

**Client report
to the Botanic Gardens and Parks Authority**



**Fungi survey 2009, and historical account
of fungi studies and names
- Kings Park and Botanic Garden**

Author: Neale L. Bougher

Department of Environment and Conservation, Western Australia



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Figures 1 - 6: Examples of the fungi discovered in Kings Park during 2009. Each of these species is highlighted in the discussion section of this report.



Figure 1: *Peziza moravecii* (E9322)



Figure 2: *Reddellomyces westraliense* (BOUGHER 543)



Figure 3: *Anthracobia melaloma* on burnt site



Figure 4: *Anthracobia melaloma* (BOUGHER 560)



Figure 5: *Peziza tenacella* (BOUGHER 561)



Figure 6: *Pulvinula archeri* (BOUGHER 573)

Background and Objectives

Kings Park and Botanic Garden is located only 1.5 km from central Perth, Western Australia, and includes a regionally significant bushland covering about 267 ha of the 400 ha Park. Kings Park lies on Spearwood dune systems with underlying limestone geology. The bushland has various vegetation types including woodlands with Tuart (*Eucalyptus gomphocephala*), Jarrah (*Eucalyptus marginata*), Marri (*Corymbia calophylla*), Banksia (including *Banksia attenuata*, *B. grandis*, *B. menziesii*, and *B. prionotes*), and Sheoak (*Allocasuarina fraseriana*). Three major plant communities occur at Kings Park – limestone heathland, banksia woodland, and low moist areas with *Banksia ilicifolia* (Barrett and Tay, 2005).

Fungi and their linkages with flora and fauna undoubtedly have central roles in maintaining the ecology and health of the bushland at Kings Park. Fungi are also present in the Botanic Garden, including beneficial and decomposer fungi and some troublesome pathogenic fungi such as *Armillaria*. However little has been known about the identity or ecology of Kings Park's fungi. There are only sporadic, uncoordinated records of Kings Park's fungi. Many hundreds of species of macrofungi may occur at Kings Park. Many hundreds of species of microfungi probably also occur in the park, including some that benefit native orchids.

Ongoing protection and improvement of knowledge about bushland Flora, Fauna and Fungi is an integral part of future management of Kings Park and Botanic Garden. Fungi have direct relevance to the Strategic Policies in the Kings Park and Botanic Garden Draft Management Plan 2009-2014 (Botanic Gardens and Parks Authority 2009). This includes scientific aspects of conserving and enhancing any native biological diversity of the designated land, inspiring educational & community involvement in biodiversity conservation, health & restoration of bushland, and undertaking research into collections of WA and other flora. The current work was contracted to improve the knowledge base about fungi at Kings Park and Botanic Garden.

The objectives of this work were:

1. Report on the historical studies of fungi undertaken prior to 2009 at Kings Park and Botanic Garden, and compile the fungi names recorded there prior to 2009. This information was considered essential as a basis to compare records from the current survey and future surveys at Kings Park and Botanic Garden.
2. Establish and undertake the first annual fungi survey for the draft Kings Park and Botanic Garden Draft Management Plan 2009-2014 (Botanic Gardens and Parks Authority 2009). This survey addressed the following:
 - a. Field survey
 - Inventory of macrofungi fruiting at scheduled survey (including native & exotic, rare & endangered).
 - Identity and description (key attributes) of species observed.
 - Permanent reference resource of selected specimens.
 - b. Report
 - Inventory and location of fungi observed during the current survey, identified to genus or species level, based on current survey: including possible designation as native and exotic, rare and endangered, beneficial, disease.
 - Known vegetation and plant associations of fungal species recorded.

Methods

1. Historical account of fungi studies and fungi names recorded prior to 2009

An investigation was undertaken into historical accounts of fungi recorded from Kings Park and Botanic Garden including dating back to the first known scientific record in 1839, when the area had already been set aside for public purposes but many decades before the area was declared "King's Park" (Erickson 2009). A historical investigation was considered essential as a foundation for this current survey work and future surveys. A summarized account is provided herein. An expanded version of this history is planned for publication in the journal *The Western Australian Naturalist*.

Firstly, a historical account of records of fungi from Kings Park was built by accessing published and unpublished data, reports from undergraduate student projects, and names from unpublished foray lists. Also

accessed were databases and vouchered fungi at the Department of Environment and Conservation's Western Australian Herbarium. Advice about the various people involved and the fungi records after the 1950's was also sought from R.N. Hilton and K. Griffiths.

Secondly, a compilation of fungi names from Kings Park up to 2009 was produced. The compilation (and associated history) primarily concerns macrofungi, but also includes slime moulds and some pathogenic microfungi. Microfungi associated with native orchids at Kings Park are not included.

2. Fungi survey

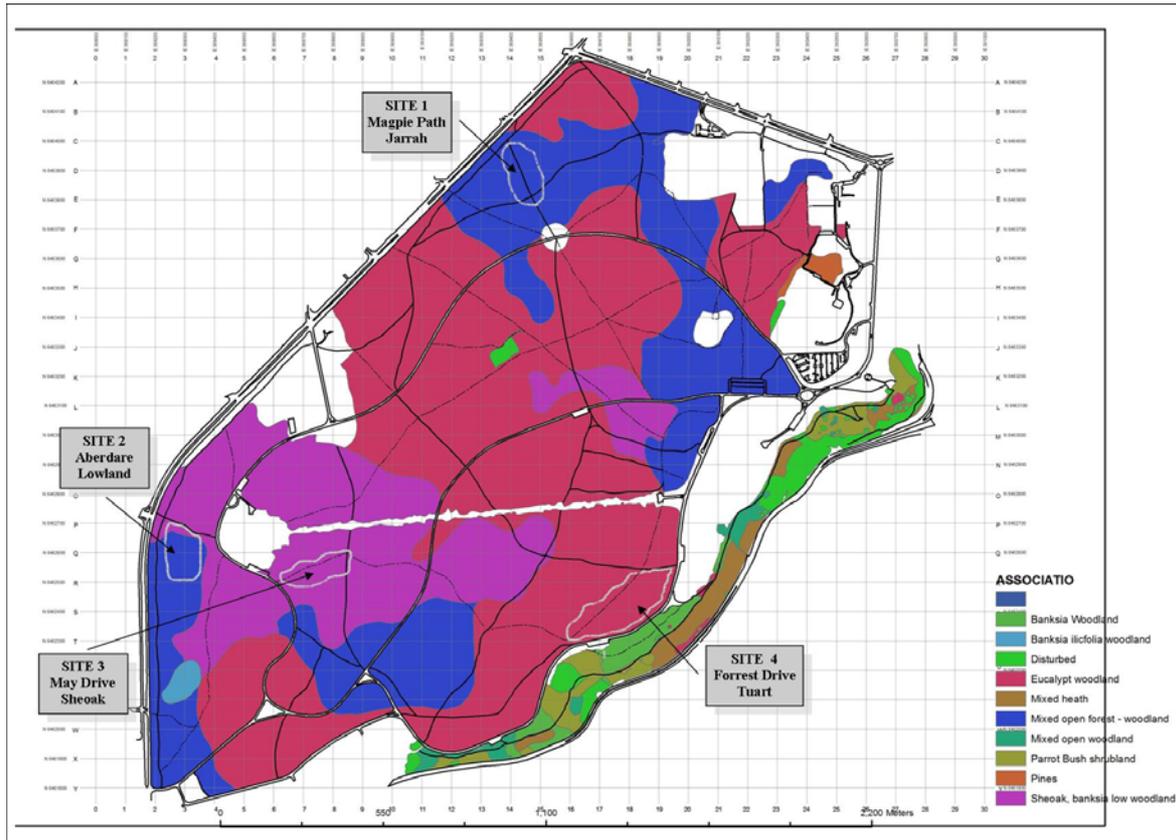
Fungi were collected in Kings Park from early June to the end of July 2009. May and early June had low rainfall and few fungi fruited during that time. However sustained rainfall during the remainder of June and in July encouraged fruit body production by many fungi. Four sites representing different vegetation types in Kings Park were surveyed for macrofungi (Table 1, Map 1). The surveys within the vegetation types were measured by a person x time basis – approximately 60 person time minutes per site each survey time. The number and intensity of surveys were dictated by weather conditions and limitations imposed by the consultancy contract. All fungi observed were georeferenced, recorded and photographed *in situ*. Selected fungi were collected for later description, vouchering and identification. During recording and collecting, particular attention was given to many of the main fungal microhabitats including open and mossy ground, litter, woody debris and logs, bark of living trees. Specific vegetation or plant associations of fungi were noted.

Fungi were identified to genus or species level by constructing morphological descriptions of the fungi collected, and examining key microscopic characteristics of specimens. Identifying fungi is often more complicated than identifying plants. There are no complete keys to the Australian fungi (such as Blackall & Grieve for the W.A. plants) to refer to. There are very few guidebooks, and they are far from complete in coverage, and in many cases quite inaccurate. A range of resources were utilized for identification: direct comparisons of macro and micro characters between Kings Park material and identified reference herbarium material (PERTH – Western Australian Herbarium), comparison with published mycological literature, and more generally by utilizing the author's own experience, knowledge and records. Identification enabled: (a) assessment of probable broad ecological roles of the fungi in community sustainability, (b) designation of fungi as native and exotic, and (c) a database of inventory data obtained for Kings Park and Botanic Garden comparable to available data of other similar woodland bushland areas. All of the fungi collected were photographed and preserved as air-dried, coded herbarium voucher material lodged at the Department of Environment and Conservation's Western Australian Herbarium, Kensington (PERTH).

Table 1: Sites surveyed for fungi at Kings Park in 2009.

Site ID	Site Name	Vegetation	Notes	Survey Visits 2009
1	Magpie Path	Jarrah open woodland	This area was partly burnt in 2009. Some invasive sugar gums are present.	3
2	Aberdare Lowland	Mixed open forest – woodland	South side of track last burnt 1989. More timber than in the north side (site 3).	3
3	May Drive Sheoak	<i>Allocasuarina/Banksia</i> low woodland.	Last burnt probably in 1962. Dominated by <i>Allocasuarina</i> and banksias but there is also a patch of young marri.	3
4	Forrest Drive Tuart (Block S18)	Tuart woodland	Extensively burnt early in 2009. Fungi survey primarily in the remaining unburnt fringes.	4
5	Opportunistic	Natural and planted	Covers the entire area of Kings Park, including bushland and botanic gardens.	numerous

Map 1: Sites surveyed for fungi at Kings Park and Botanic Garden in 2009



Results

Summarized History of the study of fungi at Kings Park

Up to 2009 there have been only sporadic, uncoordinated records of macrofungi and their ecology at Kings Park and Botanic Garden. A summarized historical account of the records is herein provided. An expanded version of this history is planned for publication in the journal *The Western Australian Naturalist*. NOTE: This historical account primarily refers to records of macrofungi, but also includes slime moulds and some pathogenic microfungi. Not included are records from ongoing studies by the Botanic Gardens and Parks Authority on microfungi associated with native orchids at Kings Park.

Aboriginal knowledge: Aboriginal use of local fungi such as *Laetiporus portentosus* the “Medop of New Holland Aborigines” as tinder (Hilton 1988) was probable. However the extent of aboriginal knowledge of fungi in the vicinity of Mount Eliza is unknown and there are no records specifically for Kings Park.

19th Century: The first scientifically named collection of a fungus from Kings Park was collected in June 1839 by Ludwig Preiss “in sandy places of the woods on Mt Eliza”. This specimen was examined and named in 1846 by E. Fries as *Agaricus australius* (= *Lepiota australiana* in Hilton 1982). Ludwig Preiss collected 52 fungi and lichens in WA during 1839-1841, and sent them to E. Fries in Europe (Hilton 1988). Almost all the collections of fungi from WA made by Preiss were lodged in Berlin and were destroyed during WWII. Preiss collected many fungi from in and around Perth but no other of his collections can be specifically attributed to Kings Park. James Drummond collected about 200 fungi in WA between about 1843-1846 (Hilton 1983), probably including some from Kings Park, but this is not confirmed. His collections from “Swan River” were mainly from further upstream and in the Toodyay district. None from Kings Park are evident in the Hilton (1982) census of WA fungi.

1950’s – 1987: Undergraduate students at the Botany Department, University of Western Australia studying under E.R.L. Johnson and then R.N. Hilton undertook studies on local fungi, often in the nearby Kings Park. Any specimens vouchered from these studies were lodged at UWA’s mycology herbarium and then transferred in 1988 to the WA Herbarium after the retirement of Mr Hilton in 1987 (Bougher 2009a).

1953: J. Gentili published a study on five species and two newly proposed forms of *Amanita* at Kings Park (Gentili 1953). There is no indication in Gentili's paper as to where his specimens were lodged, but Gentili sent some of his *Amanita* collections to C. Bas in Leiden where presumably all are held except *Amanita preissii* forma *levis* (probably = *A. preissii*) and *Amanita loricata* (invalidly published) which were missing (Bas 1969). Only one collection made by Gentili from Kings Park is lodged at the WA Herbarium - *Pisolithus* sp. (PERTH 952044) collected in 1940. Many of his collections are simply labeled "location not recorded".

1957: A natural history appraisal of Kings Park was published by the Naturalists Club (Main and Serventy 1957). Six fungi are mentioned: *Schizophyllum commune*, *Psalliota campestris* (current name = *Agaricus campestris*), *Trametes cinnabarina* (= *Pycnoporus coccineus*), *Polyporus eucalyptorum* (= *Laetiporus portentosus*), *Sporotrichum destructor* (= *Quambalaria coyrecup*) a canker fungus on *Eucalyptus ficifolia*, and *Amanita pulchella* (= *Amanita xanthocephala*).

1960's: During the period 1964 to June 1965, Peter H. Ross recorded 116 species in Kings Park (according to his letter in 1965 to J.S. Beard, see below) and at least a further 16 at the Park after that time. Mr Ross gained permission to collect fungi at Kings Park in July 1963 from J.S. Beard, who was then the Director Kings Park. Two years later he sent a typed letter dated 28 June 1965 to J.S. Beard in which he pointed out the diversity and significance of fungi at Kings Park and made a request for some assistance in order to further his work. The studies on fungi by Ross took the form of a loose compilation, punched holed and strung together into a volume entitled *Mycology Notes 1966 – 1970 – 1973* (Ross, undated). This volume, currently held at the WA Herbarium, contains brief and inconsistent hand written notes about each of the included 180 collections. 61 collections included in the volume are from Kings Park, representing an estimated maximum of 44 species of fungi (note discrepancy in number to above). Many of the fungi recorded by Peter Ross were not identified or verified. Some tentative identifications were provided by R. N. Hilton then a lecturer at the Botany Department UWA, and Kevn Griffiths then a school teacher living at Parkerville. It appears that no or few voucher specimens were retained, as there is no record of Peter Ross as a collector in the databases at the WA Herbarium.

1974: Dr Roy Watling from the Royal Botanic Garden, Edinburgh visited Western Australia May 11 -24 (Watling 1976). He collected 11 collections from Kings Park. All of his collections were vouchered and taken back to Edinburgh. Some were included in later publications, e.g. *Phylloporus* sp. Wat. 10257 later published as the Type specimens of *Phylloporus clelandii* (see 1991, below). Dr Watling also visited Western Australia April 17 – 25 1982 but he did not make any collections at Kings Park (Watling 1982).

1989: Dr Orson K. Miller Jr. from the Virginia Polytechnic and State University visited Western Australia May – June 1989. He and his wife Hope Miller collected fungi lodged 25 collections at the Western Australian Herbarium from Kings Park. They included specimens which were subsequently cited (non-Type) by Miller as representing two new species - *Amanita brunneiphylla* (OKM 23660, E 529, 21 May 1989) and *A. griseibrunnea* (OKM 23663, E533, 21 May 1989) (Miller 1991).

1991: A giant bolete collected from Kings Park (22 May 1974 "under *Eucalyptus camaldulensis* in avenue, legit. Barley") was published as a new species (*Phylloporus clelandii*) in an article on Queensland fungi. The Type specimens are lodged in Edinburgh (Watling and Gregory 1991). Dr Orson Miller also visited Western Australia in 1991 this time vouchering only two fungi from Kings Park. One was an unidentified species of *Scleroderma* and other was the first record of *Amanita basiorubra* from Kings Park. The latter was cited as a collection (non-Type) from May Drive, 19 June 1991, OKM 24890, E809, in the publication of *A. basiorubra* as a new species by Miller (1992). However this collection is not vouchered or databased at the WA Herbarium.

1990's: Several public forays were held at Kings Park for community groups. During a foray held on June 6th 1997 led by Dr Neale Bougher (then Mycologist, CSIRO) and Dr Ray Wills (then Ecologist, Kings Park) for the Friends of Kings Park about 50 species were recorded at four sites. Similar forays were led by these scientists on 13 June 1999 in (22 species recorded), and by Dr Bougher with the Friends of Kings Park on 11 July 1999 (about 25 species recorded).

1998: A brief study on the interaction of fire and the occurrence of macrofungi in Kings Park was undertaken at two fire sites by a Curtin University undergraduate student - Jeffrey Hallberg, under supervision by Ray Wills (BGPA), Neale Bougher (CSIRO), and Jacob John (Curtin University). 31 fungi were tentatively identified (Hallberg 1998). Also in 1998 a short illustrated article about Kings Park fungi was published (Bougher and Wills 1998).

2000's: A foray lead by Neale Bougher for the public on July 2nd 2000 yielded 35 species. On June 9th 2004 the newly-formed Perth Urban Bushland Fungi project (PUBF) hosted a foray with the Kings Park Guides (Bougher *et al.* 2005). Only 10 fungi species of fungi were recorded mainly due to the small distance covered by the foray group (just beyond the carpark near Hale Oval).

2004: Slime moulds were studied at one site in Kings Park and two sites in other urban bushlands by a Curtin University postgraduate student – Cecilia Jordan. Samples of bark were obtained on 4th May 2004 and incubated in moist chambers (Jordan *et al.* 2006). 10 species from the study are lodged at the WA Herbarium.

2009: Several pages of the book “A Joy Forever – The story of Kings Park and Botanic Garden” discussed fungi (Erickson 2009). Some inaccuracies concerning fungi and people were subsequently noted by N. Bougher and these were outlined in correspondence dated 3rd April 2009 to Mark Webb, Chief Executive Officer Botanic Gardens and Parks Authority. Also in 2009 the current survey of fungi at Kings Park and Botanic Garden was commissioned by the Botanic Gardens and Parks Authority, to be led by Neale Bougher (Department of Environment and Conservation, Western Australian Herbarium), with participation by community members. The first survey visit was conducted on 9th June 2009 in extremely dry conditions.

Historical records: names of fungi recorded from Kings Park up to year 2009

- 284 fungi names have been recorded at Kings Park prior to 2009 (Table 1, Appendix 1). However this only includes 121 names identified to species level (names with specific epithets), with the remainder of the names (163) only designated to genus level. *
- Of the 284 names only 143 are based on specimens that are vouchered in the Western Australian Herbarium. The identity of these names may be verified when time permits.
- The remainder of names (141) are not based on vouchered specimens. These are not verifiable. **

* *Note 1:* Each of the 163 names recorded prior to 2009 designated as “sp.” are each treated as separate species. Some of the “sp.” names are likely to match the identity of some of the other names that have been assigned specific epithets. Similarly the identities of some of the “sp” names listed under the same genus are likely match the same species as each other. No attempt has been made by the current author to determine if these are true in any case.

** *Note 2:* It is likely that at least some of the 141 un-vouchered pre-2009 names match the same species identity as the 143 vouchered pre-2009 names. However, most of the un-vouchered pre-2009 names cannot be verified to any level because they lack accompanying descriptive notes.

Table 1: Summary of fungi names recorded at Kings Park and Botanic Garden prior to 2009.
See Appendix 1 for full list of fungi names.

Category	Category Code (see Appendix 1)	Identified to species level	Vouchered	Number of names
Names with a specific epithet with vouchers at the WA Herbarium	A	+	+	83 includes 13 slime moulds, 1 rust (<i>Puccinia</i>), 1 smut (<i>Tilletia</i>), 2 canker microfungi (<i>Diplodina</i>) and 1 spot microfungus (<i>Lizonia</i>).
Names without a specific epithet with vouchers at the WA Herbarium	B	-	+	60
Names with a specific epithet and not vouchered in WA Herbarium,	C	+	-	38
Names without a specific epithet and not vouchered in WA Herbarium	D	-	-	103 includes some genera designated as spp. (i.e. likely to represent more than one species)
Total			284 names	



Participants finding fungi in extremely dry conditions on the inaugural fungi survey visit at Kings Park (9th June 2009). Neale Bougher, Peter Broome, Kevn Griffiths, Aruni Jayasakera, Wayne Merritt, and Phylis Robertson

Current Survey (2009)

A total of 123 species of fungi were obtained in 2009 during the period of this consultancy (Table 2). This number is a conservative figure because it includes 14 names that represent an as yet unresolved mixture of unknown numbers of species, e.g. *Clitocybe rag bag*, *no odour*, and *Undetermined resupinate rag bag* (see Table 2).

The fungi from 2009 represent 72 known genera and 44 families (+ 18 undetermined or ragbag groupings and therefore genera and families unknown) (Table 3). All species are considered to be indigenous except one species designated as possibly exotic (introduced from outside Western Australia) – *Suillus granulatus* which is a mycorrhizal associate of *Pinus* trees. Detailed data for the fungal collections from 2009 that were vouchered for permanent reference are given in Appendix 2.

- 67% of the species (82) from the current 2009 survey are considered to be new records for Kings Park (colour entries in Table 2), i.e. they do not match any of the pre-2009 names that have specific epithets. *
- 33% of the fungi (41 species) in the current survey are considered to be the same as species recorded before 2009 (black entries in Table 2), i.e. same as any of the pre-2009 names that have specific epithets.
- 34 of the 82 new records are identified to species level, and 48 are only identified to genus level (Table 2).
- *Arachnopeziza aurata*, *Dasyscyphus acuum*, and *Propolis versicolor* had not been recorded before in Western Australia.
- Only 3 fungi were recorded in all 5 of the survey sites: *Calocera guepinioides*, *Campanella gregaria*, and *Gymnopilus allantopus*. Four fungi were recorded in 4 of the sites, 9 in 3 sites and 16 in two sites.
- Saprotrophic fungi (108 species) were more diverse than mycorrhizal fungi (11) and pathogenic fungi (3) (Table 3).
- Fungi were present in a wide range of vegetation and microhabitat types. Dead wood with 74 species, and leaf litter with 29 species, had the greatest diversity of fungi (Table 3).
- 6 species were recorded in two habitat types, e.g. *Omphalotus nidiformis* was observed on dead wood and living trees (DW/B).
- One species was observed in a high ammonia habitat– *Peziza moravecii*.
- Three species were observed on recently burnt ground: *Anthracobia melaloma*, *Peziza tenacella*, and *Pulvinula archeri*.

* NOTES: (i) The figure for “new records” considers only pre-2009 names that have specific epithets and does not consider any pre-2009 records that were not identified to species level. (ii) Species groups listed in 2009 (“ragbags” in Table 2) are not included as new records in this report if there had been any category of name listed under a particular genus pre-2009, e.g. *Exidia* ragbag is excluded because *Exidia glandulosa* had been recorded at Kings Park in 1971.

Table 2: Identity and some ecological characteristics of fungal species in Kings Park 2009 (arranged in order of genus, species). **Red-brown** = new records of species previously not recorded from Kings Park found during 2009. **Sp. ID** refers to Perth Urban Bushland fungi Project code numbers assigned to taxa. **“Ragbag” species names** refer to uncertain numbers of undetermined species grouped under a common name pending further studies to resolve their identity.

Ecology/Life modes: S = saprotrophic; P = pathogenic; M = mycorrhizal; ? = not known or cannot be assumed with confidence.

Microhabitat types: A = Animal; B = Bark of living tree; BG = Burnt ground/litter; D = Dung; DT = Diseased or dying tree/plant; DW = Dead wood/logs; L = Leaf litter or soil; MB = Moss on bark of living tree; MG = Moss on ground, wood or rocks; U = Underground

Sp. ID	Species	Family	Common Name	Form	Life Mode	Micro Habitat	Native / Exotic	Voucher Code	2009 SITES	1	2	3	4	5
KP024	<i>Aleurodiscus sp. pink-orange</i>	Aleurodiscaceae	Orange Aleurodiscus	CD	S	DW	N	E9357	1					
KP033	<i>Amanita preissii</i>	Amanitaceae		MU	S	L	N	Davison 3-2009	1					
KP043	<i>Amanita sp. ochre ring</i>	Amanitaceae		MU	M	L	N	E9424	5					
5	<i>Amanita xanthocephala</i>	Amanitaceae	Yellow Headed Amanita	MU	M	L	N		1					
KP050	<i>Anthracobia melaloma</i>	Pyronemataceae	Orange Fire Anthracobia	CD	S	BG	N	BOUGHER 560	1, 4					
KP034	<i>Arachnopeziza aurata</i>	Pezizaceae		CD	S	DW	N	E9391	4					
441	<i>Arcyria cinerea</i>	Arcyriaceae		SL	S	DW	N		2					
KP025	<i>Arcyria pomiformis</i>	Arcyriaceae		SL	S	DW	N		1					
6	<i>Arcyria sp.</i>	Arcyriaceae		SL	S	DW			2					
7	<i>Armillaria luteobubalina</i>	Tricholomataceae		MU	P	DT	N		5					
KP017	<i>Auriporia sp. orange-pored</i>	Fomitopsidaceae		RE	S	DW	N	E9325, E9326	3					
14	<i>Bolbitius vitellinus</i>	Bolbitiaceae		MU	S	L	N		5					
19	<i>Calocera guepinoides</i>	Dacrymycetaceae	Scotsman's Beard	JE	S	DW	N		all					
KP039	<i>Calocera sp. spindle</i>	Dacrymycetaceae		JE	S	DW	N	E8389	4					
9	<i>Campanella gregaria</i>	Tricholomataceae	Gregarious Bells	SH	S	DW	N	E9353, E9390, E9416	all					
224	<i>Ceratiomyxa fruticulosa</i>	Ceratiomyxaceae		SL	S	DW	N	E9420	2, 4, 5					
KP049	<i>Clavulina vinaceocervina</i>	Clavulinaceae	Flesh-coloured Coral Fungus	CO	M	L	N	E9455	1					
28	<i>Clitocybe ragbag, no odour</i>	Tricholomataceae		MU	S	DW	N		5					
28	<i>Clitocybe sp. crowded gills, depressed cap</i>	Tricholomataceae		MU	S	L/DW	N	E9447	1, 2					
479	<i>Clitopilus sp. tiny white fans</i>	Crepidotaceae	Tiny white fans	SH	S	DW	N	BOUGHER 515, 525	1, 3, 4					
36	<i>Coprinopsis cf. stangliana</i>	Psathyrellaceae	Western Australian Magpie Fungus	MU	S	L	N		4, 5					
40	<i>Crepidotus eucalyptorum</i>	Crepidotaceae	Eucalypt Crepidotus	SH	S	B	N	E9360	1, 4					
382	<i>Crepidotus mollis</i>	Crepidotaceae		SH	S	DW	N		2					
41	<i>Crepidotus nephrodes</i>	Crepidotaceae		SH	S	DW	N		2					
43	<i>Crepidotus sp.</i>	Crepidotaceae		SH	S	DW	N		4, 5					
186	<i>Crepidotus sphaerosporus</i>	Crepidotaceae		SH	S	DW	N	E9367	1					
KP046	<i>Cudoniella sp. greenish</i>	Helotiaceae		CD	S	L	N		5					
KP047	<i>Dasyscyphus acuum</i>	Hyaloscyphaceae		CD	S	DW	N	E9421	5					
46	<i>Dasyscyphus ragbag</i>	Hyaloscyphaceae		CD	S	DW	N		4					
KP008	<i>Dasyscyphus sp. feather duster</i>	Hyaloscyphaceae		CD	S	DW	N	BOUGHER 527	1					

Sp. ID	Species	Family	Common Name	Form	Life Mode	Micro Habitat	Native / Exotic	Voucher Code	2009 SITES	1	2	3	4	5
54	<i>Exidia ragbag</i>	Exidiaceae		JE	S	DW	N		4, 5					
KP004	<i>Exidia sp. blue</i>	Exidiaceae		JE	S	DW	N		2					
KP015	<i>Exidiopsis sp. yellow scabs</i>	Auriculariaceae	Yellow scabs	JE	S	DW	N	E9320	3, 4					
119	<i>Fomitiporia robusta</i>	Hymenochaetaceae		BR	S	DT	N		2					
58	<i>Fuligo septica</i>	Physaraceae	Dog vomit slime mould	SL	S	L	N		3					
377	<i>Galerina nana</i>	Cortinariaceae		MU	S	L	N		5					
KP042	<i>Galerina sp. orange-brown on wood</i>	Cortinariaceae		MU	S	DW	N	E9417	5					
KP031	<i>Galerina sp. small brown in litter</i>	Cortinariaceae		MU	S	DW/L	N	E9359	1					
346	<i>Ganoderma sp.</i>	Ganodermataceae		BR	S	DW	N		4					
66	<i>Gymnopilus allantopus</i>	Cortinariaceae	Golden Wood fungus	MU	S	DW	N	E9355	all					
315	<i>Gymnopilus cf. purpuratus</i>	Cortinariaceae		MU	S	DW	N		3, 5					
68	<i>Gymnopilus purpuratus</i>	Cortinariaceae		MU	S	DW	N		5					
69	<i>Gymnopilus ragbag</i>	Cortinariaceae		MU	S	L	N							
402	<i>Gymnopus ragbag</i>	Tricholomataceae		MU	S	L	N	E9450	1, 3					
KP006	<i>Hemimycena sp. minute, fragile, white pileus, arcuate gills</i>	Mycenaceae		MU	S	L	N	BOUGHER 524, 526	1, 3, 4, 5					
71	<i>Henningsomyces candidus</i>	Schizophyllaceae	Miniature Chimney Pots	TU	S	DW	N	E9361	1, 4, 5					
73	<i>Hexagonia vesparia</i>	Coriolaceae		BR	S	B	N		4					
375	<i>Hjortstamia crassa</i>	Phanerochaetaceae		RE	S	DW	N	BOUGHER 522	1, 3, 4					
410	<i>Hohenbuehelia bingarra</i>	Tricholomataceae		SH	S	DW	N		3					
74	<i>Hohenbuehelia ragbag</i>	Tricholomataceae		SH	S	DW	N		4					
KP032	<i>Hygrocybe sp. pearly</i>	Hygrophoraceae		MU	S	L/BG	N	E9358, E9381, E9387	1, 4					
75	<i>Hymenochaete sp. ochre resupinate</i>	Hymenochaetaceae		RE	S	DW	N		2					
KP012	<i>Hymenoscyphus cf. immutabilis</i>	Leotiaceae		CD	S	DW	N	BOUGHER 519	1					
KP028	<i>Hymenoscyphus sp. cushion-dome shape</i>	Leotiaceae		CD	S	DW	N	E9363, E9366	1					
KP003	<i>Hyphodontia breviseta</i>	Hyphodermataceae		RE	S	DW	N	BOUGHER 512	2					
78	<i>Hyphodontia sp. white, low tubercules</i>	Hyphodermataceae		RE	S	DW	N		1, 3, 4					
82	<i>Laccaria lateritia</i>	Tricholomataceae		MU	M	L	N	E9455	2, 5					
83	<i>Laccaria sp. pale gills & stem</i>	Tricholomataceae		MU	M	L	N		2, 5					
KP001	<i>Lentinus cf. strigosus</i>	Lentinaceae		M	S	DW	N	BOUGHER 514	3					
293	<i>Lepiota ragbag</i>	Lepiotaceae		MU	S	L	N	E9450	2					
92	<i>Limacella pitereka</i>	Amanitaceae	Slimacella	MU	S	L	N	E9351	1					
KP048	<i>Merismodes sp.</i>	Marasmiaceae		CY	S	DW	N	E9448	2					
101	<i>Mycena nargan</i>	Mycenaceae		MU	S	DW	N	BOUGHER 520	1, 4					
KP044	<i>Mycena ragbag, in litter</i>	Tricholomataceae		MU	S	L	N		5					
KP045	<i>Mycena ragbag, on wood</i>	Mycenaceae		MU	S	DW	N		3, 5					

Sp. ID	Species	Family	Common Name	Form	Life Mode	Micro Habitat	Native / Exotic	Voucher Code	2009 SITES	1	2	3	4	5
KP009	<i>Mycena sp. black cap, hairy base, chlorine odour</i>	Mycenaceae		MU	S	DW	N		1					
KP019	<i>Mycena sp. brown translucent-striate in litter</i>	Mycenaceae		MU	S	L	N		2					
KP005	<i>Mycena sp. dull brown on wood</i>	Mycenaceae		MU	S	DW	N		1					
KP041	<i>Mycena sp. minute on moss on trees</i>	Mycenaceae		MU	S	MB	N		4					
KP021	<i>Mycena sp. small, lemon cap</i>	Mycenaceae		MU	S	L	N	E9319	2, 5					
110	<i>Omphalotus nidiformis</i>	Tricholomataceae		SH	S/P	DW/B	N	E9423	3, 5					
238	<i>Perenniporia ochroleuca</i>	Polyporaceae		BR	S	DW	N		2, 5					
KP018	<i>Peziza moravecii</i>	Pezizaceae		CD	S	L	N	E9322	3					
KP051	<i>Peziza tenacella</i>	Pezizaceae	Lilac Fire Cup	CD	S	BG	N	BOUGHER 561	4					
237	<i>Phaeotrametes decipiens</i>	Polyporaceae		BR	S	DT	N		2					
120	<i>Phellinus sp. extensive resupinate</i>	Hymenochaetaceae		BR	S	DW	N	E9454	2, 3					
122	<i>Phlebia sp.</i>	Meruliaceae		RE	S	DW	N	BOUGHER 511	1, 2, 3, 4					
KP053	<i>Phylloporus clelandii</i>	Boletaceae		MU	M	L	N		5					
225	<i>Physarum viride</i>	Physaraceae	Yellow Stalked Slime Mould	SL	S	DW	N		3					
126	<i>Piptoporus australiensis</i>	Coriolaceae	Curry Punk	BR	S	DT	N		4					
128	<i>Pisolithus sp.</i>	Sclerodermataceae	Dog Poo Fungus	PF	M	L	N		4					
KP029	<i>Pleuroflammula praestans</i>	Cortinariaceae		SH	S	DW	N	E9356	1					
362	<i>Pleurotellus sp.</i>	Crepidotaceae		SH	S	DW	N		3, 4, 5					
458	<i>Pluteus paupercaulus</i>	Pluteaceae	Yellow Gilled Pluteus	MU	S	DW	N	E9352	1					
271	<i>Poria s.l. ragbag</i>	Unknown		RE	S	DW	N		2, 3, 4, 5					
KP033	<i>Propolis versicolor</i>	Rhytismataceae		PS	S	DW	N	E9383	4					
138	<i>Psathyrella rag bag, in litter</i>	Psathyrellaceae		MU	S	L	N	E9415	5					
KP052	<i>Pulvinula archeri</i>	Pyronemataceae	Orange Fire Pulvinula	CD	S	BG	N	BOUGHER 573	4					
140	<i>Pycnoporus coccineus</i>	Coriolaceae	Scarlet Bracket Fungus	BR	S	DW	N		1, 2, 4, 5					
397	<i>Ramaria cristata</i>	Ramariaceae		CO	M	L	N		1					
KP037	<i>Ramaria sp. white</i>	Ramariaceae		CO	M	L	N		4					
279	<i>Reddellomyces westraliensis</i>	Otideaaceae		TR	M	U	N	BOUGHER 543	5					
467	<i>Resupinatus subapplicatus</i>	Tricholomataceae		SH	S	DW	N	E9379, E9422	1, 4, 5					
134	<i>Royoporus badius</i>	Polyporaceae		BR	S	B	N		4					
149	<i>Schizophyllum commune</i>	Schizophyllaceae	Split Gill Fungus	SH	S	DW	N	E9445	2					
211	<i>Stereum illudens</i>	Stereaceae	Purplish Stereum	BR	S	DW	N	E9362	1					
400	<i>Suillus granulatus</i>	Suillaceae		MU	M	L	E		5					
160	<i>Tomentella sp. greyish,</i>	Thelephoraceae		RE	S	DW	N		4					

Sp. ID	Species	Family	Common Name	Form	Life Mode	Micro Habitat	Native / Exotic	Voucher Code	2009 SITES	1	2	3	4	5
	<i>yellowing</i>													
207	<i>Tremella mesenterica group</i>	Tremellaceae	Yellow Brain Fungus	JE	S	DW	N	E9453	1, 3, 5					
KP027	<i>Trichia decipiens var. olivacea</i>	Trichiaceae		SL	S	DW	N	E9477	1					
KP011	<i>Trichia persimilis</i>	Trichiaceae		SL	S	DW	N	E9300	1					
KP020	<i>Trichia verrucosa</i>	Trichiaceae		SL	S	DW	N	E9476	2					
368	<i>Tubaria serrulata</i>	Crepidotaceae		MU	S	L	N	BOUGHER 521	1					
166	<i>Tubulicrinis sp. white thin smooth</i>	Tubulicrinaceae		RE	S	DW	N		3					
KP026	<i>Undetermined agaric dark chestnut hairy base</i>	Unknown		MU	S	L	N	E9354	1					
KP023	<i>Undetermined ascomycete minute dull brown cushions</i>	Unknown		CD	S	DW	N	E9364	1					
KP022	<i>Undetermined ascomycete minute orange discs (lichen?)</i>	Unknown		CD	S	DW	N	E9365	1, 4, 5					
KP016	<i>Undetermined ascomycete minute yellow discs on wood</i>	Unknown		CD	S	DW	N		3					
317	<i>Undetermined bracket fungus ragbag</i>	Unknown		BR	S	B	N		5					
KP035	<i>Undetermined cyphelloid ragbag</i>	Unknown		CY	S	DW	N		4					
KP038	<i>Undetermined hydroid resupinate-bracket</i>	Unknown		RE/B R	S	DW	N		4					
KP007	<i>Undetermined mould on insects ragbag</i>	Unknown		MO	P	A	N		1					
KP030	<i>Undetermined resupinate grey smooth</i>	Unknown		RE	S	DW	N		1					
KP040	<i>Undetermined resupinate grey, rhizomorphic</i>	Unknown		RE	S	DW	N		4					
KP010	<i>Undetermined resupinate pale grey velvety</i>	Unknown		RE	S	DW	N		1					
169	<i>Undetermined resupinate rag bag</i>	Unknown		RE	S	DW	N		5					
KP036	<i>Undetermined resupinate white & ochre, smooth</i>	Unknown		RE	S	DW	N		4					
KP013	<i>Undetermined resupinate white and brown, pored</i>	Unknown		RE	S	DW	N		4					
KP014	<i>Undetermined resupinate white lacerate curtains</i>	Unknown		RE	S	DW	N		3					
KP002	<i>Undetermined resupinate white smooth sterile</i>	Unknown		RE	S	DW	N		2					
107	<i>Undetermined slime mould ragbag</i>	Unknown		SL	S	DW / L	N		4					
308	<i>Uromycladium tepperianum</i>	Pileolariaceae	Acacia gall rust	RU	P	DT	N		3					
471	<i>Xerula mundroola</i>	Tricholomataceae		MU	S	L	N	E9451	3					

Table 3: Taxonomic rank, life mode, habitat, and sites of fungi in Kings Park in 2009.

Note: some fungi may have more than one life-mode type, and modes for most have not been confirmed.

Category	No. species	Example species
Taxonomic ranks		
Species	123 (includes 14 ragbags)	
Genera	72 (+ 18 of unknown genus)	
Families	44 (+ 18 of unknown family)	
Ecology/Lifemode types		
Saprotrophic	108	<i>Xerula mundryola</i>
Pathogenic	3	<i>Royoporus badius</i>
Mycorrhizal	11	<i>Phylloporus clelandii</i>
Saprotrophic or pathogenic	1	<i>Omphalotus nifdiformis</i>
Main habitat types (+ 6 species with two or more habitats)		
A = Animal	1	Undetermined mould
B = Bark of living tree	3	<i>Crepidotus eucalyptorum</i>
BG = Burnt ground/litter	3	<i>Anthracobia melaloma</i>
D = Dung	0	-
DT = Diseased or dying tree/plant	5	<i>Phaeotrametes decipiens</i>
DW = Dead wood/logs	74	<i>Pluteus paupercaulus</i>
L = Leaf litter or soil	29	<i>Clavulina vinaceocervina</i>
MB = Moss on bark of living tree	1	<i>Mycena sp. minute on moss on trees</i>
MG = Moss on ground, wood or rocks	0	-
U = Underground	1	<i>Reddelomyces westraliense</i>
Survey Sites		
1	26 exclusive / 14 shared	<i>Hymenoscyphus cf. immutabilis</i>
2	15 / 9	<i>Hyphodontia breviseta</i>
3	12 / 14	<i>Peziza moravecii</i>
4	21 / 19	<i>Propolis versicolor</i>
5	16 / 19	<i>Dasyscyphus acuum</i>
Origin		
Native	122	<i>Amanita preissii</i>
Exotic	1	<i>Suillus granulatus</i>

Discussion

Fungi biodiversity at Kings Park and Botanic Garden

123 fungi were recorded in 2009. Many more species of fungi occur at Kings Park. This is indicated by the large number of pre-2009 records (284 names). However, it is not possible to accurately estimate the number of fungi species known so far from Kings Park. Any estimate depends on the level of acceptance of unverified or unverifiable names as representing or not individual species, particularly the names recorded before 2009. For example the following are two extreme estimations, the first conservative, and the second expansive:

1. *If the estimate strictly includes only records named to species level:* 165 fungi named to species level have been recorded from Kings Park. This includes 121 named species recorded before 2009 (83 vouchered and 38 unvouchered), and 34 of the 82 new records in 2009 that were identified to species level and not recorded before 2009.

2. *If the estimate includes all names recorded (i.e. records named to species level plus records only named to genus level):* 366 fungi have been recorded from Kings Park. This includes 284 names recorded prior to 2009, plus 82 names recorded in 2009 that are considered to have not been recorded before at Kings Park.

The second estimate is by no means accurate as it includes unverifiable names, e.g. 141 of the 284 pre-2009 recorded names are not vouchered and therefore cannot be verified. Some of the names may represent the same species as each other. This estimate is also compromised because it includes some names likely to represent multiple species, e.g. the 14 “ragbags” listed in 2009.

It must be accepted that to date, a number of fungi somewhere between 165 and 366 species has been recorded at Kings Park under various verified, verifiable and unverifiable names. It is recommended that the former figure (165 fungi) be adopted due to the unverifiable nature of most of the names (see below).

New Records

Some of the fungi recorded at Kings Park in 2009 had not been recorded before in Western Australia: *Arachnopeziza aurata*, *Dasyscyphus acuum*, and *Propolis versicolor*. The figure of 67% (82) of the 123 fungi recorded in 2009 considered in this report as “new records” for Kings Park is likely to be an over-estimate. It is likely that some of the 82 “new” fungi (among both the 34 of those identified to species level and the 48 only identified to genus level) match the species identity of names recorded at Kings Park before 2009. However it is uncertain as to how many more of the 2009 and pre-2009 names match the same species identity. This is because the species identity of most of the pre-2009 names are not verified as yet (the 143 pre-2009 names with vouchers), or cannot be verified (the 141 pre-2009 names without vouchers).

Also the figure for “new records” only considers pre-2009 names that have specific epithets and discounts all pre-2009 records that were not identified to species level. A more accurate estimate of “new records” could be obtained if (a) the 60 vouchered pre-2009 names currently without specific epithets were examined in detail to determine their specific identity, and (b) records in 2009 that are not yet identified to species level were also examined in detail to determine their specific identity.

Some notable fungi in 2009

Many species of fungi which usually fruit in local Perth bushlands during the early part of the fungi season did not appear in 2009 due to absence of significant rainfall in May and the first half of June. The fruiting of fungi at Kings Park in 2009 peaked in July and was sustained in that month by good rainfall. In September, Perth had over 20 days with rain. This sustained the fruiting of some fungi, but those were mainly species that favour disturbed areas and gardens. Examples of notable fungi recorded at Kings Park in 2009 include the following species:

Peziza moravecii (Figure 1, see on page 2): This is a cup fungus (ascomycete) which produces caramel-brownish cups up to 25 mm in diameter. *P. moravecii* is an ammonia fungus. At Kings Park it was observed near putrefying animal (probably dog) faeces. Ammonia fungi are a chemoecological group of fungi with exclusive or enhanced mycelial and fruiting activity in the presence of ammonia-yielding nitrogenous compounds. They occur naturally in organic nitrogen-rich circumstances, and fungi. It is a highly specialised ecological niche, and only some ammonia fungi also naturally occur outside these circumstances. Successional assemblages of various ammonia fungi may be induced by artificial application to soil of nitrogen

compounds that yield ammonia. There are some parallels between the taxonomy of fungi and their succession on burnt soil and ammonia-treated soil. Closely related species of fungi appear in a similar time sequence in both situations. Other ammonia macrofungi have been observed in south-west of Western Australia such as the 'ghoul fungus' *Hebeloma aminophilum*, and *Lyophyllum tylicolor*, and these may be expected to also occur at Kings Park in similar microhabitats as found for *Peziza moravecii*.

Reddellomyces westraliense (Figure 2): This is the only truffle fungus species recorded in 2009. It has a smooth, dry, thin, white, unchanging peridium (outer surface) and a labyrinthine white chambered gleba (interior). It is one of the few truffle fungi recorded so far at Kings Park. The others are: *Hydnangium carneum* (recorded in 1998), and a *Thaxterogaster* sp. (collected in 1986). All truffle fungi are considered to be beneficial mycorrhizal partners of native plants, and they also provide food for a variety of animals ranging from mammals such as bandicoots to beetles and other arthropods.

Fire responsive fungi (Figures 3 - 6): In similarity with the succession that occurs on high nitrogen sites, a post-fire succession of fungi occurs in natural forests and woodlands of south west WA and elsewhere (Robinson and Bougher 2003). Some fungi respond rapidly by fruiting soon after fire, whereas others activate later in the succession. The appearance of fungi after fire is a sign that ecological and nutrient cycling processes are re-establishing after fire. At Kings Park in 2009, three species of post-fire (pyrophilous) fungi were observed in tuart woodland and in jarrah woodland areas that had been burnt early in 2009: the cup fungi (ascomycetes) *Anthracobia melaloma* (Figures 3, 4), *Peziza tenacella* (Figure 5), *Pulvinula archeri* (Figure 6). These three fungi have colourful fruit bodies that may be produced gregariously in large numbers providing a stark contrast to the blackened, sparsely vegetated, burnt ground.

Conclusion and recommendations

Although the current estimate of fungi diversity now known for Kings Park and Botanic Garden is not precise (conservatively 165 species), it is likely that the Park has a diversity of fungi likely to equal or exceed that of other similar bushlands such as Bold Park where over 400 species are known so far (Bougher 2009b). To increase the accuracy and amount of knowledge about fungi at Kings Park, verification of previous fungi collections and ongoing annual surveys to capture detailed data about species backed up by permanent vouchers are required. It is necessary to survey fruit bodies at the same location over many years if such data is to be used as an accurate measure of fungal diversity. At nearby Bold Park, a significant proportion of new records have been found at the park each year over a 10 year survey period, including 40% new in 2009 (Bougher 2009b). It will be of interest to compare successive years of data from Kings Park with the fungal biodiversity at Bold Park.

The continued support of DEC's Western Australian Herbarium will be critical to facilitate taxonomic studies needed to resolve more of the records of fungi from Kings Park. This will enable a more accurate assessment of the numbers of fungi species present at Kings Park. Support will be required if further taxonomic studies are to take place on the collections of fungi from Kings Park vouchered at the WA Herbarium. This will be required to verify the identity of named species and to determine the identity of those designated only to genus level, including pre-2009 and 2009 collections. The current contract addressed many such issues but a more comprehensive study will require support for considerable time and taxonomic expertise. Like at Bold Park, resolution of the identity of fungi at Kings Park will continue to be a developmental process, with the identity of more species gradually resolved each year. Resolution of the identity of fungi at both Parks would be accelerated if financial support targeted for taxonomic studies became available.

The four sites chosen for the fungi survey at Kings Park in 2009 should be re-visited in future surveys, but it may also be possible to survey other parts of the park. Annual fungi surveys should continue to involve community groups to inspire interpretation and appreciation of urban bushland values at Kings Park, e.g. observation of fungal succession on burnt sites, or in other restoration areas. Further training of volunteers and staff is recommended in order to recognize a greater array of fungi. Surveys will also supplement the Perth Urban Bushland Project (PUBF) established in 2004 (see www.fungiperth.org.au) – a broader-based initiative which aims to raise awareness about fungal biodiversity, and to document the fungi of Perth's urban bushlands. Some of the fungi recorded so far in Kings Park are depicted in the on-line field book for

fungi of the Perth region (Bougher 2009c). However it is recommended that an account of the fungi in Kings Park be produced, such as a colourful field book and/or pamphlets and posters.

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Appendix 1

Fungi names (mainly macrofungi) recorded at Kings Park and Botanic Garden prior to 2009 (in alphabetical order of names)

Codes:

- A** Names with a specific epithet and with a voucher at the WA Herbarium
B Names identified to genus level only and with a voucher at the WA Herbarium
C Names with a specific epithet but with no voucher at the WA Herbarium
D Names identified to genus level only and with no voucher at the WA Herbarium

#	Name	CODE	Date first coll. or of event	Collector/ Event	PERTH No.	CSIRO/UWA No.
1.	<i>Agaricus campestris</i>	A	2/06/1997	N.L. & M.E. Bougher	7597428	CSIRO.E 5840
2.	<i>Agaricus sp.</i>	D	31-Jul-63	1963-1973 P.H. Ross		
3.	<i>Agaricus sp.</i>	D	13-Jun-99	1999 Foray 13 June		
4.	<i>Agaricus sp.</i>	D		1974 Watling	Wat. 10181	
5.	<i>Agaricus sp. non-yellowing</i>	D	6-Jun-97	1997 Foray 6 June		
6.	<i>Agrocybe arenicola</i>	A	/ /	Anonymous.	759317	UWA 1498
7.	<i>Aleurina asperulus</i>	A	19/07/1984	D. Waldie	1126350	UWA 2913
8.	<i>Amanita basiorubra</i>	A	19/06/91	O.K. Miller Jr. (OKM 24890)	Not found	CSIRO. E 809
9.	<i>Amanita brunneiphylla</i>	A	21/05/1989	O.K. Miller Jr. & H. Miller (OKM 23660)	7587562	CSIRO. E 529
10.	<i>Amanita conicobulbosa</i>	C	June/July 1950?	J. Gentilli		Held in Leiden?
11.	<i>Amanita griseibrunnea</i>	A	21/05/1989	O.K. Miller Jr. & H. Miller (OKM 23663)	7587589	CSIRO. E 533
12.	<i>Amanita loricata</i>	C	June/July 1950?	J. Gentilli		Not preserved?
13.	<i>Amanita ochroterrea</i> (Gentilli's <i>A. preissii</i> f. <i>ochroterrea</i>)	A	June/July 1950?	J. Gentilli	Later coll. in WA herb.	Held in Leiden?
14.	<i>Amanita preissii</i>	A	June/July 1950?	J. Gentilli	Later coll. in WA herb.	Original held in Leiden?
15.	<i>Amanita preissii forma levis</i>	C	June/July 1950?	J. Gentilli		Not preserved?
16.	<i>Amanita princeps</i>	C	23-May-74	1974 Watling		Held in Edinburgh?
17.	<i>Amanita sp.</i>	B	1/06/1974	Anonymous	7575254	UWA 1832
18.	<i>Amanita sp.</i>	B	21/05/1989	O.K. Miller Jr. & H. Miller	7587597	CSIRO. E 534

#	Name	CODE	Date first coll. or of event	Collector/ Event	PERTH No.	CSIRO/UWA No.
19.	<i>Amanita sp.</i>	B	19/05/1989	O.K. Miller Jr. & H. Miller	7587325	CSIRO. E 521
20.	<i>Amanita sp.</i>	B	21/05/1989	O.K. Miller Jr. & H. Miller	7587570	CSIRO. E 530
21.	<i>Amanita sp.</i>	B	19/05/1989	O.K. Miller Jr. & H. Miller	7587546	CSIRO. E 526
22.	<i>Amanita sp.</i>	B	19/05/1989	O.K. Miller Jr. & H. Miller	7587554	CSIRO. E 528
23.	<i>Amanita sp.</i>	B	19/05/1989	O.K. Miller Jr. & H. Miller	7587317	CISRO. E 520
24.	<i>Amanita sp.</i>	B	19/05/1989	O.K. Miller Jr. & H. Miller	7587333	CISRO. E 522
25.	<i>Amanita sp.</i>	B	21/05/1989	O.K. Miller Jr & H. Miller	7662300	CSIRO. E 535
26.	<i>Amanita sp.</i>	B	8/06/1989	H. Miller	7564597	CSIRO. E 595
27.	<i>Amanita sp.</i>	B	28/05/1980	J. Viska	904651	UWA 2408
28.	<i>Amanita sp.</i>	D	23-Apr-64	1963-1973 P.H. Ross		
29.	<i>Amanita sp.</i>	D	13-May-65	1963-1973 P.H. Ross		
30.	<i>Amanita sp.</i>	D	22-May-65	1963-1973 P.H. Ross		
31.	<i>Amanita sp.</i>	D		1963-1973 P.H. Ross		
32.	<i>Amanita sp. (conicobulbosa?)</i>	D	6-Oct-65	1963-1973 P.H. Ross		
33.	<i>Amanita sp. rooting</i>	D	13-Jun-99	1999 Foray 13 June		
34.	<i>Amanita sp. small white, marginate bulb, ring present</i>	D	6-Jun-97	1997 Foray 6 June		
35.	<i>Amanita sp. vaginatae group</i>	D	6-Jun-97	1997 Foray 6 June		
36.	<i>Amanita sp. very strong smell</i>	D	23-May-74	1974 Watling	Wat. 10251	
37.	<i>Amanita sp. white marginate bulb, white scales, white pendulous ring</i>	D	6-Jun-97	1997 Foray 6 June		
38.	<i>Amanita species A (unidentified)</i>	D	6-Jul-00	2000 Foray 6 July		
39.	<i>Amanita species B (unidentified)</i>	D	6-Jul-00	2000 Foray 6 July		
40.	<i>Amanita species C (unidentified)</i>	D	6-Jul-00	2000 Foray 6 July		
41.	<i>Amanita spp.</i>	D	1998	1998 Hallberg		
42.	<i>Amanita umbrinella</i>	C	June/July 1950?	J. Gentilli		Held in Leiden?
43.	<i>Amanita xanthocephala (Gentilli's A. pulchella)</i>	A	June/July 1950? (as <i>pulchella</i>)	J. Gentilli	Later coll. in WA herb.	Held in Leiden?
44.	<i>Anthracobia muelleri</i>	A	5/06/1970	D. Waldie	1125753	UWA 1263
45.	<i>Arcyria incarnata</i>	A	30/06/2005	P. Gurry	7097549	
46.	<i>Armillaria luteobubalina</i>	A	19/07/1974	P.R. Wycherley [for] R. Watling	768251	UWA 1830
47.	<i>Armillaria sp.</i>	B	14/06/1974	R.N.H.	767778	UWA 1828
48.	<i>Austropaxillus muelleri</i>	A	/07/1977	H. Soord	776211	UWA 2159
49.	<i>Bolbitius vitellinus</i>	A	30/05/1997	M.E. & N.L. Bougher	7597304	CSIRO. E 5827
50.	<i>Boletus nigerrimus</i>	A	/ /	J. Turner	774650	UWA 2110
51.	<i>Boletus pallidus</i>	A	22/05/1974	K. Elson	907251	UWA 1887
52.	<i>Boletus regius</i>	C	4-Jun-64	1963-1973 P.H. Ross		
53.	<i>Boletus sp.</i>	B	16/06/1989	O.K. Miller Jr & H. Miller	7548354	CSIRO. E 656
54.	<i>Boletus sp.</i>	B	19/05/1989	O.K. Miller Jr. & H. Miller	7587341	CISRO. E 523
55.	<i>Boletus sp.</i>	B	4/05/1982	N. Malajczuk	7607377	CSIRO. E 223
56.	<i>Boletus sp.</i>	B	21/05/1989	O.K. Miller Jr. & H. Miller	7587430	CSIRO. E 536
57.	<i>Boletus sp.</i>	B	21/05/1989	O.K. Miller Jr. & H. Miller	7587511	CSIRO. E 531
58.	<i>Boletus sp.</i>	B	19/05/1989	O.K. Miller Jr. & H. Miller	7587368	CISRO. E 524
59.	<i>Boletus sp.</i>	B	14/05/1986	N.L. Bougher	7712995	CSIRO. E 3754
60.	<i>Boletus sp.</i>	B	24/06/1981	Anonymous	7590083	CSIRO. E 177
61.	<i>Boletus sp.</i>	B	15/06/1989	N.L. Bougher	7548362	CSIRO. E 657
62.	<i>Boletus sp.</i>	B	13/06/1981	N. Malajczuk	7609159	CSIRO. E 149
63.	<i>Boletus sp.</i>	B	13/06/1981	Anonymous	7589921	CSIRO. E 150
64.	<i>Boletus sp.</i>	D	31-Jul-63	1963-1973 P.H. Ross		
65.	<i>Boletus sp.</i>	D	20-Jun-64	1963-1973 P.H. Ross		
66.	<i>Boletus sp.</i>	D	11-May-65	1963-1973 P.H. Ross		

#	Name	CODE	Date first coll. or of event	Collector/ Event	PERTH No.	CSIRO/UWA No.
67.	<i>Boletus sp.</i>	D		1963-1973 P.H. Ross		
68.	<i>Boletus sp.</i>	D	24-May-65	1963-1973 P.H. Ross		
69.	<i>Boletus sp.</i>	D	2-Jun-65	1963-1973 P.H. Ross		
70.	<i>Boletus sp.</i>	D	12-May-74	1974 Watling	Wat. 10181	
71.	<i>Boletus sp.</i>	D	23-May-74	1974 Watling	Wat. 10255	
72.	<i>Boletus spp.</i>	D	6-Jul-00	2000 Foray 6 July		
73.	<i>Calocera guepinioides</i>	A	14/06/1998	N.L. Bougher	7608187	CSIRO. E 5963
74.	<i>Calocera sp.</i>	D	6-Jun-97	1997 Foray 6 June		
75.	<i>Calocera sp.</i>	D	1998	1998 Hallberg		
76.	<i>Calocera sp.</i>	D	13-Jun-99	1999 Foray 13 June		
77.	<i>Calvatia candida</i>	A	/05/1962	B. Phillips	953539	UWA 589
78.	<i>Calvatia sp.</i>	D	13-Jun-99	1999 Foray 13 June		
79.	<i>Campanella gregaria</i>	A	9-Jul-04	2004 Foray 9 July		E8004
80.	<i>Ceratiomyxa fruticulosa</i>	C	1998	1998 Hallberg		
81.	<i>Clitocybe dealbata</i>	C	6-Jun-97	1997 Foray 6 June		
82.	<i>Clitocybe semiooculta</i>	A	14/07/1966	H.C. Broughton	755117	UWA 1259
83.	<i>Clitocybe sp.</i>	B	/07/1970	P. Ross	755613	UWA 1358
84.	<i>Clitocybe sp.</i>	B	14/07/1966	H.C. Broughton	735523	UWA 1252
85.	<i>Clitocybe sp.</i>	D		Vouchered		
86.	<i>Collaria arcyronema</i>	A	16/07/2004	C. Jordan	6873006	
87.	<i>Collaria elegans</i>	A	19/07/2004	C. Jordan	6873065	
88.	<i>Collybia sp.</i>	D	5-May-65	1963-1973 P.H. Ross		
89.	<i>Collybia sp.</i>	D	1998	1998 Hallberg		
90.	<i>Coltricia cinnamonea</i>	C	11-Jul-99	1999 Foray 11 July		
91.	<i>Coltriciella dependens</i>	A	/ /	R.N. Hilton	939447	UWA 1849
92.	<i>Colus pusillus</i>	C	5-Jul-65; 1998	1963-1973 P.H. Ross; 1998 Hallberg		
93.	<i>Comatricha ellae</i>	A	21/07/2004	C. Jordan	6872883	
94.	<i>Comatricha nigra</i>	A	9/07/2004	C. Jordan	6872948	
95.	<i>Comatricha rigidireta</i>	A	14/07/2004	C. Jordan	6873057	
96.	<i>Comatricha sp.</i>	B	21/07/2004	C. Jordan	6872999	
97.	<i>Coprinopsis stangliana</i>	A	2/06/1997	N. & M. Bougher	7240562	CSIRO. E 5834
98.	<i>Coprinus atramentarius</i>	C	22-Jun-64	1963-1973 P.H. Ross		
99.	<i>Coprinus comatus</i>	C	1998	Bougher		
100.	<i>Coprinus disseminatus</i>	A	8/08/1971	A. Young	758825	UWA 1427
101.	<i>Coprinus micaceus</i>	A	28/01/2000	R.T. Wills	7658451	CSIRO. E 6407
102.	<i>Coprinus sp.</i>	B	31/07/1971	A. Young	758272	UWA 1468
103.	<i>Coprinus sp. delicate in litter</i>	D	13-Jun-64	1963-1973 P.H. Ross		
104.	<i>Coprinus sp. delicate in litter</i>	D	6-Jun-97	1997 Foray 6 June		
105.	<i>Cortinarius archeri</i>	A	11/07/1999	N.L. Bougher et al.	7658524	CSIRO. E 6237
106.	<i>Cortinarius microarcheri</i>	C	6-Jul-00	2000 Foray 6 July		
107.	<i>Cortinarius ochraceus</i> (= <i>Cortinarius sinapicolor</i>)	A	30/06/1968	A. Walker	754595	UWA 1202
108.	<i>Cortinarius radicans</i>	C	1998	1998 Hallberg		
109.	<i>Cortinarius rotundisporus</i>	A	8/07/1986	C. Wilson	922579	UWA 3452
110.	<i>Cortinarius sp.</i>	B	29/07/1974	R.N. Hilton	768790	UWA 1865
111.	<i>Cortinarius sp.</i>	B	24/06/1981	Anonymous	7590091	CSIRO. E 178
112.	<i>Cortinarius sp.</i>	D	11-Jul-99	1999 Friends 11 July		
113.	<i>Cortinarius species A (unidentified)</i>	D	6-Jul-00	2000 Foray 6 July		
114.	<i>Cortinarius species B (unidentified)</i>	D	6-Jul-00	2000 Foray 6 July		
115.	<i>Cortinarius subarcheri</i>	C	1998; 11-Jul-99	1998 Hallberg; 1999		

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				Foray 11 July		
116.	<i>Crepidotus applanatus</i>	A	12/06/1985	S. Bellgard	920398	UWA 3352
117.	<i>Crepidotus eucalyptorum</i>	A	9-Jul-04	2004 Foray 9 July		E.....
118.	<i>Crepidotus mollis</i>	C	6-Jul-00	2000 Foray 6 July		
119.	<i>Crepidotus sp.</i>	B	25/06/1982	M. Firth	909866	UWA 2625
120.	<i>Crepidotus sp.</i>	B	13/06/1999	K. Clarke	7612699	CSIRO. E 6057
121.	<i>Crepidotus sp.</i>	D	6-Jun-97	1997 Foray 6 June		
122.	<i>Crepidotus sp.</i>	D	11-Jul-99	1999 Friends 11 July		
123.	<i>Crepidotus uber</i>	A	14/07/1966	H.C. Broughton	755125	UWA 1251
124.	<i>Cribraria microcarpa</i>	A	26/07/2004	C. Jordan	6872697	
125.	<i>Cribraria minutissima</i>	A	12/07/2004	C. Jordan	6873103	
126.	<i>Cribraria sp.</i>	B	1/09/2004	C. Jordan	6873049	
127.	<i>Datronia stereoides</i>	A	11/07/1999	N.L. Bougher	7658923	CSIRO. E 6276
128.	<i>Diplodina melanocraspeda</i>	A	6/09/1993	J.A. Bathgate	3269906	
129.	<i>Diplodina melanocraspeda</i>	A	6/09/1993	J.A. Bathgate	3269884	
130.	<i>Echinostelium minutum</i>	A	/07/2004	C. Jordan	6873022	
131.	<i>Entoloma sp.</i>	D	6-Jun-97	1997 Foray 6 June		
132.	<i>Entoloma sp.</i>	D	1998	1998 Hallberg		
133.	<i>Exidia glandulosa</i>	A	15/07/1971	M.E. Trudgen	968374	UWA 1463
134.	<i>Fistulina hepatica</i>	C	20-Jun-70; 11-Jul-99	1963-1973 P.H. Ross; 1999 Foray 11 July		
135.	<i>Fomes sp.</i>	B	3/07/1962	A.M. Tan	929891	UWA 339
136.	<i>Fomitopsis lilacinogilva</i>	A	13/06/1999	N.L. Bougher	7612664	CSIRO.E 6054
137.	<i>Galerina autumnalis group</i>	D	13-Jun-99	1999 Foray 13 June		
138.	<i>Galerina nana group</i>	D	13-Jun-99	1999 Foray 13 June		
139.	<i>Galerina sp.</i>	B	8/08/1971	A. Young	760897	UWA 1505
140.	<i>Galerina sp.</i>	D	6-Jun-97	1997 Foray 6 June		
141.	<i>Galerina sp.</i>	D	1998	1998 Hallberg		
142.	<i>Galerina unicolor</i>	C	6-Jun-97; 11-Jul-99; 6-Jul-00	1997 Foray 6 June; 1999 Foray 11 July; 2000 Foray 6 July		
143.	<i>Geastrum triplex</i>	A	25/06/1985	N. Pendlebury	963127	UWA 3355
144.	<i>Genus sp.</i>	B	21/07/2004	C. Jordan	6873111	
145.	<i>Genus sp.</i>	B	28/07/2004	C. Jordan	6873073	
146.	<i>Gymnopilus allantopus</i>	A	21/07/1966	H.C. Broughton	814571	UWA 1255
147.	<i>Gymnopilus purpuratus</i>	A	16/06/1997	N.L. Bougher	7608276	CSIRO. E 5865
148.	<i>Gymnopilus sp.</i>	B	13/06/1999	B. Rees	7612672	CSIRO. E 6055
149.	<i>Gymnopilus sp.</i>	D	31-Jul-63	1963-1973 P.H. Ross		
150.	<i>Gyroporus cyanescens</i>	A	25/05/1998	N.L. Bougher	7572646	CSIRO. E 886
151.	<i>Gyroporus sp.</i>	B	4/05/1982	N. Malajczuk	7607385	
152.	<i>Gyroporus sp.</i>	D	1-Jun-65	1963-1973 P.H. Ross		
153.	<i>Hebeloma westraliense</i>	C	6-Jul-00	2000 Foray 6 July		
154.	<i>Heterotextus peziziformis</i>	C	1998;13-Jun-99; 6-Jul-00	1998 Hallberg; 1999 Foray 13 June; 2000 Foray 6 July		
155.	<i>Hohenbuehelia sp.</i>	D	13-Jun-99	1999 Foray 13 June		
156.	<i>Hydnangium carneum</i>	C	1998	Bougher		
157.	<i>Hydnellum sp (immature)</i>	D	6-Jun-97	1997 Foray 6 June		
158.	<i>Hydnoid</i>	D	6-Jun-97	1997 Foray 6 June		
159.	<i>Hypholoma fasciculare-like</i>	D	20-Jun-64	1963-1973 P.H. Ross		
160.	<i>Hypocrea sp.</i>	D				
161.	<i>Inocybe banksiana (nom. prov.)</i>	A	3/09/2001	P.B. Matheny	7676840	CSIRO. E 7056
162.	<i>Inocybe geophylla (likely to be I. violaceocaulis)</i>	A	3/07/1985	A. Webb	919403	UWA 3348

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163.	<i>Inocybe sp. brown</i>	D	13-Jun-99	1999 Foray 13 June		
164.	<i>Inocybe sp. small fibrillose</i>	D	13-Jun-99	1999 Foray 13 June		
165.	<i>Inocybe violaceocaulis</i>	A	26/06/1985	E. Horak	7712812	CSIRO. E 3737
166.	<i>Inonotus sp. brown, tomentose top, shallow dirty cream tubes</i>	D	6-Jun-97	1997 Foray 6 June		
167.	<i>Jelly fungus</i>	D	9-Jun-64	1963-1973 P.H. Ross		
168.	<i>Laccaria lateritia</i>	C	6-Jul-00	2000 Foray 6 July		
169.	<i>Laccaria sp.</i>	D	13-Jun-99	1999 Foray 13 June		
170.	<i>Laccaria sp.</i>	D	11-Jul-99	1999 Friends 11 July		
171.	<i>Laccaria sp. (lateritia?)</i>	D	1998	1998 Hallberg		
172.	<i>Laccaria sp. cf. lateritia</i>	D	6-Jun-97	1997 Foray 6 June		
173.	<i>Laetiporus portentosus</i>	A	11/07/1976	J. Masters	941565	UWA 2135
174.	<i>Lamprospora sp.</i>	B	/ /1962	A.M. Tan	747157	UWA 695
175.	<i>Lentinellus cochleatus</i>	A	14/07/1966	H.C. Broughton	934666	UWA 1254
176.	<i>Lepiota australiana</i>	C	1839	1839 Ludwig Preiss		
177.	<i>Lepista nuda</i>	A	1/07/1981	P. Yeoh	908819	UWA 2578
178.	<i>Lepista sordida</i>	A	29/08/1981	O.K. Miller	909416	UWA 2593
179.	<i>Limacella ilinata (= piterika?)</i>	C	1998; 6-Jun-97; 6-Jul-00	1998 Hallberg; 1997 Foray 6 June; 2000 Foray 6 July		
180.	<i>Limacella sp.</i>	D	12-Jun-64	1963-1973 P.H. Ross		
181.	<i>Limacella sp.</i>	D	13-Jun-99	1999 Foray 13 June		
182.	<i>Lizonia oxylobii</i>	A	19/11/1915	A. Cayzer	785601	
183.	<i>Lycogala epidendrum</i>	A	8/01/1976	P. Wycherley	6236383	
184.	<i>Lycoperdon sp.</i>	D	4-Apr-64	1963-1973 P.H. Ross		
185.	<i>Lycoperdon sp.</i>	D	6-Jun-97	1997 Foray 6 June		
186.	<i>Marasmius spp.</i>	D	1998	1998 Hallberg		
187.	<i>Melanoleuca sp.</i>	B	5/07/1982	R.N. Hilton	911461	UWA 2701
188.	<i>Melanoleuca sp.</i>	B	3/09/2001	P.B. Matheny	7677146	CSIRO. E 7057
189.	<i>Morchella sp.</i>	B	24/09/1964	J. Malcolm & D. Biggins	743518	UWA 822
190.	<i>Morchella sp.</i>	D		Vouchered		
191.	<i>Mycena nargan</i>	A	9-Jul-04	2004 Foray 9 July		E8003
192.	<i>Mycena sp</i>	D	9-Jul-04	2004 PUBF 9 July		
193.	<i>Mycena sp.</i>	B	11/07/1984	D. Weatherilt	918288	UWA 2972
194.	<i>Mycena sp.</i>	B	26/06/1978	J.R. Hanley	901938	UWA 2304
195.	<i>Mycena sp.</i>	D	13-Jun-99	1999 Foray 13 June		
196.	<i>Mycena sp.</i>	D	9-Jul-04	2004 PUBF 9 July		
197.	<i>Mycena sp. (pura?)</i>	D	1998	1998 Hallberg		
198.	<i>Mycena sp. chlorine, dark cap, large, rooting stem, in litter</i>	D	6-Jun-97	1997 Foray 6 June		
199.	<i>Mycena sp. chlorine, in litter</i>	D	6-Jun-97	1997 Foray 6 June		
200.	<i>Mycena sp. small pale grey cap, on wood</i>	D	6-Jun-97	1997 Foray 6 June		
201.	<i>Mycena species A (unidentified)</i>	D	6-Jul-00	2000 Foray 6 July		
202.	<i>Mycena subgalericulata</i>	A	22/07/1997	N.L. Bougher	7608756	CSIRO. E 5917
203.	<i>Nolanea sp.</i>	D	13-Jun-99	1999 Foray 13 June		
204.	<i>Omphalotus nidiformis</i>	A	16/06/1985	N.L. Bougher	7569017	CSIRO. E 3694
205.	<i>Osmoporus sp.</i>	D	1998	1998 Hallberg		
206.	<i>Panaeolus sp.</i>	D	1998	1998 Hallberg		
207.	<i>Paradiacheopsis fimbriata</i>	A	9/07/2004	C. Jordan	6872964	
208.	<i>Perenniporia oviforma</i>	A	22/07/1997	N.L. Bougher & R.T. Wills	7608764	CSIRO. E 5918
209.	<i>Peziza sp.</i>	B	25/07/1962	A. Puddy	743003	UWA 885
210.	<i>Peziza vesiculosa</i>	C	12-Jul-65	1963-1973 P.H. Ross		

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211.	<i>Phallus costatus</i>	A	26/09/1971	A.M. Young	957305	UWA 1482
212.	<i>Phallus</i> sp.	D	23-Jul-65	1963-1973 P.H. Ross		
213.	<i>Pholiota cf. hilandensis</i>	D	6-Jun-97; 6-Jul-00	1997 Foray 6 June; 2000 Foray 6 July		
214.	<i>Pholiota highlandensis</i>	A	8/08/1971	A.Young	758817	UWA 1493
215.	<i>Pholiota multicingulata?</i>	C	31-Jul-63	1963-1973 P.H. Ross		
216.	<i>Pholiota</i> sp.	B	14/05/1968	R. Mead	815152	UWA 1156
217.	<i>Phylloporus hyperion</i>	A	15/05/1968	R. Mead	813095	UWA 1150
218.	<i>Phylloporus</i> sp.	B	13/06/1999	N.L. Bougher et al.	7612680	CSIRO. E 6056
219.	<i>Phylloporus</i> sp.	B	20/06/1981	Anonymous	7590024	CSIRO. E 170
220.	<i>Phylloporus</i> sp.	B	24/06/1981	Anonymous	7590075	CSIRO. E 176
221.	<i>Physarum gyrosum</i>	A	25/06/2004	M. Brundrett	7214499	
222.	<i>Piptoporus australiensis</i>	C	13-Jun-64	1963-1973 P.H. Ross		
223.	<i>Pisolithus marmoratus</i>	C	6-Jun-97	1997 Foray 6 June		
224.	<i>Pisolithus microcarpus</i>	A	16/05/1982	N. Malajczuk	7629419	CSIRO.H 269
225.	<i>Pisolithus</i> sp.	B	/11/1940	Dr S. Gentili	952044	UWA 107
226.	<i>Pisolithus</i> sp.	D	9-Jul-04	2004 PUBF 9 July		
227.	<i>Pisolithus tinctorius</i>	A	/05/1962	B. Phillips	954098	UWA 592
228.	<i>Pleurotus nidiformis</i>	A	16/06/1985	E. Horak	919896	UWA 3347
229.	<i>Pluteus</i> sp.	D	11-Jul-99	1999 Friends 11 July		
230.	<i>Polypore bracket</i>	D	6-Jul-00	2000 Foray 6 July		
231.	<i>Polypore</i> sp. cinnamon pores	D	11-Jul-99	1999 Friends 11 July		
232.	<i>Polypore</i> sp. dentate pores	D	11-Jul-99	1999 Friends 11 July		
233.	<i>Polypore</i> sp. large white pores	D	11-Jul-99	1999 Friends 11 July		
234.	<i>Polyporus citreus</i>	C	1998	1998 Hallberg		
235.	<i>Polyporus infernalis</i>	A	/10/1988	R.N. Hilton	2358824	
236.	<i>Psathyrella</i> sp.	B	26/05/1975	D. Waldie	773093	UWA 2042
237.	<i>Psathyrella</i> sp.	B	30/05/1997	M.E. & N.L. Bougher	7597339	CSIRO. E 5830
238.	<i>Psathyrella</i> sp.	D	11-Jul-99	1999 Friends 11 July		
239.	<i>Psathyrella</i> spp.	D	6-Jul-00	2000 Foray 6 July		
240.	<i>Pseudoplectania</i> sp.	D	1998	1998 Hallberg		
241.	<i>Puccinia recondita</i>	A	18/10/1923	W.M. Carne	823031	
242.	<i>Puffball</i>	D	9-Jun-64	1963-1973 P.H. Ross		
243.	<i>Pulvinula miltina</i>	A	5/06/1970	D. Waldie	1125834	UWA 1264
244.	<i>Pulvinula</i> sp.	B	5/06/1970	D. Waldie	743992	UWA 1263
245.	<i>Pulvinula</i> sp.	D	11-Jul-99	1999 Friends 11 July		
246.	<i>Pycnoporus coccineus</i>	A	25/05/1998	N.L. Bougher	7572638	CSIRO. E 887
247.	<i>Ramaria ochraceosalmonicolor</i>	C	20-Jul-66	1963-1973 P.H. Ross		
248.	<i>Ramaria</i> sp.	B	/07/1980	B. Walker	944726	UWA 2455
249.	<i>Ramaria</i> sp. pinkish brown, vertical branches	D	6-Jun-97	1997 Foray 6 June		
250.	<i>Ramaria</i> sp. red brown	D	11-Jul-99	1999 Friends 11 July		
251.	<i>Ramaria</i> sp. smaller, pale, fine branches, cristata-like	D	6-Jun-97	1997 Foray 6 June		
252.	<i>Ramaria</i> sp. yellow	D	11-Jul-99	1999 Friends 11 July		
253.	<i>Reddellomyces westraliensis</i>	A	13/06/1981	N. Malajczuk	5485479	
254.	<i>Resupinate corticioid</i>	D	6-Jul-00	2000 Foray 6 July		
255.	<i>Rhizopogon roseolus</i>	A	30/05/1997	N.L. & M.E. Bougher	7571321	CSIRO. H 7397
256.	<i>Russula delica</i> group	D	23-May-74	1974 Watling		
257.	<i>Russula erumpens</i>	A	17/05/1968	N. Sammy	735051	UWA 1158
258.	<i>Russula</i> sp.	B	23/05/1974	R.N. Hilton	767824	UWA 1834
259.	<i>Russula</i> sp.	B	4/05/1982	N. Malajczuk	7607393	CSIRO. E 225

#	Name	CODE	Date first coll. or of event	Collector/ Event	PERTH No.	CSIRO/UWA No.
260.	<i>Russula sp. pileus pure white</i>	D	23-May-74	1974 Watling	Wat. 10252	
261.	<i>Schizophyllum commune</i>	C	1957; 22-Jun-64; 1998	1957 Nats paper; 1963-1973 P.H. Ross; 1998 Hallberg		
262.	<i>Scleroderma areolatum</i>	A	3/09/2001	P.B. Matheny	7648316	CSIRO. H 7677
263.	<i>Scleroderma cepa</i>	C	6-Jul-00	2000 Foray 6 July		
264.	<i>Scleroderma sp.</i>	B	16/06/1989	O.K. Miller Jr. & H. Miller	7613660	CSIRO. H 544
265.	<i>Sepedonium</i>	D	6-Jul-00	2000 Foray 6 July		
266.	<i>Sepedonium sp.</i>	B	23/05/1974	Anonymous.	748722	UWA 1844
267.	<i>Stemonitopsis amoena</i>	A	14/07/2004	C. Jordan	6873030	
268.	<i>Stereum hirsutum</i>	C	11-Jul-99	1999 Foray 11 July		
269.	<i>Suillus granulatus</i>	A	30/05/1997	M.E. & N.L. Bougher	7597320	CSIRO. E 5829
270.	<i>Suillus sp. (as Boletus)</i>	D	17-Aug-63	1963-1973 P.H. Ross		
271.	<i>Thaxterogaster sp.</i>	B	24/07/1986	N. Bougher & R.N. Hilton	964115	UWA 3382
272.	<i>Tilletia viennotii</i>	A	4/02/1996	C. & K. Vanky	5013445	TUB
273.	<i>Trametes lilacino-gilvus</i>	C	1998	Bougher		
274.	<i>Trametes versicolor</i>	C	13-Jun-99	1999 Foray 13 June		
275.	<i>Tremella aurantia/mesenterica</i>	A	6-Jun-97; 1998; 13-Jun-99; 11-Jul-99; 6-Jul-00; 9-Jul-04	1997 Foray 6 June; 1998 Hallberg; 1999 Foray 13 June; 1999 Foray 11 July; 2000 Foray 6 July; 2004 Foray 9 July		E.....
276.	<i>Tricholoma sp.</i>	D	2-Jun-65	1963-1973 P.H. Ross		
277.	<i>Tricholomopsis rutilans</i>	C	1998	1998 Hallberg		
278.	<i>Tubaria rufolva</i>	C	1998	1998 Hallberg		
279.	<i>Tubaria serrulata</i>	A	2/06/1997	N.L. & M.E. Bougher	7597398	CSIRO. E 5837
280.	<i>Tylopilus pseudoscaber</i>	A	6/07/1980	G. Rhind	904643	UWA 2405
281.	<i>Volvariella sp.</i>	B	3/08/1964	J. Goodwin	750425	UWA 819
282.	<i>Volvariella speciosa</i>	A	12-Jun-64; 9-Jul-04	1963-1973 P.H. Ross; 2004 Foray 9 July		E....
283.	<i>Xeromphalina sp.</i>	D	6-Jul-00	2000 Foray 6 July		
284.	<i>Xerula australis</i>	C	6-Jun-97; 13-Jun-99	1997 Foray 6 June; 1999 Foray 13 June		

Appendix 2

The subset of fungi that were processed, described, & lodged as herbarium vouchers from Kings Park and Botanic Garden 2009: Western Australian Herbarium (PERTH), Kensington

Genus	Species	Code	Descriptive Notes	Plants	Date
<i>Aleurodiscus</i>	<i>sp.</i>	E9357	Fruitbody: from up to 1 - 2 mm to sand - grain size 'circles' when immature. Mature ones are very variable in shape, resupinate. Colour pinkish (between 9 - 3 BC). Edges are paler version of the same colour, and lightly raised forming a shallow dish and furry. Microscopic characteristics: Immature. With clamps, and with dendritic highly branched ornate cystidia (the hairs).	<i>Banksia</i>	30/06/2009
<i>Amanita</i>	<i>sp. ochre ring</i>	E9424	White capped mushroom with pronounced bulbous base and remnants of a creamy ring. Diam 40 mm. Sandy top. Gills creamy white, adnately attached. Stipe: 35 mm long and 10 mm wide.	<i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i>	16/07/2009
<i>Anthracobia</i>	<i>melaloma</i>	BOUGHER 00565	Characteristic Features: (i) gregarious clusters of bright orange (6C8 to 6B8) minute discs. Fruiting in less abundance than at the Forrest Drive tuart burnt area (see BOUGHER 560).	<i>Eucalyptus marginata</i> and <i>Allocasuarin fraseriana</i>	27/07/2009
<i>Anthracobia</i>	<i>melaloma</i>	BOUGHER 00560	Characteristic Features: (i) bright orange small stalkless disks, mainly flat but some concave with broad rounded darker orange rim adorned with dark brown to blackish appressed scales oriented radially, and apparently sub-gelatinised breaking into scattered isolated scales in lower parts. Size up to 5mm diameter. Note: The colour of the apothecia in this collection is certainly consistently orange without any hint of yellow. It is not the bright orange like a <i>Scutellinia</i> for example, but a duller orange very close to Methuen (6C8 "brownish orange"). The colour does not seem to change with age - the youngest apothecia are similar to the oldest ones. The orange-dominant colour is apparently more typical of <i>Anthracobia melaloma</i> (Rifai 1968) which was reported by Cook 1892 collected by Drummond in 1890's at Swan River, WA, on burnt ground. There is no hint of yellow in this BOUGHER 560 collection. Microscopic Features: Paraphyses: orange (in KOH), filiform 1.5 - 3.5 µ wide) with swollen or barely swollen up to 8.5 µ un-bent apex, septate, emerging beyond the asci, minutely densely granular contents, abundant (see photos in KOH). Context: cellular (see photo in KOH). Asci: 8-spored, cylindrical, complex branched base, e.g. 110 microns wide. Spores: ellipsoid, hyaline, smooth, 2-guttulate (in KOH), e.g.	<i>Eucalyptus gomphocephala</i>	23/07/2009

Genus	Species	Code	Descriptive Notes	Plants	Date
			19 x 9 µ. Scales on outside of apothecia: bundles (agglutinated) of swollen chains of ellipsoid cells up to 30 x 15 µ, septa constricted, some with thick (up to 1 µ wide) walls, brown in KOH, smooth.		
<i>Arachnopeziza</i>	<i>aurata</i>	E9391	Pale grey minute cushion-shaped, sessile fruit bodies. Few hairs. Microscopic Characteristics: Filiform (more tapered at one end), non-septate, hyaline, smooth-walled spores eg. 55 - 70 x 2 - 3 µ. Paraphyses not projecting filiform, septate, without swollen or bent apex, approx 2 µ wide. Asci mucronate apex, base not swollen 9 - 11 µ wide x eg. 70 µ. See photos.	<i>Allocasuarina fraseriana</i>	6/07/2009
<i>Auriporia</i>	<i>like</i>	E9325	150 - 40 mm covering on dead wood. Paler orange, paler and brighter than 112 (FDU) except for smoother patches approx 112. To the naked eye - an underlying very thin coating overlaid by raised irregular mainly longitudinal lumps. Pores just visible to eye. Underlying the orange is subiculum, very thin and much whiter - mainly outer margins of covering and where pores are not present. Opaque. Lumps less distinct/joined more together. Pores multiple, thin-walled projections, jagged. Walls thicker in the raised lumps. Raised lumps with rounded edges - pores open to base. Shorter walls at edges - with outer walls as if carved away to base. Microscopic Characteristics: spores allantoid, minutely roughened, hyaline. No cystidia seen. No clamps seen.	<i>Eucalyptus cladocalyx</i>	23/06/2009
<i>Auriporia</i>	<i>like</i>	E9326	Same species as E9325. Shows a richer orange colour. Is it the same species as the "Auriporia like" fungus we collected and vouchered from Periwinkle bushland? A couple of years ago?	<i>Allocasuarina fraseriana</i>	23/06/2009
<i>Calocera</i>	<i>sp.</i>	E9389	Reminiscent of "Scotsman's Beard" Fruitbody: all except one are cylindrical/spindle tapering to a blunt pointed apex. One only is "V" shaped. Colour: translucent, smooth, orange-ochre 4B6. Size: up to 15 mm and 1 +/- wide at widest. Microscopic Characteristics spores with a septum (see photo).	<i>Banksia</i>	6/07/2009
<i>Campanella</i>	<i>gregaria</i>	E9353	Main Characteristics: (i) Cap: bell shaped, colour palish grey/brown C3 (Methuen). Irregular circles. (ii) Gills: a series of honeycomb-like ridges. (iii) Appears as a gelatinous button when immature.	<i>Banksia</i>	30/06/2009
<i>Campanella</i>	<i>gregaria</i>	E9449	Notable by the particularly large size of these specimens (up to 10 mm wide).	<i>Banksia attenuata</i>	23/07/2009
<i>Campanella</i>	<i>gregaria</i>	BOUGHER 00513	Characteristic Features: (i) grey cupulate fruitbodies; (ii) anastomosed, loculate forming gills.	<i>Banksia menziesii</i>	9/06/2009
<i>Campanella</i>	<i>gregaria</i>	E9390	Perfect specimens all of same vertical orientation.	<i>Banksia attenuata</i>	6/07/2009
<i>Campanella</i>	<i>gregaria</i>	E9416	Irregular, grey-brown shells, reticulate ribbing. Attached at back to inside of bark. Colour 48 (Fungimap), some darker, some lighter. Shells up to 5 mm diam. Some with inrolled edges. Smooth edges.	<i>Banksia attenuata</i>	16/07/2009
<i>Ceratiomyxa</i>	<i>fruticulosa</i>	E9420	Fruit body: white patch 35 mm long, 17 mm wide. Under magnification little white columns attached to the substrate.	<i>Allocasuarina fraseriana</i>	16/07/2009
<i>Clavulina</i>	<i>sp.</i>	E9455	Body of fungus fulvous (Flora of British Fungi Color Chart). Fulvous rhizomorphs at base. Darker tips on fruit body (umber - Flora of British Fungi Color Chart). 4 cm tall, 4 mm wide. Body pubescent hairs (scattered) 4 mm of base white. Microscopic Characteristics: broad ovoid smooth spores (see photo in Trypan blue)	<i>Eucalyptus marginata</i>	23/07/2009
<i>Clitocybe</i>	<i>sp.</i>	E9447	Cap: Clay-pink (30 Flora of British Fungi), felty. Diam 5 to 56 mm. Edges inrolled, especially in small specimens. Planate or convex-small specimens have slightly raised area in centre. Gills: crowded, slightly decurrents to stem. Cinnamon (10 Flora of British Fungi) Stems: clear gelatinous material appears to be oozing out of stem - most apparent on juvenile fruit bodies, but not on all specimens. Diam 3 - 13 mm. Cylindrical, slightly broader at junction with cap with decurrent gills. Stem: chambered, branching, white rhizomorphs.	<i>Dryandra sessilis</i>	23/07/2009
<i>Clitopilus</i>	<i>sp. "tiny white fans"</i>	BOUGHER 00525	Characteristic Features: (i) small, white fan - shaped fruitbodies; (ii) short stalk is evident when immature but it becomes obscured later. Note: This seems to be a fairly common species in Perth bushlands and often occurs deep in thick litter. See other collections for more descriptive details and comments.	<i>Eucalyptus gomphocephala</i>	16/06/2009
<i>Coprinopsis</i>	<i>aff. stangliana</i>	E9380	A single specimen, typical of this species.	<i>Eucalyptus gomphocephala</i>	6/07/2009
<i>Crepidotus</i>	<i>sphaerosporus</i>	BOUGHER 00523	Characteristic Features: (i) small, but abundant white shell-shaped fruitbodies; (ii) cap surface minutely felty (see under lens); (iii) stem short, white, extremely eccentric; (iv) gills cream, without cystidiate edge, not or very reluctantly becoming brownish.		16/06/2009
<i>Crepidotus</i>	<i>eucalyptorum</i>	E9360	Cap: fairly tough, rubbery, cream at first to pale tan (6C7, Methuen) Gills: close in a fan	<i>Marri, jarrah and Sheoak</i>	30/06/2009
<i>Crepidotus</i>	<i>sphaerosporus</i>	E9367	Shelf-like structures, fan/shell shape, ivory-white colour. Margins smooth and wavy. Becoming a darker shade upper and under with age. Gills close. Can't determine gill attachment. No stem.	<i>Eucalyptus cladocalyx</i>	30/06/2009
<i>Cudoniella</i>	<i>sp.</i>	E9419	Fruitbody greenish colour cups, shallow, 4 x 3 mm diam (large one) and 2 mm high, shiny on top, margin entire, smooth. Small, smooth, brown stalk. Microscopic Characteristics: spores large (14 - 18 x 6 - 9 µ), subfusoid in face view, suballantoid in profile, smooth, hyaline, no septum (see photos in water). Asci: cylindrical, 8-spored, 12-15 µ wide, brown (see photo in water).	<i>Banksia attenuata</i>	16/07/2009
<i>Dasyscyphus</i>	<i>cf. acuum</i>	E9421	Minute white shallow cups with fringing hairs with short stalks. Microscopic Characteristics: hairs in discrete pyramidal bundles, cylindrical 2.3 - 2.8 wide, septate, encrusted (see photo in water). Immature, no spores seen. Paraphyses narrow with slightly tapering blunt apex, barely projecting beyond the asci.	<i>Allocasuarina fraseriana</i>	16/07/2009
<i>Dasyscyphus</i>	<i>sp. "feather duster"</i>	BOUGHER 00527	Characteristic Features: (i) very minute, less than 0.5 mm tall, entirely white, stalked cups; (ii) cup rim and stem with abundant stiff hairs; (iii) young fruit bodies appear like feather dusters (see photos); later the hairs become scruffier and disorganised. (see photos, and a sketch by NLB on the original field sheet) Microscopic Features: spores narrow fusoid not or barely sometimes broader at one end (variable), 5.8 - 6.8 x 1.2 - 1.8 µ, smooth. Paraphyses abundant, projecting beyond the asci, lanceolate. Asci: 8 spored, spores oblique. Hairs: cylindrical without swollen head, septate finely encrusted along entire length and with apex, 3 - 4 µ broad. No crystals observed at apices (but KOH may have dissolved any?).	<i>Allocasuarina</i>	16/06/2009
<i>Exidia</i>	<i>glandulosa</i>	E9382	Has tuberculae. Convoluted folds with numerous 1 cm or less granular protuberances over the surface of the fruit body. Firm gelatinous blob - smoother on fester growing edges, but still granular in appearance. Colour 2E - Methuen. Paler towards edges.	<i>Banksia attenuata</i>	6/07/2009
<i>Exidiopsis</i>	<i>sp.</i>	E9320	Numerous small irregular flattened discs with raised irregular top surface and hairy margins. Brown/green (59) with much paler margins (29). Tendency to dry rapidly in air becoming paler and some eventually yellow (between 110 & 120 FDU). Paler margins (hairs), margins are also slightly curled inward, particularly where growing in close proximity to others. Very fine granular surface. Hairs densely fibrous, translucent, almost sugary in composition. Others on a drier twig appear to have furled more at the margins and are more cup-like, and also irregular in shape. Flattened base. Microscopic characteristics: vertically split basidia with clamps and long sterigmata embedded in gelatinous matrix. Allantoid spores.		23/06/2009

Genus	Species	Code	Descriptive Notes	Plants	Date
<i>Galerina</i>	sp.	E9359	Cap: smallest 0.5 cm to largest 1 cm diam. Smooth and damp/slightly sticky to touch. Convex shape becoming plane/flattened, with sides near edge, striated. Margins smooth/entire becoming ragged with age. Colour brown Gills: light brown, page 6 E6 (Kornerup & Wanscher). Close spacing, sinuate, smooth entire margins. Stem: thin, cylindrical and hollow, tan 1.5 to 2.5 cm long. White threads where attached to dead leaf.	<i>Eucalyptus marginata</i>	30/06/2009
<i>Galerina</i>	sp.	E9417	Cap: Caramel colour, striated and flattened stem, ring near top of stem. Diam 18 - 24 mm, not regular round. Gills: close spacing, adnately attached. Stipe: hollow, 47 x 3.8 mm.	<i>Allocasuarina fraseriana</i>	16/07/2009
<i>Gymnopilus</i>	<i>allantopus</i>	E9355	Cap: diam ranging from 1.5 - 4 cm, smooth, dry, ochre colour (5C8), lighter on edges. Umbonate shape, flattening out with age, smooth entire edge. Gills: adnate, smooth/entire, closely spaced, golden yellow. Stem: ranging from 3.4 - 8 cm in length. Slender, slightly curving to round curve at end. Pale yellow near cap, becoming ochre for most of stem. One small specimen attached to wood with broader base and white threads where attached. Solid inside.	<i>Eucalyptus marginata</i>	30/06/2009
<i>Gymnopilus</i>	<i>allantopus</i>	E9418	Cap: 3 - 5.5 cm diam, convex when young, flattening out remaining slightly umbonate. Smooth. Entire margin, larger one wavy, straight golden ochre colour. Gills: adnexed, 8 cm deep, lighter gold colour, margin smooth, entire, close spacing. Stipe: 3.5 - 4.5 cm long. Diam 4 - 10 cm. Cylindrical, curvy, solid. Pale creamy colour at top, cinnamon on rest of stem.	<i>Corymbia calophylla</i>	16/07/2009
<i>Gymnopus</i>	sp.	E9350	Cap: Young - very dark tan, domed, edges inrolled, firm. Gills free? Moderately crowded. Caespitose	<i>Marri, jarrah, Sheoak</i>	30/06/2009
<i>Hemimycena</i>	sp. sp. "minute fragile, white pileus, arcuate gills, on wood"	BOUGHER 00526	Characteristic Features: (i) cap up to 5 mm diam, stipe up to 5 mm long and less than 1 mm wide; (ii) entirely white. (see photos)		16/06/2009
<i>Hemimycena</i>	sp. "minute fragile, white pileus, arcuate gills, on wood"	BOUGHER 00524	Characteristic Features: (i) extremely minute, fragile, wilting-easily, pure white, semi-translucent; (ii) thin stem with some apical cystidia (capitate?); (iii) cap conic (irregularly so) when young later campanulate, smooth but with minute crystals scattered on surface; (iv) gills sparse, sometimes barely present, with crystals and some cystidia; not inserted in the substrate; (v) size: cap up to 1 mm diam, stem up to 8 mm tall.	<i>Allocasuarina</i>	16/06/2009
<i>Henningsomyces</i>	<i>candidus</i>	E9361	Fruitbody: roughly cylindrical, crowded on underside of bark, tapering a little to the apex and hollow, forming a "chimney pot". Off white in colour and uniform so.	<i>Eucalyptus gomphocephala</i>	30/06/2009
<i>Hjorstamia</i>	<i>crassa</i>	BOUGHER 00522	Characteristic Features: (i) violet, smooth, tough resupinate on rottingwood.	<i>Allocasuarina</i>	16/06/2009
<i>Hohenbuehelia</i>	sp.	E9385	Thin fans, almost full circle, resupinate. Cap: grey brown (4E3) to lighter edges (4D3) margins lightly scalloped to 12 mm. Gills: white, crowded, including lamellulae.	<i>Jacksonia</i>	6/07/2009
<i>Hohenbuehellia</i>	<i>bingarra</i>	E9323	Cap: edges inrolled, upper surface dark sepia, pale rim. Under surface - off white. Gills: crowded and inrolled.	<i>Allocasuarina fraseriana</i>	23/06/2009
<i>Hygrocybe</i>	sp. pearly white	E9358	Pileus: up to 40 mm diam, undulating-applanate with deeply split thin, non translucent-striate margin; surface smooth, greasy when wet, dull grey and brownish (resembling Xerula) and somewhat pearly, but sand - covered. Lamellae: broadly adnexed, to 4 mm deep, closely spaced; edge smooth and entire, edge and face ivory; lamellules abundant. Stipe: up to 80 x 5 (apex) 8 (base) mm; longitudinally fibrous; surface shiny smooth, innately longitudinally streaked/lined and appearing as though twisted; general colour entirely pale greyish to ivory; sand - covered towards base.	<i>Eucalyptus marginata</i>	30/06/2009
<i>Hygrocybe</i>	sp.	E9387	May be same species as E9381 (green 2). Margins of cap more plicate than E9381. Stems much narrower than E9381, 0.3 - 0.5 cm wide. Stems have more colour than E9381 page 5C5 Methuen. Cap slightly undulate plane to shallow convex. Gills: full lamellulae adnexed to stem. Closely spaced. Stems equal full length 0.3 to 0.5 cm wide, length 4.5 - 5 cm, off-white.	<i>Eucalyptus gomphocephala</i>	6/07/2009
<i>Hygrocybe</i>	sp. pearly white	E9381	Same species as found last week, in burnt area - see specimen. Cap: greyish brown (6E5-Methuen), slightly umbonate. Cap margin smooth, irregularly undulating to straight. Shiny, sticky. Gills free, off-white, smooth and entire margin. Short and long lamellules present. Stipe off-white, even width along length (5 mm), may be slightly flattened, with striate surface with ridges.	<i>Eucalyptus gomphocephala</i>	6/07/2009
<i>Hymenoscyphus</i>	cf. <i>immutabilis</i>	BOUGHER 00519	Characteristic Features: (i) funnel-shaped fruitbodies approx. max. 3mm tall with a 'cap' up to 3mm wide and a narrow stalk; (ii) cap hymenium smooth tan to dull orange, with a furfuraceous rim; (iii) stalked scurfy scabrous, concolorous with 'cap'.	<i>Eucalyptus cladocalyx</i>	16/06/2009
<i>Hymenoscyphus</i>	sp.	E9363	Colour: translucent P5 - C5 (brownish - ochre). Form: "Y" section as high as wide. Caps circular in top view. Same species as E9366?	<i>Marri, jarrah and Sheoak</i>	30/06/2009
<i>Hymenoscyphus</i>	sp.	E9366	Same species as E9363? Form: "Y" shape, as wide across as high approx. Cap circular, some undulations. Colour: glutinous/translucent ochre-brown (P5 - C5).	<i>Marri, jarrah and Sheoak</i>	30/06/2009
<i>Hyphodontia</i>	sp.	E9452	Main Characteristics: Fully resupinate, cream to yellowish-cream, thin, but continous growth. Surface with low tubercles individual and well-spaced, apex of tubercles not dentate. With a fringe area of thin farinose white growth Microscopic Characteristics: small smooth ellipsoid spores (see photo in Trypan blue)	<i>Banksia attenuata</i>	23/07/2009
<i>Hyphodontia</i>	<i>brevisetata</i>	BOUGHER 00512	Characteristic Features: (i) vast sheets of firmly attached, thin, cream, fully resupinate fruitbodies; (ii) hymenium odontoid (irregular columns with odontoid apices); (iii) margin thin, undifferentiated; (iv) texture tough, dry, hydrophilic; (v) subiculum not differentiated but the crevices between the hymenial teeth do not reach all the way down to the substrate wood; (vi) under high power magnification the teeth and inbetween parts seem to be composed of minutely sponge like material - "an open texture"; (vii) whole fruitbody only less than 0.5 mm wide in cross-section. Microscopic Features: Spores - ellipsoid, smooth-walled, hyaline in KOH, yellowish in Melzer's, approx. 5.0 - 5.5 x 2.8 - 3.2 µ; clamps present; ampulliform and subcapitate (young basidia?) cystidia present at apex of teeth; basidia 4-spored (19.5 x 5 µ). All cystidia thin-smooth walled, approx. 15 x 4.5 µ, scattered. Basidia with basal clamp. Monomitic, with scattered, well-branched, brownish smooth clamped hyphae in the subiculum area. H. brevisetata based on dense aculei without areas of smooth hymenium inbetween, absence of cloeocystidia, and whitish fruitbody colouration. Also consider H. aspera.	<i>Banksia menziesii</i>	9/06/2009
<i>Laccaria</i>	<i>laterita</i>	E9425	Cap: Brick red colour with centre lighter, 18 mm diam, margin crenate. Gills: lighter than the cap in colour, spaced distantly. Stipe: equal width all along, up to 50 mm long.	<i>Allocasuarina fraseriana</i>	16/07/2009
<i>Laccaria</i>	<i>lateritita</i>	E9446	Cap: Diam 0.6 to largest 3 cm. Colour red, orangy brown (103 Grey & Grey), shape broadly prabolic with crenated and irregular margin becoming broader with maturity and edges/margins more striated and wavy in design. Moist and smooth. Colour lighter at margin as they mature. Gills: Closely spaced, colour lighter toning than cap up to 6 mm deep, smooth entire margins, attachment to stem adnexed. Stems: equal, same colour as cap, length range from 3.4 - 7.5 cm. Some specimens becoming wavy, 0.3 - 0.6 cm diam, longitudinally fibrous. Microscopic Characteristics: globose spores with low spines (see	<i>Allocasuarina fraseriana, Corymbia calophylla</i>	23/07/2009

Genus	Species	Code	Descriptive Notes	Plants	Date
			photo in Trypan blue), unusually small spines for this species!		
<i>Lentinus</i>	<i>cf. strigosus</i>	BOUGHER 00514	Characteristic Features: (i) densely tomentose cap; (ii) tomentose short stipe; (iii) coarsely cystidiate gill edge and face (these are metuloid cystidia!) Not <i>Pleuroflammula praestans</i> which lacks metuloid cystidia. Microscopic Features: clamps present, no spores seen; metuloid cheilo and pleuro cystidia. Closer to <i>Lentinus strigosus</i> .	<i>Banksia menziesii</i>	9/06/2009
<i>Lepiota</i>	<i>sp.</i>	E9450	Cap: 23 mm, umbonate, downturned at edges - minute scales. Colour - very pale version of 31 Flora of British Fungi. Gills: very crowded with short intermediates and free. Stems: slender, same colour as cap. Not hollow, white core. Stem: chambered, branching, white rhizomorphs. Microscopic Characteristics: spores dextrinoid, ellipsoid, approx 6 - 7 x 3.5 - 4.5 µ (see photo in Melzers).	<i>Allocasuarina fraseriana</i>	23/07/2009
<i>Limacella</i>	<i>pitereka</i>	E9351	Main Characteristics Caps: diam from 1.8 - 5.6 cm, tan when young, becoming cream, then white with light tan centre. Slimy and smooth shape umbonate, becoming flatter with age. Margin smooth, becoming striated with age. Gills: white, free, smooth margin, close spacing Stem: up to 10 cm long, becoming curved with age, equal shape, creamy white and slimy, base equal.	<i>Marri, jarrah and Sheoak</i>	30/06/2009
<i>Merismodes</i>	<i>sp. ?</i>	E9448	Dull grey spreading growth fully resupinate on the wood. Urmulate minute fruitbodies packed closely together. Minutely felty surface of the fruit bodies and surrounding areas. Surface is actually coated with abundant crystals. The hyphae in any gaps between fruit bodies also seems to have surface crystals. Microscopic Characteristics: Immature. External hyphae, narrow, clamped, no swollen ends, crystals floating about. Basidia clavate, 4-spored. Trama with large clamps. No cystidia. Not gelatinised anywhere Not <i>Merismodes anomolus</i> - no swollen end cells etc.	<i>Banksia attenuata</i>	23/07/2009
<i>Mycena</i>	<i>nargan</i>	BOUGHER 00520	Characteristic Features: (i) young caps, black with white spots and white margins; (ii) gills pale with non-cystidiate edge; (iii) stem dull grey, smooth except where matted - felty near base.	<i>Banksia</i>	16/06/2009
<i>Mycena</i>	<i>sp.</i>	E9324	Cap: 7 - 17 mm width, colour 32 (FDU). Dome shape, dimple on cap centre, darker centre. Gill structures visible towards edge of cap (translucent, striate), more prominent towards edge of cap. Wavy edge on cap. Gills: alternate 1/3 - 1/2 way to centre from edge. Pale version of top. Stem: even thickness in length. Hollow. Colour similar to cap top. Silky appearance, hairy from base to approx 5 mm up. Hairs to 3 mm.	<i>Allocasuarina fraseriana</i>	23/06/2009
<i>Mycena</i>	<i>sp "lemon yellow"</i>	E9319	Cap: 5 - 15 mm lemon-yellow colour, darker in the centre and pale on fringe. Browning as dying out, white towards edge. Gills: white, full-length, slightly decurrent. Stipe: even in entire length. Hairy base extending 5 mm up stem, decreasing in length the further from base. 1 - 4 cm length of stem. 2 mm thick. Stem hollow.	<i>Allocasuarina fraserii, Jarrah, banksia</i>	23/06/2009
<i>Omphalotus</i>	<i>nidiformis</i>	E9423	Cap: oval fan shape, cream beige around edge to dark brown in centre, some coppery colour, 100 mm wide and 140 mm long. Moist surface on edge. Centre dry, margin rolled under. Gills: pale cream, lamellule short medium long, very decurrent, smooth margins. Stipe: 90 mm long and 25 mm wide, not central, cream, damp to touch, cylindrical.	<i>Eucalyptus marginata</i>	16/07/2009
<i>Peziza</i>	<i>moravecii</i>	E9322	Fruit bodies: up to 25 mm diam and 10 mm tall (but very variable in size); with distinct stalk up to 5 mm tall x 3 mm wide or stem absent and then fruit bodies obconical. Entire surface (including stem, outside of cup and hennium) smooth (minutely glistening under lens), pale tan when young darker caramel brownish when older. Basal mycelium absent. Microscopic Characteristics: spores ellipsoid, minutely punctate, 14 - 15 x 7 - 8.5 µ, no visible oily contents (see photo in Congo Red). Paraphyses not projecting beyond asci, filiform, septate, with swollen sometimes bent head, smooth-walled. Asci: cylindrical, 8-spored, with clavate (knobby) base. Context: parenchymous tissue with large (up to 80 µm diam) swollen elements.	<i>Banksia, Allocasuarina</i>	23/06/2009
<i>Peziza</i>	<i>tenacella</i>	BOUGHER 00561	Characteristic Features: (i) lilac purplish cup-shaped apothecia at first, later flattened out and dull brownish up to 60 mm diam., without distinct stalk but narrow base embedded in clod of sand. Outer surface paler, smooth. Microscopic Features: Paraphyses with swollen apex greatly bent (like handle of an umbrella) (see photos).	<i>Eucalyptus gomphocephala</i>	23/07/2009
<i>Phaeotrametes</i>	<i>decipiens</i>	E9321	Bracket, not solid, 2 - 3 mm thick and 3 - 4 mm broad. Upper surface dark brown and banded colour (150 - 160) with dark brown rim. Pores large, pale lavender. Old specimens greenish under surface (algae). Rubbery even when old. Microscopic Characteristics: Large, smooth elongate-ellips spores with dark contents (see photo in Trypan blue)	<i>Allocasuarina fraseriana</i>	23/06/2009
<i>Phellinus</i>	<i>sp.</i>	E9454	Sample for DNA sequencing given to Matt Barrett at Kings Park. This is the "Phellinus" that we have seen in many local bushlands on dead or dying banksias and sheoaks. The fungus white rots the wood and forms large sheets of ochre-rusty mainly resupinate growth with minute pores. So far all samples examined have been immature or non-fertile. The fungus is likely to be pathogenic.	<i>Banksia attenuata</i>	23/07/2009
<i>Phellinus</i>	<i>sp.</i>	E9328	Fruitbody: skin fungus, pores irregular, less prominent on mature body. Mature body has a flesh colour (118 FDU). Growth extending outwards, cream droplets of moisture on new growth. Irregular edge. Same species as at Baldy PUBF event several years ago. Appears to kill and cause white-rot of Banksias and some other plants.	<i>Banksia</i>	23/06/2009
<i>Phlebia</i>	<i>sp</i>	BOUGHER 00511	Characteristic Features: (i) meruloid to labyrinthine-wrinkled hymenium; (ii) cream then later brown, with white smooth margin; (iii) texture rubbery when fresh.	<i>Acacia saligna</i>	9/06/2009
<i>Phlebia</i>	<i>sp.</i>	E9327	Main Characteristics: Resupinate with raised (to 1 mm approx). Darkish colour (128 - 9FDU). Older body of fungus fading to palest grey on edges with darker rim Microscopic Characteristics: spores small, ellipsoid, smooth (see photo in trypan blue)		23/06/2009
<i>Physarum</i>	<i>viride</i>	E9478	yellow stalks	<i>Banksia attenuata</i>	23/07/2009
<i>Pleuroflammula</i>	<i>sp.</i>	E9356	Main Characteristics (i) shaggy coarsely fibrillose cap when young; (ii) crowded pale gills with smooth, entire edge; (iii) stem very short or absent, smooth (at maturity at least). Check under micro that these are not <i>Crepidotus eucalyptorum</i> !	<i>Eucalyptus cladocalyx</i>	30/06/2009
<i>Pleurotellus</i>	<i>sp.</i>	BOUGHER 00515	Characteristic Features: (i) pure white minute shells; (ii) smooth cap surface; (iii) short smooth white eccentric/lateral stipe. Despite the macroscopic resemblance, this is not <i>Cheimonophyllum candidissimum</i> because: (I) no clamps seen; (ii) no awl-like or branched cystidia seen; (iii) spores ellipsoid (not subglobose).	<i>Allocasuarina fraseri</i>	9/06/2009
<i>Pluteus</i>	<i>paupercaulus</i>	E9352	Main characteristics: (i) Cap: brownish yellow, smooth, translucent-striate. (ii) Gills: pale greyish-white then pinkish, free. (iii) Stem: semi-translucent pale yellow.	<i>Eucalyptus cladocalyx</i>	30/06/2009
<i>Propolis</i>	<i>versicolor</i>	E9383	Tiny flat, white circular, ellipsoid and irregular shaped pustules. Brown woody perimeter of pushed-out wood surrounds the fertile surface. The fertile surface is initially pure white but becomes mottled with grey or black dots as the spores become mature. (see photos taken on 15 July - 9 - days of incubation at room temperature). Microscopic Characteristics: Asci in a gelatinized matrix with abundant narrow gnarled, branched paraphyses with tips just beyond the asci. Spores immature (6/7/09) but will be large and elongate. See micro photos. A few spores floating 'loose' (10/7/09) after incubating. They are smooth, non-septate, allantoid, greyish (see photo).	<i>Eucalyptus gomphocephala</i>	6/07/2009
<i>Psathyrella</i>	<i>sp.</i>	E9415	Cap: 10 - 20 diam, 8 - 15 mm high, honey brown (35 FDU). At apex fading to pale beige brown (47 FDU) towards apex then brown at apex. Fine striations around edge, some small cracking around edge. Shape conic-umbonate. Dry and straight cap margin. Gills: grey-brown (53 FDU), unattached fee smooth margin. Close spacing some farking towards edge. Lamellulae short medium and long. Stipe: 25 - 55 mm long and 2 - 3.5 mm wide. Pale creamy (128 FDU) to putty cram (26 FDU). Granulated near apex, slightly lumenescent, hollow centre. Equal very slight taper at base. No evidence of ring or veil present.	<i>Eucalyptus marginata, Corymbia calophylla</i>	16/07/2009
<i>Pulvinula</i>	<i>archeri</i>	BOUGHER	Characteristic Features: (i) discs up to 20 mm diam at maturity, at first shallow cup-shaped with bright orange hymenium (near 6A8 but brighter) and smooth paler exterior	<i>Eucalyptus</i>	25/08/2009

Genus	Species	Code	Descriptive Notes	Plants	Date
		00573	(minute hairs under high power lens in some); (ii) stipe absent or only short central pad; (iii) discs often undulating with age and becoming paler and less bright pinkish - orange; (iv) disc margin smooth and entire; (v) fragile (easily broken upon handling); (vi) sometimes cushion-like, rather than discoid. The small spores, very abundant forking/branching hooked paraphyses, and context structure suggest this collection fits <i>Pulvinula archeri</i> . Note: A few small specimens with intense blood red colour were also seen (and checked under micro) colour = Methuen9D8 - 10D8. Under the microscope these blood red specimens seem to have a particularly thick accumulation of orange-ish pigment in the hymenium. Microscopic Features: Asci: 8-spored, cylindrical, tips not amyloid, size eg. 125 x 7.5 µ, base unswollen and simple with basal neck 18 x 3.6 µ, and some bases with side branches. Paraphyses: hair-like (very narrow, eg. 1.5 µ), tips unswollen some straight but mostly very bent-recoiled, orange pigment near tips evident in KOH (see photo), abundant. Many tips are forked/branched (see photos). Spores: spherical, hyaline, smooth-walled, with one oil globule (when immature), size eg. 6.5 - 7.8 µ diam. Context: layer below the hymenium is hyaline, of tightly interwoven hyphae 3 - 7 µ side (see photo in KOH). Layer towards exterior consists of collapsing hyaline swollen cells, ellipsoid to subglobose up to 20 µ wide (see photo in KOH). Cells in outermost layer with encrusted walls (see photo). Surface of exterior with sparse and hyaline projecting septate hyphae (eg. 3.5 µ wide) some with slightly swollen tips (see photo).	<i>gomphocephala</i>	
<i>Reddellomyces</i>	<i>westraliensis</i>	BOUGHER 00543	Characteristic Features: (i) smooth, dry, thin, white, unchanging peridium; (ii) labyrinthine white trama and ivory-cream filled chambers; (iii) no basal or peridial rhizomorphs or roots attached. Microscopic Features: Asci mainly 4-spored, ventricose, apices obtuse. Spores globose, 40 - 48 µ diam.; about 29 - 40 µ without ornamentation. <i>R. westraliensis</i> by virtue of spores in the range 27 - 42 µ excluding the ornamentation (Trappe et al).	<i>Allocasuarina</i> (<i>eucalypts nearby too</i>)	6/07/2009
<i>Resupinatus</i>	<i>cinerascens</i>	E9379	Bell shaped fan, edges recurved, up to 9 mm, hirsute, recurved, blue/back to pale grey edges. Gills: mediumly spaced, radiating from centre (grey light) - 23C3 on dark base.	<i>Banksia</i>	7/07/2009
<i>Resupinatus</i>	<i>subapplicatus</i>	E9422	Cap seems to be developing within lighter golden coloured cap. 3 x 3 mm diam cup, upside down 'cup' with gills, 2 - 3 mm long. Margin crenulate. Grey gills developing from within protective 'cap'. Older specimens seem to have lost the grey gilled part (lower cup). See sketch on original field sheet for E9422.	<i>Banksia attenuata</i>	16/07/2009
<i>Schizophyllum</i>	<i>commune</i>	E9445	Cap: roughly fan shaped developing from a ball. Shape variable, very hairy. Colour 3 C (31) Vinaceous buff but a paler version, up to 15 mm diam. Gills: rib-like ridges, variously forked. Caespitose and solitary. Microscopic Characteristics: small ellips spores (see photo in Trypan blue).	<i>Acacia saligna</i>	23/07/2009
<i>Stereum</i>	<i>illudens</i>	E9362	Brackets with flat to wavy shapes and with wavy margins. Dark purple, velvety upper surface becoming lighter at edges, with whitish hair-like finish. Brackets tough. Underside a dusty pink with purplish edges, roughly velvety to touch, pit-like under lens. Brackets formed into overlapping rows. No stem.	<i>Eucalyptus cladocalyx</i>	30/06/2009
<i>Tremella</i>	<i>aurantia</i>	E9453	Fruit body: gellatinous 'blobs' consisting of many spherical and past spherical shapes, especially in early stage Colour: translucent 2B9 but very much paler. Separate smaller 'blobs' almost white. Note: This is a paler version of <i>T. mesenterica</i>		23/07/2009
<i>Trichia</i>	<i>persimilis</i>	E9300	Slime mold examined in detail by Elaine Davison	<i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> , <i>Allocasuarina fraseriana</i>	16/06/2009
<i>Trichia</i>	<i>decipiens</i> var. <i>olivacea</i>	E9477	orange sack slime mould	<i>Banksia attenuata</i>	30/06/2009
<i>Trichia</i>	<i>verrucosa</i>	E9476	yellow slime mould	<i>Allocasuarina fraseriana</i>	23/06/2009
<i>Tubaria</i>	<i>sp.</i>	BOUGHER 00521	Characteristic Features: (i) chestnut brown strongly hygrophanous, finely translucent-striate cap up to 50 mm diam., (ii) stem up to 60 x 5 mm, concolorous with the cap smooth except for some whitish woolly appressed ragged zones and a membranous but brief superior annulus; (iii) button with a white, thick-silky partial veil; (iv) gills chestnut (similar to cap), adnate, edge minutely white - scalloped due to cystidia. Comments: Although the gills are strongly cystidiate, this does not seem to necessarily fit <i>Tubaria serrulata</i> , as BOU 521 has a predominant chestnut brown colour with no hint of reds or pinks. Also its slender stature and not growing in at least small caespitose groups doesn't seem to fit. Check micro features.		16/06/2009
<i>Undetermined agaric</i>		E9354	Main Characteristics: (i) Pileus uniformly dark chestnut (red-brown) unchanging with age, smooth, dry, obscurely translucent-striate; (ii) Lamellae concolorous with pileus, adnate, edge darker than the face which has a frosty appearance under a lens; (iii) stipe chestnut towards apex, pale dull below, smooth except for dense pruinosity near apex; (iv) base of stipe with strigose white hairs severa mm's long.		30/06/2009
<i>Undetermined Ascomycete</i>		E9364	Minute dull brownish cushion-shaped to convex, smooth. No stalk. Smaller than E9365, and not orange either. Check E9364 versus E9365. They are not the same under micro. E9364 has ellipsoid volumous asci with 8 broad ellipsoid smooth walled spores.	<i>Eucalyptus marginata</i>	30/06/2009
<i>Undetermined Ascomycete</i>		E9365	Tiny orange flat to slightly convex, with white rim but apparently without any hairs. No stalk evident. Possible lichen?	<i>Eucalyptus marginata</i>	30/06/2009
<i>Undetermined resupinate</i>		E9386	Fully resupinate with matted fibrillose dry surface, colour varying in shades from dull yellowish with slight greenish hint (near 3B3) to ochre (near 5B6). Microscopic Characteristics: Most hyphae including hymenium with heavily encrusted walls; no clamps seen; spores minute broad ovoid to globose, smooth; no cystidia seen; basidia 4 - 5 spored.	<i>Banksia attenuata</i>	6/07/2009
<i>Undetermined Toothed bracket</i>		E9388	Smooth upper surface - bands of brown - white edges. Underside toothed pg 5 4A (Methuen) white edges. Teeth irregular lengths and width up to 1 cm long.	<i>Jacksonia stembergiana</i>	6/07/2009
<i>Undetermined yellow scabs</i>		E9384	Described before but this collection is notable by: (i) formation of some into bracket and fan shaped structures with a zonate 'pileus' surface due to concentric bands of different densities of short white hairs on a dull brown surface. (ii) development in some of small (discs within larger discs).	<i>Banksia attenuata</i>	6/07/2009