

What Darwin actually saw in Sydney in 1836

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ABSTRACT

As a young man of 26, Charles Darwin visited Sydney in January 1836, on board H.M.S. *Beagle*, during her five-year circumnavigation of the globe. For most of the time the *Beagle* was in Sydney, Darwin was on an inland excursion to Bathurst. Consequently, he gave himself very little opportunity to explore the natural history of Sydney. However, his servant Syms Covington did go sweeping for insects in Sydney, and was presumably involved in collecting other specimens of Sydney fauna. In total, the *Beagle*'s Sydney specimens comprise at least 110 species of animals, including a mouse not previously described (originally *Mus gouldii*; later *Pseudomys gouldii*; unfortunately now extinct), a crab, a snake, frogs, lizards, shells (including an oyster, a mudwhelk, air breathers, a sand snail, and a trochid or top shell) and 97 insects, 42 of which had not previously been described, and four of which were named after Darwin: a Leaf beetle *Idiocephala darwini*; a Seed bug *Ontiscus darwini*; a Gasteruptiid wasp *Foenus darwini*; and a Bee *Halictus darwiniellus*. The remaining novel insects comprise six Leaf beetles (Chrysomelidae), four Stink bugs (Pentatomidae), a Seed bug (Lygaeidae), an Assassin bug (Reduviidae), a Water boatman (Corixidae), a Leafhopper (Cicadellidae), a Cicada (Cicadidae), a Flatid planthopper (Flatidae), a Froghopper or Spittlebug (Cercopidae), three Parasitic wasps (Chalcididae), an Encyrtid wasp (Encyrtidae), five Eucaratids (Eucharitidae), a Eulophid (Eulophidae), four Seed chalcids (Eurytomidae), five Lamprotatidae, and one Torymid wasp (Torymidae).

Key words: Charles Darwin, H.M.S. *Beagle*, Sydney natural history

Why did Darwin visit Sydney in 1836?

In August 1831, the then 22-year-old Charles Darwin (a recent Cambridge graduate with an interest in geology and natural history) was offered the position of scientific civilian companion to the commander (Captain Robert FitzRoy) of H.M.S. *Beagle*, which was about to undertake a second surveying voyage. The purpose of this voyage was twofold: to complete the surveys of the southern coast of South America and of the Falkland Islands, and then to circumnavigate the world in order to obtain a complete set of longitudes estimated from the 22 chronometers (clocks) on board. In achieving the circumnavigation, the *Beagle* was to check its estimates of longitude against those determined astronomically at any observatory that could feasibly be visited. One such observatory was Governor Brisbane's, built in 1822 in the grounds of present-day Old Government House at Parramatta. (The Sydney observatory was not built until 1858). This, in essence, is the reason why the *Beagle*, with the 26-year-old Charles Darwin on board, visited Sydney in January 1836. For a far more detailed account of the background to the voyage, see Nicholas and Nicholas (2008).

What did he do during his visit?

Arriving in Sydney Cove (Circular Quay) (Figure 1) at 1.30pm on 12th January 1836, Darwin disembarked that evening and went for a walk round the town. In his diary and in letters back home, he talks about the type of society and the extent of progress in the new colony (see Nicholas and Nicholas 2008), but one searches in



Figure 1. The *Beagle* at anchor in Sydney Harbour; a sketch by Conrad Martens, who had served on the *Beagle* with Darwin, during the South-American portion of the 1831-36 voyage. This sketch was drawn by Martens when the *Beagle* returned to Sydney on its third surveying voyage, in 1839. [Mitchell Library: ZPXC295, fo. 40]

vain (apart from the odd snippets mentioned below) for comments on the natural history of Sydney. Within three days, he had arranged an inland excursion (on horseback) to Bathurst, with the aim (as in South America, whenever the *Beagle* was at anchor for more than a few days) of getting a general idea of the country. On his South American excursions, Darwin often took his servant Syms Covington as a companion. But on this occasion, Covington remained in Sydney¹. In his diary and in later accounts of this excursion, Darwin did report seeing

1. There is no evidence of the identity of this companion

some native flora and fauna, but since none of these reports concerns the natural history of Sydney, we shall not pursue them further here. A full account of Darwin's natural history observations during the Bathurst excursion is given by Nicholas and Nicholas (2008).

Darwin arrived back in Sydney on 27th January, only three days before the *Beagle* sailed for Hobart. During this time, he wrote up his diary, wrote two letters, and purchased two paintings from his former *Beagle* shipmate Conrad Martens, who had established a studio in Bridge Street. In none of the documentary evidence from Darwin's stay in Sydney is there any mention of him having gone on any specifically natural history excursions in or around Sydney in the few days either before or after his excursion to Bathurst. And, apart from one mention of him having caught a beetle in Sydney (as detailed below), there is no documentary evidence of any comment on the natural history of Sydney. Neither is there any evidence that he had anything to do with Alexander Macleay, well known in British natural history circles (having been Secretary of the Linnean Society of London for more than 25 years) and, by 1836, well established in Sydney as Colonial Secretary, with a famous natural-history collection, and then in the process of building a magnificent house (now called Elizabeth Bay House) in the grounds of what was already a celebrated natural-history garden.

We do know, however (as will be shown below), that in one way or another during the *Beagle*'s stay in Sydney, Darwin obtained many animal specimens, predominantly insects. Covington had a major hand in collecting the insects and probably the other specimens as well.

What was collected in Sydney?

Darwin himself did not publish anything on his Sydney specimens. Instead, as with all his *Beagle* specimens, he distributed them to colleagues with relevant expert knowledge, leaving the task of documentation to them. Some of the Sydney specimens were described in publications in Darwin's lifetime; others were described in publications after his death; and yet others were described only in manuscripts (some of which have been published in recent years). The available details of all the known Sydney specimens are summarised in Table 1. Since some of the specimens have yet to be characterised (or are unable to be characterised), and since the provenance of some specimens is uncertain, it is not possible to provide an exact summary of everything that was collected in Sydney. From Table 1, however, it is evident that at least 110 different animal species were collected, including one novel mouse (the now-extinct *Pseudomys gouldii*), a crab, a snake, frogs, lizards, shells (including an oyster, a mudwhelk, air breathers, a sand snail, and a trochid or top shell) and 97 insects, 42 of which had not previously been described, and four of which were named after Darwin: a leaf beetle (*Idiocephala darwini*), a seed bug (*Ontiscus darwini*), a gasteruptiid wasp (*Foenus darwini*) and a bee (*Halictus darwiniellus*). The remaining novel insects comprise six Leaf beetles (Chrysomelidae), four Stink bugs (Pentatomidae), a Seed bug (Lygaeidae),

an Assassin bug (Reduviidae), a Water boatman (Corixidae), a Leafhopper (Cicadellidae), a Cicada (Cicadidae), a Flatid planthopper (Flatidae), a Froghopper or Spittlebug (Cercopidae), three Parasitic wasps (Chalcididae), an Encyrtid wasp (Encyrtidae), five Eucharitids (Eucharitidae), a Eulophid (Eulophidae), four Seed chalcids (Eurytomidae), five Lamprotatidae, and one Torymid wasp (Torymidae).

To provide readers with an example of the manner in which the novel species from amongst the *Beagle*'s Sydney collection were reported, Figure 2 shows the original report (by Waterhouse, 1839a) of the novel mouse, including images of its teeth.

What other relevant documentary evidence is available?

Amongst the manuscript resources relating to the *Beagle*'s voyage, there are several snippets relevant to the natural history of Sydney.

A very general description is provided by Covington (1836) in his diary:

“Port Jackson (Sydney), where the first settlers landed IN [sic] 1788.

...

Here the country is complete forest, with, as is well known, some of the most beautiful birds in the world; a [sic] the kangaroo, kangaroo rat, opossum, wolwar [sic] (great many), very large venomous snakes, and a most curious lizard: half snake, half lizard, about six inches long, and very easy to be caught on the mountains. I went in TO A [sic] museum while here.

...

Sailed January 30th, 1836.”

The “beautiful birds” are most likely parrots with their amazing array of bright colours. The “wolwar” is a mystery. The editor and annotator of Covington's diary, Mr Vern Weitzel, suggests that it is a corruption of “wallaroo”, meaning a wallaby-like macropod. My colleague Dr Glenn Shea wonders whether it could be quoll or koala. Interestingly, Covington uses this term again, in his diary entries for King George Sound (Albany, WA): “salt provisions are used here, except when the kangaroo and wolwar can be caught, the latter very small” (Covington, 1836). From this, wolwars would appear to be edible, but the actual species is still open to conjecture. Dr Shea also suggests that the “curious lizard: half snake, half lizard, about six inches long” is most likely the Three-toed skink, *Saiphos equalis*. The museum is almost certain to be the Australian Museum, founded in 1827. By January 1836, it still did not have a permanent home, being located in temporary premises in the Legislative Council building in Macquarie Street (Strahan 1979). It is somewhat frustrating that nowhere else in the *Beagle* documentation is there any mention of the Australian Museum. It would have been most interesting to be able to read, for example, the impressions of Darwin or of one of the *Beagle*'s officers, of this pioneering institution. But nothing has been found.

28. MUS GOULDII.

M. vellere longo, molli, ochraceo, pilis nigricantibus adperso, his ad latera rarioribus: corpore subtilius, pedibusque albis: auribus majusculis: caudâ, capite corporeque paulo brevior.

DESCRIPTION.—Ears rather large and slightly pointed, tarsi slender and tolerably long; tail about equal in length to the body and half the head; fur long and soft; general colour pale ochreous yellow; on the back there are numerous long black hairs interspersed with the ordinary fur, which gives a darker hue and somewhat variegated appearance to that part; feet, chin, throat, and the whole under-parts of the body white; ears brown, sparingly clothed with minute yellow hairs, both externally (excepting on the forepart, where they are brownish) and internally; tail brownish above, and yellowish white beneath; the hairs of the moustaches long, and of a brown colour; upper incisors deep orange, lower incisors yellow; claws white. The hair of the back is of a deep lead colour at the base, pale ochre near the apex, and dusky at the apex; the longer hairs are black; the hairs of the belly are deep gray at the base and broadly tipped with white.

	In.	Lines.		In.	Lines.	
Length from nose to root of tail	4	8	Length of tarsus (claws included)	1	0½	
of tail	3	8		of ear	0	7
from nose to ear	1	0½				

VAR. β .—General colour of the fur pale ochreous yellow, the feet, under side of the tail and the whole of the under parts, as well as the lower portion of the

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sides of the body, white; hairs of the back palish gray at the base, those of the belly indistinctly tinted with very pale gray at the roots; ears and moustaches pale brown.

Habitat, New South Wales.

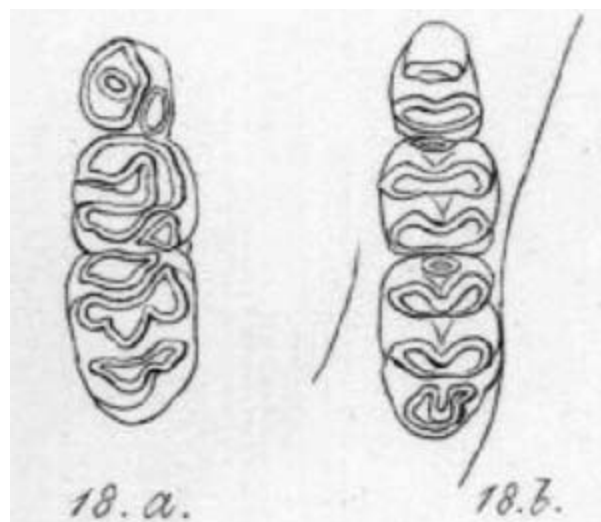
This species is about half-way between *Mus Rattus* and *Mus musculus* in size, and is remarkable for its delicate colouring. The molar teeth are figured in Plate 34; fig. 18. *a*, represents the molars of the upper jaw, and fig. 18. *b*, those of the lower.

Figure 2. The original description and illustrations of the previously undescribed mouse species collected by or for Charles Darwin during his visit to Sydney, aboard H.M.S. *Beagle*, in January 1836. The species is now named *Pseudomys gouldii* (Gould's mouse). The original caption to the illustrations reads "18.a. Molar teeth of upper jaw of *Mus Gouldii*. b. ditto of lower" (Waterhouse 1839).

Although Darwin's diary says nothing about the natural history of Sydney, there are some relevant passages in letters written in Sydney and in Hobart.

The first is in a letter to Darwin's mentor Professor J.S. Henslow, written during the few days between the end of Darwin's excursion to Bathurst, and the *Beagle's* departure from Sydney:

"I last wrote to you from Lima, since which time I have done disgracefully little in Nat: History;



or rather I should say since the Galapagos Islands, where I worked hard.—” (Darwin 1836a)

The significance of this sentence is that Darwin felt he had engaged in very little natural history since leaving the Galapagos. The context of this comment is that, even though the colonies in Australia were quite recent, and even though Australia was by then known to contain some very exotic fauna and flora, Darwin felt that the exciting aspects of the natural history of these new colonies had already been reported; that he was unlikely to stumble across something really interesting or novel. This point is reinforced in the first sentence in the passage below, taken from a letter written to his cousin (and fellow beetle-collector) W.D. Fox, on 15 February 1836, during the *Beagle*'s stay in Hobart:

“I have had little opportunity, for some time past of doing anything in Natural History.—” (Darwin 1836b)

Darwin has not, however, lost his enthusiasm for beetle-collecting. Later in this same letter, he writes:

“F. Hope informs me, he has put my name down as a member of the Entomological Soc:— I do not know, whether you are one.— Formerly, when collecting at Cambridge, how very useful such a central Society would have been to us Beetle Capturers. The banks of the Cam, the Willow trees, *Panagaeus Crux Major* & *Badister*, which was not cephalotes, all form parts of one picture in my mind. To this day, *Panagaeus* is to me a sacred genus.— I look at the Orange Cross, as the emblem of Entomological Knighthood. At Sydney I took a fine species, & long did I look at it, as compared to any other insect.—” (Darwin 1836b)

As explained by Nicholas and Nicholas (2008), on the advice of Dr D.S. (Woody) Horning (one-time curator of insects in the Macleay Museum, University of Sydney), “This passage indicates just how keen a beetle collector Darwin was. *Panagaeus cruxmajor* is a small species of carab beetle (family Carabidae) that occurs infrequently in localized areas of England. Only 7 to 8 mm long, it has a black body with striking red markings on each wing cover. *Badister* is another genus of carab beetle, and *Cephalotes* was at that time yet another carab beetle genus. The last sentence just quoted implies that Darwin caught a member of the *Panagaeus* genus, or at least a member of the carab beetle family, while in Sydney. However, none of the published reports arising from his Sydney collections includes any mention of a carab beetle. In any event, most Australian carab beetles lack colourful markings. It is likely, therefore, that he was referring to another type of beetle, possibly *Novius bellus*, a red ladybird beetle with black markings.”

The only other mention by Darwin of the natural history of Sydney occurs in a letter written in 1837, after he had returned to England, to the Reverend F.W. Hope, who had mentored Darwin in beetle-collecting before the voyage, who was still mentoring

Darwin from a distance during the voyage (as can be seen from the previous quoted letter); and who was to publish at least three papers (see Smith 1987) describing insects collected during the *Beagle*'s voyage:

“The collections in the pill boxes come from Sydney, Hobart town, and King George's Sound.

—

...

You will be glad to find that many of the minute Coleoptera from Sydney are mounted on cards.—

...

May I state in a note on your authority that a third or a half of the insects which you already have of mine from Sydney & Hobart town are undescribed.— It is a striking fact, if such is the case, for it shows how imperfectly known the insects are, even in the close neighbourhood of the two Australian Capitals.” (Darwin 1837)

It could be argued that nothing much has changed in the intervening 170 years! To the extent that we can draw any conclusion from this excerpt, it reinforces the point made earlier, namely that Darwin's instinct was to feel that the natural history of Sydney was already well covered: here he expresses surprise that so many species have not previously been described, in a city so obviously under the influence of the same society into which he was born.

Conclusion

The evidence summarised in this paper reinforces Darwin's feeling that Sydney's natural history had already been well worked over before his brief visit in January 1836. Whilst a sizeable proportion of the more than 110 animal species collected during the *Beagle*'s visit to Sydney were previously undescribed, there was nothing earth-shattering in the Sydney specimens, and certainly nothing that impinged directly on the development of the ideas that were published, 23 years later, in *Origin of Species*. Nevertheless, the specimens collected during the *Beagle*'s visit to Sydney provide a good illustration of the manner and nature of natural-history collecting at that time. Every new species provided a small addition to the vast jigsaw puzzle of life. Furthermore, as highlighted in the so-called “ant-lion passage” of the Australian section of Darwin's diary (see Nicholas and Nicholas 2008, pp. 75-79), both the similarities and the differences that become evident when Australian species are compared with their English counterparts, cause one to ask all sorts of intriguing questions about whether there has been more than one creator, and, if so, what can have been the purpose of separate creations? Whilst Darwin's Sydney specimens did not provide answers to these central questions, they did provide useful additional information on the rich variety of life on this planet, the causes for which Darwin was later to provide a very useful explanation.

Table 1. A summary of the specimens collected by or for Charles Darwin in Sydney during the visit of H.M.S. Beagle in January 1836. Further details are available at <http://www.vetsci.usyd.edu.au/about/staff/fnicholas.shtml>.

Order	Family (at time of publication)	Genus species (at time of publication)	New? Current scientific name/Common name/	Manuscript source ²	Specimen number	Published reference
RODENTIA	Muridae	<i>Mus gouldii</i>	Yes <i>Pseudomys gouldii</i> Waterhouse 1839/ White-footed or Gould's Mouse	DAR29.1	1347	Waterhouse (1839a)
		?	Crab and Tulidae	DAR29.1	1348	
		?	Snake	DAR29.1	1349	
ANURA	Leptodactylidae	<i>Cystignathus ocellatus</i>	No ³ <i>Cystignathus ocellatus</i> Wagler 1830/Frog	DAR29.1 [Thomas Bell]	1350	
ANURA	Hylidae	<i>Hyla peronii</i>	No ⁴ <i>Litoria peronii</i> Tschudi 1838/ Peron's Tree Frog	DAR29.1 [Thomas Bell]	1351	
ANURA	Hylidae	<i>Hyla fusca</i>	No ⁴ <i>Hyla fusca</i> Daudin 1802/Frog	DAR29.1 [Thomas Bell]	1353	
SQUAMATA	Agamidae	<i>Grammatophorus muricatus</i>	No ⁴ <i>Amphibolurus muricatus</i> White 1790/ Jacky Lizard	DAR29.1 [Thomas Bell]	1354	
SQUAMATA	Scincidae	<i>Tiliqua (Cocteau) T. teniolata</i> Gray	No ⁴ <i>Gtenotus taeniolatus</i> White 1790/ Copper-tailed skink	DAR29.1 [Thomas Bell]	1355	
SQUAMATA	Agamidae	<i>Grammatophorus muricatus</i>	No ⁴ <i>Amphibolurus muricatus</i> White 1790/ Jacky Lizard	DAR29.1 [Thomas Bell]	1356	
		?	? ?/Oyster: small pools; muddy almost separated from the Sea	DAR29.1	3531	
		?	?/Shells, living in a muddy salt water pool almost separate from the sea. Same locality as the Oyster in Spirits (1356)	DAR29.1	3531	
NEOTAENIOGLOSSA	Thiaridae	<i>Cerithium eburninum</i>	No <i>Pyrazus eburninus</i> Bruguière, 1792/ Shell	DAR29.3	3631	
		<i>Convovulus</i>	No ?/Shell	DAR29.3	3631	
		<i>Auricula ovato</i>	No ?/Shell	DAR29.3	3529	
		<i>Auricula</i>	No ?/Shell	DAR29.3	3530	
		?	? ?/Helix shell	DAR29.3	3530	
		?	? ?/Helix shell	DAR29.3	3530	
		<i>Natica plumbea</i>	No <i>Polinices (Conuber) sordidus</i> Swainson 1821/ Shell	DAR29.3		
		<i>Amphibola[?]</i> <i>australis</i>	No ?/Shell	DAR29.3		

table 1. continued

Order	Family (at time of publication)	Genus species (at time of publication)	New? Current scientific name/Common name/	Manuscript source ²	Specimen number	Published reference
		?	? Trochus (top shell)	DAR29.3	3531	
COLEOPTERA	Buprestidae	<i>Cisseis puella</i> Kerr	No <i>Cisseis puella</i> Kerr 1792/Jewel beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Buprestidae	<i>Germarica lilliputana</i> Thomson	No <i>Germarica lilliputana</i> Thomson 1879/Jewel beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Haltica crassicornis</i>	Yes <i>Arsipoda crassicornis</i> Waterhouse 1838/Leaf beetle	Insect Notes	3528	Waterhouse (1838); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Haltica bicolor</i>	Yes <i>Arsipoda bicolor</i> Waterhouse 1838/Leaf beetle	Insect Notes	3528	Waterhouse (1838); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Haltica labialis</i>	Yes <i>Epithrix labialis</i> Waterhouse 1838/Leaf beetle	Insect Notes	3528	Waterhouse (1838); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Macronema scutellata</i>	Yes <i>Psyllodes scutellata</i> Waterhouse 1838/Leaf beetle	Insect Notes	3528	Waterhouse (1838); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Dibolia aenea</i>	Yes <i>Chaetocnema aenea</i> Waterhouse 1838/Leaf beetle	Insect Notes	3528	Waterhouse (1838); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Coenobius spissus</i> Lea	No <i>Coenobius spissus</i> Lea 1920/Leaf beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Ditropidus inconspicuus</i> Lea	No <i>Ditropidus inconspicuus</i> Lea 1921/Leaf beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Ditropidus lentulus</i> Charpentier	No <i>Ditropidus lentulus</i> Chapuis 1875/Leaf beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Ditropidus striatopunctatus</i> Lea	No <i>Ditropidus striatopunctatus</i> Lea 1903/Leaf beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Monolepta subsuturalis</i> Blackburn	No <i>Monolepta subsuturalis</i> Blackburn 1896/Leaf beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Monolepta sordidula</i> Blackburn	No <i>Monolepta christinae</i> Wilcox 1973/Leaf beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Chrysomelidae	<i>Idiocephala darwinii</i>	Yes <i>Aporocera (Aporocera) darwinii</i> Saunders 1843/Leaf beetle			Saunders (1843)
COLEOPTERA	Chrysomelidae	<i>Idiocephala semibrunnea</i>	Yes <i>Aporocera (Aporocera) semibrunnea</i> Saunders 1843/Leaf beetle			Saunders (1843)
COLEOPTERA	Coccinellidae	<i>Novius bellus</i> Blackburn	No ? Ladybird	Insect Notes; Correspondence: letter 299, Darwin, C.R. to Fox, W/D, 15 Feb 1836 (written in Hobart)	3528	Lea (1926); Smith (1987)

table 1. continued

Order	Family (at time of publication)	Genus species (at time of publication)	New? Current scientific name /Common name/	Manuscript source ²	Specimen number	Published reference
COLEOPTERA	Coccinellidae	<i>Novius sanguinolentus</i> Mulsant	No ?/Ladybird	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Coccinellidae	<i>Rhizobius debilis</i> Blackburn	No ?/Ladybird	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Coccinellidae	<i>Rhizobius ventralis</i> Erichson	No ?/Ladybird	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Coccinellidae	<i>Scymnus elutus</i> Lea	No ?/Ladybird	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Coccinellidae	<i>Scymnus flavifrons</i> Blackburn	No ?/Ladybird			Lea (1926)
COLEOPTERA	Coccinellidae	<i>Scymnus notescens</i> Blackburn	No <i>Scymnus notescens</i> Blackburn 1889/Ladybird	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Coccinellidae	<i>Serangium mysticum</i> Blackburn	No ?/Ladybird	Insect Notes	3528	Lea (1926); Smith (1987);
COLEOPTERA	Coccinellidae	<i>Serangium obscuripes</i> Lea	No ?/Ladybird	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Coccinellidae	<i>Coelophara inequalis</i> Fabricius	No ?/Ladybird	Insect Notes	3528	Smith (1987)
COLEOPTERA	Coccinellidae	<i>Diomus notescens</i> Blackburn	No <i>Scymnus notescens</i> Blackburn 1889 /Ladybird	Insect Notes	3528	Smith (1987)
COLEOPTERA	Coccinellidae	<i>Diomus pumilio</i> Weise	No <i>Diomus pumilio</i> Weise 1885/Ladybird	Insect Notes	3528	Smith (1987)
COLEOPTERA	Coccinellidae	<i>Harmonia conformis</i> Boisduval	No <i>Harmonia conformis</i> Boisduval 1835/Ladybird	Insect Notes	3528	Smith (1987)
COLEOPTERA	Coccinellidae	<i>Rhizobius forestieri</i> Mulsant	No ?/Ladybird	Insect Notes	3528	Smith (1987)
COLEOPTERA	Coccinellidae	Unidentified-1	? Ladybird	Insect Notes	3528	Smith (1987)
COLEOPTERA	Coccinellidae	Unidentified-2	? Ladybird	Insect Notes	3528	Smith (1987)
COLEOPTERA	Curculionidae	<i>Cydmaea cara</i> Lea	No <i>Cydmaea cara</i> Lea 1899/Weevil	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Curculionidae	<i>Cydmaea pusilla</i> Pascoe	No <i>Cydmaea pusilla</i> Pascoe 1872/Weevil	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Curculionidae	<i>Desiantha malevolens</i> Lea	No <i>Desiantha malevolens</i> Lea 1899/Weevil	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Curculionidae	<i>Empolis leai</i> Blackburn	No <i>Empolis leai</i> Blackburn 1893/Weevil	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Curculionidae	<i>Leptosomus acuminatus</i> Fabricius	No <i>Leptosomus acuminatus</i> Schoenherr 1823/Weevil	Insect Notes	3528	Waterhouse (1839b); Smith (1987)
COLEOPTERA	Hydrophilidae	<i>Paracymus lindi</i> Blackburn	No <i>Paracymus lindi</i> Blackburn 1888/ Water scavenger beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Hydrophilidae	<i>Paranaccaena</i> sp. near <i>horni</i> Blackburn	No ?/Water scavenger beetle	Insect Notes	3528	Smith (1987)
COLEOPTERA	Lathridiidae	<i>Corticaria australis</i> Blackburn	No ?/Minute brown scavenger beetle	Insect Notes	3528	Lea (1926); Smith (1987)
COLEOPTERA	Malacodermidae	<i>Laius cinctus</i> Redtenbacher	No ?/Malacodermid beetle	Insect Notes	3528	Lea (1926); Smith (1987)

table 1. continued

Order	Family (at time of publication)	Genus species (at time of publication)	New? Current scientific name/Common name/	Manuscript source ²	Specimen number	Published reference
COLEOPTERA	Scarabaeidae	<i>Automolus humilis</i> Blanchard	No ?/Dung beetle	Insect Notes	3528	Lea (1926); Smith (1987)
DIPTERA	Chironomidae	<i>Chironomus</i> sp., det. P.S. Cranston	No ?/Midge	Insect Notes	3528	Smith (1987)
DIPTERA	Dolichopodidae, Empididae	<i>Hybos</i> sp., det. K.G.V. Smith	No ?/Long-legged fly	Insect Notes	3528	Smith (1987)
DIPTERA	Micropezidae	<i>Taeniaptera lasciva</i> Fabricius	No ?/Taeniaptera lasciva Fabricius 1798/ Stilt-legged fly	Insect Notes	3528	Smith (1987)
DIPTERA	Micropezidae	<i>Cardiocephalus trilineatus</i> Cresson, det. B.H. Cogan	No ?/Stilt-legged fly	Insect Notes	3528	Smith (1987)
DIPTERA	Muscidae	<i>Atherigona tibiseta</i> Malloch 1924	No <i>Atherigona tibiseta</i> Malloch 1924/Muscid fly	Insect Notes	3528	Smith (1987)
DIPTERA	Muscidae	<i>Coenosia acuticornis</i> Stein det. A.C. Punt	No <i>Coenosia acuticornis</i> Stein 1910/Muscid fly	Insect Notes	3528	Smith (1987)
DIPTERA	Sciaridae, Sepsidae	<i>Xenosepsis sydneyensis</i> Malloch	No ?/Dark-winged fungus gnat	Insect Notes	3528	Smith (1987)
DIPTERA	Sciaridae, Sepsidae	<i>Parapalaeseopsis plebeia</i> Meijere, det. A.C. Pont	No <i>Parapalaeseopsis plebeia</i> Meijere 1906/ Dark-winged fungus gnat	Insect Notes	3528	Smith (1987)
DIPTERA	Stratiomyidae		Soldier fly	Insect Notes	3528	Smith (1987)
DIPTERA	Nematocera	small, in poor condition	? No common name	Insect Notes	3528	Smith (1987)
DIPTERA	Acalyptrata	small, in poor condition	? ?	Insect Notes	3528	Smith (1987)
HEMIPTERA-Heteroptera	Pentatomidae	<i>Canthicona</i>	Yes ?/Stink bug	Insect Notes	3528	Smith (1987)
HEMIPTERA-Heteroptera	Pentatomidae	<i>Dinocoris</i>	Yes ?/Stink bug	Insect Notes	3528	Smith (1987)
HEMIPTERA-Heteroptera	Pentatomidae	<i>Elasmostethus</i>	Yes ?/Stink bug	Insect Notes	3528	Smith (1987)
HEMIPTERA-Heteroptera	Pentatomidae	near <i>Nezara</i>	Yes ?/Stink bug	Insect Notes	3528	Smith (1987)
HEMIPTERA-Heteroptera	Lygaeidae	<i>Graptostethus</i> sp.	Yes <i>Graptostethus</i> Seed bug	Insect Notes	3528	Smith (1987)
HEMIPTERA-Heteroptera	Lygaeidae	<i>Ontiscus darwini</i> Hamid	Yes <i>Ontiscus darwini</i> Hamid 1975/Seed bug	Insect Notes	3528	Smith (1987)
HEMIPTERA-Heteroptera	Reduviidae	Immature	Yes Assassin bug	Insect Notes	3528	Smith (1987)
HEMIPTERA-Heteroptera	Corixidae	<i>Sigara australis</i> Fieber 'sent to G.W. Kirkaldy'; two specimens	Yes <i>Sigara australis</i> Fieber 1851/Water boatman	Insect Notes	3528	Smith (1987)
HEMIPTERA-Homoptera	Cicadellidae	<i>Cephaleus brunneus</i>	Yes <i>Paracephaleus brunneus</i> Waterhouse 1839/ Leafhopper	Insect Notes	3528	Waterhouse (1839b); Smith (1987)

table 1. continued

Order	Family (at time of publication)	Genus species (at time of publication)	New? Current scientific name/Common name/	Manuscript source ²	Specimen number	Published reference
HEMIPTERA-Homoptera	Cicadellidae	Unidentified	? Leafhopper	Insect Notes	3528	Smith (1987)
HEMIPTERA-Homoptera	Fulgoroidea	Unidentified	? Fulgorid planthopper	Insect Notes	3528	Smith (1987)
HEMIPTERA-Homoptera	Cicadidae	<i>Melampsalta</i>	Yes ?/Cicada	Insect Notes	3528	Smith (1987)
HEMIPTERA-Homoptera	Flatidae	<i>Carthaea</i>	Yes ?/Flatid planthopper	Insect Notes	3528	Smith (1987)
HEMIPTERA-Homoptera	Cercopidae	<i>Orthorapha</i>	Yes ?/Frog hopper or spittlebug	Insect Notes	3528	Smith (1987)
	Unidentified			Insect Notes	3528	Smith (1987)
HYMENOPTERA	Gasteruptiidae	<i>Foenus darwini</i> Westwood 1841 (= <i>Hyptiogaster</i>)	Yes <i>Pseudofoenus darwini</i> Westwood 1841/ <i>Gasteruptiid</i>	Insect Notes	3528	Smith (1987)
HYMENOPTERA	Halictidae	<i>Halictus (Elylaeus) darwiniellus</i> Cockerell	Yes <i>Lasioglossum (Chilalictus) darwiniellum</i> Cockerell 1932/Bee	Insect Notes	3528	Smith (1987)
HYMENOPTERA	Halictidae	<i>Reepenia testacea</i> Smith	Yes ?/Bee	Insect Notes	3528	Smith (1987)
HYMENOPTERA	Chalcididae	<i>Chalis phya</i>	Yes ?/Parasitic wasp	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Chalcididae	<i>Hockeria nyssa</i>	Yes <i>Antrocephalus nyssa</i> Walker 1838/ Parasitic wasp	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Chalcididae	<i>Hockeria proxemus</i>	Yes ?/Parasitic wasp	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
	Unidentified		? Parasitic wasp	Insect Notes	3528	Smith (1987)
HYMENOPTERA	Encyrtidae	<i>Encyrtus pacorus</i>	Yes <i>Parectromoidella pacorus</i> Walker 1839/ Encyrtid wasp	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eucharitidae	<i>Eucharis eribotes</i>	Yes <i>Orasomorpha eribotes</i> Walker 1839/ Eucharitid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eucharitidae	<i>Eucharis theocles</i>	Yes <i>Psilocharis theocles</i> Walker 1839/ Eucharitid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eucharitidae	<i>Eucharis valgius</i>	Yes <i>Orasema valgius</i> Walker 1839/ Eucharitid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eucharitidae	<i>Eucharis xeniades</i>	Yes <i>Orasomorpha xeniades</i> Walker 1839/ Eucharitid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eucharitidae	<i>Eucharis zalates</i>	Yes <i>Tricoryna zalates</i> Walker 1839/ Eucharitid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eulophidae	<i>Entedon diocles</i>	Yes <i>Ormphale diocles</i> Walker 1839/ Eulophid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eupelmidae	<i>Eupelmus eurozonus</i> Dalman	No ?/Eupelmid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)

table 1. continued

Order	Family (at time of publication)	Genus species (at time of publication)	New? Current scientific name/Common name/	Manuscript source ²	Specimen number	Published reference
HYMENOPTERA	Eurytomidae	<i>Eurytoma olbus</i>	Yes <i>Eurytoma olbus</i> Walker 1839/Seed chalcid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eurytomidae	<i>Eurytoma tellis</i>	Yes <i>Eurytoma tellis</i> Walker 1839/Seed chalcid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eurytomidae	<i>Eurytoma volux</i>	Yes <i>Bruchophagus volux</i> Walker 1839/Seed chalcid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Eurytomidae	<i>Palmon olenus</i>	Yes <i>Podagrion olenus</i> Walker 1839/Seed chalcid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Lamprotatidae	<i>Gastrancistrus menoetes</i>	Yes ?/?	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Lamprotatidae	<i>Lamprotatus damia</i>	Yes <i>Lamprotatus damia</i> Walker 1839/?	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Lamprotatidae	<i>Lamprotatus mycon</i>	Yes <i>Chromeurytoma mycon</i> Walker 1839/?	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Lamprotatidae	<i>Lamprotatus nicon</i>	Yes <i>Lamprotatus nicon</i> Walker 1839/?	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Lamprotatidae	<i>Seladerma athanis</i>	Yes ?/?	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
HYMENOPTERA	Torymidae	<i>Callimome vibidia</i>	Yes <i>Torymoides vibidia</i> Walker 1839/Torymid	Insect Notes	3528	Walker (1838); Walker (1839); Smith (1987)
ORTHOPTERA	Acrididae	Unidentified (7)	? Short-horned grasshopper	Insect Notes	3528	Smith (1987)
ORTHOPTERA	Tettigoniidae	Unidentified (2)	? Long-horned grasshopper	Insect Notes	3528	Smith (1987)
	Unidentified (14)			Insect Notes	3528	Smith (1987)

1. The author would welcome advice on any errors that remain in the table; and on additional information that would enhance its utility.

2. From Dr Glenn Shea; the Australian Faunal Directory (<http://www.environment.gov.au/biodiversity/abrs/online-resources/fauna/afd/index.html>); the Australian National Insect Collection Database (<http://anic.ento.csiro.au/database/index.aspx>); the Catalogue of Life 2008 Checklist (<http://www.catalogueoflife.org/search.php>); the Electronic Catalogue of Weevil names (Curculionidea) (<http://wtaxa.csic.es/>); and the Natural History Museum Data Locator (<http://internet.nhm.ac.uk/jdsml/mils/index.dsmi/?searchwordtype=equals&istmode=summary&database=all&topcat=research&searchPageURL=index%2Edsmi%3Fsearchmode%3dsimple&searchword=Novius+bellus&searchmode=simple>), including the Universal Chalcidoidea Database (<http://www.nhm.ac.uk/entomology/chalcidooids>)

3. DAR29.1 is in Cambridge University Library, available online at <http://darwin-online.org.uk/> (Thomas Bell was Professor of Zoology at King's College, London – one of many scientists to whom Darwin provided his Beagle specimens); DAR29.3 is also in Cambridge University Library, but is not yet available online; for Insect Notes, see Smith (1987)

4. See notes by Dr G.M. Shea in Appendix 1

Hyla peronii was described by Tschudi (1838), is now known as *Litoria peronii*, and is a common Sydney species. The name was presumably applied by Bell, as it wasn't available prior to 1838 — Bell's account of the Beagle's reptile collections wasn't published, of course, until the early 1840s.

Hyla fusca is problematic. There has never been a *Hyla fusca* described from Australia. However, there is a *Hyla fusca* described from Brazil by Daudin (1802), and subsequently redescribed under the same name by Dumeril & Bibron (1841). Again, there's a possibility it is a South American specimen that has ended up with the wrong locality. If it is a Sydney specimen that Bell misidentified as being the same as the South American species, there is nothing about the name "fusca" that might give a hint as to what Sydney species is involved — there are several brown hydrid frogs in the Sydney region.

Grammatophorus muricatus is an agamid lizard (Agamidae), now known as *Amphibolurus muricatus*, and common around Sydney. Bell got the genus name slightly wrong - it should be *Grammatophora* (and hence *muricata*). The species was originally described from material sent to London by John White, surgeon on the First Fleet, with the description published by White (1790).

Tiliqua teniolatus is now *Ctenotus taeniolatus* (Bell got the species name slightly wrong), and the family is Scincidae. Again, it was originally described from material sent to London by John White from the Sydney area. Although the name *Tiliqua* is now applied to the bluetongues, John Gray, who originally created the generic name *Tiliqua* for the eastern bluetongue in 1825, subsequently forgot what species he'd created the name for, and by 1841 was using *Tiliqua* for most other Australian skinks (including *taeniolatus*), and by 1845 was using *Cyclodus* for bluetongues, and *Tiliqua* for non-bluetongues.

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