebrate diversity, including Hymenoptera species.

True bugs

Tjiwarl Country is remarkably diverse for Heteroptera and a hot spot for species richness and endemicity for Australian Miridae (plant bugs). The preservation of woody shrubs is important for reducing extinction risk for Heteroptera, particularly the plant bugs.

A significant highlight was the discovery of a large number of Miridae in the tribe Austromirini, also known as green monsters. These large true bugs were identified as species of *Austromiris*, *Fronsetta* and *Zanessa*, as well as 4 putative new genera.

Spiders and pseudoscorpions

Of particular interest were the mygalomorph spiders and pseudoscorpions, as these groups are potentially vulnerable short-range endemics, and are being actively researched. Two factors that may affect their survival in an area are hooved grazing animals, which damage the topsoil, and invasive plants that smother the ground.

Molluscs

The low diversity of terrestrial molluscs encountered was not surprising given the near desert location and dry conditions at the time of the expedition. In these conditions, land snails are buried and aestivating, so other species may exist there. It was surprising to encounter so many live populations of freshwater snails, likely the result of relatively recent rainfall, leading to favourable conditions and habitat, including waterholes.

The collections made reinforce that when suitable habitat is encountered across Tjiwarl Country, molluscs do exist, some unique to the area. It is recommended that future collecting for molluscs concentrate on areas that have high shade, high leaf litter and moisture retention.

Habitat disturbance, presumably by cattle, was noted at most sites. The minute *Gastrocopta* cf. *margaretae* was only collected from one site, in the shaded, deep leaf litter of Logan Springs. These habitats are favourable for land snails, but were rarely encountered during the expedition, emphasising the importance of such locations for conservation management.

Vascular plants

Significant finds included an unusual all-white morph of Pink Velleia (*Goodenia rosea*) (Figure 9) within Wanjarri Nature Reserve, and Low Bluebush (*Maireana planifolia*), a plant collected twice before on Tjiwarl County, most recently 30 years ago.

Figure 9 Normal (left) and white (right) morph of *Goodenia rosea*

Photograph: © Copyright, S.A. James (DBCA).

Several locations along the Albion Downs Road showed indications of recent fires, and the floral diversity in these areas was significantly different to surrounding areas. The botanists suggest that fire management regimes aim to maintain floristic and structural diversity of the region.

Appendix A: Species lists

Table A1 List of fauna species recorded

Group	Family	Species	Common name
Mammals	Dasyuridae	*Ningaui ridei*	Wongai Ningaui
	Dasyuridae	*Sminthopsis hirtipes*	Hairy-footed Dunnart
	Macropodidae	*Osphranter rufus*	Red Kangaroo
	Muridae	*Pseudomys hermannsburgensis*	Sandy Inland Mouse
	Tachyglossidae	*Tachyglossus aculeatus*	Echidna
Birds	Acanthizidae	*Acanthiza apicalis*	Inland Thornbill
Reptiles	Agamidae	*Ctenophorus isolepis*	Military Dragon
	Agamidae	*Ctenophorus scutulatus*	Lozenge-marked Dragon
	Agamidae	*Pogona minor*	Western Bearded Dragon
	Diplodactylidae	*Diplodactylus laevis*	Desert Fat-tailed Gecko
	Diplodactylidae	*Diplodactylus pulcher*	Spotted Sandplain Gecko
	Diplodactylidae	*Lucasium squarrosum*	Mottled Ground Gecko
	Diplodactylidae	*Rhynchoedura ornata*	Western Beaked Gecko
	Diplodactylidae	*Strophurus strophurus*	Western Spiny-tailed Gecko
	Elapidae	*Pseudonaja mengdeni*	Western Brown Snake
	Elapidae	*Pseudonaja modesta*	Ringed Brown Snake
	Elapidae	*Simoselaps bertholdi*	Jan's Banded Snake
	Gekkonidae	*Gehyra crypta*	Western Cryptic Gehyra
	Gekkonidae	*Gehyra variegata*	Variegated Gehyra
	Gekkonidae	*Heteronotia binoei*	Bynoe's Gecko
	Pygopodidae	*Delma butleri*	Butler's Legless Lizard
	Pygopodidae	*Lialis burtonis*	Burton's Legless Lizard
	Pythonidae	*Antaresia childreni*	Children's Python
	Scincidae	*Ctenotus helenae*	Clay-soil Ctenotus
	Scincidae	*Ctenotus leonhardii*	Common Desert Ctenotus
	Scincidae	*Ctenotus pantherinus*	Leopard Skink
	Scincidae	*Ctenotus quattuordecimlineatus*	Fourteen-lined Skink
	Scincidae	*Ctenotus schomburgkii*	Barred Wedge-snout Ctenotus
	Scincidae	*Ctenotus severus*	Stern Ctenotus
	Scincidae	*Egernia formosa*	Goldfields Crevice Skink
	Scincidae	*Lerista desertorum*	Central Deserts Robust Slider
	Scincidae	*Lerista timida*	Timid Slider
	Scincidae	*Menetia greyii*	Common Dwarf Skink
	Scincidae	*Morethia butleri*	Woodland Morethia Skink
	Scincidae	*Tiliqua occipitalis*	Western Bluetongue
	Varanidae	*Varanus panoptes rubidus*	Western Argus Monitor

Group	Family	Species	Common name
Frogs	Pelodryadidae	*Cyclorana occidentalis*	Western Water-holding Frog
Bees	Apidae	*Amegilla (Asaropoda) scoparia*	na
	Apidae	*Amegilla (Notomegilla) chlorocyanea*	Blue Banded Bee
	Apidae	*Thyreus waroonensis*	Waroona Cuckoo Bee
	Colletidae	*Callohesma* sp. WJRL 45	na
	Colletidae	*Callohesma* sp. WJRL 46	na
	Colletidae	*Callohesma* sp. WJRL 47	na
	Colletidae	*Callohesma* sp. WJRL 48	na
	Colletidae	*Euhesma (Euhesma) newmanensis*	na
	Colletidae	*Euhesma (Euhesma) pantoni*	na
	Colletidae	*Euhesma (Euhesma) sybilae*	na
	Colletidae	*Euhesma (Euhesma) symmetra*	na
	Colletidae	*Euhesma* n.sp. WJRL25 [a]	na
	Colletidae	*Euhesma newmanensis*	na
	Colletidae	*Euhesma* sp. WJRL 49	na
	Colletidae	*Euhesma* sp. WJRL 50	na
	Colletidae	Euryglossinae sp. WJRL 44	na
	Colletidae	*Euryglossina (Euryglossina) atra*	na
	Colletidae	*Hylaeus (Euprosopis) elegans*	na
	Colletidae	*Hylaeus (Hylaeteron)* n.sp. WJRL 60 cf. *riekianus* [a]	na
	Colletidae	*Hylaeus (Hylaeteron)* n.sp. WJRL 61 cf. *riekianus* [a]	na
	Colletidae	*Hylaeus (Hylaeteron) semirufus*	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 57	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 59	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 61	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 63	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 64	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 65	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 66	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 67	na
	Colletidae	*Hylaeus (Prosopisteron)* sp. WJRL 69	na
	Colletidae	*Hylaeus (Pseudhylaeus)* sp. WJRL 51	na
	Colletidae	*Hylaeus (Pseudhylaeus)* sp. WJRL 52	na
	Colletidae	*Hylaeus (Pseudhylaeus)* sp. WJRL 53	na
	Colletidae	*Hylaeus (Pseudhylaeus)* sp. WJRL 58	na
	Colletidae	*Hylaeus (Pseudhylaeus)* sp. WJRL 68	na
	Colletidae	*Hylaeus (Rhodohylaeus)* sp. WJRL 54	na
	Colletidae	*Hylaeus (Rhodohylaeus)* sp. WJRL 55	na

Group	Family	Species	Common name
	Colletidae	*Hylaeus (Rhodohylaeus)* sp. WJRL 56	na
	Colletidae	*Leioproctus (Colletellus) altispinosus*	na
	Colletidae	*Leioproctus* (unplaced) n.sp. cf. *sexmaculatus* [a]	na
	Colletidae	*Leioproctus* n.sp. WJRL27 [a]	na
	Colletidae	*Leioproctus* sp. WJRL 16	na
	Colletidae	*Leioproctus* sp. WJRL 17	na
	Colletidae	*Leioproctus* sp. WJRL 18	na
	Colletidae	*Leioproctus* sp. WJRL 19	na
	Colletidae	*Leioproctus* sp. WJRL 20	na
	Colletidae	*Leioproctus* sp. WJRL 21	na
	Colletidae	*Leioproctus* sp. WJRL 22	na
	Colletidae	*Leioproctus* sp. WJRL 23	na
	Colletidae	*Leioproctus* sp. WJRL 24	na
	Colletidae	*Leioproctus* sp. WJRL 26	na
	Colletidae	*Leioproctus* sp. WJRL 28	na
	Colletidae	*Neopasiphae mirabilis*	na
	Colletidae	*Trichocolletes* sp. WJRL 15	na
	Halictidae	*Lasioglossum (Chilalictus) pachycephalum*	na
	Halictidae	*Lasioglossum (Chilalictus) platychilum*	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 31	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 32	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 33	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 34	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 35	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 36	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 37	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 38	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 39	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 40	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 41	na
	Halictidae	*Lasioglossum (Chilalictus)* sp. WJRL 42	na
	Halictidae	*Lasioglossum (Homalictus)* sp. WJRL 43	na
	Halictidae	*Lipotriches (Austronomia)* sp. WJRL 29 *flavoviridis* group	na
	Halictidae	*Lipotriches (Austronomia)* sp. WJRL 30 *flavoviridis* group	na
	Megachilidae	*Megachile (Austrochile)* n.sp. ACD1291 [a]	na
	Megachilidae	*Megachile (Austrochile)* n.sp. AEC1404 [a]	na
	Megachilidae	*Megachile (Austrochile)* n.sp. AEC2785 [a]	na

Group	Family	Species	Common name
	Megachilidae	*Megachile (Austrochile)* n.sp. AEC5850 [a]	na
	Megachilidae	*Megachile (Coorooa) aurifrons*	na
	Megachilidae	*Megachile (Eutricharaea)* sp. WJRL 01	na
	Megachilidae	*Megachile (Eutricharaea)* sp. WJRL 02	na
	Megachilidae	*Megachile (Eutricharaea)* sp. WJRL 03	na
	Megachilidae	*Megachile (Notomegachile) semiluctuosa*	na
	Megachilidae	*Megachile (Spinitala) rieki* n.sp. unpublished [a]	na
	Megachilidae	*Megachile (Thaumatosoma) remeata*	na
	Megachilidae	*Megachile* sp. WJRL 06	na
	Megachilidae	*Megachile* sp. WJRL 09	na
	Megachilidae	*Megachile* sp. WJRL 10	na
	Megachilidae	*Megachile* sp. WJRL 11	na
	Megachilidae	*Megachile* sp. WJRL 12	na
	Megachilidae	*Megachile* sp. WJRL 13	na
	Megachilidae	*Megachile* sp. WJRL 14	na
	Stenotritidae	*Ctenocolletes centralis*	na
Wasps	Ampulicidae	*Aphelotoma* BBTJI-sp1 [a]	na
	Bethylidae	*Goniozus* BBTJI-sp1	na
	Bethylidae	*Goniozus* BBTJI-sp2	na
	Bethylidae	*Goniozus* BBTJI-sp3	na
	Braconidae	*Austrocotesia* BBTJI-sp1	na
	Braconidae	Bracon BBTJI-sp1	na
	Braconidae	Bracon BBTJI-sp2	na
	Braconidae	Braconinae BBTJI-sp1	na
	Braconidae	Braconinae BBTJI-sp2	na
	Braconidae	Braconinae BBTJI-sp2	na
	Braconidae	Braconinae BBTJI-sp3	na
	Braconidae	Braconinae BBTJI-sp4	na
	Braconidae	Braconinae BBTJI-sp5	na
	Braconidae	Braconinae BBTJI-sp5	na
	Braconidae	Braconinae BBTJI-sp6	na
	Braconidae	Braconinae BBTJI-sp7	na
	Braconidae	*Cardiochiles* BBTJI-sp1	na
	Braconidae	*Chelonus* BBTJI-sp1	na
	Braconidae	Euphorinae BBTJI-sp1	na
	Braconidae	Homolobinae BBTJI-sp1	na
	Braconidae	*Macrocentrus* BBTJI-sp1	na
	Braconidae	*Mesocentrus* BBTJI-sp1	na
	Braconidae	*Phanaustrotoma* BBTJI-sp1 [a]	na

Group	Family	Species	Common name
	Braconidae	Rogadinae BBTJI-sp1	na
	Braconidae	Rogadinae BBTJI-sp3	na
	Braconidae	Rogadinae BBTJI-sp4	na
	Braconidae	Rogadinae BBTJI-sp5	na
	Braconidae	Rogadinae BBTJI-sp6	na
	Braconidae	*Yelicones* BBTJI-sp1	na
	Chrysididae	*Chrysis* BBTJI-1	na
	Chrysididae	*Primeuchroeus* BBTJI-sp1	na
	Crabronidae	*Bembix wiluna*	na
	Crabronidae	Crabronidae BBTJI-sp1	na
	Crabronidae	Crabronidae BBTJI-sp2	na
	Crabronidae	Crabronidae BBTJI-sp3	na
	Crabronidae	Crabronidae BBTJI-sp4	na
	Crabronidae	Crabronidae BBTJI-sp5	na
	Crabronidae	Nyssoninae BBTJI-sp1	na
	Crabronidae	*Podagritus* BBTJI-sp1	na
	Crabronidae	*Podagritus* BBTJI-sp2	na
	Crabronidae	*Tachysphex* BBTJI-sp1	na
	Dryinidae	Dryininae BBTJI-sp1	na
	Dryinidae	Dryininae BBTJI-sp2	na
	Eucharitidae	Eucharitidae BBTJI-sp1	na
	Evaniidae	*Szepligetiella* BBTJI-sp1	na
	Gasteruptiidae	*Gasteruption* BBTJI-sp1 [a]	na
	Gasteruptiidae	*Gasteruption* BBTJI-sp2 [a]	na
	Gasteruptiidae	*Gasteruption genale*	na
	Gasteruptiidae	*Gasteruption leptothecus*	na
	Gasteruptiidae	*Gasteruption zebriforme*	na
	Gasteruptiidae	*Pseudofoenus cardaleae*	na
	Gasteruptiidae	*Pseudofoenus feckneri*	na
	Gasteruptiidae	*Pseudofoenus kelleri*	na
	Ichneumonidae	Campopleginae BBTJI-sp1	na
	Ichneumonidae	Cryptinae BBTJI-sp1	na
	Ichneumonidae	Ichneumonidae BBTJI-sp1	na
	Ichneumonidae	*Labium centrale*	na
	Ichneumonidae	*Lissopimpla excelsa*	Orchid Dupe Wasp
	Ichneumonidae	*Netelia* BBTJI-sp1	na
	Megaspilidae	Megaspilinae BBTJI-sp1	na
	Megaspilidae	Megaspilinae BBTJI-sp2	na
	Multillidae	*Ancistrotilla* BBTJI-sp1	na
	Multillidae	*Ephutomorpha* BBTJI-sp1	na

Group	Family	Species	Common name
	Mutillidae	*Aglaotilla* BBTJI-sp1	na
	Mymaridae	Mymaridae BBTJI-sp1	na
	Pompilidae	*Anoplius* BBTJI-sp1	na
	Pompilidae	*Ctenostegus* BBTJI-sp1	na
	Pompilidae	*Ctenostegus* BBTJI-sp2	na
	Pompilidae	*Heterodontonyx bicolor*	na
	Pompilidae	*Heterodontonyx tuberculatus*	na
	Scoliidae	*Radumeris tasmaniensis*	Yellow-flower Wasp
	Specidae	*Prionyx globosus*	na
	Thynnidae	*Guerinius* BBTJI-sp1	na
	Thynnidae	*Rhagigaster* BBTJI-sp1	na
	Thynnidae	Rhagigasterini BBTJI-sp1	na
	Thynnidae	Thynnini BBTJI-sp1	na
	Vespidae	*Delta* BBTJI-sp1	na
	Vespidae	*Paralastor* BBTJI-sp1	na
	Vespidae	*Pseudabispa* BBTJI-sp1	na
Flies	Apioceridae	*Apiocera* sp.	na
	Asilidae	Asilidae sp.	na
	Bombyliidae	Bombyliidae sp.	na
	Calliphoridae	Calliphoridae sp.	na
	Conopidae	Conopidae sp.	na
	Sarcophagidae	Sarcophagidae sp.	na
	Tachinidae	*Rutilia* sp.	na
Beetles	Buprestidae	*Castiarina browningi*	na
	Buprestidae	*Castiarina lepida*	na
	Buprestidae	*Castiarina* sp.	na
	Dytiscidae	*Limbodessus mirandaae*	na
True bugs	Berytidae	*Metacanthus* BBTJI-065	na
	Blissidae	*Slaterellus hackeri*	na
	Coreidae	*Mictis profana*	Crusader Bug
	Cydnidae	*Adrisa* BBTJI-177	na
	Geocoridae	*Germalus* BBTJI-125	na
	Geocoridae	*Germalus victoriae*	na
	Lestoniidae	*Lestonia haustorifera*	na
	Lygaeidae	*Nysius vinitor* [b]	Rutherglen Bug
	Miridae	*Acaciacapsus* nr_*aureolus* BBTJI-023	na
	Miridae	*Ausejanus* BBTJI-055	na
	Miridae	*Austromiris* BBTJI-056 [a]	na
	Miridae	*Austromiris* BBTJI-078 [a]	na
	Miridae	*Chimsunchartella schwartzi*	na

Group	Family	Species	Common name
	Miridae	*Coridromius pilbarenis*	na
	Miridae	*Creontiades dilutus*	na
	Miridae	*Eremotylus* BBTJI-007	na
	Miridae	*Eremotylus* BBTJI-118	na
	Miridae	*Eremotylus* BBTJI-141	na
	Miridae	*Erysivena* BBTJI-166	na
	Miridae	*Fronsetta* BBTJI-005 [a]	na
	Miridae	*Fronsetta* BBTJI-021	na
	Miridae	*Fronsetta* BBTJI-150	na
	Miridae	*Fronsetta* BBTJI-151	na
	Miridae	Gn_AUSTRO_002 BBTJI-050 [a]	na
	Miridae	Gn_AUSTRO_003 BBTJI-114 [a]	na
	Miridae	Gn_AUSTRO_004 BBTJI-137 [a]	na
	Miridae	Gn_BILB BBTJI-017 [a]	na
	Miridae	Gn_BILB BBTJI-018 [a]	na
	Miridae	Gn_BILB BBTJI-033 [a]	na
	Miridae	Gn_BILB BBTJI-058 [a]	na
	Miridae	Gn_BILB BBTJI-059 [a]	na
	Miridae	Gn_CARE BBTJI-002	na
	Miridae	Gn_nr_*Asterophylus* BBTJI-014 [a]	na
	Miridae	Gn_nr_*Campylomma* BBTJI-116	na
	Miridae	Gn_nr_*Dicyphylus* BBTJI-167 [a]	na
	Miridae	Gn_nr_*Eremotylus* BBTJI-020	na
	Miridae	Gn_nr_*Eremotylus* BBTJI-038	na
	Miridae	Gn_nr_*Eremotylus* BBTJI-119	na
	Miridae	Gn_nr_*Eremotylus* BBTJI-169	na
	Miridae	Gn_nr_*Melaleucoides* BBTJI-003	na
	Miridae	Gn_nr_*Naranjakotta* BBTJI-076 [a]	na
	Miridae	Gn_nr_*Naranjakotta* BBTJI-158 [a]	na
	Miridae	Gn_ORTHO_001 BBTJI-062 [a]	na
	Miridae	Gn_ORTHO_002 BBTJI-095 [a]	na
	Miridae	Gn_ORTHO_004 BBTJI-107 [a]	na
	Miridae	Gn_ORTHO_005 BBTJI-155 [a]	na
	Miridae	Gn_ORTHO_006 BBTJI-067 [a]	na
	Miridae	Gn_ORTHO_007 BBTJI-172 [a]	na
	Miridae	Gn_ORTHO_008 BBTJI-175 [a]	na
	Miridae	Gn_ORTHO_009 BBTJI-016 [a]	na
	Miridae	Gn_ORTHO-003 msp_BBTJI-102 [a]	na
	Miridae	Gn_*Palassocoris*_001 BBTJI-067	na
	Miridae	Gn_*Palassocoris*_002 BBTJI-054	na

Group	Family	Species	Common name
	Miridae	Gn_PHYL_001 BBTJI-143	na
	Miridae	Gn_PHYL_002 BBTJI-088	na
	Miridae	Gn_ZANC_001 BBTJI-027 [a]	na
	Miridae	Gn_ZANC_001 BBTJI-048 [a]	na
	Miridae	Gn_ZANC_002 BBTJI-063 [a]	na
	Miridae	Gn_ZANC_002 BBTJI-073 [a]	na
	Miridae	Gn_ZANC_002 BBTJI-074 [a]	na
	Miridae	Gn_ZANC_002 BBTJI-162 [a]	na
	Miridae	Gn_ZANC_003 BBTJI-117 [a]	na
	Miridae	Gn_ZANC_003 BBTJI-163 [a]	na
	Miridae	Gn_ZANC_004 BBTJI-154 [a]	na
	Miridae	Gn_ZANC_005 BBTJI-176 [a]	na
	Miridae	*Gyrophallus* BBTJI-099	na
	Miridae	*Harpemiris* BBTJI-001	na
	Miridae	*Hypseloecus* BBTJI-077	na
	Miridae	*Jiwarli* BBTJI-053	na
	Miridae	*Jiwarli solanum*	na
	Miridae	*Metopocoris* BBTJI-085	na
	Miridae	*Myrtlemiris agnew*	na
	Miridae	*Naranjakotta* BBTJI-170	na
	Miridae	*Naranjakotta* BBTJI-171	na
	Miridae	*Neomyrtlemiris* BBTJI-157	na
	Miridae	Orthotylinae BBTJI-153	na
	Miridae	Phylini BBTJI-174	na
	Miridae	*Spinivesica* BBTJI-013	na
	Miridae	*Teddus katrinae*	na
	Miridae	*Wallabicoris paradicrastyli*	na
	Miridae	*Zanessa* BBTJI-083 [a]	na
	Miridae	*Zanessa* BBTJI-110 [a]	na
	Nabidae	*Nabis kinbergii*	na
	Nabidae	*Stenonabis* BBTJI-149	na
	Oxycarenidae	*Oxycarenus arctatus*	na
	Oxycarenidae	*Oxycarenus westraliensis*	na
	Pachygronthidae	*Stenophyella macreta*	na
	Pentatomidae	*Anaxilaus musgravei*	na
	Pentatomidae	*Aplerotus maculatus*	na
	Pentatomidae	*Cuspicona* BBTJI-060	na
	Pentatomidae	Gn_nr_*Andrallus* BBTJI-124	na
	Pentatomidae	Gn_nr_*Sciomenidia* BBTJI-032 [a]	na
	Pentatomidae	*Oechalia schellenbergii*	na

Group	Family	Species	Common name
	Pentatomidae	*Ooldeon* BBTJI-136	na
	Pentatomidae	*Poecilometis fuscescens*	na
	Pentatomidae	*Poecilometis patruelis*	na
	Pentatomidae	*Tepperocoris* BBTJI-037 [a]	na
	Pentatomidae	*Turrubulana plana*	na
	Reduviidae	*Aradelloides* BBTJI-064 [a]	na
	Rhopalidae	*Liorhyssus hyalinus*	na
	Scutelleridae	*Choerocoris paganus*	Ground Shield Bug
	Tingidae	*Cysteochila* BBTJI-029	na
	Tingidae	*Lasiacantha* BBTJI-036	na
	Tingidae	*Lasiacantha* BBTJI-129	na
	Tingidae	*Lasiacantha* BBTJI-130	na
	Tingidae	*Malandiola* BBTJI-015	na
	Tingidae	*Nethersia* BBTJI-011	na
Spiders	Anamidae	*Aname simoneae*	na
	Anamidae	*Aname* sp. nov. "mellosa-complex" [a]	na
	Anamidae	*Aname* sp. nov. "MYG031 - chevrons"	na
	Anamidae	*Aname* sp. nov. "silky" [a]	na
	Anamidae	*Kwonkan* sp. nov. "chevrons" [a]	na
	Araneidae	*Acroaspis* sp.	na
	Araneidae	*Argiope protensa*	Tear-drop Spider
	Araneidae	*Backobourkia heroine*	na
	Araneidae	*Backobourkia* sp.	na
	Araneidae	*Socca pustulosa?*	na
	Barychelidae	*Synothele* sp. nov. "cf. MYG269" [a]	na
	Corinnidae	*Nyssus coloripes*	Orange-legged/Spotted Ground Swift Spider
	Corinnidae	*Poecilipta* sp. nov. "carnarvon spp. grp" [a]	na
	Desidae	*Badumna insignis*	Black House Spider
	Desidae	Desidae sp.	na
	Desidae	*Phryganoporus candidus*	Foliage-webbing Spider
	Gnaphosidae	*Ceryerda cursitans*	na
	Gnaphosidae	Gnaphosidae sp.	na
	Idiopidae	*Eucyrtops* sp.	na
	Idiopidae	*Gaius villosus*	na
	Idiopidae	*Idiosoma manstridgei*	na
	Lamponidae	*Lampona quinqueplagiata*	na
	Lycosidae	*Hoggicosa bicolor*	Two-toned Wolf Spider
	Lycosidae	Lycosidae "sp. 1 - turret"	na
	Lycosidae	Lycosidae "sp. 2 - flap door"	na

Group	Family	Species	Common name
	Lycosidae	*Mainosa longipes*	Shuttlecock Wolf Spider
	Lycosidae	*Venator* sp. nov. "koyuga spp. grp"	na
	Lycosidae	*Venator* sp. nov. "palabunda spp. grp"	na
	Lycosidae	*Venator?* sp.	na
	Lycosidae	*Venatrix arenaris* "sp. 2 - fishing"	na
	Miturgidae	*Miturga* "sp. 1 - rock tube"	na
	Miturgidae	*Miturgopelma "*cf. *echinoides"*	na
	Nephilidae	*Trichonephila edulis*	Australian Golden Orb-weaving Spider
	Oxyopidae	*Oxyopes amoenus?*	na
	Pholcidae	*Pholcitrichocyclus nigropunctatus*	na
	Salticidae	*Clynotis severus?*	na
	Salticidae	*Holoplatys* sp.	na
	Segestriidae	*Ariadna* "sp. 1 - rock tube"	na
	Segestriidae	*Ariadna* "sp. 2 - leaf turret"	na
	Sparassidae	*Neosparassus* "sp. 1 - tent burrow"	na
	Theraphosidae	*Selenocosmia* sp.	na
	Trachycosmidae	*Fissarena?* sp.	na
	Trochanteriidae	*Hemicloea* sp.	na
	Zodariidae	*Habronestes* sp. 1 "10 orange spots" *australiensis* grp	na
	Zodariidae	*Habronestes* sp. 3 "orange 3 spot" *australiensis* grp	na
	Zodariidae	Zodariidae "sp. 2 - bark"	na
	Zodariidae	Zodariidae "sp. 4 - shiny, black and white"	na
Mites	Caeculidae	*Neocaeculus*? sp.	na
	Trombidiidae	Trombidiidae sp. 1	na
	Trombidiidae	Trombidiidae sp. 2	na
Scorpions	Buthidae	*Isometroides* sp.	na
	Buthidae	*Lychas* sp. 1	na
	Buthidae	*Lychas* sp. 2	na
	Urodacidae	*Urodacus* sp.	na
Pseudoscorpions	Chernetidae	*Conicochernes* sp. nov. "PSE024"	na
	Garypidae	*Synsphyronus* sp. nov. "PSE241" [a]	na
	Olpiidae	*Beierolpium* sp.	na
	Olpiidae	*Indolpium* sp.	na
	Sternophoridae	*Afrosternophorus* sp. nov. "PSE242"	na
Crustaceans	Armadillidae	*Buddelundia* sp.	na
	Bathynellidae	Bathynellidae n.gen, n.sp. RL2889 [a]	na
	Chiltoniidae	Chiltoniidae n.gen, n.sp. RL2887 [a]	na

Group	Family	Species	Common name
	Cyzicidae	*Ozestheria* sp.	na
	Paramelitidae	Paramelitidae n.gen, n.sp. RL2877 [a]	na
Centipedes	Scolopendridae	*Cormocephalus turneri*	na
	Scolopendridae	*Scolopendra laeta*	na
	Scolopendridae	*Scolopendra morsitans*	Red-headed Centipede
Molluscs	Gastrocoptidae	*Gastrocopta* cf. *margaretae*	Margaret's Pupasnail
	Planorbidae	*Ferrissia* sp. [a]	na
	Planorbidae	*Isidorella* cf. *newcombi*	Newcombs Pouch Snail
	Pupillidae	*Pupoides* cf. *myoporinae*	Southern Sinistral Pupasnail
	Tomichiidae	*Coxiella* aff. *gilesi* n.sp. [a]	na

a Putative new species. **b** Introduced and/or pest species. **na** Not available.

Table A2 List of flora and funga species recorded

Group	Family	Species	Common name
Vascular plants	Aizoaceae	*Gunniopsis propinqua*	na
	Amaranthaceae	*Ptilotus aervoides*	Mat Mulla Mulla
	Amaranthaceae	*Ptilotus* aff. *schwartzii*	na
	Amaranthaceae	*Ptilotus gaudichaudii*	na
	Amaranthaceae	*Ptilotus helipteroides*	Hairy Mulla Mulla
	Amaranthaceae	*Ptilotus obovatus*	Cotton Bush
	Amaranthaceae	*Ptilotus polystachyus*	Prince of Wales Feather
	Amaranthaceae	*Ptilotus roei*	na
	Amaranthaceae	*Ptilotus xerophilus*	na
	Apocynaceae	*Vincetoxicum lineare*	Bush Bean
	Araliaceae	*Trachymene bialata*	na
	Araliaceae	*Trachymene ornata*	Spongefruit
	Asparagaceae	*Thysanotus* aff. *manglesianus*	na
	Asparagaceae	*Thysanotus exfimbriatus*	na
	Asparagaceae	*Thysanotus* sp.	na
	Asparagaceae	*Thysanotus* sp. Eremaean (S. van Leeuwen 1067)	na
	Asteraceae	*Actinobole oldfieldianum*	na
	Asteraceae	*Brachyscome iberidifolia*	Swan River Daisy
	Asteraceae	*Calocephalus francisii*	Fine-leaf Beauty-heads
	Asteraceae	*Calocephalus knappii*	na
	Asteraceae	*Calotis hispidula*	Bindy Eye
	Asteraceae	*Calotis multicaulis*	Many-stemmed Burr-daisy
	Asteraceae	*Centipeda pleiocephala*	na
	Asteraceae	*Centipeda thespidioides*	Desert Sneezeweed
	Asteraceae	*Cephalipterum drummondii*	Pompom Head
	Asteraceae	*Chrysocephalum puteale*	na
	Asteraceae	*Dielitzia tysonii*	na
	Asteraceae	*Erymophyllum ramosum* subsp. *ramosum*	na
	Asteraceae	*Feldstonia nitens*	na
	Asteraceae	*Lawrencella davenportii*	Sticky Everlasting
	Asteraceae	*Leiocarpa semicalva* subsp. *semicalva*	na
	Asteraceae	*Leucochrysum stipitatum*	na
	Asteraceae	*Myriocephalus gueriniae*	na
	Asteraceae	*Myriocephalus rudallii*	na
	Asteraceae	*Olearia stuartii*	na
	Asteraceae	*Pluchea dentex*	Bowl Daisy
	Asteraceae	*Rhodanthe charsleyae*	na
	Asteraceae	*Rhodanthe chlorocephala* subsp. *rosea*	Common Everlasting

Group	Family	Species	Common name
	Asteraceae	*Rhodanthe forrestii*	na
	Asteraceae	*Rhodanthe propinqua*	na
	Asteraceae	*Roebuckiella similis*	na
	Asteraceae	*Schoenia cassiniana*	Schoenia
	Asteraceae	*Senecio quadridentatus*	na
	Asteraceae	*Siemssenia capillaris*	Wiry Podolepis
	Asteraceae	*Streptoglossa cylindriceps*	na
	Asteraceae	*Taplinia saxatilis*	na
	Asteraceae	*Tietkensia corrickiae*	na
	Asteraceae	*Vittadinia sulcata*	na
	Asteraceae	*Waitzia acuminata* var. *acuminata*	Orange Immortelle
	Boraginaceae	*Halgania cyanea* var. Allambi Stn (B.W. Strong 676)	na
	Boraginaceae	*Trichodesma zeylanicum* var. *zeylanicum*	Camel Bush
	Brassicaceae	*Lepidium oxytrichum*	na
	Brassicaceae	*Sisymbrium orientale* [b]	Indian Hedge Mustard
	Campanulaceae	*Lobelia simulans*	na
	Campanulaceae	*Wahlenbergia tumidifructa*	na
	Chenopodiaceae	*Atriplex* cf. *nana*	na
	Chenopodiaceae	*Dysphania kalpari*	Rat's Tail
	Chenopodiaceae	*Dysphania saxatilis*	na
	Chenopodiaceae	*Enchylaena tomentosa* var. *tomentosa*	Barrier Saltbush
	Chenopodiaceae	*Maireana carnosa*	Cottony Bluebush
	Chenopodiaceae	*Maireana erioclada*	Rosy Bluebush
	Chenopodiaceae	*Maireana georgei*	Satiny Bluebush
	Chenopodiaceae	*Maireana planifolia*	Low Bluebush
	Chenopodiaceae	*Maireana thesioides*	Lax Bluebush
	Chenopodiaceae	*Rhagodia eremaea*	Thorny Saltbush
	Chenopodiaceae	*Sclerolaena convexula*	na
	Chenopodiaceae	*Sclerolaena densiflora*	na
	Chenopodiaceae	*Sclerolaena diacantha*	Grey Copperburr
	Chenopodiaceae	*Sclerolaena eriacantha*	Tall Bindii
	Chenopodiaceae	*Sclerolaena fimbriolata*	na
	Chenopodiaceae	*Tecticornia pterygosperma* subsp. *pterygosperma*	na
	Convolvulaceae	*Bonamia erecta*	na
	Convolvulaceae	*Cuscuta epithymum* [b]	Lesser Dodder
	Convolvulaceae	*Duperreya commixta*	na
	Cucurbitaceae	*Cucumis myriocarpus* [b]	Prickly Paddy Melon
	Cupressaceae	*Callitris columellaris*	White Cypress Pine
	Euphorbiaceae	*Euphorbia tannensis* subsp. *eremophila*	Desert Spurge

Group	Family	Species	Common name
	Euphorbiaceae	*Monotaxis luteiflora*	na
	Fabaceae	*Acacia aneura*	Mulga
	Fabaceae	*Acacia caesaneura*	na
	Fabaceae	*Acacia effusifolia*	na
	Fabaceae	*Acacia tetragonophylla*	Kurara
	Fabaceae	*Gastrolobium laytonii*	Breelya
	Fabaceae	*Indigofera georgei*	Bovine Indigo
	Fabaceae	*Kennedia prorepens*	Purple–flowered Pea Vine
	Fabaceae	*Leptosema chambersii*	na
	Fabaceae	*Mirbelia microphylla*	na
	Fabaceae	*Muelleranthus stipularis*	na
	Fabaceae	*Petalostylis cassioides*	Butterfly Bush
	Fabaceae	*Phyllota humilis*	na
	Fabaceae	*Senna artemisioides* subsp. *filifolia*	na
	Fabaceae	*Senna artemisioides* subsp. x *sturtii*	na
	Fabaceae	*Swainsona elegantoides*	na
	Fabaceae	*Swainsona tenuis*	na
	Frankeniaceae	*Frankenia cinerea*	na
	Frankeniaceae	*Frankenia pauciflora*	Seaheath
	Gentianaceae	*Schenkia australis*	Spike Centaury
	Geraniaceae	*Erodium cygnorum*	Blue Heronsbill
	Goodeniaceae	*Brunonia australis*	Native Cornflower
	Goodeniaceae	*Dampiera roycei*	na
	Goodeniaceae	*Goodenia connata*	Cup Velleia
	Goodeniaceae	*Goodenia glabrata*	Pee the Bed
	Goodeniaceae	*Goodenia glandulosa*	na
	Goodeniaceae	*Goodenia havilandii*	na
	Goodeniaceae	*Goodenia mueckeana*	na
	Goodeniaceae	*Goodenia nuda*	na
	Goodeniaceae	*Goodenia peacockiana*	na
	Goodeniaceae	*Goodenia rosea*	Pink Velleia
	Goodeniaceae	*Goodenia stellata*	na
	Goodeniaceae	*Goodenia triodiophila*	na
	Goodeniaceae	*Scaevola parvifolia* subsp. *parvifolia*	Camel Weed
	Goodeniaceae	*Scaevola restiacea* subsp. *restiacea*	na
	Goodeniaceae	*Scaevola spinescens*	Currant Bush
	Gyrostemonaceae	*Codonocarpus cotinifolius*	Native Poplar
	Haloragaceae	*Gonocarpus confertifolius* var. *helmsii*	na
	Haloragaceae	*Gonocarpus nodulosus*	na
	Haloragaceae	*Haloragis odontocarpa* f. *pterocarpa*	Mulga Nettle

Group	Family	Species	Common name
	Hemerocallidaceae	*Dianella revoluta* var. *divaricata*	Flax Lily
	Lamiaceae	*Dicrastylis brunnea*	na
	Lamiaceae	*Lachnostachys verbascifolia* var. *verbascifolia*	Lambs' Tails
	Lamiaceae	*Prostanthera wilkieana*	Mint Bush
	Lamiaceae	*Teucrium teucriiflorum*	na
	Loranthaceae	*Amyema fitzgeraldii*	Pincushion Mistletoe
	Loranthaceae	*Lysiana* cf. *casuarinae*	na
	Loranthaceae	*Lysiana murrayi*	Mistletoe
	Malvaceae	*Abutilon otocarpum*	Desert Chinese Lantern
	Malvaceae	*Alyogyne pinoniana*	Sand Hibiscus
	Malvaceae	*Androcalva loxophylla*	na
	Malvaceae	*Androcalva luteiflora*	Yellow-flowered Rulingia
	Malvaceae	*Hibiscus burtonii*	na
	Malvaceae	*Hibiscus* sp. Gardneri (A.L. Payne PRP 1435)	na
	Malvaceae	*Lawrencia helmsii*	Dunna Dunna
	Malvaceae	*Seringia exastia*	Fringed fire-bush
	Malvaceae	*Sida cardiophylla*	na
	Malvaceae	*Sida ectogama*	na
	Malvaceae	*Sida* sp. Excedentifolia (J.L. Egan 1925)	na
	Marsileaceae	*Marsilea drummondii*	Common Nardoo
	Montiaceae	*Calandrinia balonensis*	Broadleaf Parakeelya
	Montiaceae	*Calandrinia creethae*	na
	Montiaceae	*Calandrinia polyandra*	Parakeelya
	Montiaceae	*Calandrinia ptychosperma*	na
	Montiaceae	*Calandrinia schistorhiza*	na
	Myrtaceae	*Aluta maisonneuvei* subsp. *auriculata*	na
	Myrtaceae	*Calothamnus aridus*	na
	Myrtaceae	*Calytrix carinata*	na
	Myrtaceae	*Calytrix desolata*	na
	Myrtaceae	*Calytrix uncinata*	na
	Myrtaceae	*Calytrix watsonii*	na
	Myrtaceae	*Enekbatus eremaeus*	na
	Myrtaceae	*Eucalyptus kingsmillii*	Kingsmill's Mallee
	Myrtaceae	*Eucalyptus leptopoda* subsp. *elevata*	Tammin Mallee
	Myrtaceae	*Euryomyrtus inflata*	na
	Myrtaceae	*Homalocalyx thryptomenoides*	na
	Myrtaceae	*Melaleuca interioris*	na
	Myrtaceae	*Micromyrtus flaviflora*	na
	Phyllanthaceae	*Poranthera leiosperma*	Mallee Poranthera

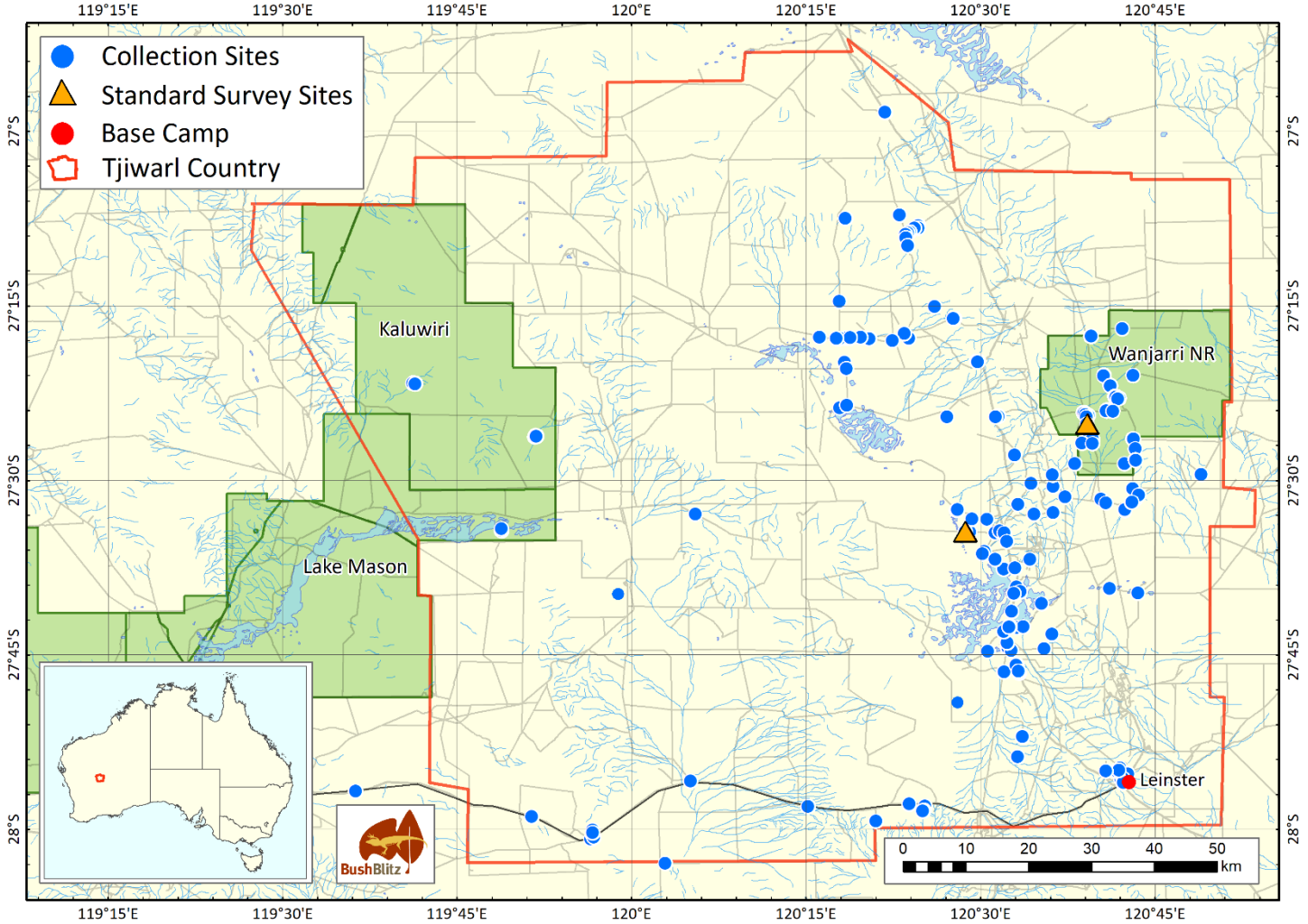
Group	Family	Species	Common name
	Phyllanthaceae	*Sauropus* sp. Woolgorong (M. Officer s.n. 10/8/94)	na
	Pittosporaceae	*Pittosporum angustifolium*	na
	Poaceae	*Neurachne minor*	na
	Poaceae	*Triodia basedowii*	Lobed Spinifex
	Polygonaceae	*Rumex vesicarius* [b]	Ruby Dock
	Portulacaceae	*Portulaca oleracea*	na
	Proteaceae	*Grevillea acacioides*	Purslane
	Proteaceae	*Grevillea juncifolia* subsp. *juncifolia*	na
	Proteaceae	*Grevillea pterosperma*	Honeynasuckle Grevillea
	Proteaceae	*Grevillea sarissa* subsp. *sarissa*	na
	Proteaceae	*Hakea francisiana*	Wheel Grevillea
	Proteaceae	*Hakea minyma*	Emu Tree
	Rubiaceae	*Pomax ammophila*	na
	Rubiaceae	*Psydrax latifolia*	na
	Rubiaceae	*Psydrax rigidula*	Native Plum
	Santalaceae	*Exocarpos sparteus*	na
	Santalaceae	*Santalum lanceolatum*	Broom Ballart
	Sapindaceae	*Dodonaea adenophora*	Northern Sandalwood
	Sapindaceae	*Dodonaea petiolaris*	na
	Sapindaceae	*Dodonaea rigida*	na
	Scrophulariaceae	*Eremophila* aff. *glutinosa* [a]	na
	Scrophulariaceae	*Eremophila battii*	Batt's poverty bush
	Scrophulariaceae	*Eremophila eriocalyx*	na
	Scrophulariaceae	*Eremophila exilifolia*	na
	Scrophulariaceae	*Eremophila foliosissima*	na
	Scrophulariaceae	*Eremophila forrestii* subsp. *forrestii*	Poverty Bush
	Scrophulariaceae	*Eremophila fraseri* subsp. *fraseri*	Wilcox Bush
	Scrophulariaceae	*Eremophila galeata*	Burra
	Scrophulariaceae	*Eremophila gilesii* subsp. *variabilis*	na
	Scrophulariaceae	*Eremophila granitica*	na
	Scrophulariaceae	*Eremophila homoplastica*	Granite Poverty Bush
	Scrophulariaceae	*Eremophila jucunda* subsp. *jucunda*	na
	Scrophulariaceae	*Eremophila latrobei* subsp. *latrobei*	na
	Scrophulariaceae	*Eremophila longifolia*	Native Fuschia
	Scrophulariaceae	*Eremophila pantonii*	Berrigan
	Scrophulariaceae	*Eremophila platycalyx* subsp. Leonora (J. Morrisey 252)	Broombush
	Scrophulariaceae	*Eremophila platythamnos* subsp. *platythamnos*	Desert Foxglove
	Scrophulariaceae	*Eremophila spuria*	na

Group	Family	Species	Common name
	Solanaceae	*Cyphanthera miersiana*	na
	Solanaceae	*Duboisia hopwoodii*	na
	Solanaceae	*Nicotiana cavicola*	Pituri
	Solanaceae	*Nicotiana rosulata*	Talara
	Solanaceae	*Nicotiana simulans*	Rosetted Tobacco
	Solanaceae	*Solanum ashbyae*	na
	Solanaceae	*Solanum coactiliferum*	na
	Stylidiaceae	*Levenhookia chippendalei*	Western Nightshade
	Stylidiaceae	*Stylidium* sp.	Arid Zone Stylewort
	Zygophyllaceae	*Roepera eichleri*	na
	Zygophyllaceae	*Roepera eremaea*	Climbing Twinleaf
Fungi	Polyporaceae	*Pycnoporus coccineus*	Scarlet Bracket Fungus

a Putative new species. **b** Introduced and/or pest species. **na** Not available.

Appendix B: Collection sites

Map B1 Map of collection sites



Glossary

Term	Definition
ABRS	Australian Biological Resources Study
ALA	Atlas of Living Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
Genus (plural genera)	A taxonomic category that ranks between family and species, consisting of related species (e.g. *Acacia*).
Endemic	Native to or limited to a certain region.
Introduced	Not indigenous; not native to the area in which it now occurs.
Lineage	A sequence of species each of which is considered to have evolved from its predecessor.
Pest species	A species that has the potential to have a negative environmental, social or economic impact.
Phrase name	An informal name given to a plant taxon that has not yet been described and has therefore not yet been given a formal scientific name.
Putative new species	An unnamed species that, as far as can be ascertained, was identified as a new species as a direct result of this Bush Blitz.
Range extension	Increase in the known distribution or area of occurrence of a species.
Species complex	A group of closely related species that are very similar in appearance to the point that the boundaries between them are often unclear.
Species range	The geographical area within which a particular species can be found.
Stygofauna	Animals that live in underground water, including crustaceans, worms, snails, insects, other invertebrate groups and, in Australia, a blind fish and a newt.
Taxon (plural taxa)	A member of any particular taxonomic group (e.g. a species, genus, family).
Taxonomy	The categorisation and naming of species. The science of identifying and naming species, as well as grouping them based on their relatedness.
Threatened	Fauna or flora that are listed under Section 178 of the EPBC Act (or equivalent State legislation) in any one of the following categories – extinct, extinct in the wild, critically endangered, endangered, vulnerable, conservation dependent.
Type material	The specimen (or set of specimens) on which the description and name of a new species is based.
Undescribed taxon	A taxon (usually a species) that has not yet been formally described and named.
UNSW	University of New South Wales
Vascular plants	A lineage of plants that possess well-developed veins (vascular tissue) in their stems, roots and leaves. Vascular plants include the majority of familiar land plants: flowering plants, ferns, conifers, cycads and fern allies, but not mosses, liverworts or algae.
Vouchers (voucher specimens)	Any specimen, usually a dead animal or preserved plant sample, that serves as a basis of study and is retained as a reference.

References

Chapman, AD 2009, Numbers of Living Species in Australia and the World 2nd edn, Australian Biological Resources Study, Canberra, accessed 13 September 2021.

WA Government 1996, Wanjarri Nature Reserve Management Plan 1996-2006 [1.53MB], Department of Biodiversity, Conservation and Attractions, previously Department of Conservation and Land Management, accessed 20 March 2024.