# Far West Coast, South Australia 2021: Bush Blitz expedition report

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Australian Government
Department of Climate Change, Energy, the Environment and Water

BHP

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**Contributors**

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 South Australian Museum, the State Herbarium of South Australia, Flinders University, TERN, the University of Adelaide and the University of Melbourne.

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Front cover images: (from top, clockwise) a sinkhole explored by the caving team © Copyright, Steve Milner, Bead Samphire (*Tecticornia flabelliformis*) © Copyright, Tracey Spokes, marine specimens © Copyright, TERN, cave spider *Troglodiplura beirutpakbarai* © Copyright, Steve Milner.

**Acknowledgements**

Bush Blitz acknowledges that Far West Coast land belongs to the First Nations people of the Far West Coast – Yalata Peoples, Mirning Peoples, the descendants of Edward Roberts, Wirangu Peoples, Kokatha Peoples and the Maralinga Tjarutja (Oak Valley) Peoples. We acknowledge their continuing connection to land, sea and community and pay our respects to them, their cultures, and to their Elders both past and present.

Bush Blitz would like to thank the Far West Coast Aboriginal Corporation, Yalata Anangu Aboriginal Corporation, Yumbarra Conservation Park Co-management Board, the Department of Environment and Water (South Australia) and the Indigenous ranger groups for their cooperation and assistance. We would also like to thank the Fowlers Bay community for their hospitality, particularly Jess Viersma and her team for the wonderful catering.

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# Summary

From 22 November to 3 December 2021, Bush Blitz led an expedition to the Far West Coast of South Australia.

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

At least 922 species were recorded during the Bush Blitz and 33 of those may be completely new to science (6 bees, 11 wasps, 1 moth, 3 spiders, 12 mites). Many unnamed or informal invertebrate taxa were collected. These may assist scientists to revise, compare and describe species in the future.

The team recorded 2 threatened animal species – Australian Sea-lion (*Neophoca cinerea*) and School Shark (*Galeorhinus galeus*) – and 3 vulnerable plant species – Bead Samphire (*Tecticornia flabelliformis*), West Coast Mintbush (*Prostanthera calycina*) and Club Spear-grass (*Austrostipa nullanulla*).

Seven introduced and pest animal species were recorded, along with 51 introduced plant species.

Highlights of the expedition include:

- the collection of valuable information on 2 rare reptile species – Bight Slider (*Lerista arenicola*) and Great Bight Cool-skink (*Pseudemoia baudini*) – that will make it easier to locate them in the future
- the collection of the first whole and mature specimens of the elusive, enigmatic and vulnerable blind cave spider *Troglodiplura beirutpakbarai*, previously only known from fragments of exoskeleton and juvenile specimens
- resurveying grasshopper survey sites from last century, which provided unique information about the change in grasshopper fauna over time
- the first records for the area for many species, including 59 of the 67 native bee species collected
- the finding that mites are some of the most diverse and abundant animals of Nullarbor caves
- confirmation of the presence of the hard coral *Turbinaria* cf. *mesenterina* in the Great Australian Bight – the only record of the species in South Australia
- new records for rare and threatened plant species, and the first vouchered specimens of the vulnerable Bead Samphire from the region.

# 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 1,800 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 the Far West Coast of South Australia. Information in this report has been extracted from the scientific reports provided by expedition members. Locational data for all flora and fauna records are provided to reserve managers and are publicly available through the Atlas of Living Australia (ALA).

## Far West Coast Bush Blitz

Bush Blitz led an expedition to the Far West Coast of South Australia from 22 November to 3 December 2021, to collect and record plants and animals living in terrestrial and marine environments.

The Far West Coast Aboriginal Corporation (FWCAC) represents the First Nations people of the Far West Coast – Yalata Peoples, Mirning Peoples, the descendants of Edward Roberts, Wirangu Peoples, Kokatha Peoples and the Maralinga Tjarutja (Oak Valley) Peoples. The Bush Blitz team worked closely with the FWCAC and relevant land managers both before and during the expedition.

The expedition focused on:

- Yalata Indigenous Protected Area (IPA) (4,563 km$^2$), managed by the Yalata Anangu Aboriginal Corporation.
- Fowlers Bay Conservation Park (CP) (97 km$^2$) and Wahgunyah CP (484 km$^2$), co-managed by the Yumbarra CP Co-management Board and the Department for Environment and Water (South Australia) (SA Government 2019).
- Nuyts Archipelago Marine Park (3,998 km$^2$) – managed by the Department of Environment and Water (South Australia) (SA Government 2012).

Major vegetation types in this region are low woodlands, mallee, saltmarsh, low shrublands, coastal shrublands and grasslands. The marine near-coastal and coastal region are a mix of sandy beaches with extensive seagrass meadows, rocky shores and offshore reefs with associated marine algae.

The Far West Coast region is semi-arid with a warm summer and a cold winter. However, despite the expedition taking place in late spring to early summer, the weather during much of the expedition was overcast, cool, and windy. This resulted in animals like reptiles and flying insects being less active than usual, and affected their abundance and diversity in surveys.

Opportunities to undertake biological surveys in this remote region are rare, so the chance to survey and collect specimens on the Far West Coast was highly valued by the institutions involved.

## Previous surveys and pre-trip expectations

### Fauna

Despite significant vertebrate surveys in the region, much of the narrow coastal and near coastal environment within the study area has been poorly investigated. Information on a number of reptile species believed to occupy these habitats is scarce.

There may be as many as 2,500 species of native bee in Australia. However, before this expedition, only around 34 species had been recorded in the study area. It was expected that less well surveyed areas would reveal many more species, including new and undescribed species.

Based on the large variety of habitats, it was expected that a high diversity of wasps and beetles would be found across the study area. As the region has not been extensively surveyed, and a large proportion of Australian insects are undescribed, it was expected that many of the collections would include undescribed species.

Moths and butterflies (Lepidoptera) have generally been very poorly studied in the region. However, the types of habitat present are known to support a diverse range of Lepidoptera in Australia. It was expected that Lepidoptera would be diverse and abundant at this location and time, that species typically known from the more studied regions to the west and east of the study area would be found, and that undescribed species would also be discovered.

Grasshoppers are among the most well surveyed invertebrates in Australia. This is largely due to the efforts of Dr Ken H.L. Key, an ecologist and entomologist who coordinated surveys across Australia between 1939 and 1989. One aim of this expedition was to resurvey as many of those

old survey sites as possible. This was a unique opportunity to assess if and how the grasshopper fauna of these sites has changed over time.

Before this expedition about 60 spider species had been recorded in the study area. The spider team targeted surveys to fill likely gaps in this spider list, including species that live in caves. The cave systems of the Nullarbor Plain have not been well surveyed for spiders and a number of interesting species are known to live there. Blind cave spiders (family Anamidae, genus *Troglodiplura*) are the only completely cave-dwelling mygalomorph spiders known in Australia. They have several adaptations for living in caves, including no eyes and long legs. The 5 known species are only found on the Nullarbor Plain – *Troglodiplura beirutpakbarai* lives in South Australia and the other 4 species in Western Australia. Few living spiders have ever been seen and, until now, the only material known for *T. beirutpakbarai* was juvenile spiders and fragments of exoskeleton. As these species have highly restricted distributions, they are highly vulnerable to threatening processes like climate change, predation and human disturbance.

Mites are poorly known in Australia – around 95% of the estimated 70,000 Australian species are undescribed. The mite fauna of Australian caves has been remarkably neglected and previous surveys of Nullarbor caves contain no detailed information on mites. Some small collections of mites from caves in New South Wales and Western Australia provide useful comparisons with Yalata/Nullarbor caves.

**Flora**

The expedition provided an opportunity to greatly increase knowledge of the flora of the region. Priorities for investigation included vascular plant biodiversity, the current status of rare and vulnerable species, the extent of exotic species encroachment, and species distributions.

The expedition also provided access to marine near-shore habitats to collect marine macroalgae in a region with very few historical collections. Previous collections from this region were made in the 1950s and more recently in 1994, 2008 and 2010. Marine macroalgae have been underrepresented in collections nationally.

Key targets were:

- samphires (*Tecticornia* and *Salicornia* spp.), for more detailed collections to enhance knowledge about population diversity and to fill gaps in species distribution between Western Australia and the Eyre Peninsula
- *Santalum* species, for population diversity studies and to contribute to a database of genetic diversity which will assist in identifying Sandalwood (*S. spicatum*) sources in the Sandalwood trade and help detect illegal harvesting
- collection of galls growing on samphires and closely related plants, to contribute to ongoing research into the taxonomy and biology of gall midges (Diptera: Cecidomyiidae)
- species listed as rare or vulnerable in South Australia and/or nationally that are known to occur in the survey region.

The botanists had also been asked to search for particular specimens for taxonomic research projects. Some of these plants had been collected in the area before, and it was thought that others may occur based on the species' habitat preferences.

**Marine**

There was a large marine component to this expedition. Surveys and collections were made from Davenport Creek (near Ceduna) to Head of Bight, across a broad range of habitats including hard coral reefs, soft sediments, and rocky shores. The marine team used a variety of survey methods including diving, hand collecting, coring and Baited Remote Underwater Video Systems (BRUVS).

The Fowlers Bay region sits in the transition zone between the southeast and southwest Australian marine bioregions. As such, it is an important region where mixing of warm and cool water species can occur and potentially result in assemblages of fish and invertebrates that are unique within the broader Great Australian Bight (GAB).

The South Australian Research and Development Institute (SARDI) and CSIRO have previously done systematic surveys of the marine invertebrates on the shelf and deep sea in the GAB. However, nearshore coastal habitats have received little to no attention, leading to the Far West Coast of the Eyre Peninsula and coast along the Nullarbor being one of the least explored coastal and marine areas in Australia.

The southern coast of the Australian continent has a high marine biodiversity arising from its unique geological history and evolution of endemic species. The team investigated 4 remnant hard coral reefs, which are of significant scientific interest because they are thought to consist of species typically found in the warm Indian Ocean, rather than the cool–temperate waters of the GAB. Despite their scientific importance, these sites had never been comprehensively surveyed and the extent and size of the hard coral reefs, coral species, and fauna communities inhabiting these reefs were unknown.

Marine sediments can host species-rich communities of invertebrates. Macroinvertebrates play important roles in marine ecosystems but are often overlooked and underrepresented in conservation efforts and assessments for the IUCN Red List. With intensifying cumulative pressures on marine and coastal environments, including shifts in the distribution ranges of species due to climate change, more baseline data are needed on the occurrence and abundance of marine invertebrates.

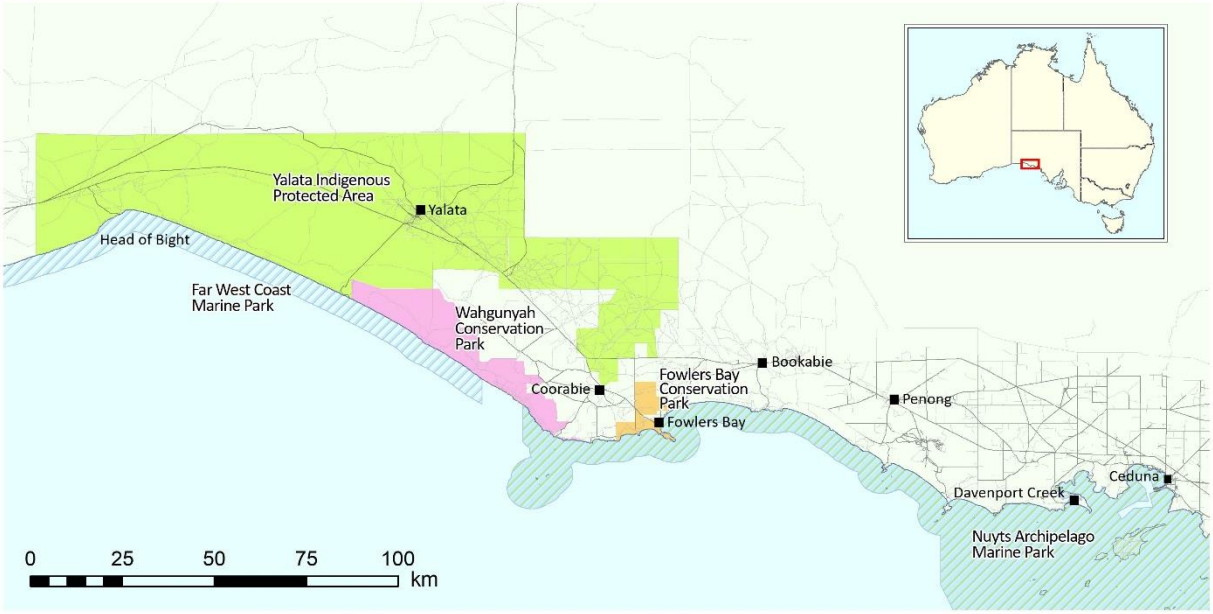
# Study area

The main places visited by the expedition team were Yalata IPA, Wahgunyah and Fowlers Bay conservation parks and the coastal and near coastal waters of the Far West Coast and Nuyts Archipelago marine parks.

Base camp was in Fowlers Bay, a small coastal town 10 hours' drive west of Adelaide. Observations and collections were also made from around the town. Fowlers Bay CP surrounds the town, incorporating about 8 km of coastline and extending 13 km inland. Wahgunyah CP begins just west of Fowlers Bay CP and stretches a further 60 km along the coast. The much larger Yalata IPA continues another 80km west along the coast and reaches inland beyond the town of Yalata, up to 60km inland at its widest point.

Map 1 shows the places visited during the expedition, the Indigenous community of Yalata, Head of Bight and 6 towns in the region – Coorabie, Fowlers Bay, Bookabie, Penong, Davenport Creek and Ceduna.

## Map 1 Locations visited, 22 November to 3 December 2021




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 Bush Blitz team consisted of Helen Cross and Courtney Webber. However, as COVID-19 travel restrictions delayed their arrival, Hannah Cowley and Andrea Donne Stiglingh from Earthwatch Australia led the start of the expedition.

## Scientific

The SA Museum and the State Herbarium of South Australia (SA Herbarium) were the host institutions for this Bush Blitz, providing the core group of personnel and accessioning the specimens into their collections. Experts from Flinders University, the University of Adelaide and the University of Melbourne also conducted field and laboratory work and are included in Table 1.

In addition, a TERN field team joined the expedition. TERN (Terrestrial Ecosystem Research Network) provides ecosystem research infrastructure for Australia, and the field program is based at the University of Adelaide. Over the last 12 years, TERN has co-located plots at many Bush Blitz locations, both before and after expeditions, but 2021 was the first time they formally participated in a Bush Blitz expedition. Including TERN standardised ecological monitoring plots as part of expeditions adds temporal depth to the data collected. Data collected by TERN are not included in this report. However, a summary of TERN plots from the expedition is available (TERN 2022). For TERN, the new plots in the bioregions of Eyre Yorke Block and Nullarbor are valuable additions to the network of almost 1,000 long-term monitoring plots across Australia. The expedition also gave TERN staff an opportunity to connect with the wider ecological community. The exchange of ideas and techniques was very valuable and has already resulted in a number of exciting new collaborations. Working alongside TeachLive participants was a great experience for both the teachers and TERN staff, with several of the teachers planning to incorporate TERN Ecosystem data into their teaching.

## BHP participants and Bush Blitz TeachLive

Sabrina Trocini, Andrea Donne Stiglingh and Hannah Cowley (Earthwatch Australia) coordinated 7 teachers and 2 BHP employees who assisted scientists in the field.

Bush Blitz TeachLive is a collaborative program between the Bush Blitz partners and the Australian Science Teachers Association. Due to the COVID-19 pandemic, only SA teachers were invited to apply. The participating teachers were Alex Rendoulis (Adelaide Botanic High School), Alexandra Fowler (Woomera Area School), Ben Noble (The Hills Montessori School), Ian Dudley (Elliston Area School), Sarah Todd (Coromandel Valley Primary School), Valerie Bradshaw (University Senior College) and Vanessa Greenslade (Urrbrae Agricultural High School).

Working alongside scientists, the teachers reinvigorated their love for science, generated new ideas and learned new skills to take back to their schools. Teachers taught 'live' to their classrooms via the TeachLive website and Skype sessions, taking their students on a virtual expedition and inspiring the next generation.

BHP employees on the expedition were Amy Graves and Zac Richardson.

## Other team members

Cave specialist Steve Milner supported scientists surveying cave systems. The marine team was assisted by a dive team from Flinders University – Matt Lloyd, Josh Dennis, Josh Davey and Tom Clarke.

### Figure 1 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 |
|---|---|---|
| Reptilia | Reptiles | David Armstrong (SA Museum) |
| Marine invertebrates and fish | | Rachael King (SA Museum)<br>Shirley Sorokin (SA Museum)<br>Sabine Dittmann (Flinders University)<br>Orlando Lam Gordillo (Flinders University)<br>Oliver Petersen (Flinders University)<br>Jasper Willoughby (Flinders University) |
| Hymenoptera | Bees | Remko Leijs (SA Museum) |
| | Wasps | Ben Parslow (SA Museum)<br>Erinn Fagan-Jeffries (University of Adelaide / SA Museum) |
| Coleoptera | Beetles | Ben Parslow (SA Museum)<br>Peter Lang (SA Herbarium) |
| Lepidoptera | Moths and butterflies | Ethan Beaver (SA Museum) |
| Orthoptera: Caelifera | Grasshoppers | Michael Kearney (University of Melbourne) |
| Arachnida | Mites and ticks | Matthew Shaw (SA Museum) |
| | Spiders | Jessica Marsh (SA Museum)<br>Matthew Shaw (SA Museum) |
| Vascular plants, bryophytes, lichens, macrofungi and marine macroalgae | Flowering plants, mosses, lichens, fungi and algae | Tracey Spokes (SA Herbarium)<br>Peter Lang (SA Herbarium)<br>Juergen Kellermann (SA Herbarium / University of Adelaide)<br>Tim Hammer (SA Herbarium and University of Adelaide) |

Note: The term “marine invertebrates” covers taxa across more than 20 individual phyla. Other personnel assisted with making identifications and reporting. These personnel and their roles are mentioned in the scientific reports.

Additional (non-target) taxa were recorded opportunistically and there was a collaborative approach to collecting. For example, anticipating that some teams would be interested to know the identity of host plants for their invertebrate collections, the botanists prepared kits to encourage collection of good quality voucher specimens, tissue samples and associated data. This resulted in the botanists obtaining plant collections from sites they were not able to get to.

## Site selection and collection methods

Scientists surveyed 3 standard survey sites which had been selected to represent major habitat types that had been undersampled in the past – samphire, open grassland and mallee. As these were terrestrial sites they were not surveyed by the marine team. Each standard survey site was

centred on a point (permanently marked), but the actual area surveyed varied between taxa. Standard methodologies were used to sample these sites.

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.

Apart from standard survey sites, site selection and collection methods were left to the discretion of the individual scientist. When selecting sites, scientists usually prioritised areas that were under-surveyed and had high potential for new or significant discoveries. For terrestrial surveys, they also considered the suitability of sites based on access, fire history, habitats/micro habitats present and the presence of flowering plants. Some teams resurveyed sites where rare or threatened species had previously been recorded, and sites with similar habitat where new records or species might be found. Sites for grasshopper surveys were partly chosen to resurvey historical survey sites. The marine team selected hard coral reef sites and accessible rocky shore sites based on historical records and consultation with Indigenous rangers and local residents. They selected a range of habitats to capture the greatest possible diversity of soft-sediment macroinvertebrates.

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 SA Museum, and plant and fungi specimens were deposited at the SA Herbarium.

# Results

## Summary of records

Preliminary results indicate that at least 922 species were recorded during the Bush Blitz, including approximately 33 putative new species – these await formal identification. Five threatened animal species, 7 introduced and pest animal species and 51 weed species were also recorded.

Table 2 provides a summary of the flora, fauna and other organisms recorded on the expedition.

**Table 2 Summary of records for flora, fauna and other organisms**

| Group | Common name | Total species recorded | Putative new species | Threatened species | Introduced and pest species |
|---|---|---|---|---|---|
| Mammalia | Mammals | 3 | 0 | 1 | 1 |
| Reptilia | Reptiles | 30 | 0 | 0 | 0 |
| Actinopterygii | Ray-finned fishes | 49 | 0 | 0 | 0 |
| Chondrichthyes | Sharks and rays | 5 | 0 | 1 | 0 |
| Tunicata | Sea squirts | 2 | 0 | 0 | 0 |
| Hemichordata | Acorn worms | 1 | 0 | 0 | 0 |
| Echinodermata | Sea stars, brittle stars and feather stars | 13 | 0 | 0 | 0 |
| Hymenoptera | Bees | 68 | 6 | 0 | 1 |
| | Wasps | 38 | 11 | 0 | 0 |
| Lepidoptera | Moths and butterflies | 64 | 1 | 0 | 1 |
| Coleoptera | Beetles | 60 | 0 | 0 | 1 |
| Orthoptera | Bush crickets | 2 | 0 | 0 | 0 |
| | Grasshoppers | 29 | 0 | 0 | 2 |
| Mantodea | Mantises | 1 | 0 | 0 | 0 |
| Phasmida | Stick insects | 1 | 0 | 0 | 0 |
| Arachnida | Spiders | 63 | 3 | 0 | 0 |
| | Mites | 38 | 12 | 0 | 1 |
| | Ticks | 2 | 0 | 0 | 0 |
| | Pseudoscorpions | 1 | 0 | 0 | 0 |
| Crustacea | Crabs, lobster, shrimps, prawns, sea lice and barnacles | 24 | 0 | 0 | 0 |
| Polychaeta | Bristle worms | 1 | 0 | 0 | 0 |
| Mollusca | Molluscs | 79 | 0 | 0 | 0 |
| Bryozoa | Moss animals | 1 | 0 | 0 | 0 |
| Porifera | Sponges | 4 | 0 | 0 | 0 |
| Cnidaria | Corals, jellyfish and anemones | 8 | 0 | 0 | 0 |
| Vascular plants | Flowering plants | 232 | 0 | 3 | 51 |

| Group | Common name | Total species recorded | Putative new species | Threatened species | Introduced and pest species |
|---|---|---|---|---|---|
| Bryophytes | Mosses | 6 | 0 | 0 | 0 |
| Lichens | Lichens | 18 | 0 | 0 | 0 |
| Marine macroalgae | Algae | 75 | 0 | 0 | 0 |
| Macrofungi | Fungi | 3 | 0 | 0 | 0 |
| Bacteria | Bacteria | 1 | 0 | 0 | 0 |
| **Total** | | **922** | **33** | **5** | **58** |

Note: Threatened species include those listed as threatened under the Commonwealth EPBC Act or an equivalent listing under the *National Parks and Wildlife Act 1972* (SA). Introduced and pest species may include species that are native to Australia.

# Species lists

Lists of all flora, fauna and fungi species recorded during the expedition (Appendix A) were compiled using data from participating institutions. In addition, bacteria (*Spirillum* sp.) were recorded among algae collected.

Some of the specimens collected are not included in Appendix A because they are waiting to be identified, including more than 500 insects and thousands of mites. In addition, some grasshopper and spider specimens could not be identified to species because they are nymphs or juveniles. It is likely there are many additional species within the material collected.

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 (that is, unnamed species) as well as described species that have not yet been identified. For example, the Australian National Insect Collection (ANIC) holds tens of thousands of unidentified specimens. Specimens often wait decades before the resources become available for their study. 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, the World Register of Marine Species, the Australian Plant Name Index, the Australian Plant Census, AusMoss, The Catalogue of Australian Liverworts and Hornworts and AlgaeBase.

# 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 33 putative new species were discovered during the expedition. Further research will likely reveal additional new species within the material awaiting identification.

### Bees

Six of the bee species collected are recognised as new – 4 belong in the family Colletidae, and one each in the families Halictidae and Megachilidae.

### Wasps

Scientists are confident that 11 species of wasp were collected for the first known time during the expedition. The actual number of putative new species is much higher than this but would require specialist expertise on the different families and genera.

Specialists on the expedition, who have worked extensively on the braconid subfamily Microgastrinae and the superfamily Evanioidea, were able to identify 2 putative new species of the genus *Choeras*, 4 putative new species of the genus *Dolichogenidea*, 2 putative new species of the genus *Miropotes*, and a putative new species of each of the genera *Pristomerus*, *Gasteruption* and *Aulacus*.

### Lepidoptera

One moth species collected could not be located in either ANIC or SA Museum collections and is thought to be a new species of the genus *Gastrinopa* species (Geometridae).

In addition, any of the 28 taxa that are unidentified or identified with low certainty could potentially be new undescribed species, or known undescribed species. Some of these specimens are still larvae and cannot be identified until they are reared to maturity.

### Spiders

At least 3 new spider species were collected during above-ground and cave surveys.

Above ground, the team collected an undescribed species of tube-web spider (Segestriidae) of the genus *Ariadna*. Currently there are 47 species of *Ariadna* recorded from Australia, including 22 from South Australia, all of which were described by Jessica Marsh. The species found on this expedition will be included in a taxonomic revision of the family, which is under preparation.

Two new species of Miturgidae were collected from within caves but it is unclear which genus they belong to. A genus of similar cave spiders, *Janusia*, has been recorded from caves in the Nullarbor. *Janusia* was originally placed in the family Miturgidae, but has since been moved to Ctenidae. A lack of modern systematic revisions of Miturgidae and closely related families means more detailed research is needed before the genus of the new species is decided, including examination of *Janusia* type material.

### Mites

There were 12 putative new species of mites collected during the expedition. These include 2 species found in humid caves that appear to be close relatives of species normally restricted to wet habitats in eastern Australia and South America. Others were found living on *Troglodiplura* spiders, and could assist with our understanding of the evolutionary history of the spiders. Another new species is bright green, unlike the other members of its superfamily.

Given the various new mite taxa found with minimal sampling in this region, there are likely to be many other species awaiting discovery, particularly in mallee habitats.

## 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.

In this report, the term 'threatened species' refers to species listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act) or the *National Parks and Wildlife Act 1972* (South Australia) (NPW Act). The NPW Act has a rare category which includes species in decline and those that naturally have a limited presence. Species listed as rare have been mentioned here but they have not been counted as threatened species.

### Vertebrates

Both threatened vertebrate species recorded were seen in the BRUVS videos (Table 3). Western Blue Groper (*Achoerodus gouldii*) and bottle-nose dolphin (*Tursiops* sp.) are protected species that were also observed.

In addition, 3 reptile species listed as rare in South Australia were recorded – the Bight Slider (*Lerista arenicola*), Great Bight Cool-skink (*Pseudemoia baudini*) and Carpet Python (*Morelia spilota*).

**Table 3 Threatened fauna species – mammals and fish**

| Family | Species | Common name | Status | Comments |
|---|---|---|---|---|
| Otariidae | *Neophoca cinerea* | Australian Sea-lion | Endangered (EPBC Act), Vulnerable (NPW Act) | Observed at one site |
| Triakidae | *Galeorhinus galeus* | School Shark | Conservation Dependent (EPBC Act) | Observed at one site |

### Vascular plants

Table 4 lists threatened plant species that were recorded during the expedition. In addition, 6 of the plant species recorded are listed as rare under the NPW Act – Salt Isotome (*Isotoma scapigera*), Rohrlach's Bluebush (*Maireana rohrlachii*), Spiny Templetonia (*Templetonia battii*), *Pomaderris forrestiana*, Small-leaf Emubush (*Eremophila parvifolia* subsp. *parvifolia*) and *Eremophila praecox*.

**Table 4 Threatened flora species**

| Family | Species | Common name | Status |
|---|---|---|---|
| Chenopodiaceae | *Tecticornia flabelliformis* | Bead Samphire | Vulnerable (EPBC Act and NPW Act) |
| Lamiaceae | *Prostanthera calycina* | West Coast Mintbush | Vulnerable (EPBC Act and NPW Act) |
| Poaceae | *Austrostipa nullanulla* | Club Spear-grass | Vulnerable (NPW Act) |

Bead Samphire (*Tecticornia flabelliformis*) is found at a few locations in Victoria and Western Australia, but is more widespread in coastal South Australia. Its restriction to a very specific ecological niche makes it relatively rare. The occurrences near Fowlers Bay are the westernmost in South Australia and are poorly documented. A single small patch was discovered at a site near Fowlers Bay township. Although the site is surrounded by Fowlers Bay CP, it falls within the road reserve exclusion and the population had been impacted by off-road vehicles. Surveys targeting this species in the surrounding areas of Fowlers Bay CP are needed to ascertain the extent and population sizes of any additional occurrences and what conservation measures may be needed.

**Figure 2 Bead Samphire (*Tecticornia flabelliformis*)**

Photograph: © T.M. Spokes

West Coast Mintbush (*Prostanthera calycina*) is a shrub endemic to the Eyre Peninsula region. The most westerly population, near Coorabie, was visited by one of the team in February 1989. At that time, most of the shrubs had a broad, rounded habit and the 2 bushes sampled were both recorded as being 50 cm tall. An attempt to relocate this population from the vehicle was initially unsuccessful, but a second visit searching on foot showed why – most plants were heavily browsed to within 5 cm of the ground surface. Only 2 individuals that were protected amongst other less palatable plants had any flowers. A total of 10 *P. calycina* plants were recorded along the roadside and more were visible through the fence on the edge of a much larger area of similar habitat in the adjoining land where many more individuals are likely to be present. Plants on both sides of the fence are subject to very severe grazing pressure which, if unaddressed, could stop the population from surviving in the longer term.

**Figure 3 West Coast Mintbush (*Prostanthera calycina*). Left: plant heavily browsed, almost to ground level; right: browsed branch with flower**

Photograph: © T.M. Spokes

Club Spear-grass (*Austrostipa nullanulla*) is a perennial tussock grass which occurs in South Australia, Victoria and New South Wales. A single occurrence was found at the standard survey site in Fowlers Bay CP. Recent comparisons with the closely related *A. vickeryana*, which occurs in similar habitats, suggests this may be the same species. This would have implications for the conservation status of the combined taxon.

# 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.

Table 5 lists the only introduced and pest vertebrate species recorded during the expedition, the Fox (*Vulpes vulpes*). There is some evidence of the role of fox predation in the decline of mygalomorph spider populations and foxes are likely to pose a substantial threat to spider species, such as the cave-dwelling trapdoor spiders (*Troglodiplura* spp.).

**Table 5 Introduced and pest vertebrate species – mammals**

| Family | Species | Common name | Comments |
|---|---|---|---|
| Canidae | *Vulpes vulpes* | Fox | Some caves had a high density of fox burrows and scats |

## Invertebrates

Table 6 lists the introduced and pest invertebrate species that were collected or observed in the study area.

European Honey Bees (*Apis mellifera*) were occasionally observed during the expedition. Feral colonies may take over or occupy nesting hollows that otherwise are used by hollow breeding birds such as parrots, lorikeets, and cockatoos. They may also compete with native bees, birds and small mammals for nectar and pollen, especially when these resources are scarce. Notably, there were no specimens of the invasive European wasp (*Vespula germanica*) collected in the Malaise traps or noted during the survey.

Only one introduced beetle species was identified during the expedition – the actively spreading Egyptian beetle (*Blaps polychresta*) was recorded around the Fowlers Bay Community Hall. This species is associated with organic waste from rodents and other animals and is likely to be dispersing as a result of human activities.

No introduced grasshopper species were sighted however, 2 native locusts (swarming grasshoppers) were observed that are significant agricultural pests in Australia.

The only pest moth identified was Native Budworm (*Helicoverpa punctigera*), a well-known native species found broadly across southern Australia. Larvae of this species feed on a diverse range of agricultural crops and can cause significant losses under the right circumstances. It was not particularly abundant in the study region and generally prefers open or grassy areas.

In Australasia most parasitid mites are introduced from the Northern Hemisphere and found in disturbed nutrient-rich areas.

**Table 6 Introduced and pest invertebrate species – insects and mites**

| Group | Family | Species | Common name | Comments |
|---|---|---|---|---|
| **Bees** | Apidae | *Apis mellifera* | European Honey Bee | Occasionally observed |
| **Beetles** | Tenebrionidae | *Blaps polychresta* | Egyptian Beetle | Fowlers Bay Community Hall; common; introduced to Australia |
| **Locusts** | Acrididae | *Austracris guttulosa* | Spur-throated Locust | Native species; observed at some locations in low numbers; a significant agricultural pest |
| | Acrididae | *Chortoicetes terminifera* | Australian Plague Locust | Native species; observed at a couple of locations; a significant agricultural pest in northern Australia |
| **Moths** | Noctuidae | *Helicoverpa punctigera* | Native Budworm | Native species; Red Gate Track, Yalata IPA; uncommon; of major economic importance |
| **Mites** | Parasitidae | *Pergamasus* sp. | na | On Cheetima Beach (beach wrack); abundant; no control measures are practical or warranted |

## Vascular plants

The botanists recorded 51 introduced plant species. The most serious weeds encountered were African Boxthorn (*Lycium ferocissimum*) and Horehound (*Marrubium vulgare*) (Table 7). These are declared plants in South Australia and land owners are required to control these plants on their properties.

### Table 7 Gazetted weeds

| Family | Species | Common name | Location and comments |
|---|---|---|---|
| Lamiaceae | *Marrubium vulgare* | Horehound | Yalata IPA and Coorabie Road; a declared plant in SA that needs to be controlled; particularly common along roadsides |
| Solanaceae | *Lycium ferocissimum* | African Boxthorn | Yalata IPA and Coorabie Road; a declared plant in SA; rare where observed but very common on Eyre Peninsula; a serious environmental and agricultural weed that needs ongoing control |

The remaining 49 non-gazetted weeds recorded during the expedition are listed in Table 8. Most of these are of low priority for control, either because they have minimal impact or because they are already well established in the area and their control is not practically achievable.

Species flagged as high priority for control within conservation areas are Onion Weed (*Asphodelus fistulosus*), Golden Pallensis (*Asteriscus spinosus*), Saffron Thistle (*Carthamus lanatus*), Malta Thistle (*Centaurea melitensis*), Lincoln Weed (*Diplotaxis tenuifolia*), Stinkweed (*Dittrichia graveolens*), False Caper (*Euphorbia terracina*), Sea-lavender (*Limonium companyonis*), Sicilian Sea-lavender (*Limonium hyblaeum*), Common Iceplant (*Mesembryanthemum crystallinum*), Slender Iceplant (*Mesembryanthemum nodiflorum*) and Pincushion (*Sixalix atropurpurea*).

Two of the species recorded are of moderate concern – Golden Pallensis and Gazania (*Gazania linearis*). Golden Pallensis is common along roadsides in disturbed sites in patches, and is likely to increase. It warrants monitoring to ensure it does not establish in conservation areas. Gazania was observed in relatively small numbers, self-establishing on road verges in the township of Fowlers Bay. This popular garden ornamental has spread invasively in many coastal areas elsewhere in South Australia, where it forms dense areas that exclude other plant species. It requires monitoring to ensure that it does not spread along roadsides and beaches beyond the township area.

### Table 8 Non-gazetted weeds

| Family | Species | Common name | Location and comments |
|---|---|---|---|
| Aizoaceae | *Mesembryanthemum crystallinum* | Common Iceplant | Sand dune on west end of Fowlers Bay township; a weed of moderate concern in conservation areas as it can form monocultures in suitable environments |
| Aizoaceae | *Mesembryanthemum nodiflorum* | Slender Iceplant | Fowlers Bay and Yalata IPA; a weed of moderate concern in conservation areas as it can form monocultures in suitable environments |
| Apiaceae | *Bupleurum semicompositum* | Hare's Ear | Fowlers Bay; widely distributed and of low concern |
| Apiaceae | *Petroselinum crispum* | Parsley | Fowlers Bay; single plant, self-established from a known planting nearby; not of concern |
| Asteraceae | *Arctotheca calendula* | Cape Weed | Fowlers Bay; only detected in township area, unlikely to become more widely established |
| Asteraceae | *Arctotheca populifolia* | Beach Daisy | Fowlers Bay and Windmills (approx. 5km east of Fowlers Bay); a coastal species; widespread coloniser of unconsolidated sand, already well established across the region; very difficult to control |

| Family | Species | Common name | Location and comments |
|---|---|---|---|
| Asteraceae | *Asteriscus spinosus* | Golden Pallensis | Coorabie township roadside; common along roadsides in disturbed sites in patches and likely to increase; moderate concern; needs monitoring to ensure it does not establish in conservation areas |
| Asteraceae | *Carthamus lanatus* | Saffron Thistle | Fowlers Bay and Yalata IPA; mainly a weed of disturbed and degraded sites; needs management in conservation areas |
| Asteraceae | *Centaurea melitensis* | Malta Thistle | Fowlers Bay and Yalata IPA; mainly a weed of disturbed and degraded sites; needs management in conservation areas |
| Asteraceae | *Erigeron bonariensis* | Flax-leaf Fleabane | Fowlers Bay; mainly a weed of disturbed and degraded sites; based on recent expansion in the state, it is likely to increase in this area; glyphosate-resistant and difficult to eradicate |
| Asteraceae | *Dittrichia graveolens* | Stinkweed | Fowlers Bay; has potential to spread to disturbed roadsides where runoff occurs; warrants management if it spreads into conservation areas |
| Asteraceae | *Gazania linearis* | Gazania | Fowlers Bay; only encountered in the town area; elsewhere, in coastal regions this is a very invasive species, though slow to spread; needs monitoring |
| Asteraceae | *Leontodon rhagadioloides* | Cretan Weed | Approx. 5 km SSE of Coorabie; small annual weed of low concern |
| Asteraceae | *Reichardia tingitana* | False Sowthistle | Fowlers Bay, Yalata IPA, Red Gate Track and Wahgunyah CP; a widely established annual weed of relatively low impact and low concern |
| Asteraceae | *Sonchus oleraceus* | Common Sow-thistle | Fowlers Bay; a widespread annual weed occurring in low numbers and not of concern |
| Brassicaceae | *Brassica tournefortii* | Wild Turnip | Fowlers Bay; a widespread weed that is well established in agricultural areas, particularly where there are sandy soils |
| Brassicaceae | *Cakile maritima* subsp. *maritima* | Two-horned Sea Rocket | Sand dune on west end of Fowlers Bay township; Fowlers Bay CP; Wahgunyah CP; widespread and well established in the region; confined to beach margins and not of concern |
| Brassicaceae | *Carrichtera annua* | Ward's Weed | Yalata Rd, Ooldea Road, Yalata IPA; very widespread and well established in the region; a very invasive and smothering annual, however control is impractical |
| Brassicaceae | *Diplotaxis tenuifolia* | Lincoln Weed | Fowlers Bay; mainly found on roadsides and other disturbed areas; warrants management if it spreads into conservation areas |
| Brassicaceae | *Sisymbrium erysimoides* | Smooth Mustard | Yalata IPA; mainly confined to shady areas such as tree canopies, sinkholes and buildings; very widespread and not of concern |
| Brassicaceae | *Sisymbrium irio* | London Mustard | Fowlers Bay and Ooldea Road; mainly confined to shady areas such as tree canopies, sinkholes and buildings; very widespread and not of concern |
| Caryophyllaceae | *Silene tridentata* | na | SW Fowlers Bay CP; an annual herb of low impact and concern |
| Caryophyllaceae | *Spergularia bocconei* | Red Sand-spurrey | Fowlers Bay; small annual weed of low concern |

| Family | Species | Common name | Location and comments |
|---|---|---|---|
| Caryophyllaceae | *Spergularia diandra* | Lesser Sand-spurrey | Fowlers Bay; small annual weed of low concern |
| Chenopodiaceae | *Chenopodium murale* | Nettle-leaf Goosefoot | Fowlers Bay; low concern; associated with disturbance around buildings; a new occurrence record for the Fowlers Bay area |
| Dipsacaceae | *Sixalix atropurpurea* | Pincushion | Eyre Highway; probably more common than collections indicate; perennial herb with potential to greatly increase along roadsides and disturbed areas where run-off occurs; warrants management in conservation areas |
| Euphorbiaceae | *Euphorbia paralias* | Sea Spurge | Sand dune on west end of Fowlers Bay township, Fowlers Bay CP, Wahgunyah CP; a coastal species and widespread coloniser of unconsolidated sand; already well established across the region; very difficult to control |
| Euphorbiaceae | *Euphorbia terracina* | False Caper | Fowlers Bay; 2 plants seen; well established in the region along roadsides and in disturbed areas; of moderate concern if located in conservation areas |
| Fabaceae | *Medicago minima* | Little Medic | Yalata IPA; small annual weed that may occur in large numbers; has the potential to become more widespread |
| Fabaceae | *Medicago polymorpha* | Burr-medic | Fowlers Bay; annual weed associated with disturbed areas; of low concern |
| Fabaceae | *Medicago truncatula* | Barrel Medic | Coorabie township roadside; annual weed associated with disturbed areas; of low concern |
| Fabaceae | *Melilotus indicus* | King Island Melilot | Edge of Fowlers Bay township; annual weed associated with disturbed areas; of low concern |
| Lamiaceae | *Salvia verbenaca* var. *verbenaca* | Wild Sage | Fowlers Bay; established at scattered locations along roadsides in the area; of low concern |
| Liliaceae | *Asphodelus fistulosus* | Onion Weed | Fowlers Bay and track to Yalata Swamp from Red Gate Track; mainly a weed of disturbed and degraded sites; needs management in conservation areas |
| Limoniaceae | *Limonium companyonis* | Sea-lavender | Fowlers Bay CP; likely to slowly expand and dominate areas of suitable habitat on limestone-based substrates, given time; warrants management in conservation areas |
| Limoniaceae | *Limonium hyblaeum* | Sicilian Sea-lavender | Edge of Fowlers Bay township; likely to slowly expand and dominate areas of suitable habitat on limestone-based substrates, given time; may warrant management in conservation areas |
| Malvaceae | *Malva parviflora* | Small-flower Marshmallow | Fowlers Bay; a weed of disturbed areas including roadsides; of low concern |
| Myrtaceae | *Eucalyptus gomphocephala* | Tuart | Coorabie township roadside; highly localised and limited establishment of seedlings and saplings from roadside planting; not of concern |
| Plantaginaceae | *Plantago coronopus* subsp. *commutata* | Bucks-horn Plantain | Fowlers Bay; mainly a weed of disturbed and degraded sites; of low concern |
| Poaceae | *Avena barbata* | Bearded Oat | Fowlers Bay; mainly found on roadsides and other disturbed areas; of low concern |
| Poaceae | *Bromus diandrus* | Great Brome | Fowlers Bay; mainly found on roadsides and other disturbed areas; of low concern |

| Family | Species | Common name | Location and comments |
|---|---|---|---|
| Poaceae | *Hordeum glaucum* | Blue Barley-grass | Fowlers Bay; well established in the region along roadsides and in disturbed areas; of low concern |
| Poaceae | *Hordeum leporinum* | Wall Barley-grass | Fowlers Bay; well established in the region along roadsides and in disturbed areas; of low concern |
| Poaceae | *Lolium perenne* | Perennial Ryegrass | Fowlers Bay; single plant; may become established along roadsides; not of major concern |
| Poaceae | *Rostraria pumila* | Tiny Bristle-grass | Fowlers Bay; a widely established small annual grass of low impact and concern |
| Poaceae | *Schismus barbatus* | Arabian Grass | Wahgunyah CP; a widely established small annual grass of low impact and concern |
| Polygonaceae | *Polygonum aviculare* | Wireweed | Fowlers Bay, front of jetty; 2 plants seen; a weed of disturbed areas; this occurrence is a major range extension with the nearest known location on Eyre Peninsula at Port Kenny; warrants control to prevent further spread |
| Primulaceae | *Lysimachia arvensis* | Pimpernel | Fowlers Bay, SW Fowlers Bay CP and Yalata IPA; small annual weed, widely established but of minimal impact and of low concern |
| Solanaceae | *Solanum nigrum* | Black Nightshade | Fowlers Bay; a widespread weed occurring in low frequencies and not of concern |

**na** Not available.

# Range extensions

The known ranges of many species were extended, including new records for South Australia. The most notable range extensions are listed in Table 9.

The records of Great Bight Cool-skink (*Pseudemoia baudini*) fill a gap in the known area of occupancy of this species. Reptile surveys usually take place during spring and early summer, which is the best time to find most reptile species. The Great Bight Cool-skink is more likely to be observed during winter, so this may explain why it remained undetected until now.

Identifying range extensions for invertebrate groups is challenging because detailed information on distributions is generally only available for well-studied groups. Current distributions were compiled based on published information, publicly available databases (ALA and iNaturalist) and physical specimens present in collections. Data on true range extensions, such as those resulting from climate change, will only be possible with the availability of fine scale distributional data that include time-series. The range extensions noted for moths are both taxa that have detailed published distribution ranges. Due to limited collection records for the region, nearly all of the wasps identified to species level represent range extensions, and 59 of the 67 native bee species collected are new records for the area.

There are very few records in the ALA of hard corals along the Far West Coast of South Australia. This expedition confirmed the presence of *Turbinaria* cf. *mesenterina* in the GAB (previously only known from an old unconfirmed SA Museum record), with the only record of the species in South Australia. *Plesiastrea versipora* and *Coscinaraea mcneilli* have also been confirmed for the first time in the western GAB. Molecular analyses of these specimens are ongoing and will

become part of a larger molecular dataset that will help determine the evolutionary relationships of Australian hard corals. Records of *Culicia hoffmeisteri* are the first near shore records of this group in the western GAB, based on ALA records.

Range extensions were recorded for several species of vascular plants, marine algae and lichens, and there were new records of rare and threatened plants. While the vulnerable Bead Samphire was already known in the region, no vouchered specimens had been collected and lodged in herbarium collections or placed on the SA Census or the AVH or ALA national databases.

**Table 9 Range extensions**

| Group | Family | Species | Comments |
|---|---|---|---|
| **Reptiles** | Scincidae | Great Bight Cool-skink *(Pseudemoia baudini)* | Wahgunyah CP; 135 km ESE, on St Peter Island; 2 seen active a few metres apart during cool weather |
| **Wasps** | Braconidae | *Apanteles ippeus* | Wahgunyah CP; no records databased or available on ALA, very unlikely there are any identified specimens from the region in collections |
| | Braconidae | *Dolichogenidea bonbonensis* | Coorabie; 358 km; species also known from Bon Bon Station, Witchelina Station, Kariijini NP (WA) and near Lajamanu (NT) |
| | Braconidae | *Iphiaulax australiensis* | Wahgunyah CP; broadly distributed across the country, but this fills in a significant gap between Eyre Peninsula and WA |
| | Evaniidae | *Szepligetiella perfida* | Wahgunyah CP; 1,700 km; species was described from material collected in Tas.; it is likely this species has a broader distribution across southern Australia |
| | Gasteruptiidae | *Gasteruption longipes* | Yalata IPA; 500 km; westernmost record for the species, which has been collected in Adelaide and across Tas. |
| **Moths** | Lycaenidae | *Erina acasta* | Wahgunyah CP; 160 km (Ceduna); known to occur both E and W of the Nullarbor Plain; westernmost record for the species in SA |
| | Sphingidae | *Hopliocnema lacunosa* | Yalata IPA; 500 km (Cocklebiddy, WA); easternmost record for the species, and the first record for SA |
| **Beetles** | Buprestidae | *Agrilus assimilis* | Wahgunyah CP; 315 km; westernmost record for the species |
| | Cerambycidae | *Rhytiphora frenchi* | Wahgunyah CP; 936 km; known from WA; first record for SA |
| | Coccinellidae | *Hippodamia variegata* | Wahgunyah CP; 300 km; species broadly distributed across southern Australia, but this provides records in a large gap between the Eyre Peninsula and WA |
| **Grasshoppers** | Acrididae | Acrididae GenusNovum 6 sp. 2 | 150 km; one of the more common grasshopper species, so appears to have either shifted range or recovered to high density |
| **Mites** | Alicorhagiidae | *Stigmalychus veretrum* | 2,500 km (North Stradbroke Island, Qld); type locality is South Africa |

| Group | Family | Species | Comments |
|---|---|---|---|
| | Ctenacaridae | *Ctenacarus araneolus* | 925 km (W of Ferries McDonald CP); 2 localities on ALA: mallee in eastern SA and Weelawadji Cave, WA; type locality is Morocco |
| | Eviphididae | *Thinoseius peltatus* | 900 km (NW of Robe); further sampling of beach wrack may uncover more *Thinoseius* spp. |
| | Ichthyostomatogasteridae | *Asternolaelaps australis* | 600 km (Royston Head cave) and 1,000 km (Naracoorte cave); known from only a few sites in Australia |
| | Smarididae | *Smaris prominens* | 690 km; the closest of many records is Adelaide |
| **Corals** | Coscinaraeidae | *Coscinaraea mcneilli* | Point Fowler; 120 km; first record of this species from shore collections (not offshore) in the western GAB |
| | Dendrophylliidae | *Turbinaria* cf. *mesenterina* | Point Fowler; 1,600 km; confirms an old SA Museum record for this species in the GAB and is the only record of the species along the coastline of South Australia |
| | Plesiastreidae | *Plesiastrea versipora* | Point Fowler; 270 km; first records of this species in the western GAB |
| | Rhizangiidae | *Culicia hoffmeisteri* | Point Fowler; 130km; first records for ALA from GAB intertidal (not offshore) |
| **Vascular plants** | Asteraceae | *Dittrichia graveolens* | 110 km E–W range infill; exotic species |
| | Asteraceae | *Gazania linearis* | 125 km E–W range infill; exotic species |
| | Boraginaceae | *Heliotropium europaeum* | 175 km S and W range extension; questionably native, possibly naturalised |
| | Caryophyllaceae | *Silene tridentata* | 85 km westerly range extension; exotic species |
| | Chenopodiaceae | *Chenopodium murale* | 60 km; nearest recorded occurrence is to the E at Point Sinclair, SA; exotic species |
| | Chenopodiaceae | *Tecticornia flabelliformis* | 180 km westerly range extension; first vouchered specimens for the region; listed as vulnerable in SA and nationally |
| | Chenopodiaceae | *Tecticornia moniliformis* | 125 km westerly extension of known range in SA |
| | Juncaceae | *Juncus kraussii* | 380 km; major western extension of range; nearest occurrence is to the SE at Mt Misery |
| | Polygonaceae | *Polygonum aviculare* | 290 km; a weed of disturbed areas; major range extension with the nearest known location on Eyre Peninsula at Port Kenny; exotic species |
| | Rhamnaceae | *Pomaderris forrestiana* | 148 km easterly range extension; listed as rare in SA |
| **Algae** | Ceramiaceae | *Antithamnion pectinatum* | 1,100 km; a new occurrence record for SA; other known occurrences are from the SE coast of Australia and SE Tas.; a considerable westerly range extension |
| | Ceramiaceae | *Ochmapexus minimus* | 550 km; a westerly range extension; the most westerly occurrence record was for Marion Bay, SA |

| Group | Family | Species | Comments |
|---|---|---|---|
| | Corallinaceae | *Jania rosea* | 600 km; a range infill; previous most westerly occurrence record for SA was Pennington Bay (1948), approx. 600 km E, and Christmas Island, WA (1960) approx. 800 km W of Fowlers Bay |
| | Delesseriaceae | *Dasya cliftonii* | 100 km; range infill between St. Francis Island, Nuyts Archipelago (2002) and Middle Island, Recherche Archipelago, WA (2003), approx. 900 km west |
| | Dictyotaceae | *Dictyota fenestrata* | 550 km; a westerly range extension; nearest known occurrence is Middle Island, Pondalowie Bay (2006) |
| | Gelidiaceae | *Gelidium pusillum* | 120 km; a westerly range extension; nearest known occurrence is Wittelbee Point, near Ceduna (1951) |
| | Lithodermataceae | *Pseudolithoderma australe* | 500 km; a westerly range extension; nearest known occurrence is Abalone Cove, West Island (1989) |
| | Rhodymeniaceae | *Chrysymenia brownii* | 700 km; range infill between Aldinga Reef (1968) to the E and Middle Island, WA (2003), approx. 850 km |
| | Rhodomelaceae | *Ditria expleta* | 100 km; range infill between Freeling Island, Nuyts Archipelago (2002) to the E, and south of Rottnest Island, WA (1996), approx. 2,000 km |
| | Rhodomelaceae | *Laurencia forsteri* | 300 km; range infill between Elliston (1973) and Cape Arid (1860s), approx. 800 km |
| | Rhodomelaceae | *Epizonaria prostrata* | 100 km; range infill between Freeling Island, Nuyts Archipelago (2002) to the E, and south of Fremantle Bay WA (2003), approx. 2,000 km |
| | Rhodomelaceae | *Thaumatella adunca* | 500 km; range infill between Roxby Island, SA (2009) to the E, and the only record for WA, King George's Sound (pre 1890), approx. 1,300 km away |
| | Sargassaceae | *Sirophysalis trinodis* | 500 km; a significant range infill between Port Turton, Yorke Peninsula (1973) to the E, and Albany, WA (1962), approx. 1,300 km away |
| | Ulvaceae | *Ulva clathrata* | 1,450 km; a significant range infill between Point Lonsdale, Vic. (1992) to the E, and Garden Island, WA (1946), approx. 2,000 km away |

# 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 plants and animals collected, this includes material preserved for future DNA or other tissue analysis.

## Reptiles

The expedition provided valuable information on 2 species that are listed as rare in South Australia. Understanding the micro habitat preferences of the Bight Slider (*Lerista arenicola*)

and low temperature activity of the Great Bight Cool-skink (*Pseudemoia baudini*) will make it easier to locate these species in the future.

Knowledge of the distribution, habitat preferences and relative abundance of several other reptile species within the study area was also significantly improved.

## Lepidoptera

When weather conditions were not suitable for Lepidoptera to fly, effort was focused on locating larvae within foliage, such as undescribed bagworm moths (Psychidae). Some of the bagworm moth larvae collected had parasitoids – organisms that live in close association with a host, eventually killing it. Parasitoids from the wasp families Ichneumonidae and Braconidae, and the fly family Tachinidae, have been reared from the *Lepidoscia* and the *Clania* moths collected. Identification of the moth hosts may be possible once the remaining larvae mature, allowing for the association between parasitoid and host to be recorded.

**Figure 4 Close-up of head and prothorax of mature larva of *Clania* sp. 'Yalata', an undescribed species known only from Yalata, South Australia**

Photograph: © Ethan P. Beaver

The detached wings of the Southern Old Lady Moth (*Dasypodia selenophora*) were found within the main chambers of 2 caves. The related Granny's Cloak Moth (*Speiredonia spectans*) is similarly known to shelter within caves or mines.

## Grasshoppers

The resurvey of collection sites from last century provided a rare chance to look at the change in invertebrate fauna over time. The historical surveys were done over a wider range of times and might have been expected to record more taxa. However, slightly more species were found during this expedition, and significantly more species were found per site compared to past surveys of the same sites. Most species encountered on this expedition had been recorded in the

historical surveys. However, some taxa are now common that were apparently absent in the previous surveys. So, although the grasshopper fauna has not changed dramatically in the past 50 years, there may be some changes in species composition and relative abundance. These changes may reflect the dramatic changes in vegetation cover that probably result from a reduction in rabbit numbers due to the introduction of calicivirus in 1996.

## Spiders

The caving team found an elusive, enigmatic and vulnerable species of blind cave spider, *Troglodiplura beirutpakbarai*. They collected the first whole and mature specimens of this species – it had previously only been known from fragments of exoskeleton and juvenile specimens. Collection of specimens was conservative, to avoid a negative impact on the population, however, the team collected and preserved high quality material for molecular analysis and mature females for morphological analysis.

**Figure 5 A new cave record for *Troglodiplura* in South Australia**

Photograph: © S. Milner

Another important finding was 2 additional cave localities for *Troglodiplura beirutpakbarai*. Prior to the expedition, *Troglodiplura* in South Australia was only known from one cave, the remaining 4 species being from WA caves. Given each of the currently described species of *Troglodiplura* was only known from a single cave system, it was expected that, like animals stranded on distant islands, isolation in caves would have produced new species. However, a new and stunning result of molecular studies of this Bush Blitz material (Marsh et al. 2023) is that the 3 caves where *Troglodiplura* were found harbour the same species, with only minor genetic variation. This is an unexpected finding. More study is needed, however, underground dispersal may have occurred, possible because of the porous limestone connecting the

underground caverns. This has sometimes been recorded overseas but usually for much smaller spiders. This makes the Nullarbor cave system even more intriguing.

The team recorded ecological data for the *Troglodiplura* species found, and environmental data for the caves in which they were located, including temperature and humidity. This provides important information to help prioritise caves for future surveys, determine likely threats that may impact them and assess their extinction risk.

Surveys of the cave systems provided evidence for the likely high value of these caves for invertebrate endemism and diversity and also of their conservation vulnerability. A number of key threats were identified, including predation by foxes, disturbance by humans, and climate change driven changes to humidity, water availability, and temperature.

## Mites

This expedition resulted in the first detailed report of mites from the Yalata region and from the Nullarbor karst. An outstanding finding is that mites are some of the most diverse and abundant animals of Nullabor caves. For instance, *Ctenacarus araneolus*, previously only known from Australia from a small handful of records, was found to be one of the most abundant animals in many dry caves, sometimes numbering many hundreds of individuals from a single pitfall trap.

Cave mites in Australia have often been tentatively labelled as troglophiles, that is, able to live their entire life within a cave. However, this label includes many mites with quite different biology, and probably different ecological and historical relationships to caves. The same cave where the blind cave spider *Troglodiplura beirutpakbarai* was found harbours at least 3 mite genera previously recorded only from wet habitats, particularly wet forests. These species may have become stranded in a landscape that has become too dry for them. While this is a reasonable assumption, further molecular work is needed to investigate this theory.

Several of the mite taxa recorded warrant investigation as possible troglophiles. The only reasonably-well sampled cave of the 3 caves that have *Troglodiplura* spiders showed a highly distinctive fauna compared to dry caves showing that there can be considerable diversity in cave fauna.

An Australian host of a parasitic *Neotrombidium* larva may have been recorded for the first time. An engorged *Neotrombidium* larva was collected from underneath the wing covers (elytra) of a *Brises* sp. beetle (Tenebrioninae). The larva was rolled within the folds of a hindwing but not attached. The many new collections made of *Brises* beetles and other large cave-inhabiting beetles now provide opportunities to confirm this host record.

A native mite (*Laelaps* sp.) found in a kestrel nest in a cave was determined to be from a native rodent, indicating there are native rodents nearby. It may have been from a rodent captured by a bird of prey and brought to the cave. The mite does not match any *Laelaps* sp. currently known from *Pseudomys* rodents. Likewise, *Asternolaelaps* mites appear to 'hitchhike' on vertebrates, so its presence implies past or current bat activity in the caves where they were found.

## Marine invertebrates and fish

Marine invertebrate and fish collections made during the expedition have contributed significant data to the records of species distributions from an under-studied and remote region of southern Australia. As global warming will change current patterns around Australia, the

tropicalisation of temperate seas is likely to intensify, increasing connectivity between the east and west coast of Australia. The data and specimens obtained during this survey form an important benchmark in our knowledge of distribution ranges of marine macroinvertebrates and fishes. The specimens collected will be available as reference material for future use in molecular analyses to examine evolutionary relationships, as well as for examining climate change and species distributions.

## Vascular plants

As expected, samphires were found to be well represented and floristically diverse in the study area, with 10 different taxa recorded. These were well sampled and the 37 samphire collections made add substantially to our knowledge of their distribution and habitats. Notably 4 collections were made of *Tecticornia moniliformis*, a species which was first recognised as occurring in South Australia in 2008. Collections from Fowlers Bay CP and the Yalata IPA confirm the species' occurrence in Yalata Swamp and represent a major westward extension of its known range in South Australia.

The collection of a native bedstraw identified as *Galium bulliformis* × *G. leptogonium*, from a sink hole in the Yalata IPA, is a regionally significant find. Its presence raises questions about its hybrid status, given the absence of records of either parent in the area. This plant is probably very rare in the region, presuming that its survival is dependent on the specialised niche in which it was found – on a limestone ledge in the rocky overhang of a sink hole, shaded from the western sun, on a substrate with little weed competition and positioned well out of reach of grazing animals.

Galls made by Cecidomyiidae midge flies were collected from *Sclerolaena uniflora* and *Tecticornia pruinosa*. These probably represent new host plant records, and thus possibly also new midge species. Some of the material was preserved in ethanol to enable DNA analysis of midge stages and associated fungi.

Only one of the target vascular plant species specifically requested by researchers was found on survey. *Gunniopsis calcarea* was collected in the Pintumba area at the east boundary of the Yalata IPA. Tissue samples from this plant were sent to the University of Cape Town for sequencing as part of a project investigating phylogenetic relationships of the genus.

Populations of hybrids between Coast Daisy-bush (*Olearia axillaris*) and Lobed-leaf Daisy-bush (*Olearia exiguifolia*) were discovered at 2 locations, 350 m apart, in Wahgunyah CP. Forms typical of both species were present in each case and these were sampled along with the hybrid plants to enable their relationships to be further investigated using DNA sequencing. This appears to be the first reported case of hybridization between these species.

# Appendix A: Species lists

### Table A1 List of fauna species recorded

| Group | Family | Species | Common name |
|---|---|---|---|
| **Mammals** | Canidae | *Vulpes vulpes* [b] | Fox |
| | Delphinidae | *Tursiops* sp. | a dolphin |
| | Otariidae | *Neophoca cinerea* [c d] | Australian Sea-lion |
| **Reptiles** | Agamidae | *Ctenophorus chapmani* | Southern Heath Dragon |
| | Agamidae | *Ctenophorus cristatus* | Bicycle Lizard, Crested Dragon |
| | Agamidae | *Ctenophorus pictus* | Painted Dragon |
| | Agamidae | *Pogona minor* | Dwarf Bearded Dragon |
| | Carphodactylidae | *Nephrurus stellatus* | Starred Knob-tailed Gecko, Stellate Knob-tail |
| | Carphodactylidae | *Underwoodisaurus milii* | Barking Gecko, Thick-tailed Gecko |
| | Diplodactylidae | *Diplodactylus calcicolus* | South Coast Gecko |
| | Elapidae | *Acanthophis antarcticus* | Common Death Adder |
| | Elapidae | *Pseudonaja affinis* | Dugite |
| | Gekkonidae | *Christinus marmoratus* | Marbled Gecko |
| | Gekkonidae | *Heteronotia binoei* | Bynoe's Gecko |
| | Pygopodidae | *Aprasia inaurita* | Mallee Worm-lizard, Red-tailed Worm-lizard |
| | Pygopodidae | *Delma australis* | Marble-faced Delma |
| | Pygopodidae | *Pygopus lepidopodus* | Common Scaly-foot |
| | Pythonidae | *Morelia spilota* | Carpet Python, Diamond Python |
| | Scincidae | *Cryptoblepharus pulcher* | Elegant Snake-eyed Skink |
| | Scincidae | *Ctenotus euclae* | Bight Coast Ctenotus |
| | Scincidae | *Egernia richardi* | Bright Crevice-skink |
| | Scincidae | *Hemiergis initialis* | Southwestern Earless Skink |
| | Scincidae | *Hemiergis peronii* | Lowlands Earless Skink |
| | Scincidae | *Lerista arenicola* | Bight Slider |
| | Scincidae | *Lerista dorsalis* | Southern Slider |
| | Scincidae | *Lerista terdigitata* | Robust Mulch Slider |
| | Scincidae | *Menetia greyii* | Common Dwarf Skink, Grey's Menetia |
| | Scincidae | *Morethia adelaidensis* | Saltbush Morethia Skink |
| | Scincidae | *Morethia obscura* | Shrubland Morethia Skink |
| | Scincidae | *Pseudemoia baudini* | Great Bight Cool-skink |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Scincidae | *Tiliqua rugosa* | Shingle-back, Sleepy Lizard, Stumpy-tail |
| | Typhlopidae | *Anilios bituberculatus* | Prong-snouted Blind Snake |
| | Varanidae | *Varanus gouldii* | Gould's Goanna |
| **Ray-finned fishes** | Arripidae | *Arripis georgianus* | Australian Herring |
| | Arripidae | *Arripis truttaceus* | Western Australian Salmon |
| | Berycidae | *Centroberyx gerrardi* | Bight Redfish |
| | Carangidae | *Pseudocaranx* sp. | na |
| | Carangidae | *Seriola lalandi* | Yellowtail Kingfish |
| | Carangidae | *Trachurus novaezelandiae* | Yellowtail Scad |
| | Chaetodontidae | *Chelmonops curiosus* | Western Talma |
| | Cheilodactylidae | *Cheilodactylus nigripes* | Magpie Perch |
| | Cheilodactylidae | *Dactylophora nigricans* | Dusky Morwong |
| | Dinolestidae | *Dinolestes lewini* | Longfin Pike |
| | Enoplosidae | *Enoplosus armatus* | Old Wife |
| | Gerreidae | *Parequula melbournensis* | Silverbelly |
| | Girellidae | *Girella zebra* | Zebrafish |
| | Kyphosidae | *Kyphosus sydneyanus* | Silver Drummer |
| | Labridae | *Achoerodus gouldii* | Western Blue Groper |
| | Labridae | *Austrolabrus maculatus* | Blackspotted Wrasse |
| | Labridae | *Notolabrus parilus* | Brownspotted Wrasse |
| | Labridae | *Notolabrus tetricus* | Bluethroat Wrasse |
| | Labridae | *Ophthalmolepis lineolata* | Southern Maori Wrasse |
| | Labridae | *Pictilabrus laticlavius* | Senator Wrasse |
| | Loliginidae | *Sepioteuthis australis* | Southern Calamari |
| | Microcanthidae | *Tilodon sexfasciatus* | Moonlighter |
| | Monacanthidae | *Acanthaluteres vittiger* | Toothbrush Leatherjacket |
| | Monacanthidae | *Meuschenia flavolineata* | Yellowstriped Leatherjacket |
| | Monacanthidae | *Meuschenia freycineti* | Sixspine Leatherjacket |
| | Monacanthidae | *Meuschenia galii* | Bluelined Leatherjacket |
| | Monacanthidae | *Meuschenia hippocrepis* | Horseshoe Leatherjacket |
| | Monacanthidae | *Nelusetta ayraud* | Ocean Leatherjacket |
| | Monacanthidae | *Scobinichthys granulatus* | Rough Leatherjacket |
| | Mullidae | *Upeneichthys vlamingii* | Bluespotted Goatfish |
| | Neosebastidae | *Neosebastes scorpaenoides* | Common Gurnard Perch |
| | Odacidae | *Haletta semifasciata* | Blue Weed Whiting |
| | Odacidae | *Olisthops cyanomelas* | Herring Cale |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Odacidae | *Siphonognathus attenuatus* | Slender Weed Whiting |
| | Pentacerotidae | *Pentaceropsis recurvirostris* | Longsnout Boarfish |
| | Pinguipedidae | *Parapercis ramsayi* | Spotted Grubfish |
| | Platycephalidae | *Platycephalus speculator* | Southern Bluespotted Flathead |
| | Platycephalidae | *Platycephalus bassensis* | Southern Sand Flathead |
| | Pomacentridae | *Parma victoriae* | Scalyfin |
| | Scorpididae | *Scorpis aequipinnis* | Sea Sweep |
| | Scorpididae | *Scorpis georgiana* | Banded Sweep |
| | Serranidae | *Caesioperca rasor* | Barber Perch |
| | Sillaginidae | *Sillaginodes punctatus* | King George Whiting |
| | Sillaginidae | *Sillago bassensis* | Southern School Whiting |
| | Sparidae | *Chrysophrys auratus* | Pink Snapper |
| | Sphyraenidae | *Sphyraena novaehollandiae* | Snook |
| | Terapontidae | *Pelsartia humeralis* | Sea Trumpeter |
| | Tetraodontidae | *Tetractenos glaber* | Smooth Toadfish |
| | Tetraodontidae | *Torquigener pleurogramma* | Weeping Toadfish |
| **Sharks and rays** | Dasyatidae | *Bathytoshia brevicaudata* | Smooth Stingray |
| | Myliobatidae | *Myliobatis tenuicaudatus* | Southern Eagle Ray |
| | Rhinobatidae | *Trygonorrhina dumerilii* | Southern Fiddler Ray |
| | Triakidae | *Galeorhinus galeus* [c] | School Shark |
| | Triakidae | *Mustelus antarcticus* | Gummy Shark |
| **Sea squirts** | Pyuridae | *Pyura gibbosa* | na |
| | Ritterellidae | *Ritterella compacta* | na |
| **Acorn worms** | Ptychoderidae | *Balanoglossus australiensis* | na |
| **Sea stars, brittle stars and feather stars** | Amphiuridae | *Amphiura constricta* | na |
| | Asterinidae | *Meridiastra calcar* | na |
| | Asterinidae | *Pseudonepanthia troughtoni* | na |
| | Asteropseidae | *Petricia vernicia* | na |
| | Comatulidae | *Cenolia trichoptera* | na |
| | Echinasteridae | *Echinaster arcystatus* | na |
| | Echinasteridae | *Plectaster decans* | na |
| | Goniasteridae | *Fromia polypora* | na |
| | Goniasteridae | *Nectria macrobrachia* | na |
| | Goniasteridae | *Nectria saori* | na |
| | Goniasteridae | *Pentagonaster duebeni* | na |
| | Goniasteridae | *Tosia australis* | na |
| | Ophiotrichidae | *Ophiothrix caespitosa* | na |
| **Bees** | Apidae | *Amegilla (Notomegilla) chlorocyanea* | Blue Banded Bee |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Apidae | *Apis mellifera* [b] | European Honey Bee |
| | Apidae | *Exoneura* sp. YARL009 | na |
| | Apidae | *Exoneura* sp. YARL010 | na |
| | Apidae | *Exoneura* sp. YARL011 | na |
| | Apidae | *Exoneura* sp. YARL012 | na |
| | Apidae | *Exoneurella tridentata* | na |
| | Colletidae | *Brachyhesma* sp. YARL040 | na |
| | Colletidae | *Leioproctus* (?) sp. YARL036 | na |
| | Colletidae | *Callohesma* n.sp. YARL037 [a] | na |
| | Colletidae | *Euhesma (Euhesma)* sp. YARL008 | na |
| | Colletidae | *Euhesma (Euhesma)* sp. YARL020 'yellow clypeus' | na |
| | Colletidae | *Euhesma (Euhesma)* sp. YARL034 | na |
| | Colletidae | *Euhesma (Euhesma)* sp. YARL035 | na |
| | Colletidae | *Euryglossina (Euryglossina)* n.sp. YARL038 [a] | na |
| | Colletidae | *Euryglossina (Euryglossina)* n.sp. YARL039 [a] | na |
| | Colletidae | *Euryglossina (Euryglossina) atra* | na |
| | Colletidae | *Goniocolletes abdominalis* | na |
| | Colletidae | *Goniocolletes parvus?* | na |
| | Colletidae | *Hylaeus (Euprosopellus) chrysaspis* | na |
| | Colletidae | *Hylaeus (Euprosopis) elegans* | na |
| | Colletidae | *Hylaeus (Euprosopis) honestus* | na |
| | Colletidae | *Hylaeus (Euprosopis) violaceus* | na |
| | Colletidae | *Hylaeus (Gnathoprosopis) amiculus* | na |
| | Colletidae | *Hylaeus (Prosopisteron) aralis?* | na |
| | Colletidae | *Hylaeus (Prosopisteron) chlorosoma?* | na |
| | Colletidae | *Hylaeus (Prosopisteron)* sp. YARL018 | na |
| | Colletidae | *Hylaeus (Rhodohylaeus)* sp. YARL015 | na |
| | Colletidae | *Hylaeus (Rhodohylaeus)* sp. YARL016 | na |
| | Colletidae | *Hylaeus (Rhodohylaeus)* sp. YARL017 | na |
| | Colletidae | *Leioproctus (Leioproctus (amabilis* group*)) amabilis* | na |
| | Colletidae | *Leioproctus (Leioproctus (amabilis* group*)) cupreus* | na |
| | Colletidae | *Pachyprosopis (Pachyprosopula) purnongensis* | na |
| | Colletidae | *Xanthesma (Chaetohesma)* cf. *baringa* [a] | na |
| | Colletidae | *Xanthesma (Xanthesma) furcifera* | na |
| | Halictidae | *Homalictus (Homalictus)* sp. YARL019 | na |
| | Halictidae | *Homalictus (Homalictus)* sp. YARL020 | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Halictidae | *Lasioglossum (Chilalictus) cognatum* | na |
| | Halictidae | *Lasioglossum (Chilalictus) eremaean* | na |
| | Halictidae | *Lasioglossum (Chilalictus) florale* | na |
| | Halictidae | *Lasioglossum (Chilalictus) lanarium* | na |
| | Halictidae | *Lasioglossum (Chilalictus) mediopolitum* | na |
| | Halictidae | *Lasioglossum (Chilalictus) platychilum* | na |
| | Halictidae | *Lasioglossum (Chilalictus) pulvitectum* | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL021 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL022 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL023 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL024 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL025 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL026 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL027 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL028 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL029 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL030 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL031 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL032 | na |
| | Halictidae | *Lasioglossum (Chilalictus)* sp. YARL033 | na |
| | Halictidae | *Lipotriches (Austronomia)* cf. *flavoviridis* | na |
| | Halictidae | *Lipotriches (Austronomia)* n.sp.? YARL012 [a] | na |
| | Halictidae | *Lasioglossum (Parasphecodes)* sp. YARL013 | na |
| | Halictidae | *Lasioglossum (Parasphecodes)* sp. YARL014 | na |
| | Megachilidae | *Megachile (Coorooa) aurifrons* | na |
| | Megachilidae | *Megachile (Eutricharaea)* sp. YARL004 | na |
| | Megachilidae | *Megachile (Eutricharaea)* sp. YARL005 | na |
| | Megachilidae | *Megachile (Spinitalia)* sp. *parimaculae* unpublished [a] | na |
| | Megachilidae | *Megachile* sp. YARL002 | na |
| | Megachilidae | *Megachile* sp. YARL003 | na |
| | Megachilidae | *Megachile* sp. YARL007 | na |
| **Wasps** | Aulacidae | *Aulacus* sp. BB_Yalata_01 [a] | na |
| | Braconidae | *Aleiodes* sp. "Bush Blitz Yalata 1" | na |
| | Braconidae | *Apanteles ippeus* | na |
| | Braconidae | Brachistinae sp. "Bush Blitz Yalata 1" | na |
| | Braconidae | Braconinae sp. "BushBlitz Yalata 1" | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Braconidae | Braconinae sp. "BushBlitz Yalata 2" | na |
| | Braconidae | Braconinae sp. "BushBlitz Yalata 3" | na |
| | Braconidae | Braconinae sp. "BushBlitz Yalata 4" | na |
| | Braconidae | Cheloninae sp. "BushBlitz Yalata 1" | na |
| | Braconidae | *Choeras* sp. "BushBlitz Yalata 1" [a] | na |
| | Braconidae | *Choeras* sp. "BushBlitz Yalata 2" [a] | na |
| | Braconidae | *Dolichogenidea bonbonensis* | na |
| | Braconidae | *Dolichogenidea* sp. "BushBlitz Yalata 1" | na |
| | Braconidae | *Dolichogenidea* sp. "BushBlitz Yalata 2" [a] | na |
| | Braconidae | *Dolichogenidea* sp. "BushBlitz Yalata 3" [a] | na |
| | Braconidae | *Dolichogenidea* sp. "BushBlitz Yalata 4" [a] | na |
| | Braconidae | *Dolichogenidea* sp. "BushBlitz Yalata 5" [a] | na |
| | Braconidae | *Dolichogenidea* sp. "BushBlitz Yalata 6" | na |
| | Braconidae | *Dolichogenidea* sp. "BushBlitz Yalata 7" | na |
| | Braconidae | *Iphiaulax australiensis* | na |
| | Braconidae | Lysiterminae sp. "Bush Blitz Yalata 1" | na |
| | Braconidae | *Macrocentrus* sp. "BushBlitz Yalata 1" | na |
| | Braconidae | Microgastrinae sp. "BushBlitz Yalata 1" | na |
| | Braconidae | *Miropotes* sp. "BushBlitz Yalata 1" [a] | na |
| | Braconidae | *Miropotes* sp. "BushBlitz Yalata 2" [a] | na |
| | Braconidae | Opiinae sp. "BushBlitz Yalata 1" | na |
| | Braconidae | *Opius* sp. "Bush Blitz Yalata 1" | na |
| | Braconidae | *Phanerotoma* sp. "BushBlitz Yalata 1" | na |
| | Evaniidae | *Szepligetiella* sp. BB_Yalata_01 | na |
| | Evaniidae | *Szepligetiella perfida* | na |
| | Evaniidae | *Szepligetiella* sp. BB_Yalata_03 | na |
| | Evaniidae | *Szepligetiella* sp. BB_Yalata_04 | na |
| | Gasteruptiidae | *Gasteruption longipes* | na |
| | Gasteruptiidae | *Gasteruption raphidioides* | na |
| | Gasteruptiidae | *Gasteruption* sp. BB_Yalata_01 [a] | na |
| | Gasteruptiidae | *Gasteruption* sp. BB_Yalata_02 | na |
| | Ichneumonidae | *Pristomerus* sp. "BushBlitz Yalata 1" [a] | na |
| | Mutillidae | *Eurymutilla* sp. BB_Yalata_01 | na |
| **Moths and butterflies** | Anthelidae | *Anthela exoleta* | na |
| | Cossidae | *Archaeoses polygrapha* | na |
| | Cossidae | *Endoxyla punctifimbria* | na |
| | Cossidae | *Endoxyla pycnosticta* | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Crambidae | *Metallarcha* sp. Bush Blitz Yalata 1 | na |
| | Erebidae | *Dasypodia selenophora* | Southern Old Lady Moth |
| | Erebidae | *Eudesmeola lawsoni* | na |
| | Erebidae | *Niguza anisogramma* | na |
| | Erebidae | *Praxis edwardsii* | na |
| | Erebidae | *Thallarcha rhaptophora* | na |
| | Geometridae | *Anomocentris* sp. nr. *trissodesma* | na |
| | Geometridae | *Arhodia* sp. Bush Blitz Yalata 1 | na |
| | Geometridae | *Chiasmia gratularia* | na |
| | Geometridae | *Cleora* sp. Bush Blitz Yalata 1 | na |
| | Geometridae | *Cyneoterpna* sp. nov. Bush Blitz Yalata 1 | na |
| | Geometridae | *Dichromodes aristadelpha* | na |
| | Geometridae | *Dichromodes* sp. Bush Blitz Yalata 1 | na |
| | Geometridae | *Dysbatus singularis* | na |
| | Geometridae | *Epidesmia* sp. Bush Blitz Yalata 1 | na |
| | Geometridae | *Gastrinodes argoplaca* | na |
| | Geometridae | *Gastrinodes bitaeniaria* | na |
| | Geometridae | *Gastrinopa* sp. nov. Bush Blitz Yalata 1 | na |
| | Geometridae | *Gastrinopa* sp. nov. Bush Blitz Yalata 2 [a] | na |
| | Geometridae | Geometridae sp. Bush Blitz Yalata 1 | na |
| | Geometridae | *Hypobapta barnardi* | na |
| | Geometridae | *Notiosterra aglaodesma* | na |
| | Geometridae | *Rhuma* sp. aff. *argyraspis* | na |
| | Geometridae | *Rhuma* sp. Bush Blitz Yalata 1 | na |
| | Geometridae | Sterrhinae sp. Bush Blitz Yalata 1 | na |
| | Geometridae | *Syneora* sp. Bush Blitz Yalata 1 | na |
| | Hypertrophidae | *Eupselia* sp. Bush Blitz Yalata 1 | na |
| | Lasiocampidae | *Porela* sp. nov. Bush Blitz Yalata 1 | na |
| | Limacodidae | *Pseudanapaea* sp. aff. *denotata* | na |
| | Lycaenidae | *Erina acasta* | Blotched Blue, Blotched Dusky-blue |
| | Lycaenidae | *Jalmenus icilius* | Amethyst Hairstreak, Icilius Blue |
| | Lycaenidae | *Nacaduba biocellata* | Two-spotted Line-blue |
| | Lycaenidae | *Ogyris amaryllis meridionalis* | na |
| | Noctuidae | *Agrotis* sp. nov. Bush Blitz Yalata 1 | na |
| | Noctuidae | *Ectopatria euglypta* | na |
| | Noctuidae | *Helicoverpa punctigera* [b] | Native Budworm |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Noctuidae | *Thoracolopha* sp. nov. Bush Blitz Yalata 1 | na |
| | Nolidae | *Armactica conchidia* | na |
| | Notodontidae | *Epicoma* sp. nov. Bush Blitz Yalata 1 | na |
| | Nymphalidae | *Vanessa kershawi* | Australian Painted Lady |
| | Nymphalidae | *Vanesssa itea* | Australian Admiral, Yellow Admiral |
| | Oecophoridae | *Crepidosceles exanthema* | na |
| | Oecophoridae | *Palimmeces* sp. nr. *pseudomorpha* | na |
| | Psychidae | *Clania* sp. aff. *ignobilis* | na |
| | Psychidae | *Clania* sp. Bush Blitz Yalata 1 | na |
| | Psychidae | *Clania* sp. nov. Yalata | na |
| | Psychidae | *Lepidoscia* sp. Bush Blitz Yalata 1 | na |
| | Psychidae | *Lepidoscia* sp. Bush Blitz Yalata 2 | na |
| | Psychidae | *Lepidoscia* sp. Bush Blitz Yalata 3 | na |
| | Psychidae | *Lepidoscia* sp. Bush Blitz Yalata 4 | na |
| | Psychidae | *Lomera* sp. Bush Blitz Yalata 1 | na |
| | Psychidae | *Lomera* sp. Bush Blitz Yalata 2 | na |
| | Pyralidae | *Orthaga* sp. Bush Blitz Yalata 1 | na |
| | Pyralidae | *Salma* sp. Bush Blitz Yalata 1 | na |
| | Sphingidae | *Agrius convolvuli* | na |
| | Sphingidae | *Hopliocnema brachycera* | na |
| | Sphingidae | *Hopliocnema lacunosa* | na |
| | Tineidae | *Edosa* sp. Bush Blitz Yalata 1 | na |
| | Tineidae | *Moerarchis* sp. Bush Blitz Yalata 1 | na |
| | Xyloryctidae | *Maroga melanostigma* | na |
| **Beetles** | Buprestidae | *Agrilus assimilis* | na |
| | Buprestidae | *Castiarina nullarborica* | na |
| | Buprestidae | *Paracephala pistacina* | na |
| | Buprestidae | *Temognatha flavocincta* | na |
| | Buprestidae | *Temognatha mnizechii mnizechii* | na |
| | Buprestidae | *Temognatha stevensii* | na |
| | Carabidae | *Arthropterus* sp. BB_Yalata_01 | na |
| | Carabidae | *Carenum* sp. BB_Yalata_01 | na |
| | Carabidae | *Carenum* sp. BB_Yalata_02 | na |
| | Carabidae | *Carenum* sp. BB_Yalata_03 | na |
| | Carabidae | *Cenogmus* sp. BB_Yalta_01 | na |
| | Carabidae | *Cerotalis* sp. BB_Yalata_01 | na |
| | Carabidae | *Cerotalis* sp. BB_Yalata_02 | na |
| | Carabidae | *Epilectus* sp. BB_Yalata_01 | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Carabidae | *Euryscaphus* sp. BB_Yalata_01 | na |
| | Carabidae | *Euryscaphus* sp. BB_Yalata_02 | na |
| | Carabidae | *Pseudotetracha australis* | na |
| | Carabidae | *Sarothrocrepis* sp. BB_Yalata_01 | na |
| | Carabidae | *Sarothrocrepis* sp. BB_Yalata_02 | na |
| | Carabidae | *Sarothrocrepis* sp. BB_Yalata_03 | na |
| | Carabidae | *Sarothrocrepis* sp. BB_Yalata_04 | na |
| | Cerambycidae | *Phoracantha semipunctata* | na |
| | Cerambycidae | *Rhytiphora frenchi* | na |
| | Cerambycidae | *Syllitus* sp. BB_Yalata_01 | na |
| | Chrysomelidae | *Calomela* sp. BB_Yalata_01 | na |
| | Chrysomelidae | *Cassida* sp. BB_Yalata_01 | na |
| | Chrysomelidae | *Cassida* sp. BB_Yalata_02 | na |
| | Cleridae | *Eleale* sp. BB_Yalata_01 | na |
| | Cleridae | *Eleale* sp. BB_Yalata_02 | na |
| | Cleridae | *Eleale* sp. BB_Yalata_03 | na |
| | Cleridae | *Opilo congruus* | na |
| | Cleridae | *Phlogistomorpha* sp. BB_Yalata_01 | na |
| | Cleridae | *Phlogistomorpha* sp. BB_Yalata_02 | na |
| | Cleridae | *Phlogistomorpha* sp. BB_Yalata_03 | na |
| | Cleridae | *Phlogistomorpha* sp. BB_Yalata_04 | na |
| | Coccinellidae | *Coccinella transversalis* | Transverse Lady Beetle |
| | Coccinellidae | *Hippodamia variegata* | Spotted Amber Ladybeetle |
| | Histeridae | *Tomogenius ripicola* | na |
| | Lycidae | *Porrostoma* sp. BB_Yalata_01 | na |
| | Mordellidae | *Hoshihananomia leucosticta* | White-spotted Pintail Beetle |
| | Mordellidae | *Mordella* sp. BB_Yalata_01 | na |
| | Scarabaeidae | *Aneucomides* sp. BB_Yalata_01 | na |
| | Scarabaeidae | *Colpochila* sp. BB_Yalata_01 | na |
| | Scarabaeidae | *Colpochila* sp. BB_Yalata_02 | na |
| | Scarabaeidae | *Heteronyx* sp. BB_Yalata_01 | na |
| | Scarabaeidae | *Heteronyx* sp. BB_Yalata_02 | na |
| | Scarabaeidae | *Heteronyx* sp. BB_Yalata_03 | na |
| | Scarabaeidae | *Heteronyx* sp. BB_Yalata_04 | na |
| | Scarabaeidae | *Heteronyx* sp. BB_Yalata_05 | na |
| | Scarabaeidae | *Heteronyx* sp. BB_Yalata_06 | na |
| | Scarabaeidae | *Heteronyx* sp. BB_Yalata_07 | na |
| | Scarabaeidae | *Liparetrus* sp. BB_Yalata_01 | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Scarabaeidae | *Liparetrus* sp. BB_Yalata_02 | na |
| | Scarabaeidae | *Liparetrus* sp. BB_Yalata_03 | na |
| | Staphylinidae | *Paederus* sp. BB_Yalta_01 | na |
| | Tenebrionidae | *Blaps polychresta* [b] | Egyptian Beetle |
| | Tenebrionidae | *Chalcopteroides* sp. BB_Yalata_01 | na |
| | Tenebrionidae | *Helea* sp. BB_Yalata_01 | na |
| | Tenebrionidae | *Helea* sp. BB_Yalata_02 | na |
| | Tenebrionidae | *Pterohelaeus* sp. BB_Yalata_01 | na |
| **Bush crickets** | Tettigoniidae | Tettigoniidae sp. | na |
| | Tettigoniidae | *Tinzeda* sp. | na |
| **Grasshoppers** | Acrididae | *Apotropis vittata* | Common Striped Grasshopper |
| | Acrididae | *Austracris guttulosa* [b] | Spur-throated Locust |
| | Acrididae | *Austroicetes frater* | Southern Austroicetes |
| | Acrididae | *Austroicetes nullarborensis* | Nullarbor Austroicetes |
| | Acrididae | *Austroicetes pusilla* | Confusing Austroicetes |
| | Acrididae | *Beplessia* sp. 3 | Nullarbor Beplessia |
| | Acrididae | *Chortoicetes terminifera* [b] | Australian Plague Locust |
| | Acrididae | *Coryphistes ruricola* | Bark Mimicking Grasshopper |
| | Acrididae | *Ecphantus quadrilobus* | Crested Tooth-grinder |
| | Acrididae | Acrididae GenusNovum32 sp. 1 | Reluctant Stonehopper |
| | Acrididae | Acrididae GenusNovum6 sp. 2 | Spotted Neenan |
| | Acrididae | Acrididae GenusNovum95 ochrachea | Common Red-leg |
| | Acrididae | *Goniaea australis* | Gumleaf Grasshopper |
| | Acrididae | *Goniaea opomaloides* | Mimetic Gumleaf Grasshopper |
| | Acrididae | *Goniaea* sp. 1 | na |
| | Acrididae | *Macrotona* sp. | na |
| | Acrididae | *Pespulia* sp. 9 | na |
| | Acrididae | *Pycnostictus seriatus* | Common Bandwing |
| | Acrididae | *Qualetta maculata* | Spotted Bandwing |
| | Acrididae | *Tapesta carneipes* | Blue-legged Hairy Grasshopper |
| | Acrididae | *Typaya semicristata* | Wrinkle-headed Grasshopper |
| | Acrididae | *Urnisa guttulosa* | Common Urnisa |
| | Acrididae | *Urnisa rugosa* | Red-legged Urnisa |
| | Acrididae | *Urnisiella* sp. | Long-legged Sandhopper |
| | Morabidae | *Achurimima* P33 | na |
| | Morabidae | *Prorifera* 187 | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Morabidae | *Prorifera granulosa* | na |
| | Morabidae | *Prorifera spanner* | na |
| | Pyrgomorphidae | *Monistria* sp. | na |
| **Mantises** | Mantidae | Mantidae sp. | na |
| **Stick insects** | Lonchodidae | *Sipyloidea* sp. | na |
| **Spiders** | Anamidae | *Aname* sp. BBY11 | na |
| | Anamidae | *Aname* sp. BBY13 | na |
| | Anamidae | *Aname* sp. BBY6 "cave fragments" | na |
| | Anamidae | *Troglodiplura beirutpakbarai* | na |
| | Anamidae | *Troglodiplura* sp. BBY25 | na |
| | Anamidae | *Troglodiplura* sp. BBY26 | na |
| | Araneidae | Araneidae gen. sp. BBY47 | na |
| | Araneidae | Araneidae gen. sp. BBY48 | na |
| | Araneidae | *Dolophones* sp. | na |
| | Cheiracanthiidae | Cheiracanthiidae gen. sp. BBY39 | na |
| | Cheiracanthiidae | Cheiracanthiidae sp. "BBY16 salt-lake" | na |
| | Corinnidae | *Battalus diadens* | na |
| | Corinnidae | *Nucastia culburra* | na |
| | Corinnidae | *Nyssus albopunctatus* | na |
| | Desidae | *Badumna insignis* | na |
| | Desidae | *Phryganoporus candidus* | na |
| | Dictynidae | Dictynidae gen. sp. BBY28 "salt lake" | na |
| | Gnaphosidae | *Ceryerda* sp. | na |
| | Gnaphosidae | Drassodinae gen. sp. BBY37 | na |
| | Idiopidae | *Blakistonia* sp. | na |
| | Lamponidae | *Lamponina asperrima* | na |
| | Linyphiidae | *Erigone* sp. BBY9 | na |
| | Linyphiidae | Linyphiinae gen. sp. BBY40 | na |
| | Lycosidae | *Dingosa* sp. | na |
| | Lycosidae | *Dingosa simsoni* | na |
| | Lycosidae | *Hoggicosa wolodymyri* | na |
| | Lycosidae | Lycosinae gen. sp. BBY33 | na |
| | Lycosidae | Lycosinae gen. sp. BBY44 | na |
| | Lycosidae | Lycosinae gen. sp. BBY45 | na |
| | Lycosidae | *Tasmanicosa ramosa* | Banded Union-Jack Wolf Spider |
| | Miturgidae | Miturgidae gen. 1 sp. BBY14 | na |
| | Miturgidae | Miturgidae gen. 2 sp. BBY10 "sp1pale" [a] | na |
| | Miturgidae | Miturgidae gen. 2 sp. BBY27 "pale cave2" [a] | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Miturgidae | Miturgidae gen. 2 sp. BBY8 "pale cave" | na |
| | Miturgidae | *Miturga* sp. BBY7 | na |
| | Oxyopidae | *Oxyopes* sp. BBY22 | na |
| | Oxyopidae | *Oxyopes* sp. BBY24 | na |
| | Oxyopidae | *Oxyopes* sp. BBY25 | na |
| | Pholcidae | *Pholcitrichocyclus nullarbor* | na |
| | Prodidomidae | *Cryptoerithus* sp. BBY3 | na |
| | Salticidae | *Cytaea* sp. BBY31 | na |
| | Salticidae | *Margaromma* cf. sp. BBY32 | na |
| | Salticidae | *Myrmarachne* sp. BBY23 | na |
| | Salticidae | *Simaethula* sp. BBY30 | na |
| | Segestriidae | *Ariadna* sp. BBY19 [a] | na |
| | Sparassidae | Deleninae gen. sp. BBY36 | na |
| | Sparassidae | *Holconia* sp. BBY34 | na |
| | Sparassidae | *Isopeda leishmanni* | na |
| | Sparassidae | *Neosparassus* sp. | na |
| | Stiphidiidae | Stiphidiidae gen. sp. BBY21 "cave" | na |
| | Theridiidae | *Dipoena* sp. BBY12 | na |
| | Theridiidae | Theridiidae gen. sp. BBY1 "black salt lake" | na |
| | Theridiidae | Theridiidae gen. sp. BBY2 "white salt lake" | na |
| | Theridiidae | Theridiidae gen. sp. BBY18 "black salt-lake2" | na |
| | Theridiidae | Theridiidae gen. sp. BBY38 | na |
| | Theridiidae | *Latrodectus hasselti* | Redback Spider |
| | Zodariidae | *Asteron* sp. BBY5 | na |
| | Zodariidae | *Holasteron pusillum* | na |
| | Zodariidae | *Holasteron* sp. BBY41 | na |
| | Zodariidae | *Pentasteron* cf. *intermedium* | na |
| | Zodariidae | Zodariidae gen. sp. BBY42 | na |
| | Zodariidae | Zodariidae gen. sp. BBY43 | na |
| | Zodariidae | Zodariidae gen. sp. BBY46 | na |
| **Mites** | [SUBORDER] Oribatida | Oribatida spp. | na |
| | Alicorhagiidae | Alicorhagiidae sp. 1 | na |
| | Alicorhagiidae | Alicorhagiidae sp. 2 | na |
| | Alicorhagiidae | *Stigmalychus veretrum* | na |
| | Anystidae | Anystidae sp. | na |
| | Ascidae | *Asca* sp. (*bicornis* group) | na |
| | Caligonellidae | Caligonellidae YALBB sp. 7 [a] | na |
| | Castriidinychidae | *Castriidinychus* YALBB sp. 1 [a] | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Cheyletidae | Cheyletidae sp. | na |
| | Cheyletidae | Cheyletidae YALBB sp. 8 [a] | na |
| | Cheyletidae | *Cheyletus* sp. | na |
| | Cheyletidae | *Mexecheles* YALBB sp. 9 [a] | na |
| | Cosmochthoniidae | *Cosmochthonius australicus* | na |
| | Ctenacaridae | *Ctenacarus araneolus* | na |
| | Eremaeozetidae | *Eremaeozetes* YALBB sp. 4 [a] | na |
| | Erythraeidae | *Charletonia* sp. | na |
| | Erythraeidae | *Erythrites* sp. | na |
| | Erythraeidae | *Leptus* sp. | na |
| | Eviphididae | *Thinoseius peltatus* | na |
| | Glycyphagidae | Glycyphagidae sp. | na |
| | Ichthyostomatogasteridae | *Asternolaelaps australis* | na |
| | Laelapidae | *Androlaelaps* sp. cf. *casalis* | na |
| | Laelapidae | *Gaeolaelaps* sp. | na |
| | Laelapidae | *Laelaps* sp. | na |
| | Lordalycidae | *Hybalicus* sp. | na |
| | Mecognathidae | *Mecognatha* sp. | na |
| | Neotrombidiidae | *Neotrombidium* YALBB sp. 10 [a] | na |
| | Oehserchestidae | *Oehserchestes* sp. | na |
| | Ologamasidae | *Geogamasus* YALBB sp. 2 [a] | na |
| | Ologamasidae | *Laelaptiella* YALBB sp. 3 [a] | na |
| | Oribatulidae | *Oribatula* YALBB sp. 5 [a] | na |
| | Parasitidae | *Pergamasus* sp. [b] | na |
| | Pheroliodidae | *Pheroliodes* sp. | na |
| | Raphignathidae | *Raphignathus* sp. | na |
| | Scutacaridae | *Imparipes* YALBB sp. 11 [a] | na |
| | Smarididae | *Smaris prominens* | na |
| | Teneriffiidae | Teneriffiidae YALBB sp. 12 [a] | na |
| | Zetomotrichidae | *Anoplozetes* YALBB sp. 6 [a] | na |
| **Ticks** | Argasidae | *Argas* sp. cf. *Argas falco* | na |
| | Ixodidae | *Bothriocroton hydrosauri* | na |
| **Pseudoscorpions** | Cheliferidae | *Protochelifer* sp. | na |
| **Crabs, lobster, shrimps, prawns, sea lice and barnacles** | Alpheidae | *Alpheus villosus* | na |
| | Alpheidae | *Synalpheus harpagatrus* | na |
| | Callianassidae | *Biffarius arenosus* | na |
| | Callianassidae | *Biffarius ceramicus* | na |
| | Callianassidae | *Biffarius limosus* | na |
| | Callianassidae | *Neocallichirus angelikae* | na |
| | Catophragmidae | *Catomerus polymerus* | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Chthamalidae | *Chthamalus antennatus* | na |
| | Diogenidae | *Paguristes frontalis* | Common Hermit Crab |
| | Diogenidae | *Paguristes sulcatus* | Hairy-legged Hermit Crab |
| | Eucalliacidae | *Eucalliaxiopsis aequimana* | na |
| | Galatheidae | *Galathea australiensis* | Striated Craylet |
| | Galatheidae | *Galathea magnifica* | Scaled Craylet |
| | Grapsidae | *Leptograpsus variegatus* | na |
| | Hymenosomatidae | *Halicarcinus ovatus* | na |
| | Idoteidae | *Euidotea bakeri* | na |
| | Leucosiidae | *Bellidilia laevis* | Smooth Pebble Crab |
| | Ovalipidae | *Ovalipes australiensis* | Sand Crab |
| | Oziidae | *Ozius truncatus* | Reef Crab |
| | Palaemonidae | *Palaemon dolospinus* | na |
| | Palaemonidae | *Palaemon serenus* | Rock-pool Prawn |
| | Penaeidae | *Penaeus latisulcatus* | Blue-legged King Prawn |
| | Tetraclitidae | *Tetraclitella purpurascens* | na |
| | Varunidae | *Cyclograpsus granulosus* | na |
| **Bristle worms** | Eunicidae | *Leodice laticeps* | na |
| **Molluscs** | Arcidae | *Barbatia (Barbatia) pistachia* | Banded Ark |
| | Batillariidae | *Zeacumantus diemenensis* | na |
| | Batillariidae | *Zeacumantus plumbeus* | na |
| | Bullidae | *Bulla quoyii* | na |
| | Calyptraeidae | *Maoricrypta immersa* | Southern Slipper Limpet |
| | Cerithiidae | *Cacozeliana granarium* | na |
| | Cerithiidae | *Cacozeliana icarus* | na |
| | Chromodorididae | *Ceratosoma brevicaudatum* | na |
| | Chromodorididae | *Hypselodoris infucata* | na |
| | Cominellidae | *Cominella (Cominella) lineolata* | Lineated Buccinum Whelk |
| | Conidae | *Conus anemone* | New Holland Cone |
| | Epitoniidae | *Cingulina magna* | na |
| | Fasciolariidae | *Australaria australasia* | na |
| | Fissurellidae | *Cosmetalepas concatenata* | Pitted Keyhole Limpet |
| | Fissurellidae | *Montfortula rugosa* | Cap-shaped False Limpet |
| | Hiatellidae | *Hiatella australis* | Australian Rock-borer |
| | Lasaeidae | *Lasaea australis* | na |
| | Litiopidae | *Styliferina translucida* | na |
| | Littorinidae | *Afrolittorina praetermissa* | Checked Australwink |
| | Littorinidae | *Austrolittorina unifasciata* | Banded Periwinkle |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Littorinidae | *Bembicium nanum* | Striped-mouth Conniwink |
| | Lottiidae | *Lottia mixta* | na |
| | Lottiidae | *Notoacmea flammea* | na |
| | Lottiidae | *Notoacmea mayi* | na |
| | Lottiidae | *Patelloida alticostata* | Tall-ribbed Limpet |
| | Lottiidae | *Patelloida insignis* | Maltese Cross Limpet |
| | Lottiidae | *Patelloida latistrigata* | na |
| | Lucinidae | *Ctena tatei* | na |
| | Lucinidae | *Notomyrtea botanica* | na |
| | Malleidae | *Malleus meridianus* | na |
| | Mesodesmatidae | *Anapella cycladea* | na |
| | Mesodesmatidae | *Atactodea cuneata* | Round Wedge Shell |
| | Mesodesmatidae | *Paphies angusta* | na |
| | Mesodesmatidae | *Paphies elongata* | Shining Wedge Shell |
| | Mopaliidae | *Plaxiphora albida* | na |
| | Muricidae | *Dicathais orbita* | Cartrut Shell |
| | Mytilidae | *Brachidontes erosus* | Beaked Mussel |
| | Mytilidae | *Brachidontes rostratus* | Beaked Mussel |
| | Mytilidae | *Modiolus areolatus* | Broad Horse Mussel |
| | Mytilidae | *Musculus nana* | Three Area Mussel |
| | Mytilidae | *Mytilus galloprovincialis* | na |
| | Mytilidae | *Trichomya hirsuta* | Hairy Mussel |
| | Mytilidae | *Xenostrobus inconstans* | Variable Brown Mussel |
| | Mytilidae | *Xenostrobus pulex* | Little Black Horse Mussel |
| | Nacellidae | *Cellana radiata* | Radiate Patellid Limpet |
| | Nacellidae | *Cellana solida* | Orange-edged Limpet |
| | Nacellidae | *Cellana tramoserica* | Common Limpet |
| | Nassariidae | *Nassarius pauperatus* | Poor Dog Whelk |
| | Nassariidae | *Nassarius pyrrhus* | Banded Dog Whelk |
| | Naticidae | *Conuber conicum* | Conical Moon Snail |
| | Naticidae | *Conuber incei* | Ince's Moon Snail |
| | Naticidae | *Eunaticina umbilicata* | na |
| | Neritidae | *Nerita atramentosa* | Black Periwinkle |
| | Olividae | *Cupidoliva nympha* | Nymph Rice Shell |
| | Patellidae | *Scutellastra peronii* | Peron's Limpet |
| | Pectinidae | *Mimachlamys asperrima* | Prickly Scallop |
| | Pectinidae | *Semipallium aktinos* | Atkins' Fan Scallop |
| | Phyllidiidae | *Phyllidiella pustulosa* | na |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Psammobiidae | *Hiatula biradiata* | Double-rayed Sunset Clam |
| | Pupillidae | *Pupoides adelaidae* | Adelaide Pupasnail |
| | Siphonariidae | *Siphonaria diemenensis* | na |
| | Siphonariidae | *Siphonaria tasmanica* | na |
| | Siphonariidae | *Siphonaria zelandica* | na |
| | Solemyidae | *Solemya australis* | Date Shell |
| | Trochidae | *Austrocochlea porcata* | na |
| | Trochidae | *Austrocochlea rudis* | Rough Periwinkle |
| | Trochidae | *Cantharidus lepidus* | na |
| | Trochidae | *Chlorodiloma adelaidae* | Adelaide Periwinkle |
| | Trochidae | *Clanculus plebejus* | na |
| | Trochidae | *Diloma concameratum* | Speckled Periwinkle, Wavy Periwinkle |
| | Trochidae | *Odontotrochus chlorostomus* | Floral Top Shell |
| | Trochidae | *Prothalotia lehmanni* | Lehmann's Top Shell |
| | Trochidae | *Prothalotia pulcherrimus* | Crimson Lip Weed Shell |
| | Trochidae | *Thalotia conica* | Conical Top Shell |
| | Turbinidae | *Lunella torquata* | Twisted Necklace |
| | Turbinidae | *Lunella undulata* | na |
| | Turbinidae | *Turbo jourdani* | Giant Brown Turban |
| | Veneridae | *Katelysia scalarina* | Enigma Venus |
| | Volutidae | *Lyria mitraeformis* | Mitre Volute |
| **Moss animals** | Phidoloporidae | *Triphyllozoon moniliferum* | na |
| **Sponges** | Clionaidae | *Spheciospongia papillosa* | na |
| | Microcionidae | *Holopsamma laminaefavosa* | na |
| | Spongiidae | *Coscinoderma pesleonis* | na |
| | Thorectidae | *Strepsichordaia caliciformis* | na |
| **Corals, jellyfish and anemones** | Actiniidae | *Actinia tenebrosa* | Waratah Anemone |
| | Coscinaraeidae | *Coscinaraea mcneilli* | na |
| | Dendrophylliidae | *Turbinaria* cf. *mesenterina* | na |
| | Lobophylliidae | *Homophyllia australis* | na |
| | Nephtheidae | *Drifa gaboensis* | na |
| | Plesiastreidae | *Plesiastrea versipora* | na |
| | Porpitidae | *Velella velella* | By-the-wind Sailor |
| | Rhizangiidae | *Culicia hoffmeisteri* | na |

**a** Putative new species. **b** Introduced and/or pest species. **c** Listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). **d** Listed as threatened under the *National Parks and Wildlife Act 1972* (South Australia). **na** Not available.

## Table A2 List of flora and fungi species recorded

| Group | Family | Species | Common name |
|---|---|---|---|
| **Flowering plants** | Aizoaceae | *Carpobrotus rossii* | Native Pigface |
| | Aizoaceae | *Disphyma crassifolium* subsp. *clavellatum* | Round-leaf Pigface |
| | Aizoaceae | *Gunniopsis calcarea* | na |
| | Aizoaceae | *Mesembryanthemum crystallinum* [a] | Common Iceplant |
| | Aizoaceae | *Mesembryanthemum nodiflorum* [a] | Slender Iceplant |
| | Aizoaceae | *Tetragonia implexicoma* | Bower Spinach |
| | Amaranthaceae | *Ptilotus obovatus* | Silver Mulla Mulla |
| | Amaranthaceae | *Surreya diandra* (*Hemichroa diandra*) | Mallee Hemichroa |
| | Apiaceae | *Bupleurum semicompositum* [a] | Hare's Ear |
| | Apiaceae | *Petroselinum crispum* [a] | Parsley |
| | Asparagaceae | *Lomandra collina* | Sand Mat-rush |
| | Asparagaceae | *Lomandra effusa* | Scented Mat-rush |
| | Asparagaceae | *Thysanotus baueri* | Mallee Fringe-lily |
| | Asteraceae | *Angianthus tomentosus* | Hairy Angianthus |
| | Asteraceae | *Arctotheca calendula* [a] | Cape Weed |
| | Asteraceae | *Arctotheca populifolia* [a] | Beach Daisy |
| | Asteraceae | *Asteridea athrixioides* | Wirewort |
| | Asteraceae | *Asteriscus spinosus* [a] | Golden Pallensis |
| | Asteraceae | *Brachyscome ciliaris* (var. *ciliaris*) | Variable Daisy |
| | Asteraceae | *Brachyscome trachycarpa* | Smooth Daisy |
| | Asteraceae | *Carthamus lanatus* [a] | Saffron Thistle |
| | Asteraceae | *Centaurea melitensis* [a] | Malta Thistle |
| | Asteraceae | *Chrysocephalum apiculatum* | Common Everlasting |
| | Asteraceae | *Cratystylis conocephala* | Bluebush Daisy |
| | Asteraceae | *Dittrichia graveolens* [a] | Stinkweed |
| | Asteraceae | *Erigeron bonariensis* (*Conyza bonariensis*) [a] | Flax-leaf Fleabane |
| | Asteraceae | *Gazania linearis* [a] | Gazania |
| | Asteraceae | *Helichrysum leucopsideum* | Satin Everlasting |
| | Asteraceae | *Kippistia suaedifolia* | Fleshy Kippistia |
| | Asteraceae | *Leontodon rhagadioloides* [a] | Cretan Weed |
| | Asteraceae | *Leucophyta brownii* | Coast Cushion Bush |
| | Asteraceae | *Minuria leptophylla* | Minnie Daisy |
| | Asteraceae | *Olearia axillaris* | Coast Daisy-bush |
| | Asteraceae | *Olearia axillaris* x *Olearia exiguifolia* | na |
| | Asteraceae | *Olearia calcarea* | Crinkle-leaf Daisy-bush |
| | Asteraceae | *Olearia exiguifolia* | Lobed-leaf Daisy-bush |
| | Asteraceae | *Olearia magniflora* | Splendid Daisy-bush |
| | Asteraceae | *Olearia minor* | Heath Daisy-bush |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Asteraceae | *Olearia muelleri* | Mueller's Daisy-bush |
| | Asteraceae | *Podolepis rugata* subsp. *rugata* | Pleated Podolepis |
| | Asteraceae | *Reichardia tingitana* [a] | False Sowthistle |
| | Asteraceae | *Senecio pinnatifolius* var. *maritimus* | Coast Groundsel |
| | Asteraceae | *Senecio spanomerus* | na |
| | Asteraceae | *Sonchus oleraceus* [a] | Common Sow-thistle |
| | Asteraceae | *Trichanthodium skirrophorum* | Woolly Yellow-heads |
| | Asteraceae | *Vittadinia australasica* var. *australasica* | Sticky New Holland Daisy |
| | Asteraceae | *Vittadinia gracilis* | Woolly New Holland Daisy |
| | Asteraceae | *Vittadinia megacephala* | Giant New Holland Daisy |
| | Avicenniaceae | *Avicennia marina* subsp. *marina* | Grey Mangrove |
| | Boraginaceae | *Halgania andromedifolia* | Scented Blue-flower |
| | Boraginaceae | *Heliotropium europaeum* | na |
| | Brassicaceae | *Brassica tournefortii* [a] | Wild Turnip |
| | Brassicaceae | *Cakile maritima* subsp. *maritima* [a] | Two-horned Sea Rocket |
| | Brassicaceae | *Carrichtera annua* [a] | Ward's Weed |
| | Brassicaceae | *Diplotaxis tenuifolia* [a] | Lincoln Weed |
| | Brassicaceae | *Sisymbrium erysimoides* [a] | Smooth Mustard |
| | Brassicaceae | *Sisymbrium irio* [a] | London Mustard |
| | Campanulaceae | *Isotoma scapigera* | Salt Isotome |
| | Campanulaceae | *Wahlenbergia capillaris* (*Wahlenbergia communis*) | Tufted Bluebell |
| | Caryophyllaceae | *Silene tridentata* [a] | na |
| | Caryophyllaceae | *Spergularia bocconei* [a] | Red Sand-spurrey |
| | Caryophyllaceae | *Spergularia diandra* [a] | Lesser Sand-spurrey |
| | Caryophyllaceae | *Spergularia marina* | Salt Sand-spurrey |
| | Casuarinaceae | *Casuarina pauper* | Black Oak |
| | Chenopodiaceae | *Atriplex cinerea* | Coast Saltbush |
| | Chenopodiaceae | *Atriplex paludosa* subsp. *cordata* | Marsh Saltbush |
| | Chenopodiaceae | *Atriplex pumilio* | Mat Saltbush |
| | Chenopodiaceae | *Atriplex semibaccata* | Berry Saltbush |
| | Chenopodiaceae | *Atriplex stipitata* | Bitter Saltbush |
| | Chenopodiaceae | *Atriplex suberecta* | Lagoon Saltbush |
| | Chenopodiaceae | *Atriplex vesicaria* | Bladder Saltbush |
| | Chenopodiaceae | *Chenopodium murale* [a] | Nettle-leaf Goosefoot |
| | Chenopodiaceae | *Dissocarpus biflorus* var. *biflorus* | Two-horn Saltbush |
| | Chenopodiaceae | *Enchylaena tomentosa* var. *tomentosa* | Ruby Saltbush |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Chenopodiaceae | *Eriochiton sclerolaenoides* | Woolly-fruit Bluebush |
| | Chenopodiaceae | *Maireana appressa* | Pale-fruit Bluebush |
| | Chenopodiaceae | *Maireana brevifolia* | Short-leaf Bluebush |
| | Chenopodiaceae | *Maireana erioclada* | Rosy Bluebush |
| | Chenopodiaceae | *Maireana georgei* | Satiny Bluebush |
| | Chenopodiaceae | *Maireana oppositifolia* | Salt Bluebush |
| | Chenopodiaceae | *Maireana radiata* | Radiate Bluebush |
| | Chenopodiaceae | *Maireana rohrlachii* | Rohrlach's Bluebush |
| | Chenopodiaceae | *Maireana sedifolia* | Bluebush |
| | Chenopodiaceae | *Maireana trichoptera* | Hairy-fruit Bluebush |
| | Chenopodiaceae | *Rhagodia crassifolia* | Fleshy Saltbush |
| | Chenopodiaceae | *Rhagodia spinescens* | Spiny Saltbush |
| | Chenopodiaceae | *Salicornia blackiana* | Thick-head Samphire |
| | Chenopodiaceae | *Salicornia quinqueflora* subsp. *quinqueflora* | Beaded Samphire |
| | Chenopodiaceae | *Salsola australis* | Buckbush |
| | Chenopodiaceae | *Sclerolaena brevifolia* | Small-leaf Bindyi |
| | Chenopodiaceae | *Sclerolaena diacantha* | Grey Bindyi |
| | Chenopodiaceae | *Sclerolaena obliquicuspis* | Oblique-spined Bindyi |
| | Chenopodiaceae | *Sclerolaena patenticuspis* | Spear-fruit Bindyi |
| | Chenopodiaceae | *Sclerolaena uniflora* | Small-spine Bindyi |
| | Chenopodiaceae | *Suaeda australis* | Austral Seablite |
| | Chenopodiaceae | *Tecticornia disarticulata* | na |
| | Chenopodiaceae | *Tecticornia flabelliformis* [b c] | Bead Samphire |
| | Chenopodiaceae | *Tecticornia halocnemoides* subsp. *halocnemoides* | Grey Samphire |
| | Chenopodiaceae | *Tecticornia moniliformis* | na |
| | Chenopodiaceae | *Tecticornia pergranulata* subsp. *divaricata* | Black-seed Samphire |
| | Chenopodiaceae | *Tecticornia pergranulata* subsp. *pergranulata* | Black-seed Samphire |
| | Chenopodiaceae | *Tecticornia pruinosa* | Bluish Samphire |
| | Chenopodiaceae | *Tecticornia pterygosperma* subsp. *pterygosperma* | Winged-seed Samphire |
| | Chenopodiaceae | *Threlkeldia diffusa* | Coast Bonefruit |
| | Convolvulaceae | *Convolvulus angustissimus* | Narrow-leaf Bindweed |
| | Convolvulaceae | *Wilsonia humilis* | Silky Wilsonia |
| | Cymodoceae | *Amphibolis griffithii* | Griffith's sea nymph |
| | Cyperaceae | *Ficinia nodosa* | Knobby Club-rush |
| | Cyperaceae | *Gahnia lanigera* | Black Grass Saw-sedge |
| | Cyperaceae | *Lepidosperma congestum* | na |
| | Dipsacaceae | *Sixalix atropurpurea (Scabiosa atropurpurea)* [a] | Pincushion |
| | Ericaceae | *Acrotriche patula* | Prickly Ground-berry |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Euphorbiaceae | *Beyeria lechenaultii* | Pale Turpentine Bush |
| | Euphorbiaceae | *Euphorbia multifaria* | na |
| | Euphorbiaceae | *Euphorbia paralias* [a] | Sea Spurge |
| | Euphorbiaceae | *Euphorbia terracina* [a] | False Caper |
| | Fabaceae | *Acacia anceps* | na |
| | Fabaceae | *Acacia brachybotrya* | Grey Mulga-bush |
| | Fabaceae | *Acacia cupularis* | Cup Wattle |
| | Fabaceae | *Acacia cyclops* | Western Coastal Wattle |
| | Fabaceae | *Acacia hakeoides* | Hakea Wattle |
| | Fabaceae | *Acacia merrallii* | Merrall's Wattle |
| | Fabaceae | *Acacia oswaldii* | Umbrella Wattle |
| | Fabaceae | *Acacia papyrocarpa* | Western Myall |
| | Fabaceae | *Eutaxia microphylla* | Common Eutaxia |
| | Fabaceae | *Medicago minima* [a] | Little Medic |
| | Fabaceae | *Medicago polymorpha* [a] | Burr-medic |
| | Fabaceae | *Medicago truncatula* [a] | Barrel Medic |
| | Fabaceae | *Melilotus indicus* [a] | King Island Melilot |
| | Fabaceae | *Senna artemisioides* subsp. x *petiolaris* | na |
| | Fabaceae | *Senna artemisioides* subsp. *quadrifolia* | Four-leaf Desert Senna |
| | Fabaceae | *Senna artemisioides* x subsp. *coriacea* | na |
| | Fabaceae | *Templetonia battii* | Spiny Templetonia |
| | Fabaceae | *Templetonia retusa* | Cockies Tongue |
| | Frankeniaceae | *Frankenia pauciflora* | na |
| | Frankeniaceae | *Frankenia sessilis* | Small-leaf Sea-heath |
| | Gentianaceae | *Schenkia australis* | Spike Centaury |
| | Goodeniaceae | *Goodenia arguta* | Toothed Velleia |
| | Goodeniaceae | *Goodenia pinnatifida* | Cut-leaf Goodenia |
| | Goodeniaceae | *Goodenia varia* | Sticky Goodenia |
| | Goodeniaceae | *Scaevola bursariifolia* | Bursaria Fanflower |
| | Goodeniaceae | *Scaevola crassifolia* | Cushion Fanflower |
| | Goodeniaceae | *Scaevola spinescens* | Spiny Fanflower |
| | Haloragaceae | *Haloragis acutangula* | na |
| | Hemerocallidaceae | *Dianella revoluta* var. *divaricata* | Broad-leaf Flax-lily |
| | Juncaceae | *Juncus kraussii* | Sea Rush |
| | Lamiaceae | *Marrubium vulgare* [a] | Horehound |
| | Lamiaceae | *Prostanthera calycina* [b c] | West Coast Mintbush |
| | Lamiaceae | *Salvia verbenaca* var. *verbenaca* [a] | Wild Sage |
| | Lamiaceae | *Teucrium sessiliflorum* | Mallee Germander |
| | Lamiaceae | *Westringia rigida* | Stiff Westringia |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Lauraceae | *Cassytha melantha* | Coarse Dodder-laurel |
| | Lauraceae | *Cassytha peninsularis* | Peninsula Dodder-laurel |
| | Liliaceae | *Asphodelus fistulosus* [a] | Onion Weed |
| | Limoniaceae | *Limonium companyonis* [a] | Sea-lavender |
| | Limoniaceae | *Limonium hyblaeum* [a] | Sicilian Sea-lavender |
| | Linaceae | *Linum marginale* | Native Flax |
| | Loranthaceae | *Amyema melaleucae* | Tea-tree Mistletoe |
| | Loranthaceae | *Amyema miquelii* | Box Mistletoe |
| | Loranthaceae | *Amyema quandang* var. *quandang* | Grey Mistletoe |
| | Loranthaceae | *Lysiana exocarpi* subsp. *exocarpi* | Harlequin Mistletoe |
| | Malvaceae | *Lawrencia glomerata* | Clustered Lawrencia |
| | Malvaceae | *Lawrencia squamata* | Thorny Lawrencia |
| | Malvaceae | *Malva parviflora* [a] | Small-flower Marshmallow |
| | Malvaceae | *Malva weinmanniana* | Australian Hollyhock |
| | Malvaceae | *Sida spodochroma* | na |
| | Myrtaceae | *Eucalyptus brachycalyx* | Gilja |
| | Myrtaceae | *Eucalyptus calcareana* | Nundroo Mallee |
| | Myrtaceae | *Eucalyptus gomphocephala* [a] | Tuart |
| | Myrtaceae | *Eucalyptus gracilis* | Yorrell |
| | Myrtaceae | *Eucalyptus oleosa* subsp. *ampliata* | Red Mallee |
| | Myrtaceae | *Eucalyptus phenax* subsp. *phenax* | White Mallee |
| | Myrtaceae | *Eucalyptus yalatensis* | Yalata Mallee |
| | Myrtaceae | *Melaleuca lanceolata* | Dryland Tea-tree |
| | Myrtaceae | *Melaleuca pauperiflora* subsp. *mutica* | Boree |
| | Oxalidaceae | *Oxalis perennans* | Native Sorrel |
| | Pittosporaceae | *Pittosporum angustifolium* | Native Apricot |
| | Plantaginaceae | *Plantago coronopus* subsp. *commutata* [a] | Bucks-horn Plantain |
| | Plantaginaceae | *Plantago drummondii* | Dark Plantain |
| | Poaceae | *Austrostipa acrociliata* | Graceful Spear-grass |
| | Poaceae | *Austrostipa drummondii* | Cottony Spear-grass |
| | Poaceae | *Austrostipa eremophila* | Rusty Spear-grass |
| | Poaceae | *Austrostipa nitida* | Balcarra Spear-grass |
| | Poaceae | *Austrostipa nullanulla* [c] | Club Spear-grass |
| | Poaceae | *Austrostipa puberula* | Fine-hairy Spear-grass |
| | Poaceae | *Avena barbata* [a] | Bearded Oat |
| | Poaceae | *Bromus diandrus* [a] | Great Brome |
| | Poaceae | *Enneapogon nigricans* | Black-head Grass |
| | Poaceae | *Hordeum glaucum* [a] | Blue Barley-grass |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Poaceae | *Hordeum leporinum* [a] | Wall Barley-grass |
| | Poaceae | *Lolium perenne* [a] | Perennial Ryegrass |
| | Poaceae | *Rostraria pumila* [a] | Tiny Bristle-grass |
| | Poaceae | *Rytidosperma robertsoniae* | Robertson Wallaby-grass |
| | Poaceae | *Schismus barbatus* [a] | Arabian Grass |
| | Poaceae | *Spinifex hirsutus* | Rolling Spinifex |
| | Poaceae | *Sporobolus virginicus* | Salt Couch |
| | Poaceae | *Triodia scariosa* | Spinifex |
| | Polygalaceae | *Comesperma volubile* | Love Creeper |
| | Polygonaceae | *Polygonum aviculare* [a] | Wireweed |
| | Primulaceae | *Lysimachia arvensis* [a] | Pimpernel |
| | Primulaceae | *Samolus repens* | Creeping Brookweed |
| | Rhamnaceae | *Pomaderris forrestiana* | na |
| | Rhamnaceae | *Pomaderris paniculosa* subsp. *paniculosa* | Mallee Pomaderris |
| | Rhamnaceae | *Spyridium phylicoides* | Narrow-leaf Spyridium |
| | Rubiaceae | *Galium bulliformis* x *G. leptogonium* | na |
| | Rutaceae | *Geijera linearifolia* | Sheep Bush |
| | Santalaceae | *Exocarpos aphyllus* | Leafless Cherry |
| | Santalaceae | *Santalum acuminatum* | Quandong |
| | Sapindaceae | *Dodonaea stenozyga* | Desert Hop-bush |
| | Scrophulariaceae | *Eremophila alternifolia* | Narrow-leaf Emubush |
| | Scrophulariaceae | *Eremophila deserti* | Turkey-bush |
| | Scrophulariaceae | *Eremophila glabra* subsp. *glabra* | Tar Bush |
| | Scrophulariaceae | *Eremophila parvifolia* subsp. *parvifolia* | Small-leaf Emubush |
| | Scrophulariaceae | *Eremophila praecox* | na |
| | Scrophulariaceae | *Eremophila scoparia* | Broom Emubush |
| | Scrophulariaceae | *Myoporum brevipes* | Warty Boobialla |
| | Scrophulariaceae | *Myoporum insulare* | Common Boobialla |
| | Scrophulariaceae | *Myoporum platycarpum* subsp. *platycarpum* | False Sandalwood |
| | Solanaceae | *Lycium australe* | Australian Boxthorn |
| | Solanaceae | *Lycium ferocissimum* [a] | African Boxthorn |
| | Solanaceae | *Nicotiana goodspeedii* | Small-flower Tobacco |
| | Solanaceae | *Solanum hystrix* | Afghan Thistle |
| | Solanaceae | *Solanum nigrum* [a] | Black Nightshade |
| | Solanaceae | *Solanum orbiculatum* subsp. *orbiculatum* | Round-leaf Nightshade |
| | Thymelaeaceae | *Pimelea micrantha* | Silky Riceflower |
| | Thymelaeaceae | *Pimelea serpyllifolia* subsp. *serpyllifolia* | Thyme Riceflower |
| | Zygophyllaceae | *Nitraria billardierei* | Nitre-bush |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Zygophyllaceae | *Roepera ammophila* | Sand Twinleaf |
| | Zygophyllaceae | *Roepera angustifolia* | Scrambling Twinleaf |
| | Zygophyllaceae | *Roepera aurantiaca* subsp. *aurantiaca* | Shrubby Twinleaf |
| | Zygophyllaceae | *Roepera billardierei* | Coast Twinleaf |
| | Zygophyllaceae | *Roepera glauca* | Pale Twinleaf |
| **Mosses** | Bryaceae | *Rosulabryum* sp. | na |
| | Pottiaceae | *Barbula calycina* | na |
| | Pottiaceae | *Didymodon torquatus* | na |
| | Pottiaceae | *Pseudocrossidium crinitum* | na |
| | Pottiaceae | *Syntrichia antarctica* | na |
| | Pottiaceae | *Syntrichia ruralis* | Star Moss |
| **Lichen** | Acarosporaceae | *Acarospora* sp. | na |
| | Caliciaceae | *Buellia* sp. | na |
| | Graphidaceae | *Diploschistes* sp. | na |
| | Lecanoraceae | *Lecanora* sp. | na |
| | Opegraphaceae | *Opegrapha* sp. | na |
| | Parmeliaceae | *Flavoparmelia rutidota* | na |
| | Parmeliaceae | *Flavoparmelia soredians* | na |
| | Parmeliaceae | *Parmotrema* sp. | na |
| | Parmeliaceae | *Xanthoparmelia convoluta* | na |
| | Parmeliaceae | *Xanthoparmelia semiviridis* | na |
| | Pertusariaceae | *Pertursaria* sp. | na |
| | Physciaceae | *Physcia* sp. | na |
| | Ramalinaceae | *Ramalina celastri* | na |
| | Ramalinaceae | *Ramalina glaucescens* | na |
| | Teloschistaceae | *Gyalolechia cranfieldii* | na |
| | Teloschistaceae | *Teloschistes chrysophthalmus* | Golden-eye Lichen |
| | Teloschistaceae | *Xanthoria* sp. | na |
| | Verrucariaceae | *Verrucaria* sp. | na |
| **Algae** | Areschougiaceae | *Rhabdonia clavigera* | na |
| | Caulerpaceae | *Caulerpa cliftonii* | na |
| | Caulerpaceae | *Caulerpa flexilis* | Fern Caulerpa |
| | Caulerpaceae | *Caulerpa longifolia* | Fine-filament Caulerpa |
| | Caulerpaceae | *Caulerpa muelleri* | Mueller's Fern Caulerpa |
| | Ceramiaceae | *Antithamnion pectinatum* | na |
| | Ceramiaceae | *Centroceras clavulatum* | na |
| | Ceramiaceae | *Macrothamnion pellucidum* | na |
| | Ceramiaceae | *Ochmapexus minimus* | na |
| | Chordariaceae | *Polycerea (?)zostericola* | na |

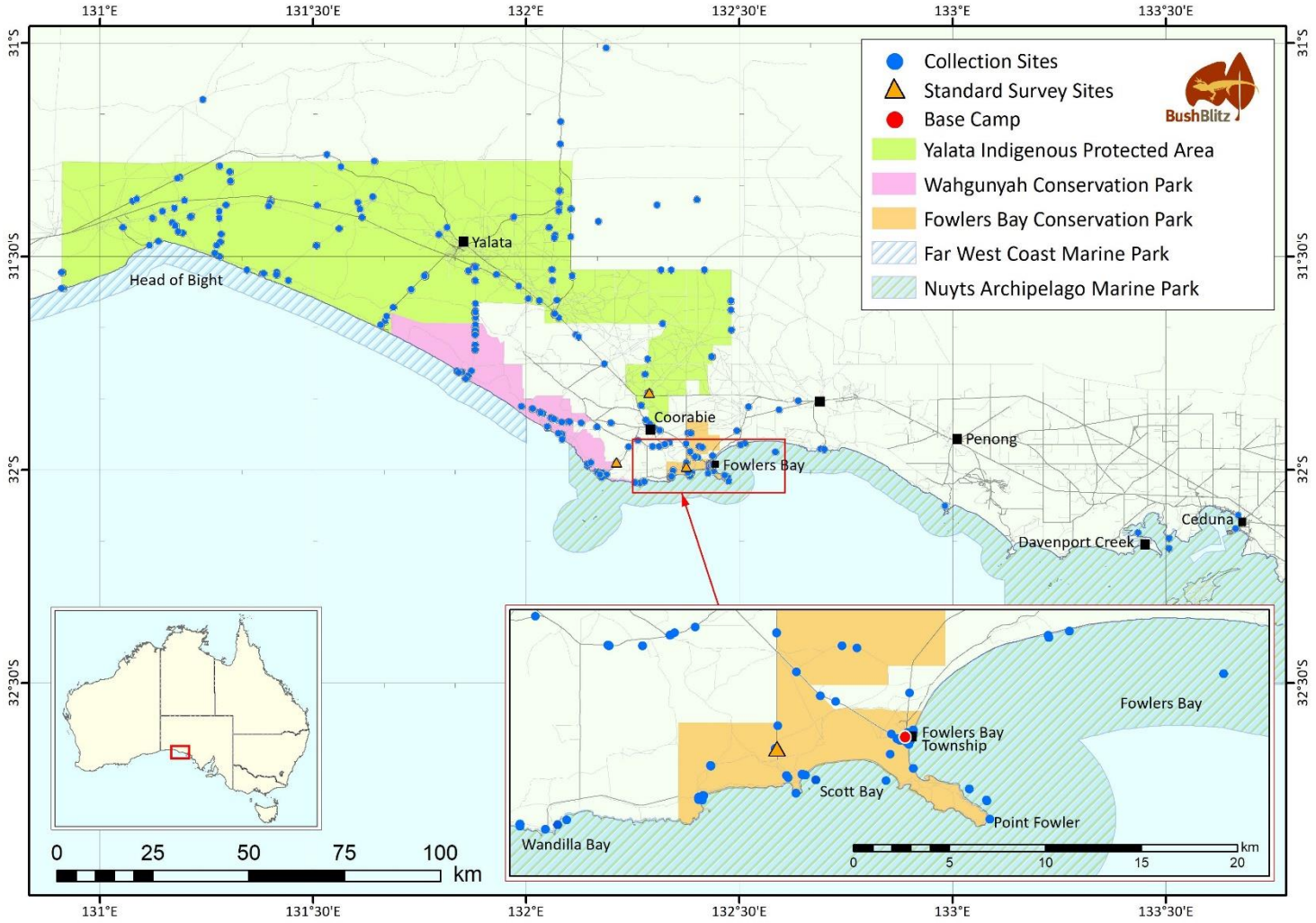
| Group | Family | Species | Common name |
|---|---|---|---|
| | Cladophoraceae | *Cladophora valonioides* | na |
| | Cladostephaceae | *Cladostephus spongiosus* | Bushy Brown Alga |
| | Corallinaceae | *Amphiroa anceps* | Flat-branched Coralline |
| | Corallinaceae | *Jania micrarthrodia* | Ball Coralline |
| | Corallinaceae | *Jania rosea* | na |
| | Cystocloniaceae | *Hypnea filiformis* | na |
| | Delesseriaceae | *Dasya cliftonii* | na |
| | Delesseriaceae | *Thuretia quercifolia* | Oak-leaf Red Alga |
| | Dicranemataceae | *Dicranema* sp. | na |
| | Dictyotaceae | *Dictyota fenestrata* | na |
| | Dictyotaceae | *Dictyota furcellata* | na |
| | Dictyotaceae | *Dictyota paniculata* | na |
| | Dictyotaceae | *Lobophora variegata* | Peacockweed |
| | Dictyotaceae | *Zonaria* sp. | na |
| | Dictyotaceae | *Zonaria spiralis* | Spiral Fanweed |
| | Dictyotaceae | *Zonaria turneriana* | Fanweed |
| | Gelidiaceae | *Gelidium pusillum* | na |
| | Gracilariaceae | *Gracilaria cliftonii* | Clifton's Gracilaria |
| | Halymeniaceae | *Gelinaria ulvoidea* | Red Leatherstraps |
| | Halymeniaceae | *Thamnoclonium dichotomum* | Branched Spongeweed |
| | Hormosiraceae | *Hormosira banksii* | Neptune's Necklace |
| | Hydrolithaceae | *Hydrolithon* sp. | na |
| | Lessoniaceae | *Ecklonia radiata* | Common Kelp |
| | Lithodermataceae | *Pseudolithoderma australe* | na |
| | Mastophoraceae | *Metamastophora flabellata* | Rosette Coralline |
| | Mesophyllumaceae | *Mesophyllum* sp. | na |
| | Microcoleaceae | *Microcoleus* sp. | na |
| | Orthogonacladiaceae | *Orthogonacladia rectangularis* | na |
| | Oscillatoriaceae | *Phormidium* sp. | na |
| | Plocamiaceae | *Plocamium cartilagineum* | Cartilaginous Plocamium |
| | Plocamiaceae | *Plocamium mertensii* | Merten's Plocamium |
| | Plocamiaceae | *Plocamium preissianum* | Preiss' Plocamium |
| | Porolithaceae | *Metagoniolithon radiatum* | na |
| | Porolithaceae | *Metagoniolithon stelliferum* | Seagrass Coralline |
| | Pterocladiaceae | *Pterocladia lucida* | Agarweed |
| | Rhodomelaceae | *Alleynea bicornis* | na |
| | Rhodomelaceae | *Botryocladia sonderi* | Red Grapeweed |
| | Rhodomelaceae | *Chrysymenia brownii* | Poseidon's Fingers |

| Group | Family | Species | Common name |
|---|---|---|---|
| | Rhodomelaceae | *Ditria expleta* | na |
| | Rhodomelaceae | *Epizonaria prostrata* (formerly *Lophosiphonia prostrata*) | na |
| | Rhodomelaceae | *Janczewskia tasmanica* | na |
| | Rhodomelaceae | *Corynecladia (?)elata* (formerly *Laurencia (?)elata*) | na |
| | Rhodomelaceae | *Laurencia (?)shepherdii* | na |
| | Rhodomelaceae | *Laurencia filiformis* | na |
| | Rhodomelaceae | *Laurencia forsteri* | na |
| | Rhodomelaceae | *Polysiphonia scopulorum* | na |
| | Rhodomelaceae | *Thaumatella adunca* | na |
| | Rivulariaceae | *Calothrix* sp. | na |
| | Sargassaceae | *Cystophora brownii* | Brown's Cystophora |
| | Sargassaceae | *Cystophora moniliformis* | Zigzag Cystophora |
| | Sargassaceae | *Cystophora polycystidea* | na |
| | Sargassaceae | *Cystophora siliquosa* | Slender Cystophora |
| | Sargassaceae | *Sargassum (?)linearifolium* | na |
| | Sargassaceae | *Sargassum fallax* | Broad-leaved Sargassum |
| | Sargassaceae | *Sargassum tristichum* | na |
| | Sargassaceae | *Scaberia agardhii* | Brown Fingerweed |
| | Sargassaceae | *Sirophysalis trinodis* | Three-node Seaweed |
| | Scytosiphonaceae | *Colpomenia sinuosa* | Sinuous Ballweed |
| | Scytosiphonaceae | *Hydroclathrus clathratus* | Lace Ballweed |
| | Seirococcaceae | *Scytothalia dorycarpa* | Western Crayweed |
| | Sphacelariaceae | *Sphacelaria rigidula* | na |
| | Sporolithaceae | *Sporolithon durum* | Large-lobe Rhodolith |
| | Ulvaceae | *Ulva australis* | Southern Sea Lettuce |
| | Ulvaceae | *Ulva clathrata* | na |
| | Wrangeliaceae | *Shepleya australis* | na |
| **Fungi** | Agaricaceae | *Tulostoma* sp. | na |
| | Polyporaceae | *Fomes* sp. aff. *fomentarius* | na |
| | Polyporaceae | *Pycnoporus coccineus* | na |

**a** Introduced and pest species. **b** Listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). **c** Listed as threatened under the *National Parks and Wildlife Act 1972* (South Australia). **na** Not available.

# Appendix B: Collection sites

**Map B1 Map of collection sites**



# Glossary

| Term | Definition |
|---|---|
| ALA | Atlas of Living Australia |
| ANIC | Australian National Insect Collection |
| BRUVS | Baited Remote Underwater Video Systems |
| CSIRO | Commonwealth Scientific and Industrial Research Organisation |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) |
| GAB | Great Australian Bight |
| Genus (plural genera) | A taxonomic category that ranks between family and species, consisting of related species (e.g. *Acacia*). |
| 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. |
| NPW Act | *National Parks and Wildlife Act 1972* (South Australia) |
| Pest species | A species that has the potential to have a negative environmental, social or economic impact. |
| 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. |
| SARDI | South Australian Research and Development Institute |
| 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. |
| Undescribed taxon | A taxon (usually a species) that has not yet been formally described and named. |
| 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. |

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