Australian Alps, 2023: Bush Blitz expedition report

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

Research agencies involved in this Bush Blitz were the Royal Botanic Gardens and Domain Trust, the Royal Botanic Gardens Victoria, the Australian Museum, Museums Victoria, the National Seed Bank and the University of New South Wales.

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Summary

From 30 January to 10 February 2023, Bush Blitz led an expedition to the Australian Alps region of New South Wales and Victoria.

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

At least 1,076 species were recorded during the Bush Blitz and 12 of those may be completely new to science (5 beetles and 7 true bugs). Many unnamed or informal invertebrate taxa were collected. These may assist scientists to revise, compare and describe species in the future.

One threatened reptile and a large number of threatened plant species were recorded – 52 flowering plants, a fern and a moss. The majority of the threatened plants were recorded in Victoria, where they are listed under the Flora and Fauna Guarantee Act 1988 (Victoria).

Eleven introduced or pest animal species were recorded, along with 36 introduced plant species.

Highlights of the expedition include:

- the first tissue collections from Kosciuszko National Park of 10 frog and reptile species – these will be used for genetic studies, including to establish whether any populations contain genetic diversity of high conservation value.
- the discovery of native galaxias (freshwater fish) which may be Kosciuszko Galaxias (*Galaxias supremus*), a narrow range critically endangered species, or an otherwise cryptic undescribed species.
- the collection of moth *Dasygaster* sp. ANIC 2, an undescribed species currently being studied at the Australian Museum.
- the collection of 378 beetle and 72 true bug species, including many undescribed species and at least 12 that are likely to be new to science.
- the collection of 21 caddisfly species that are new records for the area and specimens of 12 undescribed species that will likely aid new species descriptions.
- the first record of shrub *Leionema lamprophyllum* subsp. *lamprophyllum* for New South Wales.
- undertaking one of the first botanical surveys of the Davies Plain area, which resulted in the first record of liverwort *Kurzia pallescens* for Victoria (only the third record on mainland Australia) and the first record of moss genus *Bryostreimannia* for Victoria.
- the collection of Buxbaum's Sedge (*Carex buxbaumii*) at the site where the last known collection of the species was made in Victoria in 1949.
- the incidental collection of smut fungus *Entorrhiza* sp., a genus previously unrepresented in the National Herbarium of Victoria.

Introduction

About Bush Blitz

The Bush Blitz program documents plants and animals in selected properties across Australia to support the discovery of species new to science, 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 2,000 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 Australian Alps region of New South Wales and Victoria. Information in this report has been extracted from the scientific reports provided by expedition members. Locational data for all fauna, flora and funga records have been provided to land managers. Unless these data are considered sensitive, they will be publicly available through the Atlas of Living Australia (ALA).

Australian Alps Bush Blitz

Bush Blitz led an expedition to the Australian Alps from 30 January to 10 February 2023, to collect and record plants and animals living in terrestrial and aquatic environments.

The Alps region has always been of great interest to the scientific community but is difficult to access due to the weather and remote, mountainous environment. In particular, the wilderness and pristine Alps environments have limited road access and limited locations for helicopters to land. This expedition allowed scientific teams to access some of these areas to collect specimens, fill knowledge gaps and potentially discover species new to science.

The Australian Alps includes 12 national parks and reserves across the Australian Capital Territory, New South Wales and Victoria. This expedition focused on the southern part of Kosciuszko National Park (KNP) in New South Wales, particularly the Pilot Wilderness Area, and

the north-east part of Victoria's Alpine National Park. A base camp was set up at the Adventist Alpine Village, just south of the town of Jindabyne, which is approximately 180 km south-west of Canberra. From the base camp, the team accessed sites via helicopter and 4WD vehicles.

Kosciuszko National Park, managed by the NSW National Parks and Wildlife Service, covers 690,000 hectares. It is the largest national park in New South Wales and contains the country's highest mountains, unique glacial landforms and an amazing diversity of alpine plant communities, which provide habitat for some unique animal species. The park has significant natural and cultural heritage values, is a vital part of the Australian Alps National Heritage area and is a UNESCO Biosphere Reserve. More than half of the park has been declared wilderness. This includes the Pilot Wilderness Area, which is approximately 80,500 hectares in size and rises to 1,830 m at the summit of The Pilot. Parts of the Pilot Wilderness Area are covered in snow for several months of the year. It contains a range of habitats including wet sclerophyll forests, montane and alpine grassy woodlands, alpine heaths, bogs and swamps. Further information can be found in the Kosciuszko National Park Plan of Management (NSW Government 2006).

Alpine National Park, managed by Parks Victoria, is 661,777 hectares in size and is also included in the Australian Alps National Heritage area. Our expedition focused on the north-eastern parts of the park that border New South Wales and Kosciuszko National Park. There are 4 wilderness areas in this part of the park – Indi, Cobberas, Tingaringy and Buchan Headwaters. These wilderness areas protect large and essentially untouched areas containing significant plant and animal communities and a variety of geological formations. Management of the Alpine National Park is guided by the Greater Alpine National Parks Management Plan (Parks Victoria 2016).

Key management concerns for both parks include feral animals (deer, pigs and horses), weeds, threatened species and recreation. Some areas are recovering from the impacts of cattle grazing and bushfires but recovery is compromised by the impacts of feral horses. Many peatlands will take decades to recover from fire and past grazing impacts.

The Australian Alps experience a mid-latitude mountain climate, with a mild summer and most of the precipitation falling in winter and spring. However, precipitation can fall as snow even in summer, as was the case during this expedition. A cold spell during the expedition at times limited access to high altitude areas, impacting the ability to access some sites for frogs, moths and reptiles.

Previous surveys and pre-trip expectations

Fauna

The alpine and subalpine environments of Kosciuszko National Park support a diversity of frogs and reptiles, including several endemic and threatened species. Most notable are the 'sky island' communities, which are restricted to higher elevation mountain ranges and isolated mountain tops. As these ecosystems are particularly sensitive to climate change and other environmental threats, understanding patterns of genetic diversity, gene flow and population structure among these communities is a conservation priority. Relatively few specimens or tissue samples of reptiles and frogs from the park exist in museum collections. This expedition aimed to improve geographic representation of reptiles and frogs in museum collections to allow baseline assessments of genetic diversity within the region.

Montane insects are often flightless local endemic species, unable to move between mountain tops. This makes them vulnerable to climate change. Montane beetles of the southern Alps are

not well known, with many species awaiting description and many species new to science being found during recent surveys. Beetle surveys on this expedition were focused on the darkling beetle tribe Adeliini and the broad-bodied leaf beetles (Chrysomelinae). These 2 groups are known to be species-rich on mountains, with many flightless species and high local endemicity. This expedition provided an opportunity to access a remote part of the Alps for which there were few or no records of these groups.

For moths, the focus was on species that are only known from sites above 1,500 m elevation. The vast majority of existing specimens of these species were collected at sites in Koscuiszko National Park and the aim was to visit these sites to recollect specimens.

Knowledge of the true bugs (Heteroptera) of the southern alps is based on opportunistic general collecting. There has never been a targeted survey for true bugs of the southern montane regions of Australia, particularly for hyperdiverse families such as the mirid bugs (Miridae) and lace bugs (Tingidae). The expedition provided an excellent opportunity to supplement historical collections from this region. However, the timing of the expedition in late summer, when conditions were dry and few plants were flowering, meant that a great diversity of true bug species was not expected.

Mayflies, stoneflies and caddisflies occur widely in rivers and streams in south-eastern Australia and have been collected by taxonomists for the best part of a century in the alpine region of New South Wales. However, earlier surveys have largely focused on the aquatic nymphs and larvae, which only allows identifications to family level as most taxonomic description of these taxa is based on adults. This expedition aimed to survey adults over a wider range of sites and altitudes than previous surveys. Mayflies, stoneflies and caddisflies are generally regarded as being sensitive to man-made disturbances of riverine habitats, and their diversity is a good indication of the degree of past disturbance at a site. As most of the sites were in Kosciuszko National Park, and likely to be undisturbed, a rich diversity of species was expected.

There had been no previous land snail records from the Pilot Wilderness Area so this was the focus for snail surveys, along with immediately adjacent areas in Victoria. The land snail fauna at higher altitudes of the Australian Alps was not expected to be diverse. However, the existence of potentially endemic species in alpine habitats was a distinct possibility. Such alpine species were expected to be rather limited in their distribution and potentially threatened by future climate change.

Flora

There have been limited plant surveys and collections in the Pilot Wilderness Area. Most herbarium collections were made during 3 field trips – March 1970, December 1998 and December 2016 – and the main survey in the area was the Canopy Survey of 1999. The higher peaks along the main range within Kosciuszko National Park contain a high number of narrow endemics due to the elevation and communities present. While the elevation within the Pilot Wilderness Area is not as high as the main range it was hoped that, by sampling a range of habitats, range extensions of threatened taxa and new records for New South Wales (particularly of Victorian species) would be made.

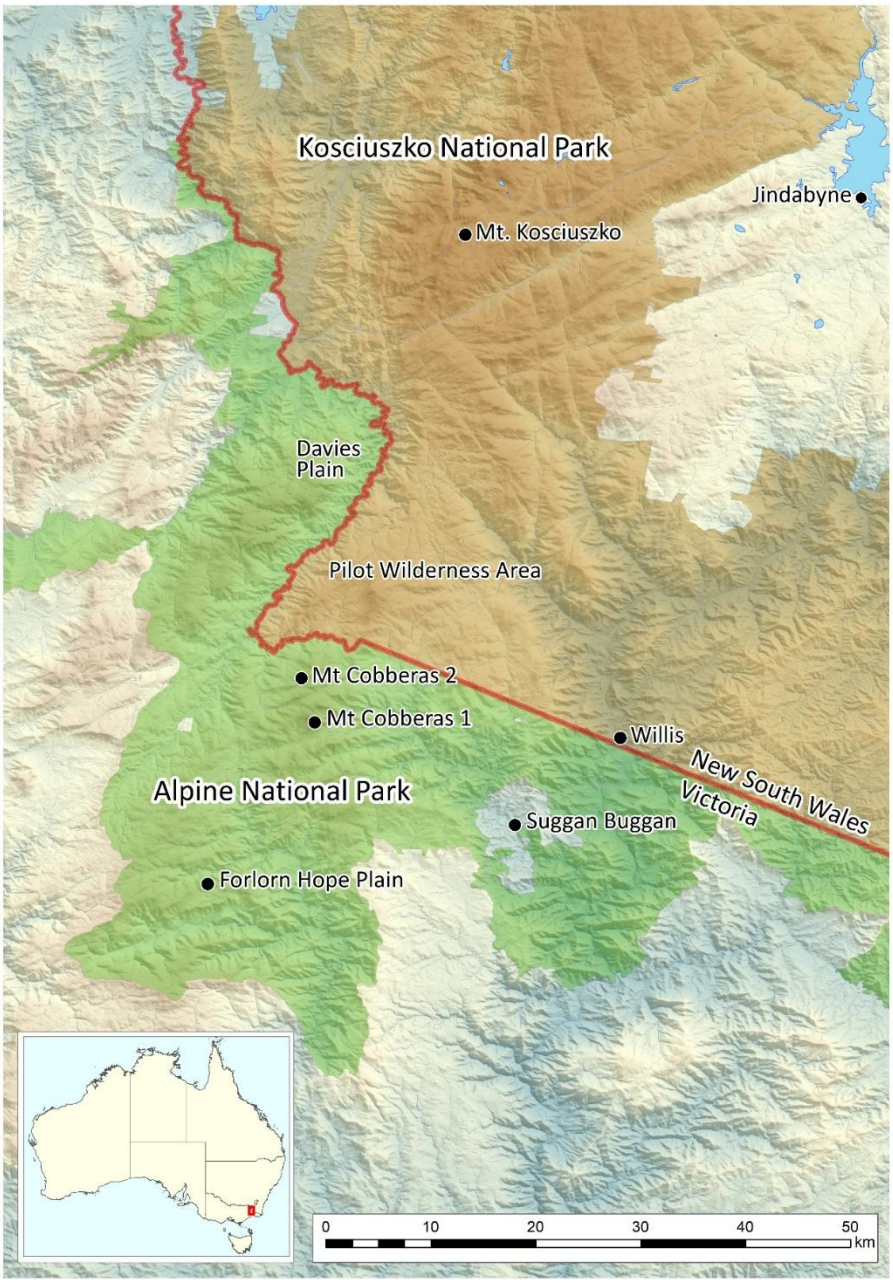
In Victoria, botanists aimed to document plants in areas within the alpine zone and surrounding vegetation types that are difficult to access and have limited botanical survey effort, including Davies Plain, Forlorn Hope Plain and Willis. The team also wanted to document vegetation

recovery in areas that had been impacted by the 2019–20 fires. They were particularly interested in the bryophyte flora because, at the time, they were developing an online component to VicFlora for this group.

Study area

The study area included the southern part of Kosciuszko National Park in New South Wales, and the north-eastern part of Victoria's Alpine National Park. Map 1 shows these parts of the 2 parks, which meet at the state border. The map also shows the town of Jindabyne, Mt Kosciuszko and some of the key locations visited – Davies Plain, Forlorn Hope Plain, Mt Cobberas, Pilot Wilderness Area, Suggan Buggan and Willis.

Map 1 Locations visited, 30 January to 10 February 2023



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

Expedition team

Logistics

Bush Blitz provided the logistical coordination and overall leadership for the expedition. The Bush Blitz team consisted of Jo Harding, Kate Gillespie, Helen Cross and Paula Banks.

Scientific

The Royal Botanic Gardens and Domain Trust (RBGDT), the Royal Botanic Gardens Victoria (RBGV), the Australian Museum and Museums Victoria were the host institutions for this Bush Blitz, providing the core group of personnel and accessioning the specimens into their collections. Experts from the National Seed Bank and the University of New South Wales (UNSW) also conducted field and laboratory work and are included in Table 1.

BHP participants and Bush Blitz TeachLive

Sabrina Trocini, Sandra McCullough and Elizabeth Irvine (Earthwatch Australia) coordinated 5 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. Teachers from schools in the Australian Capital Territory and Victoria worked alongside scientists, reinvigorated their love for science, generated new ideas and learned new skills to take back to their schools. Teachers also taught 'live' to their classrooms via the TeachLive website and videoconferencing, taking their students on a virtual expedition and inspiring the next generation.

BHP environmental specialists worked alongside the scientific team to share knowledge and improve linkages between botanical and zoological experts and BHP.

Parks Victoria ranger Joanna Durrant and NSW National Parks and Wildlife Service ranger Campbell Young also assisted with fieldwork.

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 and Amphibia	Reptiles and frogs	Jodi Rowley (AM) Tom Parkin (AM)
Ephemeroptera, Plecoptera and Trichoptera	Mayflies, stoneflies and caddisflies	Richard Marchant (MV) Julian Finn (MV)
Lepidoptera	Moths	Andrew Mitchell (AM)
Coleoptera	Beetles	Chris Reid (AM)
Heteroptera	True bugs	Zoe Bloesch (UNSW)
Gastropoda	Land snails	Frank Koehler (AM)
Arachnida	Spiders [a]	Joseph Schubert (MV)
Flora	Ferns, flowering plants, hornworts, lichens, liverworts, mosses	Peter Jobson (RBGDT) Chris Cole (RBGDT) Guy Lowe (RBGDT) Kayte Wilkie (RBGDT) Joel Cohen (RBGDT) Andrew Orme (RBGDT) Daniel Ohlsen (RBGV) Val Stajsic (RBGV) Andre Messina (RBGV) David J Cantrill (RBGV) Megan Hirst (RBGV) Alex McLachlan (National Seed Bank)

a Spiders were collected but no report on findings had been provided by the time this expedition report was published.

Other personnel, including but not limited to Gerry Cassis (UNSW), assisted with making identifications and reporting. These personnel and their roles are mentioned in the scientific reports.

Additional taxa were collected or recorded opportunistically. For example, the reptile and frog team also recorded fish and crayfish. Dr Michael Hammer (Curator of fishes, Museum and Art Gallery of the Northern Territory) provided expert identification and advice on the native freshwater fish.

Site selection and collection methods

Some scientific teams surveyed 2 standard survey sites, selected to represent different habitat types. These sites were not surveyed for mayflies, stoneflies and caddisflies, as the sites were not close to running water, or beetles, moths and snails.

The use of standard survey sites provides a unique opportunity to examine broad-spectrum biodiversity. Among other benefits, it allows land managers to use these sites for ongoing monitoring and generates a national dataset that can be used to underpin conservation and land management decisions. Following consultation with land managers, the standard survey sites were established in locations that were easy to access during and after the expedition. 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.

Apart from standard survey sites, site selection and collection methods were left to the discretion of the individual scientific teams, with guidance from land managers. When selecting sites, they usually prioritised areas that were under-surveyed and had high potential for new or significant discoveries. They also considered the suitability of the site based on features such as habitat type and complexity, physical features, altitude/elevation, geological diversity, and the presence of flowering plants and water. Figure 2 shows the purpose-built contraption used to collect caddisflies, mayflies and stoneflies.

Figure 2 Flying insect trap by the Murray River

Photograph: © Julian Finn, Copyright, Museums Victoria.

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 in the Australian Museum, Museums Victoria or UNSW collections, depending on where the scientist was based. Flora specimens were deposited at the National Herbarium of New South Wales or the National Herbarium of Victoria, with duplicates deposited at the other state's herbarium and the Australian National Herbarium.

Results

Summary of records

Preliminary results indicate that at least 1,076 species were recorded during the Bush Blitz, including approximately 12 putative new species – these await formal identification. There was also a threatened reptile, 54 threatened plant species, 11 introduced or pest animal species and 36 weed species recorded.

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

Table 2 Summary of fauna, flora and funga records

Group	Common name	Total species recorded	Putative new species	Threatened species	Introduced and pest species
Mammalia	Mammals	4	0	0	3
Reptilia	Reptiles	11	0	1	0
Amphibia	Frogs	6	0	0	0
Actinopterygii	Ray-finned fish	2	0	0	1
Lepidoptera	Moths	59	0	0	0
Trichoptera	Caddisflies	52	0	0	0
Plecoptera	Stoneflies	1	0	0	0
Ephemeroptera	Mayflies	5	0	0	0
Coleoptera	Beetles	378	5	0	1
Heteroptera	True bugs	72	7	0	1
Crustacea	Crayfish	1	0	0	0
Gastropoda	Snails and slugs	18	0	0	5
Vascular plants (Tracheophyta)	Flowering plants	360	0	52	33
	Conifers	1	0	0	0
	Ferns and allies	7	0	1	0
	Club mosses	1	0	0	0
Non-vascular plants	Hornworts	1	0	0	0
	Mosses	52	0	1	3
	Liverworts	16	0	0	0
Lichens	Lichens	4	0	0	0
Algae	Cyanobacteria, diatoms, euglenids, yellow-green algae, green algae and desmids (single-celled green algae)	24	0	0	0
Fungi	Smut fungus	1	0	0	0
Total		**1,076**	**12**	**55**	**47**

Note: Threatened species include those listed as threatened under the Commonwealth EPBC Act or an equivalent listing under the Biodiversity Conservation Act 2016 (NSW) for species recorded in NSW, or the Flora and Fauna Guarantee Act 1988 (Victoria) for species recorded in Victoria. Introduced and pest species may include species that are native to Australia.

Species lists

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

Some specimens were only able to be identified to family or genus level. This is partly because identification of specimens is very time-consuming, with detailed microscopic examination needed in many cases. Some groups are also 'orphans' – currently no experts are working on them or are available to work on them and the taxonomic literature is out of date. Species-level identification is therefore not possible for these groups.

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

Nomenclature and taxonomic concepts used in this report are consistent with the Australian Algae Name Index, Australian Faunal Directory (AFD), Australian Plant Name Index, Australian Plant Census, Catalogue of Australian Liverworts and Hornworts, Catalogue of Australian Bryophytes, Australian Lichen Name Index and MolluscaBase.

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 species new to science as a direct result of this Bush Blitz. A putative new species is confirmed as new to science once it is named and its description is published in the scientific literature.

Approximately 12 putative new species were discovered during the expedition. Further research may reveal additional species new to science in the material collected.

Beetles

There are undoubtedly many species new to science among the beetle specimens collected. At the time of reporting, experts had already identified 5 species previously unknown to science, including 4 flightless short-range endemics. Of the species new to science, 2 are darkling beetles from the tribe Adeliini and 3 are broad-bodied leaf beetles (Chrysomelinae). Figure 3 shows the putative new *Paropsides* leaf beetle, which is green and orange when living.

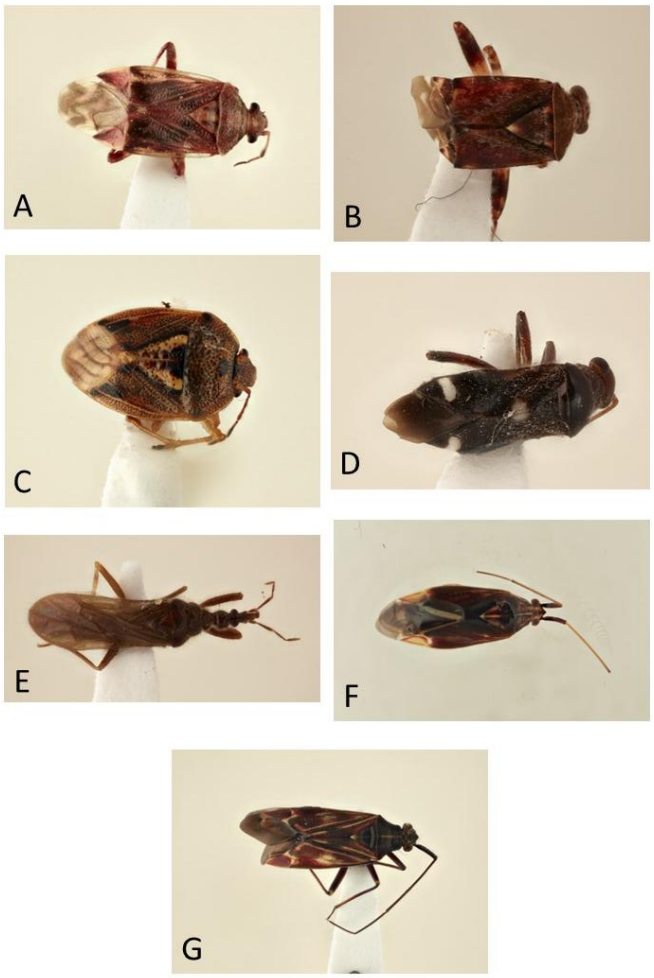
Figure 3 The putative new *Paropsides* leaf beetle

Photograph: © Cynthia Chan, Copyright, Australian Museum.

True bugs

Figure 4 shows the 7 true bug species collected during the expedition that are recognised as putative new species. There may be more species new to science – 43 of the 72 true bug species collected await identification. The species new to science include 5 mirid bugs – 2 species of the predatory genus *Deraeocoris*, which has not been studied in Australia, 2 species of the poorly known herbivorous genus *Zanessa* and a species from a new genus of the plant bug tribe Austromirini. There is also a species of the genus *Systelloderes* (family Enicocephalidae), which is known from Australia but not formally documented, and a species of *Eupolemus* from the cosmopolitan family Acanthosomatidae.

Figure 4 The 7 putative new species of true bug collected during the expedition



Note: **A** *Deraeocoris* SP001 n.sp. **B** *Deraeocoris* SP002 n.sp. **C** *Eupolemus* SP001 n.sp. **D** GN_IRYM SP001 n.sp. **E** *Systelloderes* SP001 n.sp. **F** *Zanessa* SP001 n.sp. **G** *Zanessa* SP002 n.sp.

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.

Native species that are considered at risk of extinction may be protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or state legislation. Depending on the assessed level of risk, threatened species can be listed as critically endangered, endangered or vulnerable.

In this report, a species is only considered threatened if it is listed under the EPBC Act or legislation of the state in which it was recorded. In New South Wales, threatened species are listed under the *Biodiversity Conservation Act 2016* (BCA) and the status was taken from the 13 September 2024 version of the BCA. In Victoria, threatened species are listed under the Flora

and Fauna Guarantee Act 1988 (FFG Act) and the status was taken from the FFG Threatened List June 2024.

Frogs and reptiles

Alpine Water Skink (*Eulamprus kosciuskoi*) is listed as Vulnerable under the EPBC Act. Tussock Skink (*Pseudemoia pagenstecheri*) is listed as Endangered in Victoria but is not listed in New South Wales where it was recorded, so it has not be noted as threatened in this report.

At one site, the team heard a frog call which resembled a brood frog (*Pseudophryne* sp.). Unfortunately, poor weather prevented a thorough survey to assess presence or absence. It is possible the call was a non-typical Common Eastern Froglet (*Crinia signifera*). However, given the site contains alpine sphagnum bog, which is suitable habitat for the critically endangered Southern Corroboree Frog (*Pseudophryne corroboree*), further investigation is warranted. Future surveys during the peak summer breeding period, or the installation of acoustic monitoring devices at the site, may help confirm presence or absence.

The taxonomic identity of 3 Whistling Tree Frog (*Litoria verreauxii*) specimens collected during the trip is under review. At present, the taxonomic status of the Alpine Tree Frog (*Litoria verreauxii alpina*), which is listed as endangered under the BCA and vulnerable under the EBPC Act, is unclear. A plan to survey the location where the type specimen was collected, to confirm whether it persists in the area and to collect genetic material to enable a thorough taxonomic revision of the group, could not go ahead due to poor weather.

Table 3 Threatened fauna species

Family	Species	Common name	Status	Comments
Scincidae	*Eulamprus kosciuskoi*	Alpine Water Skink	Vulnerable (EPBC Act)	Listed under EPBC Act on 16 July 2024

Flora

In Victoria, the botanists recorded one threatened fern, one threatened moss and 51 threatened flowering plants, including the endangered Spiked Mint-bush (*Prostanthera phylicifolia*) shown in Figure 5. All of these species are listed under Victoria's FFG Act except Lemon-scented Zieria (*Zieria citriodora*), which is listed under the EPBC Act. Brumby Sallee (*Eucalyptus forresterae*) is listed as Endangered under both the FFG Act and the EPBC Act.

Figure 5 The endangered Spiked Mint-bush (*Prostanthera phylicifolia*)

Photograph: © Copyright, RBGV.

Mountain Burr-daisy (*Calotis pubescens*) was the only threatened plant recorded in New South Wales. However, the Slender Parrot-pea (*Almaleea capitata*) is a poorly known species with a limited distribution and therefore may warrant listing in New South Wales. Currently, 3 of the 5 known populations of Slender Parrot-pea in New South Wales are within the Pilot Wilderness Area, and all are restricted to swampy heaths. Continued degradation of these communities by feral animals will ultimately have an impact on it.

Table 4 Threatened flora species

Family	Species	Common name	Status	Comments
Apiaceae	*Aciphylla simplicifolia*	Mountain Aciphyll	Endangered (FFG Act)	Locally common at Cowombat Flat Tk; occasional/rare at Forlorn Hope Plain and Davies Plain
Apiaceae	*Gingidia harveyana*	Slender Gingidia	Endangered (FFG Act)	Davies Plain; very rare
Apiaceae	*Oschatzia cuneifolia*	Wedge Oschatzia	Endangered (FFG Act)	Common at Davies Plain; rare at Native Dog Flat, where damage by 4WD vehicles was observed nearby
Araliaceae	*Astrotricha ledifolia*	Common Star-hair	Vulnerable (FFG Act)	Limestone Creek; fewer than 10 plants

Family	Species	Common name	Status	Comments
Asteraceae	*Calotis lappulacea*	Yellow Burr-daisy	Vulnerable (FFG Act)	Suggan Buggan; on slope above Yellow Waterhole Creek; rare, 10 plants
Asteraceae	*Calotis pubescens*	Mountain Burr-daisy	Endangered (BCA)	100 m E of Cascade Hut, Cascade Trail; extensive population covering approx. 200 m^2; many individuals flowering and fruiting; known from approx. 5 locations, all within KNP
Asteraceae	*Craspedia aurantia* var. *aurantia*	Orange Billy-buttons	Endangered (FFG Act)	Moscow Peak; rare
Asteraceae	*Craspedia canens*	Grey Billy-buttons	Critically endangered (FFG Act)	James Creek, N of Limestone Rd; scattered
Asteraceae	*Craspedia crocata*	Crimson Billy-buttons	Endangered (FFG Act)	Davies Plain; scattered
Asteraceae	*Leptorhynchos elongatus*	Lanky Buttons	Endangered (FFG Act)	Cowombat Flat Tk; rare
Asteraceae	*Olearia phlogopappa* subsp. *flavescens*	Dusty Daisy-bush	Endangered (FFG Act)	Davies Plain, Moscow Peak; common
Asteraceae	*Podolepis laciniata*	High-plain Podolepis	Endangered (FFG Act)	Cowombat Flat Tk and Limestone Rd; common and widespread
Asteraceae	*Senecio extensus*	Alpine Fireweed	Endangered (FFG Act)	Forlorn Hope; Davies Plain; rare
Asteraceae	*Senecio interpositus*	Tableland Fireweed	Endangered (FFG Act)	Cowombat Flat Tk; uncommon
Asteraceae	*Senecio lageniformis*	Monaro Fireweed	Endangered (FFG Act)	Forlorn Hope; Davies Plain; rare
Asteraceae	*Senecio niveoplanus*	Snowplain Fireweed	Endangered (FFG Act)	Davies Plain Creek; 5 plants
Brassicaceae	*Cardamine papillata*	Forest Bitter-cress	Endangered (FFG Act)	Rams Horn Tk; rare
Caryophyllaceae	*Scleranthus diander*	Tufted Knawel	Endangered (FFG Act)	Mt Stradbroke; common
Caryophyllaceae	*Scleranthus fasciculatus*	Spreading Knawel	Endangered (FFG Act)	Davies Plain; Forlorn Hope Plain; rare/occasional
Cyperaceae	*Carex blakei*	Alpine Sedge	Endangered (FFG Act)	Davies Plain; common
Cyperaceae	*Carex capillacea*	Hair Sedge	Endangered (FFG Act)	Davies Plain; rare
Cyperaceae	*Isolepis gaudichaudiana*	Benambra Club-sedge	Vulnerable (FFG Act)	Rocky Plain; rare
Ericaceae	*Acrothamnus montanus*	Snow Beard-heath	Endangered (FFG Act)	Davies Plain; uncommon
Ericaceae	*Acrotriche leucocarpa*	Tall Acrotriche	Endangered (FFG Act)	Mt Stradbroke; rare
Ericaceae	*Epacris celata*	Cryptic Heath	Endangered (FFG Act)	Cowombat Flat Tk; locally common
Fabaceae	*Almaleea capitata*	Slender Parrot-pea	Endangered (FFG Act)	Davies Plain; uncommon

Family	Species	Common name	Status	Comments
Fabaceae	*Pultenaea fasciculata*	Alpine Bush-pea	Endangered (FFG Act)	In swamp approx. 115 m NNE from intersection of Rams Horn Tk and Limestone Rd; localised, approx. 50 plants
Goodeniaceae	*Dampiera fusca*	Kydra Dampiera	Critically endangered (FFG Act)	Reedy Tk; abundant
Juncaceae	*Juncus phaeanthus*	Dark-flower Rush	Endangered (FFG Act)	Rocky Plain; Forlorn Hope Plain; rare/occasional
Lamiaceae	*Prostanthera phylicifolia*	Spiked Mint-bush	Endangered (FFG Act)	Mt Stradbroke; localised
Meesiaceae	*Meesia uliginosa*	Hump Moss	Endangered (FFG Act)	A moss; Forlorn Hope; reasonably common where collected in bogs
Myrtaceae	*Eucalyptus forresterae*	Brumby Sallee	Endangered (EPBC), Endangered (FFG Act)	Reedy Tk; localised
Myrtaceae	*Eucalyptus glaucescens*	Tingaringy Gum	Vulnerable (FFG Act)	Reedy Tk; rare
Myrtaceae	*Eucalyptus perriniana* subsp. *familiaris*	na	Endangered (FFG Act)	Nunniong Plateau, 2.2 km SW (by road) from the intersection with Forlorn Hope Tk; localised
Ophioglossaceae	*Botrychium australe* (*Sceptridium australe*)	Austral Moonwort	Critically endangered (FFG Act)	A fern; Forlorn Hope Plain; 1 plant
Orobanchaceae	*Euphrasia caudata*	Tailed Eyebright	Endangered (FFG Act)	Forlorn Hope Plain; rare
Phyllanthaceae	*Poranthera oreophila*	Mountain Poranthera	Endangered (FFG Act)	Davies Plain; occasional
Pittosporaceae	*Rhytidosporum inconspicuum*	Alpine Marianth	Endangered (FFG Act)	Davies Plain; common
Plantaginaceae	*Plantago alpestris*	Veined Plantain	Vulnerable (FFG Act)	Davies Plain; rare
Poaceae	*Agrostis australiensis*	Tiny Bent	Endangered (FFG Act)	Forlorn Hope Plain; rare
Poaceae	*Austrostipa nivicola*	Alpine Spear-grass	Endangered (FFG Act)	Davies Plain; localised
Poaceae	*Lachnagrostis meionectes*	Alpine Blown-grass	Endangered (FFG Act)	Davies Plain; rare
Poaceae	*Poa hookeri*	Hooker's Tussock-grass	Endangered (FFG Act)	Mt Stradbroke; localised
Poaceae	*Poa petrophila*	Rock Tussock-grass	Endangered (FFG Act)	Locally common at Forlorn Hope; rare at Rocky Plain
Poaceae	*Rytidosperma oreophilum*	Mountain Wallaby-grass	Endangered (FFG Act)	Mt Stradbroke, Davies Plain, Rocky Plain, Forlorn Hope Plain and Moscow Peak; localised
Polygonaceae	*Muehlenbeckia axillaris*	Matted Lignum	Vulnerable (FFG Act)	On west-facing embankment of Limestone Creek, 90 m N of Limestone Creek Tk, 2.2 km from its intersection with Limestone Road; only 1 diffuse patch 1 m x 1 m

Family	Species	Common name	Status	Comments
Polygonaceae	*Muehlenbeckia diclina* subsp. *stenophylla*	na	Vulnerable (FFG Act)	Mt Stradbroke; rare; listed under synonym *Muehlenbeckia diclina* subsp. 1
Proteaceae	*Banksia canei*	Mountain Banksia	Critically endangered (FFG Act)	Limestone Creek, Forlorn Hope Creek; localised
Proteaceae	*Grevillea brevifolia*	Cobberas Grevillea	Endangered (FFG Act)	Forlorn Hope; rare
Rutaceae	*Zieria citriodora*	Lemon-scented Zieria	Vulnerable (EPBC Act)	Limestone Creek; localised; previously known from a collection from this site
Stylidiaceae	*Stylidium montanum*	Alpine Triggerplant	Endangered (FFG Act)	Davies Plain; common
Thymelaeaceae	*Pimelea ligustrina* subsp. *ciliata*	Fringed Rice-flower	Endangered (FFG Act)	Davies Plain; localised
Thymelaeaceae	*Pimelea pauciflora*	Poison Rice-flower	Endangered (FFG Act)	Occasional along Limestone Creek
Violaceae	*Viola fuscoviolacea*	Dusky Violet	Endangered (FFG Act)	Davies Plain; locally common

Note: The status shown is for the state in which the species was recorded. **na** Not available.

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.

Vertebrates

Table 5 lists the introduced and pest vertebrate species recorded during the expedition. Observations of these animals were made opportunistically by multiple teams.

Table 5 Introduced and pest vertebrate species – fish and mammals

Family	Species	Common name	Comments
Cervidae	Cervidae sp.	deer	Abundant, most sites surveyed
Equidae	*Equus caballus*	Feral Horse	Abundant, most sites surveyed; damage from trampling and grazing
Salmonidae	*Oncorhynchus mykiss*	Rainbow Trout	Abundant, most waterways surveyed; commonly observed in flowing creeks and streams
Suidae	*Sus scrofa*	Pig	Habitat damage observed at many sites

The frog and reptile team found introduced Rainbow Trout (*Oncorhynchus mykiss*) were abundant in most waterways surveyed. However, they were notably absent from a site where native galaxias were observed. Given this site's high potential conservation value, they recommend ongoing feral animal management. The team also noted trampling and grazing damage caused by feral horses and/or deer at every site surveyed. Damage was particularly

severe in sensitive alpine sphagnum bog habitat and alongside streams and creeks, which are important frog and reptile habitats.

The botanists reported habitat damage caused by horses and pigs at many sites. Within the Pilot Wilderness Area, these animals were found to be impacting communities on the plateau, particularly swampy heaths and communities around waterways. The degradation observed will have flow-on effects, with diminished water quality in the catchments, erosion, and threats to species diversity. In Victoria, impacted sites included those with state-listed threatened plant species. For example, the poorly known and rarely collected Crested Water-milfoil (*Myriophyllum lophatum*) and the endangered Dwarf Buttercup (*Ranunculus millanii*) were collected from the wetland shown in Figure 6. Horses were observed throughout the study area, while pig damage appeared to be restricted to wet boggy sites. The horses also appeared to be responsible for dispersing weeds in many areas.

Figure 6 Wetland heavily trampled by horses

Photograph: © Copyright, RBGV.

The impact of these feral animals on invertebrates was also noted. For example, horses are considered very likely to be a factor in local beetle extinctions through vegetation community change.

Invertebrates

Table 6 lists the introduced and pest invertebrate species that were recorded in the study area.

Table 6 Introduced and pest invertebrate species – beetles, snails and slugs

Group	Family	Species	Common name	Comments
Beetles	Chrysomelidae: Chrysomelinae	*Chrysolina quadrigemina*	Greater St John's Wort Beetle	Base camp and Thredbo River Picnic Area; abundant
True bugs	Lygaeidae	*Nysius vinitor*	Rutherglen Bug	Native; a pest of crops
Snails and slugs	Gastrodontidae	*Zonitoides arboreus*	Orchid Snail	The Pilot; very abundant
	Helicidae	*Cornu aspersum*	Garden Snail	Several sites; common near human activity
	Limacidae	*Ambigolimax* spp.	na	Several sites; very abundant; a widespread and usually abundant pest; possibly 2 cryptic species, *A. waterstoni* and *A. valentianus*
	Limacidae	*Limax maximus*	Leopard Slug	Several sites; abundant; a widespread and usually abundant pest
	Oxychilidae	*Oxychilus* sp.	na	Thredbo River Picnic Area; rare; possibly harmful to native species (carnivorous)

na Not available.

The Greater St John's Wort Beetle (*Chrysolina quadrigemina*) was introduced to Australia many years ago as a biocontrol agent for St John's wort (*Hypericum* spp.). It was abundant where it was recorded, sheltering under eucalypt bark and clustered on *Hypericum* leaves. There are probably other exotic species among the material collected – small beetles (less than 2.5mm) that are not pests.

Several exotic slugs and snails were observed. The Leopard Slug (*Limax maximus*) is of particular concern because it is particularly abundant near human settlement and infrastructure and, along with other exotic slugs, can completely displace native species. The abundance of exotic slugs and snails has been found to decrease with distance from disturbed areas. In the surveyed wilderness areas, exotic species are either completely absent or rare, and native species are more diverse and more abundant. The best way to prevent the spread of exotic slugs and snails is likely to minimise any new disturbance in pristine areas.

Plants

During the expedition, 32 introduced vascular plants and 4 introduced mosses were recorded.

In New South Wales, 18 weed species were recorded. None of them appeared to be seriously impacting either threatened species or community health. The Pilot Wilderness Area was remarkably weed free and areas heavily impacted by previous human activities had the highest density of weed species. These included the areas immediately around Cascade and Tin Mine Huts, and along the route of Cascade Trail. The species recorded were either well known species associated with pasture improvement, or have been used for erosion mitigation. Away from human disturbance, weed species were either not observed, or were only observed in low numbers.

Of interest was the recording of 2 weed species in a clearing near Pinch River that had occurred as a direct result of the 2019–20 bushfires. Most of the dominant trees had been killed by the fire and fallen, creating small clearings. It was in one such clearing that Sheep Sorrel (*Acetosella*

vulgaris or *Rumex acetosella*) and Common Mouse-ear Chickweed (*Cerastrum vulgare*) were recorded. Sheep Sorrel is commonly found in areas of human activity but not in remote areas. The presence of Sheep Sorrel at the remote Pinch River site suggests this species is commonly in the seedbank throughout Pilot Wilderness Area but can only become established following extreme environmental events, such as the 2019–20 bushfires. Fortunately, Sheep Sorrel does not appear to have impacted areas where significant species occur.

At the Victorian sites, 21 weed species were recorded. Most sites were largely free of weed cover except for widespread weeds such as White Clover (*Trifolium repens*). However, some sites had noticeably deteriorated since the botanists' last visit in 2018. In particular, one site along Limestone Creek, shown in Figure 7, had seen the Blackberry (*Rubus leucostachys*) population expand, smothering the limestone escarpment. This site has high conservation significance, with several endangered or uncommon plants, including Matted Lignum (*Muehlenbeckia axillaris*), Poison Rice-flower (*Pimelea pauciflora*), the fern *Asplenium trichomanes* and the moss *Tortella dakinii*. If no control measures are implemented to stop the spread of Blackberry at this location, many of the threatened native plants are likely to disappear.

Figure 7 Botanically significant limestone escarpment at Limestone Creek being invaded by Blackberry, with the native fern *Asplenium trichomanes* on the right hand side

Photograph: © Copyright, RBGV.

Table 7 Non-gazetted weeds

Family	Species	Common name	Location
Amaranthaceae	*Alternanthera pungens*	Khaki Weed	Willis; approx. 10 plants; uncommon weed in Vic, typically in degraded roadsides
Apiaceae	*Foeniculum vulgare*	Fennel	Alpine Way, 6 km NW of Jindabyne; small patches in roadside that had been extensively cleared

Family	Species	Common name	Location
Asteraceae	*Hypochaeris radicata*	Cat's-ear, Flat-weed	Pilot Wilderness Area; 2 sites; very common; apparently not affecting native species
Asteraceae	*Onopordum acanthium* subsp. *acanthium*	Scotch Thistle	Barry Way, 3 km S of Jindabyne; small patch on roadside in heavily disturbed eucalypt woodland
Asteraceae	*Tragopogon dubius*	Goatsbeard	Suggan Buggan; scattered plants; naturalised in NE Vic
Boraginaceae	*Echium vulgare*	Viper's Bugloss	Alpine Way, 6 km NW of Jindabyne; small patches in roadside that had been extensively cleared
Boraginaceae	*Heliotropium amplexicaule*	Blue Heliotrope	Willis; common; known in Vic from a 1973 collection near Yackandandah, and recent collections from the upper Snowy River in the far E, and near the You Yangs
Boraginaceae	*Myosotis laxa* subsp. *cespitosa*	Water Forget-me-not	Limestone Creek, common; uncommon weed in Vic; a weed of stream banks and other moist places
Brachytheciaceae	*Brachythecium mildeanum*	na	A moss; Native Dog Flat and Emu Plain; abundant and most common moss species at Emu Plain; first record in the Victorian high country; weed of lower altitude pastures and grassy areas; collected in wet inundated areas disturbed by horses; possibly introduced to Native Dog Flat in hay brought in for horse feed; in Vic, tends to favour wetlands and damp sites, where it can form extensive carpets to the exclusion of smaller ground flora
Brachytheciaceae	*Kindbergia praelonga*	na	A moss; Native Dog Flat; restricted to and sparse around campground; typically found in disturbed urban areas (e.g. lawns, roadsides)
Caryophyllaceae	*Cerastium glomeratum*	Mouse-ear Chickweed	Alpine National Park
Caryophyllaceae	*Cerastium vulgare*	Common Mouse-ear Chickweed	Small clearing near Pinch River; widely scattered in clearing, only present where canopy is open due to tree fall
Caryophyllaceae	*Dianthus armeria*	Deptford Pink	Approx. 400 m E of Murray River and McCarthys Trail; scattered individuals in limestone outcropping; not spreading beyond the narrow talus
Caryophyllaceae	*Saponaria officinalis*	Common Soapwort	Jindabyne Aerodrome; single self-contained clump; regular mowing restricts spread
Crassulaceae	*Sedum album*	White Stonecrop	Willis; 1 patch; naturalised in Vic at Ballarat, Barwon Heads, Mt Eliza, Orford and Willis
Cyperaceae	*Carex buxbaumii* subsp. *buxbaumii*	Buxbaum's Sedge	Rocky Plain; occasional; last collected in Vic in 1949; origin status uncertain
Fabaceae	*Lotus corniculatus*	Bird's-foot Trefoil	Pilot Wilderness Area; scattered around 1 site; apparently not affecting native species
Fabaceae	*Lotus subbiflorus*	Hairy Bird's-foot Trefoil	Tin Mine Hut; uncommon, near old buildings
Fabaceae	*Lotus uliginosus*	Greater Bird's-foot Trefoil	Limestone Rd, at crossing of Little River; localised; a relatively widespread weed throughout SE Australia, occurring near margins of water bodies

Family	Species	Common name	Location
Fabaceae	*Trifolium dubium*	Yellow Suckling Clover	Pilot Wilderness Area; 2 sites; scattered; apparently not affecting native species
Fabaceae	*Trifolium repens*	White Clover	Saddle SE of Pilot summit (small patch, apparently not affecting native species) and Davies Plain (widely scattered, common, highly likely spread by horses)
Hypericaceae	*Hypericum perforatum*	St John's Wort	Alpine Way, 6 km NW of Jindabyne; scattered patches in roadside that had been extensively cleared
Lamiaceae	*Prunella vulgaris*	Self-heal	Alpine National Park, Davies Plain
Papaveraceae	*Eschscholzia californica*	California Poppy	Willis; scattered along roadside, and riverbed; locally common along sandy banks of the Snowy River near the NSW border and probably downstream to its mouth at Marlo, occasional near Omeo and Corryong, and formerly recorded from the Bendigo-Castlemaine area
Plantaginaceae	*Callitriche stagnalis*	Common Starwort	Pilot Wilderness Area; 1 site; occurring in pools adjacent to river bank; likely to be spreading during flood periods; not present in fast-flowing water
Plantaginaceae	*Linaria arvensis*	Corn Toadflax	Alpine National Park; 1 plant; an uncommon weed in SE Australia, typically associated with disturbance (e.g. along roads and railway lines), unusual to observe in intact vegetation
Poaceae	*Anthoxanthum odoratum*	Sweet Vernal Grass	Pilot Wilderness Area; 1 site; apparently not affecting native species
Polygonaceae	*Acetosella vulgaris (Rumex acetosella)*	Sheep Sorrel	Pilot Wilderness Area (5 sites) and Davies Plain (common in areas degraded by horses)
Pylaisiaceae	*Calliergonella cuspidata*	na	A moss; Limestone Creek Tk and Forlorn Hope Creek; restricted to inundated depressions and on sandy banks of flowing creek and occasional in bog along Forlorn Hope Creek; first record in the Victorian high country; weed of lower altitude pastures and grassy areas; collected in wet inundated areas disturbed by horses
Ranunculaceae	*Ranunculus sardous*	Pale Hairy Buttercup	Native Dog Flat; several patches; no previous records from this part of Vic; seasonally abundant in irrigated and/or swampy lowlands mainly in the E
Rosaceae	*Potentilla recta*	Sulphur Cinquefoil	Jindabyne Aerodrome, where it has spread to adjacent woodland, and Pilot Wilderness Area
Rosaceae	*Rubus leucostachys*	Blackberry	Limestone Creek, a site of high conservation significance; common; a priority weed for eradication at this location
Scrophulariaceae	*Verbascum thapsus* subsp. *thapsus*	Great Mullein, Aaron's Rod	Alpine Way, 6 km NW of Jindabyne (small patches in roadside that had been extensively cleared) and Suggan Buggan (common at site, no previous collections from this part of Vic)
Scrophulariaceae	*Verbascum virgatum*	Twiggy Mullein	In clearing up hill from Murray River; scattered, not aggressively expanding

Family	Species	Common name	Location
Solanaceae	*Solanum chenopodioides*	Whitetip Nightshade	Willis; 1 plant; found in a few scattered Victorian localities, mainly in disturbed sites in moist areas (e.g. riverbanks, winter-wet ditches); no previous collections from this part of Vic
Solanaceae	*Solanum sisymbriifolium*	Viscid Nightshade	Willis; 1 plant; previously known only from Mortlake in W Vic

na Not available.

Range extensions

The known ranges of many species were extended, including new records for New South Wales and Victoria. The most notable range extensions are listed in Table 8.

Table 8 Range extensions

Group	Family	Species	Comments
True bugs	Miridae	*Setocoris* SP_BINA	70 km; Alpine National Park (Suggan Buggan) and KNP (Cascade Hut, Tin Mine Trail, nr. Lake Jindabyne); only one prior record from S NSW, these are first records in Mt Kosciuszko region
Caddisflies	Conoesucidae	*Lingora coomata*	65 km; Mowamba River, bridge Barry Way; no records on ALA from NSW; 9 from Vic, 1 from ACT; AFD indicates species restricted to E NSW
	Glossosomatidae	*Agapetus dayi*	333 km; Thredbo River, bridge Kosciuszko Rd; no records on ALA; AFD indicates species restricted to E NSW
	Hydrobiosidae	*Psyllobetina locula*	4 km; Thredbo River, Dead Horse Gap; records on ALA predominantly from Vic; 2 records on ALA from Kosciuszko region of NSW; AFD indicates species restricted to Vic
	Odontoceridae	*Marilia bola*	69 km; Thredbo River, bridge Kosciuszko Rd; records on ALA predominantly from Vic; 6 records on ALA from NSW; AFD indicates species restricted to E NSW
Mayflies	Coloburiscidae	*Coloburiscoides giganteus*	2 km; Thredbo River, Dead Horse Gap; no records on ALA; AFD indicates species restricted to SE Australia (NSW and Vic)
	Leptophlebiidae	*Austrophlebioides pusillus*	11 km; Murray River, Tom Groggin and Cowombat Flat; records on ALA predominantly from Vic, 2 records from NSW; AFD indicates species restricted to SE Australia (NSW and Vic)
	Leptophlebiidae	*Jappa campbelli*	124 km; Murray River, Tom Groggin; no records on ALA from NSW; 2 records from Vic; AFD indicates species occurs in Qld, NSW and Vic
	Leptophlebiidae	*Ulmerophlebia annulata*	107 km; Murray River, Tom Groggin; 13 records on ALA, 10 from Vic, 3 from

Group	Family	Species	Comments
			NSW; AFD indicates species restricted to SE Australia (NSW and Vic)
Snails	Cystopeltidae	Snowy Mountains Humpback Snail (*Cystopelta astra*)	30 km; The Pilot
	Cystopeltidae	Snowy Mountains Pinwheel Snail (*Scelidoropa altior*)	30 km; The Pilot; few ALA records
	Punctidae	Annabell's Pinhead Snail (*Paralaoma annabelli*)	30 km; The Pilot
Vascular plants	Crassulaceae	White Stonecrop (*Sedum album*)	320 km; Willis; introduced species, with records from Ballarat, Barwon Heads, Mt Eliza, Orford
	Hemerocallidaceae	*Dianella caerulea* var. *caerulea*	Cascade Trail; near Mitta Mitta (Vic) 74 km (direct) E
	Poaceae	*Lachnagrostis* sp. (Gow Plain)	80 km; Forlorn Hope Plain; previously only known from the Dargo High Plains area; rare at Forlorn Hope Plain and at Davies Plain
	Rutaceae	*Leionema lamprophyllum* subsp. *lamprophyllum*	Cascade Trail; 39 km (direct) SSE from Mt Cobberas; first record for NSW; known in alpine Vic
	Rutaceae	*Phebalium squamulosum* subsp. *squamulosum*	120 km; Davies Plain; no previous records of this subsp. from this region of Vic; a small-leaved form, which occurs across the border in NSW
	Solanaceae	Viscid Nightshade (*Solanum sisymbriifolium*)	510 km; Willis; in Vic, previously known from a single collection from Mortlake
	Violaceae	*Viola hederacea*	Cascade Trail; 39 km (direct) SSE from Rams Horn (Vic); first record for the greater KNP; unusual to find at higher elevations
Mosses	Amblystegiaceae	*Bryostreimannia turgida*	70 km; Davies Plain; first record of genus in Vic
	Brachytheciaceae	*Brachythecium mildeanum*	90 km; Native Dog Flat; first record in the Victorian high country; weed of lower altitude pastures and grassy areas; collected in wet inundated areas disturbed by horses; possibly introduced in hay brought in for horse feed
	Pottiaceae	*Tortella dakinii*	130 km; Limestone Creek Tk; sixth record of this species in Vic, all other records being in and west of Melbourne
	Pylaisiaceae	*Calliergonella cuspidata*	120 km; Limestone Creek Tk; first record in Victorian high country; weed of lower altitude pastures and grassy areas; collected in wet inundated areas disturbed by horses; possibly introduced in hay brought in for horse feed
Liverworts	Lepidoziaceae	*Kurzia pallescens*	400 km; Davies Plain; first record of this species in Vic, third record on mainland Australia; this species is otherwise only known from Tasmania and New Zealand
	Trichocoleaceae	*Trichocolea rigida*	80 km; Davies Plain; third record of this species in Vic; previously known from Dargo High Plains

Other significant findings

This expedition provided an opportunity for scientists to collect other data and materials important for future research. For most of the species collected, this included material preserved for future DNA or other tissue analysis.

Vertebrates

The expedition helped fill short-range sampling gaps for frogs and reptiles. For 10 of the 14 species sampled, the tissues are the first collected from Kosciuszko National Park. The material collected will be used to confirm the identity of several morphologically cryptic species, helping to resolve the true diversity of frogs and reptiles within the park, and to establish whether any populations contain genetic diversity of high conservation value.

Some frogs were swabbed for the presence of the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*), which is responsible for frog population declines worldwide. The fungus was detected in 4 of the 13 frogs swabbed.

One of the sites visited was of particular interest. At this site – the same place where the team potentially heard a brood frog – Alpine Spiny Crayfish (*Euastacus crassus*) was recorded and native galaxias (freshwater fish) were common. Although not listed as threatened in New South Wales, the Alpine Spiny Crayfish is listed as Endangered under both the FFG Act and the IUCN Red List of Threatened Species. The native galaxias (Figure 8) may be Kosciuszko Galaxias (*Galaxias supremus*), a narrow range Critically Endangered (EPBC Act) species, or an otherwise cryptic undescribed species. The site contains significant alpine sphagnum bog habitat and the stream where the galaxias were found is apparently free from introduced trout. However, this site of potentially high conservation value is threatened by trampling and grazing by horses and deer. Further surveys are needed to confirm the identity of the fish and to establish the presence or absence of brood frogs.

Figure 8 Mountain Galaxias in the *Galaxias olidus* species complex

Photograph: © Copyright, Australian Museum.

Moths

The number of moth specimens and species collected was much fewer than expected due to strong winds, cold temperatures and a full moon during the expedition. The collection of *Dasygaster* sp. ANIC 2 was notable because it is an undescribed species currently being studied at the Australian Museum.

Beetles

Given the summit of The Pilot seems to have its own endemic flightless species of beetle, it was concerning to see the amount of horse dung there, indicating considerable disturbance to the vegetation. There are almost certainly other local endemic beetle species to be found on isolated peaks in the Southern Alps.

True bugs

Significant finds included *Myrmecoroides grossi*, a remarkable ant-mimic belonging to a genus with 5 species that have a hatchet-like frontal plate on the head. This genus is noteworthy because of its rarity and association with grasses.

A number of stink bugs are associated with bark in the montane regions of south-eastern Australia. Notable stink bugs found under bark included *Diemenia* SP001 (Diemeniini), 2 species of *Notius* (Carpocorini) and *Platycoris musgravei* (Halyini). These species are a subsample of a richer stink bug assemblage that are adapted to living their lives hidden under bark.

Caddisflies, mayflies and stoneflies

Of the 40 described caddisfly species collected, 21 are new records for the area. Specimens of the 12 un-named species will likely aid new taxonomic descriptions. The numbers of species recorded at each site are what was expected at undisturbed river sites, with one exception where some upstream disturbance was evident.

Fewer mayfly and stonefly species were collected because they had largely finished emerging by the time the expedition took place. Generally, 3 to 4 visits over the emergence season (spring to autumn) are needed to catch the majority of species likely to be present. Although the only stonefly species collected had been previously recorded, all 4 described mayfly species were new records for the area.

Flora and funga

The NSW flora team visited the The Pilot to assess the extent of narrow endemics. They collected 58 species, including 52 flowering plants, 3 ferns and allies, 2 mosses, and 1 conifer. The Pilot is the only high point within the Pilot Wilderness Area that potentially had narrow endemics like those occurring on the main range. Although the scree area and the southern steep slope were not explored due to time limitations, it appears that the narrow endemics seen on the main range and associated peaks are absent from the Pilot Wilderness Area.

One of this team's aims was to find species known to occur in alpine Victoria but absent from the NSW flora census. One such species was recorded during the expedition – *Leionema lamprophyllum* subsp. *lamprophyllum* is currently known in Victoria in neighbouring sub-alpine regions.

Whenever possible, the NSW team collected DNA samples along with herbarium specimens. This resulted in 121 samples collected, primarily ferns and flowering plants. These samples will form

part of the NSW Plant Tree of Life Flagship project. The aim of this project is to sample genetic material from every native vascular plant species in the state to better understand their evolutionary history.

Horticulturalists from the Botanic Gardens of Sydney collected propagation material and 24 cuttings from 21 species have been successfully propagated. These will be planted within the Botanic Gardens of Sydney, and used for future propagation within the Gardens' nurseries.

The Victorian flora team made 598 collections, which will improve understanding of the distribution and habitat of the collected species. Photographs were taken of many of the vascular plant species and most of the bryophytes, providing a valuable contribution towards the online flora. In addition to collections of undescribed species, the following were of particular interest:

- *Olearia aglossa*, collected from Mt Stradbroke, was previously only known from Victoria from a collection by Mueller in the 1850s and a specimen from 1991 with vague location details that required verification. The collection during this expedition resulted in a review of the species in Victoria, which was published in May 2023.
- This was one of the first botanical surveys of the Davies Plain area. Many rare but unsurprising species were recorded here for the first time. Many of these species occur nearby at either Mt Kosciuszko or Nunniong Plateau.
- Buxbaum's Sedge (*Carex buxbaumii*) was collected at Rocky Plain, where it was last collected in 1949 – the last known collection of the species in Victoria.
- While identifying an *Isolepis* collection, it was noticed that one of the specimens had flowers infected with a smut fungus. The only genus of smut fungi known to infect *Isolepis* spp. is *Entorrhiza*. This genus of smut fungi was unrepresented in the Melbourne Herbarium collection.

Appendix A: Species lists

Table A1 List of fauna species recorded

Group	Family	Species	Common name
Mammals	Cervidae	Cervidae sp. [a]	Feral deer (species unknown)
	Equidae	*Equus caballus* [a]	Feral Horse
	Ornithorhynchidae	*Ornithorhynchus anatinus*	Platypus
	Suidae	*Sus scrofa* [a]	Pig
Reptiles	Elapidae	*Austrelaps ramsayi*	Highland Copperhead
	Elapidae	*Cryptophis nigrescens*	Small-eyed Snake
	Elapidae	*Drysdalia coronoides*	White-lipped Snake
	Scincidae	*Anepischetosia maccoyi*	Highlands Forest Skink
	Scincidae	*Carinascincus coventryi*	Southern Forest Cool-skink
	Scincidae	*Eulamprus heatwolei*	Yellow-bellied Water Skink
	Scincidae	*Eulamprus kosciuskoi* [c]	Alpine Water Skink
	Scincidae	*Eulamprus tympanum*	Southern Water Skink
	Scincidae	*Hemiergis talbingoensis*	Eastern Three-toed Earless Skink
	Scincidae	*Pseudemoia entrecasteauxii*	Southern Grass Skink
	Scincidae	*Pseudemoia pagenstecheri*	Tussock Skink
Frogs	Limnodynastidae	*Limnodynastes dumerilli*	Eastern Banjo Frog
	Limnodynastidae	*Limnodynastes tasmaniensis*	Spotted Marsh Frog
	Myobatrachidae	*Crinia signifera*	Common Eastern Froglet
	Myobatrachidae	*Uperoleia laevigata*	Smooth Toadlet
	Pelodryadinae	*Litoria lesueuri*	Stony Creek Frog
	Pelodryadinae	*Litoria verreauxii*	Whistling Tree Frog
Fish	Galaxiidae	*Galaxias olidus* species complex (possibly *Galaxias* cf. *supremus*)	Mountain/Kosciuszko Galaxias
	Salmonidae	*Oncorhynchus mykiss* [a]	Rainbow Trout
Moths	Anthelidae	Anthelidae sp.1	na
	Anthelidae	Anthelidae sp.2	na
	Crambidae	Crambidae sp.1	na
	Crambidae	Crambidae sp.2	na
	Crambidae	*Nomophila corticalis*	Grass Moth
	Erebidae	*Ardices curvata*	Crimson Tiger Moth
	Erebidae	Erebidae sp.1	na
	Erebidae	Erebidae sp.2	na
	Erebidae	Erebidae sp.3	na
	Erebidae	*Pantydia* sp.	na
	Erebidae	*Pantydia sparsa*	na
	Geometridae	?*Capusa* sp.	na

Group	Family	Species	Common name
	Geometridae	*Arhodia lasiocamparia*	na
	Geometridae	*Capusa stenophara*	na
	Geometridae	*Chrysolarentia leucozona*	na
	Geometridae	*Circopetes obtusata*	na
	Geometridae	*Fisera dictyodes*	na
	Geometridae	Geometridae sp. 1	na
	Geometridae	Geometridae sp. 2	na
	Geometridae	Geometridae sp. 3	na
	Geometridae	Geometridae sp. 4	na
	Geometridae	Geometridae sp. 5	na
	Geometridae	Geometridae sp. 6	na
	Geometridae	Geometridae sp. 7	na
	Geometridae	Geometridae sp. 8	na
	Geometridae	Geometridae sp. 9	na
	Geometridae	*Hypobapta diffundens*	na
	Geometridae	*Mnesampela privata*	na
	Geometridae	*Niceteria macrocosma*	na
	Geometridae	*Oenochroma* sp. 1	na
	Geometridae	*Oenochroma* sp. 1?	na
	Geometridae	*Plesanemma fucata*	na
	Hepialidae	*Abantiades* ?*magnificus*	na
	Noctuidae	*Aedia leucomelas*	na
	Noctuidae	*Agrotis infusa*	na
	Noctuidae	*Australothis rubrescens*	na
	Noctuidae	*Chrysodeixis* sp.	na
	Noctuidae	*Cirphis* sp.	na
	Noctuidae	*Cosmodes elegans*	na
	Noctuidae	*Dasygaster epipolia*	Grey Montane Armyworm
	Noctuidae	*Dasygaster oressigenes*	Alpine Armyworm
	Noctuidae	*Dasygaster padockina*	na
	Noctuidae	*Dasygaster* sp. ANIC 2	na
	Noctuidae	*Diarsia intermixta*	na
	Noctuidae	*Ectopatria horologa*	na
	Noctuidae	*Helicoverpa* ?*assulta*	na
	Noctuidae	*Helicoverpa punctigera*	na
	Noctuidae	*Helicoverpa* sp.	na
	Noctuidae	*Heliocheilus* sp.	na
	Noctuidae	*Mythimna convecta/separata*	na
	Noctuidae	*Neumichtis archephanes*	na
	Noctuidae	*Persectania ewingii*	na

Group	Family	Species	Common name
	Noctuidae	*Proteuxoa sanguinipuncta*	na
	Noctuidae	*Proteuxoa* sp. 1	na
	Noctuidae	*Proteuxoa* sp. 2	na
	Notodontidae	*Hyleora capucina*	na
	Oecophoridae	Oecophoridae sp.	na
	Saturniidae	*Opodiphthera eucalypti*	na
	Sphingidae	*Hippotion scrofa*	na
Caddisflies	Atriplectidae	*Atriplectides dubius*	na
	Calamoceratidae	*Anisocentropus bicoloratus*	na
	Calamoceratidae	*Anisocentropus latifascia*	na
	Calocidae	*Caenota plicata*	na
	Calocidae	*Tamasia* sp. 1	na
	Calocidae	*Tamasia variegata*	na
	Conoesucidae	*Coenoria boera*	na
	Conoesucidae	*Hampa patona*	na
	Conoesucidae	*Lingora coomata*	na
	Ecnomidae	*Ecnomina bula*	na
	Ecnomidae	*Ecnomus continentalis*	na
	Ecnomidae	*Ecnomus tillyardi*	na
	Ecnomidae	*Ecnomus turgidus*	na
	Glossosomatidae	*Agapetus dayi*	na
	Helicopsychidae	*Helicopsyche heacota*	na
	Helicopsychidae	*Helicopsyche ptychopteryx*	na
	Hydrobiosidae	*Apsilochorema obliquum*	na
	Hydrobiosidae	*Ethochorema turbidum*	na
	Hydrobiosidae	*Koetonga clivicola*	na
	Hydrobiosidae	*Psyllobetina locula*	na
	Hydrobiosidae	*Taschorema evansi*	na
	Hydrobiosidae	*Ulmerochorema membrum*	na
	Hydrobiosidae	*Ulmerochorema seonum*	na
	Hydropsychidae	*Asmicridea* cf. *edwardsii*	na
	Hydropsychidae	*Asmicridea edwardsii*	na
	Hydropsychidae	*Cheumatopsyche modica*	na
	Hydropsychidae	*Cheumatopsyche* sp. 1	na
	Hydropsychidae	*Cheumatopsyche* sp. 2	na
	Hydroptilidae	*Orthotrichia aberrans*	na
	Leptoceridae	*Notalina bifaria*	na
	Leptoceridae	*Notalina fulva*	na
	Leptoceridae	*Notalina ordina*	na
	Leptoceridae	*Oecetis inscripta*	na

Group	Family	Species	Common name
	Leptoceridae	*Oecetis* sp. 1	na
	Leptoceridae	*Oecetis* sp. 2	na
	Leptoceridae	*Triplectides altenogus*	na
	Leptoceridae	*Triplectides ciuskus ciuskus*	na
	Leptoceridae	*Triplectides proximus*	na
	Leptoceridae	*Triplectides truncatus*	na
	Limnephilidae	*Archaeophylax ochreus*	na
	Odontoceridae	*Marilia bola*	na
	Odontoceridae	*Marilia* sp. 1	na
	Philopotamidae	*Hydrobiosella waddama*	na
	Philorheithridae	*Aphilorheithrus stepheni* complex sp. 1	na
	Philorheithridae	*Aphilorheithrus stepheni* complex sp. 2	na
	Philorheithridae	*Austrheithrus* cf. *glymma*	na
	Philorheithridae	*Austrheithrus dubitans*	na
	Philorheithridae	*Kosrheithrus tillyardi*	na
	Polycentropodidae	Genus I sp. 1	na
	Polycentropodidae	Genus I sp. 2	na
	Polycentropodidae	*Plectrocnemia australica*	na
	Tasimiidae	*Tasimia palpata*	na
Stoneflies	Gripopterygidae	*Illiesoperla australis*	na
Mayflies	Baetidae	*Offadens* spp.	na
	Coloburiscidae	*Coloburiscoides giganteus*	na
	Leptophlebiidae	*Austrophlebioides pusillus*	na
	Leptophlebiidae	*Jappa campbelli*	na
	Leptophlebiidae	*Ulmerophlebia annulata*	na
Beetles	Aderidae	Aderidae sp. 1	na
	Anthicidae	Anthicidae sp. 1	na
	Anthicidae	Anthicidae sp. 2	na
	Anthicidae	Anthicidae sp. 3	na
	Anthribidae	Anthribidae sp. 1	na
	Attelabidae	Attelabidae sp. 1	na
	Belidae	Belidae sp. 1	na
	Belidae	Belidae sp. 2	na
	Belidae	Belidae sp. 3	na
	Belidae	Belidae sp. 4	na
	Belidae	Belidae sp. 5	na
	Bothrideridae	Bothrideridae sp. 1	na
	Buprestidae	Buprestidae sp. 1	na

Group	Family	Species	Common name
	Buprestidae	Buprestidae sp. 2	na
	Buprestidae	Buprestidae sp. 3	na
	Buprestidae	Buprestidae sp. 4	na
	Buprestidae	Buprestidae sp. 5	na
	Buprestidae	Buprestidae sp. 6	na
	Buprestidae	Buprestidae sp. 7	na
	Byrrhidae	Byrrhidae sp. 1	na
	Cantharidae	Cantharidae sp. 1	na
	Cantharidae	Cantharidae sp. 2	na
	Cantharidae	Cantharidae sp. 3	na
	Cantharidae	Cantharidae sp. 4	na
	Cantharidae	Cantharidae sp. 5	na
	Cantharidae	Cantharidae sp. 6	na
	Carabidae	Carabidae sp. 1	na
	Carabidae	Carabidae sp. 2	na
	Carabidae	Carabidae sp. 3	na
	Carabidae	Carabidae sp. 4	na
	Carabidae	Carabidae sp. 5	na
	Carabidae	Carabidae sp. 6	na
	Carabidae	Carabidae sp. 7	na
	Carabidae	Carabidae sp. 8	na
	Carabidae	Carabidae sp. 9	na
	Carabidae	Carabidae sp. 10	na
	Carabidae	Carabidae sp. 11	na
	Carabidae	Carabidae sp. 12	na
	Carabidae	Carabidae sp. 13	na
	Carabidae	Carabidae sp. 14	na
	Carabidae	Carabidae sp. 15	na
	Carabidae	Carabidae sp. 16	na
	Carabidae	Carabidae sp. 17	na
	Carabidae	*Scopodes* sp. 1	na
	Carabidae	*Scopodes* sp. 2	na
	Cerambycidae	Cerambycidae sp. 1	na
	Cerambycidae	Cerambycidae sp. 2	na
	Cerambycidae	Cerambycidae sp. 3	na
	Cerambycidae	Cerambycidae sp. 4	na
	Cerambycidae	Cerambycidae sp. 5	na
	Cerambycidae	Cerambycidae sp. 6	na
	Cerambycidae	Cerambycidae sp. 7	na
	Cerambycidae	Cerambycidae sp. 8	na

Group	Family	Species	Common name
	Cerambycidae	Cerambycidae sp. 9	na
	Cerambycidae	Cerambycidae sp. 10	na
	Cerambycidae	Cerambycidae sp. 11	na
	Cerambycidae	Cerambycidae sp. 12	na
	Cerambycidae	Cerambycidae sp. 13	na
	Cerambycidae	Cerambycidae sp. 14	na
	Chrysomelidae: Chrysomelinae	*Calomela bartoni*	na
	Chrysomelidae: Chrysomelinae	*Calomela curtisi*	na
	Chrysomelidae: Chrysomelinae	*Calomela vittata*	na
	Chrysomelidae: Chrysomelinae	*Chalcolampra* sp.	na
	Chrysomelidae: Chrysomelinae	*Chalcolampra walgalu*	na
	Chrysomelidae: Chrysomelinae	*Chrysolina quadrigemina* [a]	Greater St John's Wort Beetle
	Chrysomelidae: Chrysomelinae	*Dicranosterna immaculata*	na
	Chrysomelidae: Chrysomelinae	*Ethomela podagrosa*	na
	Chrysomelidae: Chrysomelinae	*Ethomela* sp. 1	na
	Chrysomelidae: Chrysomelinae	*Ethomela* sp. 2 [b]	na
	Chrysomelidae: Chrysomelinae	*Ethomela* sp. 3 [b]	na
	Chrysomelidae: Chrysomelinae	*Faex* sp.	na
	Chrysomelidae: Chrysomelinae	*Geomela* sp.	na
	Chrysomelidae: Chrysomelinae	*Paropsides* sp. [b]	na
	Chrysomelidae: Chrysomelinae	*Paropsides umbrosa*	na
	Chrysomelidae: Chrysomelinae	*Paropsis atomaria*	na
	Chrysomelidae: Chrysomelinae	*Paropsis charybdis*	na
	Chrysomelidae: Chrysomelinae	*Paropsis pictipennis*	na
	Chrysomelidae: Chrysomelinae	*Paropsis porosa*	na
	Chrysomelidae: Chrysomelinae	*Paropsis variolosa*	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna agricola*	na

Group	Family	Species	Common name
	Chrysomelidae: Chrysomelinae	*Paropsisterna cloelia*	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna hectica*	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna m-fuscum*	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna obliterata*	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna* sp. 1	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna* sp. 2	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna* sp. 3	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna* sp. 4	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna* sp. 5	na
	Chrysomelidae: Chrysomelinae	*Paropsisterna* sp. 6	na
	Chrysomelidae: Chrysomelinae	*Peltoschema* sp. 1	na
	Chrysomelidae: Chrysomelinae	*Peltoschema* sp. 2	na
	Chrysomelidae: Chrysomelinae	*Peltoschema* sp. 3	na
	Chrysomelidae: Chrysomelinae	*Peltoschema* sp. 4	na
	Chrysomelidae: Chrysomelinae	*Peltoschema* sp. 5	na
	Chrysomelidae: Chrysomelinae	*Trachymela* sp. 1	na
	Chrysomelidae: Chrysomelinae	*Trachymela* sp. 2	na
	Chrysomelidae: Chrysomelinae	*Trachymela* sp. 3	na
	Chrysomelidae: Chrysomelinae	*Trachymela* sp. 4	na
	Chrysomelidae: Chrysomelinae	*Trachymela* sp. 5	na
	Chrysomelidae: Chrysomelinae	*Trachymela* sp. 6	na
	Chrysomelidae: Chrysomelinae	*Trachymela* sp. 7	na
	Chrysomelidae: Cryptocephalinae	*Aprionota* sp.	na
	Chrysomelidae: Cryptocephalinae	*Cadmus litigiosus*	na

Group	Family	Species	Common name
	Chrysomelidae: Cryptocephalinae	Cryptocephalinae sp. 1	na
	Chrysomelidae: Cryptocephalinae	Cryptocephalinae sp. 3	na
	Chrysomelidae: Cryptocephalinae	Cryptocephalinae sp. 4	na
	Chrysomelidae: Cryptocephalinae	Cryptocephalinae sp. 5	na
	Chrysomelidae: Cryptocephalinae	Cryptocephalinae sp. 6	na
	Chrysomelidae: Cryptocephalinae	Cryptocephalinae sp. 7	na
	Chrysomelidae: Cryptocephalinae	Cryptocephalinae sp. 8	na
	Chrysomelidae: Cryptocephalinae	Cryptocephalinae sp. 9	na
	Chrysomelidae: Cryptocephalinae	*Ditropidella* sp.	na
	Chrysomelidae: Cryptocephalinae	*Ditropidus* sp. 1	na
	Chrysomelidae: Cryptocephalinae	*Ditropidus* sp. 2	na
	Chrysomelidae: Cryptocephalinae	*Ditropidus* sp. 3	na
	Chrysomelidae: Cryptocephalinae	*Ditropidus* sp. 4	na
	Chrysomelidae: Cryptocephalinae	*Ditropidus* sp. 5	na
	Chrysomelidae: Cryptocephalinae	*Ditropidus* sp. 6	na
	Chrysomelidae: Cryptocephalinae	*Ditropidus* sp. 7	na
	Chrysomelidae: Eumolpinae	*Eboo* sp. 1	na
	Chrysomelidae: Eumolpinae	*Eboo* sp. 2	na
	Chrysomelidae: Eumolpinae	*Eboo* sp. 3	na
	Chrysomelidae: Eumolpinae	*Eboo* sp. 4	na
	Chrysomelidae: Eumolpinae	*Edusa* sp. 1	na
	Chrysomelidae: Eumolpinae	*Edusa* sp. 2	na
	Chrysomelidae: Eumolpinae	*Edusa* sp. 3	na
	Chrysomelidae: Galerucinae	*Arsipoda* sp. 1	na

Group	Family	Species	Common name
	Chrysomelidae: Galerucinae	*Arsipoda* sp. 2	na
	Chrysomelidae: Galerucinae	*Arsipoda* sp. 3	na
	Chrysomelidae: Galerucinae	*Arsipoda* sp. 4	na
	Chrysomelidae: Galerucinae	*Chaetocnema* sp. 1	na
	Chrysomelidae: Galerucinae	*Chaetocnema* sp. 2	na
	Chrysomelidae: Galerucinae	*Metrioidea* sp.	na
	Chrysomelidae: Galerucinae	*Microdonacia grevilleae*	na
	Chrysomelidae: Galerucinae	*Microdonacia incerta*	na
	Chrysomelidae: Galerucinae	*Microdonacia* sp.	na
	Chrysomelidae: Galerucinae	*Monolepta* sp. 1	na
	Chrysomelidae: Galerucinae	*Monolepta* sp. 2	na
	Chrysomelidae: Galerucinae	*Monolepta* sp. 3	na
	Chrysomelidae: Galerucinae	*Monolepta* sp. 4	na
	Chrysomelidae: Galerucinae	*Monolepta* sp. 5	na
	Chrysomelidae: Galerucinae	*Monolepta* sp. 6	na
	Chrysomelidae: Galerucinae	*Monolepta* sp. 7	na
	Chrysomelidae: Galerucinae	*Monolepta* sp. 8	na
	Chrysomelidae: Galerucinae	*Sutrea* sp.	na
	Cleridae	Cleridae sp. 1	na
	Cleridae	Cleridae sp. 2	na
	Cleridae	Cleridae sp. 3	na
	Cleridae	Cleridae sp. 4	na
	Cleridae	Cleridae sp. 5	na
	Cleridae	Cleridae sp. 6	na
	Cleridae	Cleridae sp. 7	na
	Cleridae	Cleridae sp. 8	na
	Cleridae	Cleridae sp. 9	na
	Cleridae	Cleridae sp. 10	na

Group	Family	Species	Common name
	Cleridae	Cleridae sp. 11	na
	Coccinellidae	*Cleobora mellyi*	na
	Coccinellidae	Coccinellidae sp. 1	na
	Coccinellidae	Coccinellidae sp. 2	na
	Coccinellidae	Coccinellidae sp. 3	na
	Coccinellidae	Coccinellidae sp. 4	na
	Coccinellidae	Coccinellidae sp. 5	na
	Coccinellidae	Coccinellidae sp. 6	na
	Coccinellidae	Coccinellidae sp. 7	na
	Coccinellidae	Coccinellidae sp. 8	na
	Coccinellidae	Coccinellidae sp. 9	na
	Coccinellidae	Coccinellidae sp. 10	na
	Coccinellidae	Coccinellidae sp. 11	na
	Coccinellidae	*Harmonia conformis*	na
	Corylophidae	Corylophidae sp. 1	na
	Corylophidae	Corylophidae sp. 2	na
	Corylophidae	Corylophidae sp. 3	na
	Corylophidae	*Periptyctus* sp.	na
	Cryptophagidae	Cryptophagidae sp. 1	na
	Cupedidae	*Distocupes varians*	na
	Curculionidae	Curculionidae sp. 1	na
	Curculionidae	Curculionidae sp. 2	na
	Curculionidae	Curculionidae sp. 3	na
	Curculionidae	Curculionidae sp. 4	na
	Curculionidae	Curculionidae sp. 5	na
	Curculionidae	Curculionidae sp. 6	na
	Curculionidae	Curculionidae sp. 7	na
	Curculionidae	Curculionidae sp. 8	na
	Curculionidae	Curculionidae sp. 9	na
	Curculionidae	Curculionidae sp. 10	na
	Curculionidae	Curculionidae sp. 11	na
	Curculionidae	Curculionidae sp. 12	na
	Curculionidae	Curculionidae sp. 13	na
	Curculionidae	Curculionidae sp. 14	na
	Curculionidae	Curculionidae sp. 15	na
	Curculionidae	Curculionidae sp. 16	na
	Curculionidae	Curculionidae sp. 17	na
	Curculionidae	Curculionidae sp. 18	na
	Curculionidae	Curculionidae sp. 19	na
	Curculionidae	Curculionidae sp. 20	na

Group	Family	Species	Common name
	Curculionidae	Curculionidae sp. 21	na
	Curculionidae	Curculionidae sp. 22	na
	Curculionidae	Curculionidae sp. 23	na
	Curculionidae	Curculionidae sp. 24	na
	Curculionidae	Curculionidae sp. 25	na
	Curculionidae	Curculionidae sp. 26	na
	Curculionidae	Curculionidae sp. 27	na
	Curculionidae	Curculionidae sp. 28	na
	Curculionidae	Curculionidae sp. 29	na
	Curculionidae	Curculionidae sp. 30	na
	Curculionidae	Curculionidae sp. 31	na
	Curculionidae	Curculionidae sp. 32	na
	Curculionidae	Curculionidae sp. 33	na
	Curculionidae	Curculionidae sp. 34	na
	Curculionidae	Curculionidae sp. 35	na
	Curculionidae	Curculionidae sp. 36	na
	Curculionidae	Curculionidae sp. 37	na
	Curculionidae	Curculionidae sp. 38	na
	Curculionidae	Curculionidae sp. 39	na
	Curculionidae	Curculionidae sp. 40	na
	Curculionidae	Curculionidae sp. 41	na
	Curculionidae	Curculionidae sp. 42	na
	Dermestidae	Dermestidae sp. 1	na
	Dytiscidae	Dytiscidae sp. 1	na
	Dytiscidae	Dytiscidae sp. 2	na
	Dytiscidae	Dytiscidae sp. 3	na
	Dytiscidae	Dytiscidae sp. 4	na
	Elateridae	Elateridae sp. 1	na
	Elateridae	Elateridae sp. 2	na
	Elateridae	Elateridae sp. 3	na
	Elateridae	Elateridae sp. 4	na
	Elateridae	Elateridae sp. 5	na
	Elateridae	Elateridae sp. 6	na
	Elateridae	Elateridae sp. 7	na
	Elateridae	Elateridae sp. 8	na
	Eucinetidae	Eucinetidae sp. 1	na
	Hydrophilidae	Hydrophilidae sp. 1	na
	Hydrophilidae	Hydrophilidae sp. 2	na
	Hydrophilidae	Hydrophilidae sp. 3	na
	Hydrophilidae	Hydrophilidae sp. 4	na

Group	Family	Species	Common name
	Latridiidae	Latridiidae sp. 1	na
	Latridiidae	Latridiidae sp. 2	na
	Latridiidae	Latridiidae sp. 3	na
	Leiodidae	Leiodidae sp. 1	na
	Leiodidae	Leiodidae sp. 2	na
	Leiodidae	Leiodidae sp. 3	na
	Lucanidae	*Lamprima aurata*	na
	Lycidae	Lycidae sp. 1	na
	Lycidae	Lycidae sp. 2	na
	Lycidae	Lycidae sp. 3	na
	Lycidae	Lycidae sp. 4	na
	Lycidae	Lycidae sp. 5	na
	Melyridae	Melyridae sp. 1	na
	Melyridae	Melyridae sp. 2	na
	Melyridae	Melyridae sp. 3	na
	Melyridae	Melyridae sp. 4	na
	Melyridae	Melyridae sp. 5	na
	Melyridae	Melyridae sp. 6	na
	Mordellidae	Mordellidae sp. 1	na
	Mordellidae	Mordellidae sp. 2	na
	Mordellidae	Mordellidae sp. 3	na
	Mordellidae	Mordellidae sp. 4	na
	Mordellidae	Mordellidae sp. 5	na
	Mordellidae	Mordellidae sp. 6	na
	Mordellidae	Mordellidae sp. 7	na
	Mordellidae	Mordellidae sp. 8	na
	Mordellidae	Mordellidae sp. 9	na
	Nitidulidae	Nitidulidae sp. 1	na
	Nitidulidae	Nitidulidae sp. 2	na
	Nitidulidae	Nitidulidae sp. 3	na
	Oedemeridae	Oedemeridae sp. 1	na
	Oedemeridae	Oedemeridae sp. 2	na
	Phalacridae	Phalacridae sp. 1	na
	Phalacridae	Phalacridae sp. 2	na
	Phalacridae	Phalacridae sp. 3	na
	Ptinidae	Ptinidae sp. 1	na
	Ptinidae	Ptinidae sp. 2	na
	Scarabaeidae: Aphodiinae	Aphodiinae sp.	na

Group	Family	Species	Common name
	Scarabaeidae: Cetoniinae	*Microvalgus* sp. 1	na
	Scarabaeidae: Cetoniinae	*Microvalgus* sp. 2	na
	Scarabaeidae: Cetoniinae	*Neorrhina punctatum* (*Polystigma punctatum*)	na
	Scarabaeidae: Dynastinae	Dynastinae sp. 1	na
	Scarabaeidae: Dynastinae	Dynastinae sp. 2	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 1	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 2	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 3	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 4	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 5	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 6	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 7	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 8	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 9	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 10	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 11	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 12	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 13	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 14	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 15	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 16	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 17	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 18	na
	Scarabaeidae: Melolonthinae	Melolonthinae sp. 19	na

Group	Family	Species	Common name
	Scarabaeidae: Rutelinae	*Anoplognathus suturalis*	na
	Scarabaeidae: Scarabaeinae	Scarabaeinae sp.	na
	Scirtidae	Scirtidae sp. 1	na
	Scirtidae	Scirtidae sp. 2	na
	Scirtidae	Scirtidae sp. 3	na
	Scirtidae	Scirtidae sp. 4	na
	Scirtidae	Scirtidae sp. 5	na
	Scraptiidae	Scraptiidae sp. 1	na
	Silvanidae	Silvanidae sp. 1	na
	Silvanidae	Silvanidae sp. 2	na
	Sphindidae	Sphindidae sp. 1	na
	Staphylinidae	Staphylinidae sp. 1	na
	Staphylinidae	Staphylinidae sp. 2	na
	Staphylinidae	Staphylinidae sp. 3	na
	Staphylinidae	Staphylinidae sp. 4	na
	Staphylinidae	Staphylinidae sp. 5	na
	Staphylinidae	Staphylinidae sp. 6	na
	Staphylinidae	Staphylinidae sp. 7	na
	Staphylinidae	Staphylinidae sp. 8	na
	Staphylinidae	Staphylinidae sp. 9	na
	Staphylinidae	Staphylinidae sp. 10	na
	Staphylinidae	Staphylinidae sp. 11	na
	Staphylinidae	Staphylinidae sp. 12	na
	Staphylinidae	Staphylinidae sp. 13	na
	Staphylinidae	Staphylinidae sp. 14	na
	Staphylinidae	Staphylinidae sp. 15	na
	Staphylinidae	Staphylinidae sp. 16	na
	Staphylinidae	Staphylinidae sp. 17	na
	Staphylinidae	Staphylinidae sp. 18	na
	Staphylinidae	Staphylinidae sp. 19	na
	Staphylinidae	Staphylinidae sp. 20	na
	Staphylinidae	Staphylinidae sp. 21	na
	Staphylinidae	Staphylinidae sp. 22	na
	Staphylinidae	Staphylinidae sp. 23	na
	Staphylinidae	Staphylinidae sp. 24	na
	Staphylinidae	Staphylinidae sp. 25	na
	Staphylinidae	Staphylinidae sp. 26	na
	Staphylinidae	Staphylinidae sp. 27	na

Group	Family	Species	Common name
	Staphylinidae	Staphylinidae sp. 28	na
	Staphylinidae	Staphylinidae sp. 29	na
	Staphylinidae	Staphylinidae sp. 30	na
	Staphylinidae	Staphylinidae sp. 31	na
	Staphylinidae	Staphylinidae sp. 32	na
	Staphylinidae	Staphylinidae sp. 33	na
	Staphylinidae	Staphylinidae sp. 34	na
	Staphylinidae	Staphylinidae sp. 35	na
	Staphylinidae	Staphylinidae sp. 36	na
	Staphylinidae	Staphylinidae sp. 37	na
	Staphylinidae	Staphylinidae sp. 38	na
	Staphylinidae	Staphylinidae sp. 39	na
	Staphylinidae	Staphylinidae sp. 40	na
	Staphylinidae	Staphylinidae sp. 41	na
	Staphylinidae	Staphylinidae sp. 42	na
	Staphylinidae	Staphylinidae sp. 43	na
	Staphylinidae	Staphylinidae sp. 44	na
	Staphylinidae	Staphylinidae sp. 45	na
	Staphylinidae	Staphylinidae sp. 46	na
	Staphylinidae	Staphylinidae sp. 47	na
	Staphylinidae	Staphylinidae sp. 48	na
	Staphylinidae	Staphylinidae sp. 49	na
	Tenebrionidae	Tenebrionidae sp. 1	na
	Tenebrionidae	Tenebrionidae sp. 2	na
	Tenebrionidae	Tenebrionidae sp. 3	na
	Tenebrionidae	Tenebrionidae sp. 4	na
	Tenebrionidae: Adeliini	*Adelium* sp. 1	na
	Tenebrionidae: Adeliini	*Adelium* sp. 2	na
	Tenebrionidae: Adeliini	*Adelium* sp. 3	na
	Tenebrionidae: Adeliini	*Adelium* sp. 4	na
	Tenebrionidae: Adeliini	*Adelium* sp. 5	na
	Tenebrionidae: Adeliini	*Apasis* sp. 1	na
	Tenebrionidae: Adeliini	*Brycopia* sp. 1 [b]	na
	Tenebrionidae: Adeliini	*Cardiothorax australis*	na

Group	Family	Species	Common name
	Tenebrionidae: Adeliini	*Coripera geminata*	na
	Tenebrionidae: Adeliini	*Daedrosis* sp. 1 [b]	na
	Tenebrionidae: Adeliini	*Isopteron* sp. 1	na
	Tenebrionidae: Adeliini	*Leptogastrus* sp. 1	na
	Tenebrionidae: Adeliini	*Nolicima* sp. 1	na
	Trogidae	Trogidae sp. 1	na
	Trogidae	Trogidae sp. 2	na
	Zopheridae	Zopheridae sp.	na
True bugs	Acanthosomatidae	*Amphaces* SP001	na
	Acanthosomatidae	*Eupolemus* SP001 n.sp. [b]	na
	Acanthosomatidae	*Eupolemus* SP002	na
	Acanthosomatidae	*Galgacus labidus*	na
	Alydidae	*Mutusca brevicornis*	na
	Berytidae	*Australacanthus* SP001	na
	Coreidae	*Amorbus* SP001	na
	Coreidae	GN_COLP_001 SP001	na
	Cryptorhamphidae	*Cryptorhamphus orbus*	na
	Cymidae	*Cymus* SP001	na
	Cymidae	*Ontiscus barberi*	na
	Enicocephalidae	*Systelloderes* SP001 n.sp. [b]	na
	Geocoridae	*Geocoris* SP001	na
	Lygaeidae	*Nysius vinitor* [a]	Rutherglen Bug
	Miridae	*Ausejanus* SP001	na
	Miridae	*Austrocapsus* SP001	na
	Miridae	*Coridromius monotocopsis*	na
	Miridae	*Deraeocoris* SP001 n.sp. [b]	na
	Miridae	*Deraeocoris* SP002 n.sp. [b]	na
	Miridae	*Dolichomiris linearis*	na
	Miridae	GN_CREMN_001 SP001	na
	Miridae	GN_IRYM SP001 n.sp. [b]	na
	Miridae	GN_ORTH_001 SP001	na
	Miridae	GN_ORTH_002 SP001	na
	Miridae	GN_PHYL_001 SP001	na
	Miridae	GN_PHYL_002 SP001	na
	Miridae	GN_STEN_001 SP001	na
	Miridae	*Myrmecoroides grossi*	na

Group	Family	Species	Common name
	Miridae	*Myrtlemiris* SP001	na
	Miridae	*Pseudopantilius australis*	na
	Miridae	*Rayeria acaciae*	na
	Miridae	*Setocoris* SP_BINA	na
	Miridae	*Wallabicoris* SP001	na
	Miridae	*Wallabicoris* SP002	na
	Miridae	*Wallabicoris* SP003	na
	Miridae	*Zanessa pictulifer*	na
	Miridae	*Zanessa* SP001 n.sp. [b]	na
	Miridae	*Zanessa* SP002 n.sp. [b]	na
	Nabidae	*Nabis biformis*	na
	Nabidae	*Nabis kinbergii*	na
	Pentatomidae	*Cermatulus nasalis*	na
	Pentatomidae	*Commius elegans*	na
	Pentatomidae	*Cuspicona* SP001	na
	Pentatomidae	*Dictyotus* SP001	na
	Pentatomidae	*Diemenia* SP001	na
	Pentatomidae	*Eribotes* SP001	na
	Pentatomidae	*Eysarcoris distinctus*	na
	Pentatomidae	GN_PIEZ_001 SP001	na
	Pentatomidae	GN_RHYN_001 SP001	na
	Pentatomidae	*Notius depressum*	na
	Pentatomidae	*Notius* SP001	na
	Pentatomidae	*Oechalia schellenbergii*	na
	Pentatomidae	*Oncocoris* SP001	na
	Pentatomidae	*Piezodorus* SP001	na
	Pentatomidae	*Platycoris musgravei*	na
	Pentatomidae	*Tholosanus proximus*	na
	Pyrrhocoridae	*Dindymus versicolor*	na
	Reduviidae	GN_HARP_001 SP001	na
	Reduviidae	GN_REDU_001 SP001	na
	Reduviidae	nr *Gminatus* SP001	na
	Reduviidae	*Peirates* SP001	na
	Rhyparochromidae	*Cligenes* SP001	na
	Rhyparochromidae	*Euander* SP001	na
	Rhyparochromidae	GN_MYOD_001 SP001	na
	Rhyparochromidae	GN_RHYP_001 SP001	na
	Rhyparochromidae	GN_RHYP_002 SP001	na
	Rhyparochromidae	GN_RHYP_003 SP001	na
	Rhyparochromidae	GN_RHYP_004 SP001	na

Group	Family	Species	Common name
	Rhyparochromidae	*Remaudiereana* SP001	na
	Scutelleridae	*Choerocoris paganus*	na
	Tingidae	*Nethersia* SP001	na
	Tingidae	*Proteatingis* SP001	na
Crustaceans	Parastacidae	*Euastacus crassus*	Alpine Spiny Crayfish
Snails and slugs	Athoracophoridae	*Triboniophorus graeffei*	Red Triangle Slug
	Camaenidae	*Austrochloritis kosciuszkoensis*	Kosciuszko Bristle Snail
	Charopidae	*Elsothera* sp.	na
	Charopidae	*Flammulops excelsior*	Oblique-flamed Pinwheel Snail
	Charopidae	*Meredithena* sp.	na
	Cystopeltidae	*Cystopelta astra*	Snowy Mountains Humpback Snail
	Cystopeltidae	*Scelidoropa altior*	Snowy Mountains Pinwheel Snail
	Cystopeltidae	*Scelidoropa sarahjaneae*	Wide-ranging Pinwheel Snail
	Gastrodontidae	*Zonitoides arboreus* [a]	Orchid Snail
	Helicidae	*Cornu aspersum* [a]	Garden Snail
	Limacidae	*Ambigolimax* sp. [a]	na
	Limacidae	*Limax maximus* [a]	Leopard Slug
	Oxychilidae	*Oxychilus* sp. [a]	na
	Punctidae	*Paralaoma annabelli*	Annabell's Pinhead Snail
	Punctidae	*Paralaoma morti*	na
	Punctidae	*Trocholaoma parvissima*	Tiny Pinhead Snail
	Rhytididae	*Austrorhytida glaciamans*	Kosciuszko Carnivorous Snail
	Rhytididae	*Vitellidelos helmsiana*	Snowy Mountains Carnivorous Snail

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

Table A2 List of flora and funga species recorded

Group	Family	Species	Common name
Flowering plants	Amaranthaceae	*Alternanthera pungens* [a]	Khaki Weed
	Apiaceae	*Aciphylla glacialis*	na
	Apiaceae	*Aciphylla simplicifolia* [c]	Mountain Aciphyll
	Apiaceae	*Daucus glochidiatus*	na
	Apiaceae	*Foeniculum vulgare* [a]	Fennel
	Apiaceae	*Gingidia harveyana* [c]	Slender Gingidia
	Apiaceae	*Oreomyrrhis brevipes*	na
	Apiaceae	*Oreomyrrhis ciliata*	na
	Apiaceae	*Oreomyrrhis eriopoda*	na
	Apiaceae	*Oschatzia cuneifolia* [c]	Wedge Oschatzia
	Apiaceae	*Platysace lanceolata*	na
	Araliaceae	*Astrotricha ledifolia* [c]	Common Star-hair
	Araliaceae	*Hydrocotyle algida*	na
	Araliaceae	*Hydrocotyle laxiflora*	na
	Araliaceae	*Hydrocotyle rivularis*	na
	Araliaceae	*Hydrocotyle sibthorpioides*	na
	Araliaceae	*Polyscias sambucifolia* subsp. Short leaflets (V.Stajsic 196) Vic. Herbarium	na
	Araliaceae	*Trachymene humilis* subsp. *humilis*	na
	Asparagaceae	*Arthropodium milleflorum*	na
	Asparagaceae	*Lomandra longifolia* subsp. *exilis*	na
	Asphodelaceae	*Dianella caerulea* var. *caerulea*	na
	Asphodelaceae	*Dianella* sp. aff. *tasmanica* (Snowfields)	na
	Asteraceae	*Brachyscome aculeata*	na
	Asteraceae	*Brachyscome decipiens*	na
	Asteraceae	*Brachyscome diversifolia*	na
	Asteraceae	*Brachyscome nivalis*	na
	Asteraceae	*Brachyscome scapigera*	na
	Asteraceae	*Brachyscome spathulata*	na
	Asteraceae	*Brachyscome tadgellii*	na
	Asteraceae	*Calotis lappulacea* [c]	Yellow Burr-daisy
	Asteraceae	*Calotis pubescens* [c]	Mountain Burr-daisy
	Asteraceae	*Cassinia aculeata* subsp. *aculeata*	na
	Asteraceae	*Cassinia longifolia*	na
	Asteraceae	*Celmisia pugioniformis*	na
	Asteraceae	*Celmisia tomentella*	na
	Asteraceae	*Chrysocephalum semipapposum* subsp. *semipapposum*	na
	Asteraceae	*Coronidium monticola*	na

Group	Family	Species	Common name
	Asteraceae	*Craspedia aurantia*	na
	Asteraceae	*Craspedia aurantia* var. ? *aurantia* [c]	Orange Billy-buttons
	Asteraceae	*Craspedia aurantia* var. *jamesii*	na
	Asteraceae	*Craspedia canens* [c]	Grey Billy-buttons
	Asteraceae	*Craspedia crocata* [c]	Crimson Billy-buttons
	Asteraceae	*Craspedia gracilis*	na
	Asteraceae	*Cymbonotus preissianus*	na
	Asteraceae	*Euchiton involucratus*	na
	Asteraceae	*Euchiton japonicus*	na
	Asteraceae	*Euchiton sphaericus*	na
	Asteraceae	*Euchiton umbricola*	na
	Asteraceae	*Hypochaeris radicata* [a]	Cat's-ear, Flat-weed
	Asteraceae	*Lagenophora montana*	na
	Asteraceae	*Leptinella filicula*	na
	Asteraceae	*Leptorhynchos elongatus* [c]	Lanky Buttons
	Asteraceae	*Leptorhynchos squamatus*	na
	Asteraceae	*Leptorhynchos squamatus* subsp. *alpinus*	na
	Asteraceae	*Microseris lanceolata*	na
	Asteraceae	*Olearia aglossa*	na
	Asteraceae	*Olearia algida*	na
	Asteraceae	*Olearia alpicola*	na
	Asteraceae	*Olearia floribunda*	na
	Asteraceae	*Olearia megalophylla*	na
	Asteraceae	*Olearia myrsinoides*	na
	Asteraceae	*Olearia phlogopappa* subsp. *flavescens* [c]	Dusty Daisy-bush
	Asteraceae	*Olearia phlogopappa* subsp. *serrata*	na
	Asteraceae	*Onopordum acanthium* [a]	Scotch Thistle
	Asteraceae	*Ozothamnus alpinus*	na
	Asteraceae	*Ozothamnus cupressoides*	na
	Asteraceae	*Ozothamnus obcordatus*	na
	Asteraceae	*Ozothamnus secundiflorus*	na
	Asteraceae	*Pappochroma bellidioides*	na
	Asteraceae	*Picris angustifolia* subsp. *merxmuelleri*	na
	Asteraceae	*Podolepis decipiens*	na
	Asteraceae	*Podolepis laciniata* [c]	High-plain Podolepis
	Asteraceae	*Podolepis robusta*	na
	Asteraceae	*Rhodanthe anthemoides*	na
	Asteraceae	*Senecio extensus* [c]	Alpine Fireweed
	Asteraceae	*Senecio gunnii*	na
	Asteraceae	*Senecio interpositus* [c]	Tableland Fireweed

Group	Family	Species	Common name
	Asteraceae	*Senecio lageniformis* [c]	Monaro Fireweed
	Asteraceae	*Senecio linearifolius* var. *denticulatus*	na
	Asteraceae	*Senecio linearifolius* var. *latifolius*	na
	Asteraceae	*Senecio niveoplanus* [c]	Snowplain Fireweed
	Asteraceae	*Senecio pinnatifolius* var. *alpinus*	na
	Asteraceae	*Sigesbeckia australiensis*	na
	Asteraceae	*Solenogyne gunnii*	na
	Asteraceae	*Tragopogon dubius* [a]	Goatsbeard
	Asteraceae	*Vittadinia cervicularis*	na
	Asteraceae	*Vittadinia sulcata*	na
	Asteraceae	*Xerochrysum andrewiae*	na
	Asteraceae	*Xerochrysum subundulatum*	na
	Boraginaceae	*Echium vulgare* [a]	Viper's Bugloss
	Boraginaceae	*Heliotropium amplexicaule* [a]	Blue Heliotrope
	Boraginaceae	*Myosotis laxa* subsp. *cespitosa* [a]	Water Forget-me-not
	Brassicaceae	*Barbarea grayi*	na
	Brassicaceae	*Cardamine papillata* [c]	Forest Bitter-cress
	Brassicaceae	*Cardamine robusta*	na
	Campanulaceae	*Lobelia pedunculata*	na
	Campanulaceae	*Lobelia simplicicaulis*	na
	Campanulaceae	*Lobelia surrepens*	na
	Campanulaceae	*Wahlenbergia ceracea*	na
	Campanulaceae	*Wahlenbergia gloriosa*	na
	Campanulaceae	*Wahlenbergia stricta* subsp. *stricta*	na
	Caryophyllaceae	*Cerastium glomeratum* [a]	Mouse-ear Chickweed
	Caryophyllaceae	*Cerastium vulgare* [a]	Common Mouse-ear Chickweed
	Caryophyllaceae	*Dianthus armeria* [a]	Deptford Pink
	Caryophyllaceae	*Saponaria officinalis* [a]	Common Soapwort
	Caryophyllaceae	*Scleranthus biflorus*	na
	Caryophyllaceae	*Scleranthus diander* [c]	Tufted Knawel
	Caryophyllaceae	*Scleranthus fasciculatus* [c]	Spreading Knawel
	Caryophyllaceae	*Stellaria angustifolia* subsp. *angustifolia*	na
	Caryophyllaceae	*Stellaria pungens*	na
	Celastraceae	*Stackhousia monogyna*	na
	Crassulaceae	*Crassula helmsii*	na
	Crassulaceae	*Crassula sieberiana*	na
	Crassulaceae	*Sedum album* [a]	White Stonecrop
	Cunoniaceae	*Bauera rubioides*	na
	Cyperaceae	*Bolboschoenus medianus*	na

Group	Family	Species	Common name
	Cyperaceae	*Carex appressa*	na
	Cyperaceae	*Carex blakei* [c]	Alpine Sedge
	Cyperaceae	*Carex buxbaumii* subsp. *buxbaumii* [a]	Buxbaum's Sedge
	Cyperaceae	*Carex capillacea* [c]	Hair Sedge
	Cyperaceae	*Carex echinata*	na
	Cyperaceae	*Carex hypandra*	na
	Cyperaceae	*Carex incomitata*	na
	Cyperaceae	*Carpha nivicola*	na
	Cyperaceae	*Eleocharis acuta*	na
	Cyperaceae	*Eleocharis gracilis*	na
	Cyperaceae	*Gahnia sieberiana*	na
	Cyperaceae	*Isolepis aucklandica*	na
	Cyperaceae	*Isolepis crassiuscula*	na
	Cyperaceae	*Isolepis fluitans*	na
	Cyperaceae	*Isolepis gaudichaudiana* [c]	Benambra Club-sedge
	Cyperaceae	*Isolepis habra*	na
	Cyperaceae	*Isolepis montivaga*	na
	Cyperaceae	*Lepidosperma curtisiae*	na
	Dilleniaceae	*Hibbertia ericifolia* subsp. *ericifolia*	na
	Dilleniaceae	*Hibbertia obtusifolia*	na
	Dilleniaceae	*Hibbertia obtusifolia complex*	na
	Droseraceae	*Drosera peltata*	na
	Ericaceae	*Acrothamnus hookeri*	na
	Ericaceae	*Acrothamnus maccraei*	na
	Ericaceae	*Acrothamnus montanus* [c]	Snow Beard-heath
	Ericaceae	*Acrotriche leucocarpa* [c]	Tall Acrotriche
	Ericaceae	*Dracophyllum continentis*	na
	Ericaceae	*Epacris celata* [c]	Cryptic Heath
	Ericaceae	*Epacris gunnii*	na
	Ericaceae	*Epacris impressa*	na
	Ericaceae	*Epacris paludosa*	na
	Fabaceae	*Acacia mearnsii*	na
	Fabaceae	*Acacia penninervis* subsp. *penninervis*	na
	Fabaceae	*Almaleea capitata* [c]	Slender Parrot-pea
	Fabaceae	*Bossiaea distichoclada*	na
	Fabaceae	*Bossiaea foliosa*	na
	Fabaceae	*Cullen microcephalum*	na
	Fabaceae	*Daviesia latifolia*	na
	Fabaceae	*Dillwynia phylicoides*	na
	Fabaceae	*Glycine clandestina*	na

Group	Family	Species	Common name
	Fabaceae	*Hovea asperifolia* subsp. *asperifolia*	na
	Fabaceae	*Hovea montana*	na
	Fabaceae	*Lotus corniculatus* [a]	Bird's-foot Trefoil
	Fabaceae	*Lotus subbiflorus* [a]	Hairy Bird's-foot Trefoil
	Fabaceae	*Lotus uliginosus* [a]	Greater Bird's-foot Trefoil
	Fabaceae	*Oxylobium arborescens*	na
	Fabaceae	*Oxylobium ellipticum*	na
	Fabaceae	*Podolobium alpestre*	na
	Fabaceae	*Pultenaea fasciculata* [c]	Alpine Bush-pea
	Fabaceae	*Pultenaea forsythiana*	na
	Fabaceae	*Trifolium dubium* [a]	Yellow Suckling Clover
	Fabaceae	*Trifolium repens* [a]	White Clover
	Gentianceae	*Centaurium erythraea*	na
	Geraniaceae	*Geranium antrorsum*	na
	Geraniaceae	*Geranium gardneri*	na
	Geraniaceae	*Geranium homeanum*	na
	Geraniaceae	*Geranium potentilloides*	na
	Geraniaceae	*Geranium potentilloides* var. *abditum*	na
	Geraniaceae	*Geranium potentilloides* var. *potentilloides*	na
	Geraniaceae	*Pelargonium australe*	na
	Goodeniaceae	*Dampiera fusca* [c]	Kydra Dampiera
	Goodeniaceae	*Goodenia hederacea* subsp. *alpestris*	na
	Goodeniaceae	*Goodenia montana*	na
	Haloragaceae	*Gonocarpus micranthus* subsp. *micranthus*	na
	Haloragaceae	*Gonocarpus montanus*	na
	Haloragaceae	*Gonocarpus tetragynus*	na
	Haloragaceae	*Myriophyllum lophatum*	Crested Water-milfoil
	Haloragaceae	*Myriophyllum variifolium*	na
	Hypericaceae	*Hypericum gramineum*	na
	Hypericaceae	*Hypericum japonicum*	na
	Hypericaceae	*Hypericum perforatum* [a]	St John's Wort
	Hypoxidaceae	*Hypoxis hygrometrica*	na
	Hypoxidaceae	*Hypoxis hygrometrica* var. *splendida*	na
	Juncaceae	*Juncus* ? *australis*	na
	Juncaceae	*Juncus falcatus* subsp. *falcatus*	na
	Juncaceae	*Juncus phaeanthus* [c]	Dark-flower Rush
	Juncaceae	*Juncus phaeanthus* x *vaginatus*	na
	Juncaceae	*Juncus vaginatus*	na
	Juncaceae	*Luzula densiflora*	na

Group	Family	Species	Common name
	Juncaceae	*Luzula meridionalis*	na
	Juncaceae	*Luzula modesta*	na
	Juncaceae	*Luzula novae-cambriae*	na
	Lamiaceae	*Ajuga australis*	na
	Lamiaceae	*Prostanthera cuneata*	na
	Lamiaceae	*Prostanthera lasianthos*	na
	Lamiaceae	*Prostanthera phylicifolia* [c]	Spiked Mint-bush
	Lamiaceae	*Prunella vulgaris* [a]	Self-heal
	Lamiaceae	*Prunella vulgaris* (long spike alpine form)	na
	Lentibulariaceae	*Utricularia dichotoma*	na
	Lentibulariaceae	*Utricularia dichotoma* subsp. *dichotoma*	na
	Lentibulariaceae	*Utricularia dichotoma* subsp. *monanthos*	na
	Linaceae	*Linum marginale*	na
	Montiaceae	*Montia australasica*	na
	Myrtaceae	*Baeckea gunniana*	na
	Myrtaceae	*Baeckea latifolia*	na
	Myrtaceae	*Baeckea utilis*	na
	Myrtaceae	*Callistemon pityoides*	na
	Myrtaceae	*Eucalyptus dalrympleana*	na
	Myrtaceae	*Eucalyptus forresterae* [b c]	Brumby Sallee
	Myrtaceae	*Eucalyptus glaucescens* [c]	Tingaringy Gum
	Myrtaceae	*Eucalyptus kybeanensis*	na
	Myrtaceae	*Eucalyptus niphophila* (*E. pauciflora* subsp. *niphophila*)	na
	Myrtaceae	*Eucalyptus perriniana*	na
	Myrtaceae	*Eucalyptus perriniana* subsp. *familiaris* [c]	na
	Myrtaceae	*Eucalyptus stellulata*	na
	Myrtaceae	*Kunzea muelleri*	na
	Myrtaceae	*Kunzea peduncularis*	na
	Myrtaceae	*Leptospermum grandifolium*	na
	Myrtaceae	*Leptospermum lanigerum*	na
	Myrtaceae	*Leptospermum myrtifolium*	na
	Onagraceae	*Epilobium billardiereanum*	na
	Onagraceae	*Epilobium billardiereanum* subsp. *cinereum*	na
	Onagraceae	*Epilobium billardiereanum* subsp. *hydrophilum*	na
	Onagraceae	*Epilobium gunnianum*	na
	Orchidaceae	*Chiloglottis valida*	na
	Orchidaceae	*Corunastylis nuda* (*Genoplesium nudum*)	na
	Orchidaceae	*Eriochilus magenteus*	na

Group	Family	Species	Common name
	Orchidaceae	*Gastrodia procera*	na
	Orchidaceae	*Prasophyllum alpestre*	na
	Orchidaceae	*Prasophyllum sphacelatum*	na
	Orchidaceae	*Prasophyllum tadgellianum*	na
	Orchidaceae	*Pterostylis decurva*	na
	Orchidaceae	*Pterostylis falcata*	na
	Orchidaceae	*Pterostylis monticola*	na
	Orchidaceae	*Pterostylis squamata*	na
	Orchidaceae	*Thelymitra cyanea*	na
	Orobanchaceae	*Euphrasia caudata* [c]	Tailed Eyebright
	Orobanchaceae	*Euphrasia collina* subsp. *collina*	na
	Papaveraceae	*Eschscholzia californica* [a]	California Poppy
	Phyllanthaceae	*Poranthera oreophila* [c]	Mountain Poranthera
	Pittosporaceae	*Bursaria spinosa* subsp. *lasiophylla*	na
	Pittosporaceae	*Rhytidosporum inconspicuum* [c]	Alpine Marianth
	Pittosporaceae	*Rhytidosporum procumbens*	na
	Plantaginaceae	*Callitriche stagnalis* [a]	Common Starwort
	Plantaginaceae	*Linaria arvensis* [a]	Corn Toadflax
	Plantaginaceae	*Plantago alpestris* [c]	Veined Plantain
	Plantaginaceae	*Plantago euryphylla*	na
	Plantaginaceae	*Veronica derwentiana* subsp. *derwentiana*	na
	Plantaginaceae	*Veronica derwentiana* subsp. *maideniana*	na
	Plantaginaceae	*Veronica perfoliata*	na
	Plantaginaceae	*Veronica subtilis*	na
	Poaceae	*Agrostis australiensis* [c]	Tiny Bent
	Poaceae	*Agrostis bettyae*	na
	Poaceae	*Agrostis muelleriana*	na
	Poaceae	*Agrostis parviflora*	na
	Poaceae	*Agrostis propinqua*	na
	Poaceae	*Agrostis venusta*	na
	Poaceae	*Anthosachne scabra*	na
	Poaceae	*Anthoxanthum odoratum* [a]	Sweet Vernal Grass
	Poaceae	*Austrostipa nivicola* [c]	Alpine Spear-grass
	Poaceae	*Cymbopogon refractus*	na
	Poaceae	*Deyeuxia brachyathera*	na
	Poaceae	*Deyeuxia carinata*	na
	Poaceae	*Deyeuxia gunniana*	na
	Poaceae	*Deyeuxia monticola*	na
	Poaceae	*Deyeuxia quadriseta*	na
	Poaceae	*Dichelachne crinita*	na

Group	Family	Species	Common name
	Poaceae	*Dichelachne inaequiglumis*	na
	Poaceae	*Dichelachne rara*	na
	Poaceae	*Hierochloe redolens*	na
	Poaceae	*Hookerochloa hookeriana*	na
	Poaceae	*Lachnagrostis aemula*	na
	Poaceae	*Lachnagrostis filiformis*	na
	Poaceae	*Lachnagrostis meionectes* [c]	Alpine Blown-grass
	Poaceae	*Lachnagrostis* sp. (Gow Plain)	na
	Poaceae	*Lachnagrostis* sp. (Thredbo)	na
	Poaceae	*Pentapogon quadrifidus*	na
	Poaceae	*Poa clivicola*	na
	Poaceae	*Poa costiniana*	na
	Poaceae	*Poa ensiformis*	na
	Poaceae	*Poa fawcettiae*	na
	Poaceae	*Poa helmsii*	na
	Poaceae	*Poa hookeri* [c]	Hooker's Tussock-grass
	Poaceae	*Poa labillardierei*	na
	Poaceae	*Poa petrophila* [c]	Rock Tussock-grass
	Poaceae	*Poa phillipsiana*	na
	Poaceae	*Rytidosperma longifolium*	na
	Poaceae	*Rytidosperma nudiflorum*	na
	Poaceae	*Rytidosperma oreophilum* [c]	Mountain Wallaby-grass
	Poaceae	*Rytidosperma pallidum*	na
	Poaceae	*Rytidosperma pilosum*	na
	Poaceae	*Rytidosperma racemosum* var. *racemosum*	na
	Poaceae	*Themeda triandra*	na
	Poaceae	*Trisetum spicatum* subsp. *australiense*	na
	Polygalaceae	*Comesperma retusum*	na
	Polygonaceae	*Acetosella vulgaris* (*Rumex acetosella*) [a]	Sheep Sorrel
	Polygonaceae	*Muehlenbeckia axillaris* [c]	Matted Lignum
	Polygonaceae	*Muehlenbeckia diclina* subsp. *stenophylla* [c]	na
	Proteaceae	*Banksia canei* [c]	Mountain Banksia
	Proteaceae	*Grevillea australis*	na
	Proteaceae	*Grevillea brevifolia* [c]	Cobberas Grevillea
	Proteaceae	*Grevillea lanigera*	na
	Proteaceae	*Grevillea victoriae* subsp. *nivalis*	na
	Proteaceae	*Hakea microcarpa*	na
	Proteaceae	*Persoonia chamaepeuce*	na
	Proteaceae	*Persoonia confertiflora*	na
	Ranunculaceae	*Ranunculus amphitrichus*	na

Group	Family	Species	Common name
	Ranunculaceae	*Ranunculus graniticola*	na
	Ranunculaceae	*Ranunculus lappaceus*	na
	Ranunculaceae	*Ranunculus millanii*	Dwarf Buttercup
	Ranunculaceae	*Ranunculus pimpinellifolius*	na
	Ranunculaceae	*Ranunculus productus*	na
	Ranunculaceae	*Ranunculus sardous* [a]	Pale Hairy Buttercup
	Ranunculaceae	*Ranunculus scapiger*	na
	Restionaceae	*Baloskion australe*	na
	Rhamnaceae	*Pomaderris elachophylla*	na
	Rosaceae	*Acaena echinata*	na
	Rosaceae	*Acaena novae-zelandiae*	na
	Rosaceae	*Acaena* x *ovina*	na
	Rosaceae	*Geum urbanum* var. *strictum*	na
	Rosaceae	*Potentilla recta* [a]	Sulphur Cinquefoil
	Rosaceae	*Rubus leucostachys* [a]	Blackberry
	Rosaceae	*Rubus parvifolius*	na
	Rubiaceae	*Asperula gunnii* (glabrous form)	na
	Rubiaceae	*Asperula gunnii* (type form)	na
	Rubiaceae	*Asperula pusilla*	na
	Rubiaceae	*Coprosma hirtella*	na
	Rutaceae	*Asterolasia trymalioides* subsp. *trymalioides*	na
	Rutaceae	*Boronia nana* var. *hyssopifolia*	na
	Rutaceae	*Cyanothamnus anemonifolius* subsp. *anemonifolius*	na
	Rutaceae	*Leionema lamprophyllum* subsp. *lamprophyllum*	na
	Rutaceae	*Leionema phylicifolium*	na
	Rutaceae	*Phebalium squamulosum* subsp. *squamulosum*	na
	Rutaceae	*Zieria citriodora* [b]	Lemon-scented Zieria
	Santalaceae	*Choretrum pauciflorum*	na
	Santalaceae	*Exocarpos strictus*	na
	Sapindaceae	*Dodonaea viscosa* subsp. *cuneata*	na
	Scrophulariaceae	*Limosella australis*	na
	Scrophulariaceae	*Verbascum thapsus* subsp. *thapsus* [a]	Great Mullein, Aaron's Rod
	Scrophulariaceae	*Verbascum virgatum* [a]	Twiggy Mullein
	Solanaceae	*Solanum chenopodioides* [a]	Whitetip Nightshade
	Solanaceae	*Solanum sisymbriifolium* [a]	Viscid Nightshade
	Stylidiaceae	*Stylidium montanum* [c]	Alpine Triggerplant
	Thymelaeaceae	*Pimelea glauca*	na
	Thymelaeaceae	*Pimelea ligustrina* subsp. *ciliata* [c]	Fringed Rice-flower

Group	Family	Species	Common name
	Thymelaeaceae	*Pimelea linifolia* subsp. *caesia*	na
	Thymelaeaceae	*Pimelea pauciflora* [c]	Poison Rice-flower
	Verbenaceae	*Verbena officinalis* var. *africana*	na
	Violaceae	*Melicytus angustifolius* subsp. *divaricatus*	na
	Violaceae	*Viola betonicifolia*	na
	Violaceae	*Viola fuscoviolacea* [c]	Dusky Violet
	Violaceae	*Viola hederacea* subsp. *hederacea*	na
	Violaceae	*Viola improcera*	na
	Winteraceae	*Tasmannia xerophila* subsp. *xerophila*	na
Conifers	Podocapaceae	*Podocarpus lawrencei*	Mountain Plum Pine
Ferns and allies	Aspleniaceae	*Asplenium flabellifolium*	na
	Aspleniaceae	*Asplenium trichomanes*	na
	Blechnaceae	*Blechnum penna-marina*	na
	Blechnaceae	*Blechnum penna-marina* subsp. *alpina*	na
	Dryopteridaceae	*Polystichum proliferum*	na
	Hymenophyllaceae	*Hymenophyllum flabellatum*	na
	Ophioglossaceae	*Botrychium australe* [c]	Austral Moonwort
Club mosses	Lycopodiaceae	*Lycopodium fastigiatum*	na
Hornworts	Notothyladaceae	*Phaeoceros inflatus*	na
Mosses	Amblystegiaceae	*Bryostreimannia turgida*	na
	Amblystegiaceae	*Cratoneuropsis relaxa*	na
	Amblystegiaceae	*Drepanocladus aduncus*	na
	Amblystegiaceae	*Sanionia uncinata*	na
	Andreaeaceae	*Andreaea amblyophylla*	na
	Andreaeaceae	*Andreaea mutabilis*	na
	Andreaeaceae	*Andreaea nitida*	na
	Aulacomniaceae	*Aulacomnium palustre*	na
	Aulacomniaceae	*Hymenodontopsis mnioides*	na
	Bartramiaceae	*Bartramia mossmanniana*	na
	Bartramiaceae	*Bartramia robusta*	na
	Bartramiaceae	*Breutelia pendula*	na
	Bartramiaceae	*Conostomum pusillum* var. *pusillum*	na
	Bartramiaceae	*Philonotis scabrifolia*	na
	Bartramiaceae	*Philonotis tenuis*	na
	Brachytheciaceae	*Brachytheciastrum paradoxum*	na
	Brachytheciaceae	*Brachythecium mildeanum* [a]	na
	Brachytheciaceae	*Brachythecium rutabulum*	na
	Brachytheciaceae	*Brachythecium salebrosum*	na
	Brachytheciaceae	*Kindbergia praelonga* [a]	na
	Bryaceae	*Ochiobryum blandum*	na

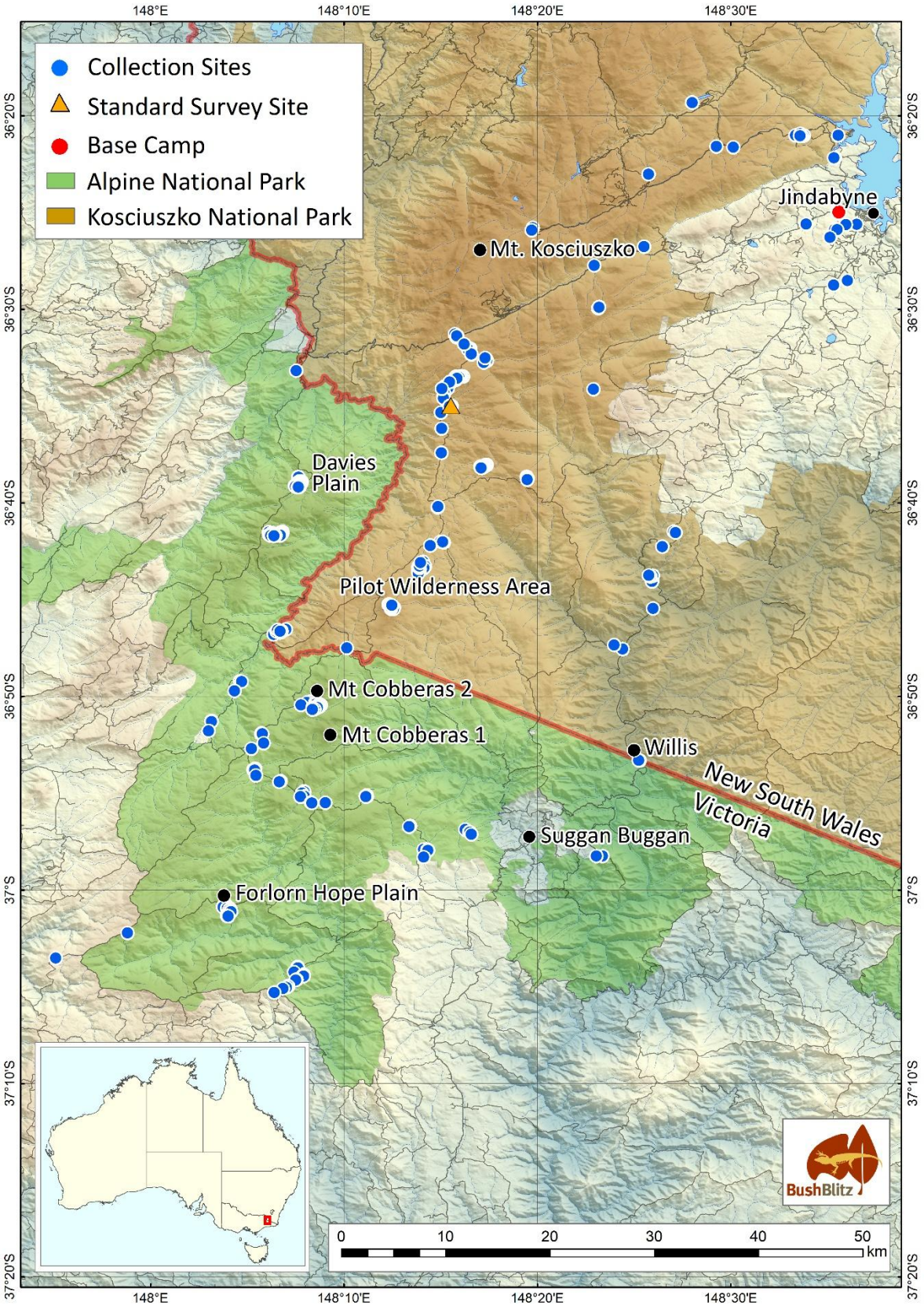
Group	Family	Species	Common name
	Bryaceae	*Ptychostomum creberrimum*	na
	Catagoniaceae	*Catagonium nitens*	na
	Dicranaceae	*Dicranoloma robustum*	na
	Ditrichaceae	*Ceratodon purpureus*	na
	Ditrichaceae	*Ditrichum difficile*	na
	Fissidentaceae	*Fissidens asplenioides*	na
	Funariaceae	*Funaria hygrometrica*	na
	Grimmiaceae	*Grimmia laevigata*	na
	Grimmiaceae	*Grimmia macroperichaetialis*	na
	Grimmiaceae	*Grimmia pulvinata* var. *africana*	na
	Grimmiaceae	*Racomitrium crispulum*	na
	Grimmiaceae	*Racomitrium pruinosum*	na
	Hedwigiaceae	*Braunia imberbis*	na
	Hedwigiaceae	*Hedwigia ciliata*	na
	Hypnaceae	*Hypnum cupressiforme* var. *cupressiforme*	na
	Hypnaceae	*Hypnum cupressiforme* var. *lacunosum*	na
	Lembophyllaceae	*Lembophyllum divulsum*	na
	Leucobryaceae	*Campylopus introflexus*	na
	Meesiaceae	*Meesia uliginosa* [c]	Hump Moss
	Orthodontiaceae	*Leptotheca gaudichaudii* var. *gaudichaudii*	na
	Orthotrichaceae	*Lewinskya rupestris*	na
	Orthotrichaceae	*Zygodon intermedius*	na
	Polytrichaceae	*Dawsonia longiseta*	na
	Polytrichaceae	*Polytrichum commune*	na
	Pottiaceae	*Gymnostomum calcareum*	na
	Pottiaceae	*Tortella dakinii*	na
	Pylaisiaceae	*Calliergonella cuspidata* [a]	na
	Racopilaceae	*Racopilum cuspidigerum*	na
	Sphagnaceae	*Sphagnum cristatum*	na
	Splachnaceae	*Tayloria octoblepharum*	na
	Thuidiaceae	*Thuidiopsis sparsa*	na
Liverworts	Adelanthaceae	*Syzygiella sonderi*	na
	Frullaniaceae	*Frullania falciloba*	na
	Frullaniaceae	*Frullania probosciphora*	na
	Lejeuniaceae	*Lejeunea subelobata*	na
	Lepidoziaceae	*Ceramanus centipes*	na
	Lepidoziaceae	*Kurzia pallescens*	na
	Lepidoziaceae	*Lepidozia laevifolia*	na
	Lophocoleaceae	*Chiloscyphus semiteres*	na
	Lophocoleaceae	*Chiloscyphus subporosus*	na

Group	Family	Species	Common name
	Lophocoleaceae	*Heteroscyphus coalitus*	na
	Lophocoleaceae	*Heteroscyphus fissistipus*	na
	Marchantiaceae	*Marchantia berteroana*	na
	Metzgeriaceae	*Metzgeria furcata*	na
	Pallaviciniaceae	*Symphyogyna podophylla*	na
	Plagiochilaceae	*Plagiochila retrospectans*	na
	Trichocoleaceae	*Trichocolea rigida*	na
Lichens	Lobariaceae	*Pseudocyphellaria* sp.	na
	Parmeliaceae	*Menegazzia* sp.	na
	Parmeliaceae	*Parmelia* sp.	na
	Stereocaulaceae	*Stereocaulon* sp.	na
Cyanobacteria	Scytonemataceae	*Scytonema* sp.	na
	Stigonemataceae	*Stigonema ocellatum*	na
Diatoms	Fragilariaceae	*Tabellaria* sp.	na
Euglenids	Euglenaceae	*Euglena* sp.	na
Yellow-green algae	Tribonemataceae	*Tribonema* sp.	na
Green algae	Characeae	*Chara* sp.	na
	Mesotaeniaceae	*Netrium* sp.	na
	Oedogoniaceae	*Oedogonium* sp.	na
	Zygnemataceae	*Zygnema* sp.	na
Desmids, single-celled green algae	Closteriaceae	*Closterium* sp. "small crescent"	na
	Closteriaceae	*Closterium kuetzingii*	na
	Closteriaceae	*Closterium intermedium* complex	na
	Desmidiaceae	*Cosmarium* sp.	na
	Desmidiaceae	*Euastrum* cf. *longicolle*	na
	Desmidiaceae	*Euastrum turneri* complex	na
	Desmidiaceae	*Micrasterias jenneri*	na
	Desmidiaceae	*Micrasterias truncata* - blunt form	na
	Desmidiaceae	*Micrasterias truncata* - spiny form	na
	Desmidiaceae	*Micrasterias* sp.	na
	Desmidiaceae	*Onychonema* sp.	na
	Desmidiaceae	*Pleurotaenium* sp.	na
	Desmidiaceae	*Staurodesmus* sp. - classic three-corner hat	na
	Desmidiaceae	*Staurodesmus* sp. - decorated arms	na
	Desmidiaceae	*Tetmemorus* sp.	na
Fungi	Entorrhizaceae	*Entorrhiza* sp.	na

a Introduced and/or pest species. **b** Listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). **c** Listed as threatened under the *Biodiversity Conservation Act 2016* (NSW) or the *Flora and Fauna Guarantee Act 1988* (Victoria). **na** Not available.

Appendix B: Collection sites

Map B1 Map of collection sites



Glossary

Term	Definition
AFD	Australian Faunal Directory
ALA	Atlas of Living Australia
BCA	*Biodiversity Conservation Act 2016* (NSW)
Endemic	Native to or limited to a certain region.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
Funga	A collective term for all the fungi present in a region.
FFG Act	*Flora and Fauna Guarantee Act 1988* (Victoria)
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.
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 species new to science as a direct result of this Bush Blitz.
Range extension	Increase in the known distribution or area of occurrence of a species.
RBGDT	Royal Botanic Gardens and Domain Trust
RBGV	Royal Botanic Gardens Victoria
Taxon (plural taxa)	A member of any particular taxonomic group (e.g. a species, genus, family).
Taxonomy	The categorisation and naming of species. The science of identifying and naming species, as well as grouping them based on their relatedness.
Threatened	Fauna or flora that are listed under Section 178 of the EPBC Act (or equivalent State legislation) in any one of the following categories – extinct, extinct in the wild, critically endangered, endangered, vulnerable, conservation dependent.
Type specimen(s) (holotype, syntypes)	The specimen (or set of specimens) on which the description and name of a new species is based.
Undescribed taxon	A taxon (usually a species) that has not yet been formally described and named.
UNSW	University of New South Wales
Vascular plants	A lineage of plants that possess well-developed veins (vascular tissue) in their stems, roots and leaves. Vascular plants include the majority of familiar land plants: flowering plants, ferns, conifers, cycads and fern allies, but not mosses, liverworts or algae.
Vouchers (voucher specimens)	Any specimen, usually a dead animal or preserved plant sample, that serves as a basis of study and is retained as a reference.

References

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NSW Government 2006, Kosciuszko National Park Plan of Management 2006, NSW Department of Climate Change, Energy, the Environment and Water, formerly NSW Department of Planning, Industry and Environment.