

Table S1. List native of cave species recorded from the Undara Lava Tube System that possibly can complete their life cycle underground as troglophiles. Some may be found to be troglobionts pending further study. * Indicates ASF number.

#	Species	Taxonomic Classification	Caves*	Reference
1	Undetermined genus species (tiny eyes)	Crustacea: Isopoda: Oniscoidea	U-34	[30]
2	Undetermined genus species (large sp.)	Crustacea: Isopoda: Oniscoidea	U-17	[54]
3	<i>Forsterina</i> species	Arachnida: Araneae: Desidae	U-31	[30]
4	<i>Spermophora</i> species 3	Arachnida: Araneae: Pholcidae:	U-30	[2]
5	<i>Nesticella</i> species 2	Arachnida: Araneae Nesticidae	U-30	[2]
6	Unidentified. spider, possibly Tb	Arachnida: Araneae: family?	U-42	[30]
7	Unidentified harvestman	Opilionida: Phalangidae? Misidentified?	U-26; U-27	[32]
8	Unidentified genus and species	Chilopoda: Geophilida	U-30	[2]
9	Unidentified genus and species	Symphyla	U-30	[2]
10	<i>Paratemnopteryx stonei</i> Roth 1990	Insecta: Blattodea: Ectobiidae	U-30; U-34	[51]
11	<i>Paratemnopteryx howarthi</i> Roth 1990	Insecta: Blattodea: Ectobiidae	U-46	[50]
12	<i>Neotemnopteryx undarensis</i> Slaney 2000	Insecta: Blattodea: Ectobiidae	U52; U-51;	[65]
13	Unidentified genus and species	Insecta: Coleoptera: Carabidae	U-42; U-34	[30]
14	Unidentified genus and species	Insecta: Coleoptera: Ptiliidae:	U-30	[2]
16	Unidentified genus and species	Insecta: Diptera: Phoridae:	U-30	[2]
15	<i>Undarana rosella</i> Hoch & Howarth	Insecta: <i>Auchenorrhyncha</i> : Cixiidae:	U-30	[5]
16	<i>Oliarus</i> sp. 1	Insecta: <i>Auchenorrhyncha</i> : Cixiidae:	U-30, U-17	[2]
17	Unidentified genus and species	Insecta: <i>Sternorrhyncha</i> : Coccoidea	U-30	[2]
18	<i>Ploiaria</i> species 1	Insecta: Hemiptera: Reduviidae	U-42	[30]
19	c.f. <i>Schrankia</i> species 1	Insecta: Lepidoptera: Erebiidae	U-30; U17	[2]
20	<i>Metrinura subtropica</i> Smith 2006	Insecta: Zygentoma: Nicoletiidae	U-30	[52]
21	<i>Pseudogastrotheus undarae</i> Smith, 2016	Insecta: Zygentoma: Nicoletiidae	U-30, U-34	[53]
22	<i>Psilotum</i> species	Plantae: Psilotales: Psilotaceae	U-30	This paper

Table S2. List of invertebrates recorded from the Undara Lava Tube System as visitors (=troglonemes) or as 'incidentals' / 'accidentals.' * Indicates ASF number.

#	Species	Taxonomic Classification	Caves*	Reference
1	<i>Heteropoda</i> species 1	Arachnida: Araneae: Sparassidae:	U-30, U-34; U-31	[2]
2	<i>Heteropoda alta</i> Davies 1994	Arachnida: Araneae: Sparassidae:	Michael's	[55]
3	<i>Scolopendra</i> species 1	Chilopoda: Scolopendridae	U-30	[2]
4	Unidentified genus and species	Insecta: Isoptera	U-30	[2]
5	<i>Macropanesthia rhinoceros</i> Saussure, 1895	Insecta: Blattodea: Blaberidae	U-17; U-51 [Acc]	[35]
6	Unidentified genus and species	Insecta: Coleoptera: Carabidae	U-42	[30]
7	Undet Galerucinae	Insecta: Coleoptera: Chrysomelidae	U-34	[30]
8	unidentified dermestid beetle	Insecta: Coleoptera: Dermestidae	U-42	[30]
9	Unidentified genus and species	Insecta: Coleoptera: Histeridae:	U-17	[30]
10	<i>Pterohelaus</i> sp.	Insecta: Coleoptera: Tenebrionidae	U-42	[30]
11	<i>Omorgus</i> sp.	Insecta: Coleoptera: Trogidae	U-34	[30]
12	Unidentified genus and species	Insecta: Coleoptera: Scarabaeidae	U-30, U-34; U-42	[2,30]
13	<i>Idiophlebotomus wellingsae</i> Lewis and Dyce 1983	Insecta: Diptera: Psychodidae: Phlebotominae	U-30, U-17	[2,56]
14	<i>Paratrechina longicornis</i> (Latreille, 1802)	Insecta: Hymenoptera: Formicidae:	U-30	[2]
15	<i>Paratrechina</i> species 1	Insecta: Hymenoptera: Formicidae:	U-30	[2]
16	<i>Platythyrea</i> species 1.	Insecta: Hymenoptera: Formicidae:	U-30	[2]
17	<i>Prolasius</i> sp	Insecta: Hymenoptera: Formicidae:	U-17	[30]
18	Unidentified genus and species	Insecta: Hymenoptera: Formicidae:	U-34	[30]
19	<i>Coranus</i> sp.	Insecta: Hemiptera: Reduviidae: Harpactorinae	U-34	[30]
20	<i>Speiredonia spectans</i> , (Guenée, 1852)	Insecta: Lepidoptera: Erebidae	U-30	[2]
21	Unidentified genus and species	Insecta: Lepidoptera: Gelechiidae	U-30	[2]
22	<i>Pyralis</i> species near <i>manihotalis</i> Guenee 1854	Insecta: Lepidoptera: Pyralidae	U-34	[30]
23	Unidentified genus and species	Insecta: Lepidoptera: Tineidae?	U-17	[30]
24	Unidentified genus and species	Insecta: Psocoptera:	U-17	[30]
25	Unidentified genera and species	Arachnida: Acarina:	Multiple caves	[2]

Table S3. Environmental data collected at various sites within Bayliss and Nasty Caves between June 1985 and January 1989.

Cave	Date	Site	°C	% RH	Volume % CO ₂	Volume % O ₂
Bayliss	14-15.June.1985	30 m from entrance slope	22.8	95	0.4	19.4
		270 m from entrance	23.2	~98	0.5	19
		430 m from entrance	25.3	~99	0.6	21.2
		620 m from entrance	26.4	~98	2.8	18.8
		640 m from entrance	-	-	4.4	-
		860 m from entrance	26.6	100	5.9	15.1
Bayliss	31.May. 1986	Base entrance talus	23.8	~95	0.37	18.7
		½ way between entrance and duckunder. ~200 m into cave	23.8	~95	0.29	-
		15 m outside duckunder, 325 m from entrance	24.4	~95	0.28	-
		10 m beyond duckunder, 350 m from entrance	25-25.8	>95 - 100	0.25	-
		~500 m from entrance.	25.7	100	0.4	-
		Top of wall, 620 m from entrance	26.2	100	1.5	17.4
		Base of wall, 640 m from entrance	26.4	100	3.7	14.2
		End of main cave/ 900 m from entrance	27.1	>100	4.4	13
Bayliss	13.June. 1986	Below entrance slope	23.3	95	0.23	-
		½ way entrance to duckunder /on floor, ~200 m from entrance	23.7	95	-	-
		½ way entrance to duckunder /2 m above floor, ~200 m from entrance	23.9	95	-	-

		5 m outside duckunder / on floor, 330 m from entrance	24	95	-	-
		5 m outside duckunder / 2 m above floor, 330 m from entrance	24.7	95	-	-
		5 m inside duckunder / on floor, 350 m from entrance	24.7	95	-	-
		5 m inside duckunder / 2 m off floor, 350 m from entrance	25.6	>100	-	-
		½ wall and duckunder, ~500 m from entrance	25.7	100	0.4	18.1
		5 m above wall, 620 m from entrance	26.4	>95	2	-
		3 m below wall, 650 m from entrance	27.1	>100	3.8	13.3
		At crawl, 900 m from entrance	26.7	>100	4.4	12.8
Bayliss	10.January .1989	Above wall	26.2	100	1.7	-
		At base of wall	26.2	100	2.2	-
		950 m from entrance	26.8	100	2.9	14.5
		In extension, ~1,200 m from entrance	27	100	3.0	-
Bayliss	12.January .1989	Base entrance slope	24	~100	0.4	17.9
		250 m from entrance	24.2	~100	0.95	-
		Beyond d-u	25.3	~100	1.3	17-17.5
		At wall	26.1	>100	2.0	-
		Below wall	26.3	~100	2.0	16
		800 m from entrance	26.7	>100	2.5	16
		900 m from entrance	27.2	100	3.1	14.2
Nasty	29.May.1986	25 m from entrance	25.4	>95%	3.6	14.8
		120 m from entrance nr end	26.7	>100	5.1	13.7
Nasty	30.May.1986	110 m from entrance	26.5	100	3.4	-
Nasty	11.January.1989	Nr base of entrance slope	26.7	>95 %	4.4 %	14%
		~25 m from entrance	26.6	>95%	5%	-
		~50 m from entrance	26.8	~100%	5.1-5.3 %	12.8-13.1%
		~75 m from entrance	27.1	~100%	5.6%	-
		~125 m from entrance	27.2C	~100%	5.8%	13.5%
Bayliss	10.January .1989	Above wall	26.2	100	1.7	-
		At base of wall	26.2	100	2.2	-
		950 m from entrance	26.8	100	2.9	14.5
		In extension, ~1,200 m from entrance	27	100	3.0	-
Bayliss	12.January .1989	Base entrance slope	24	~100	0.4	17.9
		250 m from entrance	24.2	~100	0.95	-
		Beyond duck under	25.3	~100	1.3	17-17.5
		At wall	26.1	>100	2.0	-
		Below wall	26.3	~100	2.0	16
		800 m from entrance	26.7	>100	2.5	16
		900 m from entrance	27.2	100	3.1	14.2
Nasty	29.May.1986	25 m from entrance	25.4	>95%	3.6	14.8
		120 m from entrance nr end	26.7	>100	5.1	13.7
Nasty	30.May.1986	110 m from entrance	26.5	100	3.4	-
Nasty	11.January.1989	Nr base of entrance slope	26.7	>95 %	4.4 %	14%
		~25 m from entrance	26.6	>95%	5%	-
		~50 m from entrance	26.8	~100%	5.1-5.3 %	12.8-13.1%
		~75 m from entrance	27.1	~100%	5.6%	-
		~125 m from entrance	27.2C	~100%	5.8%	13.5%