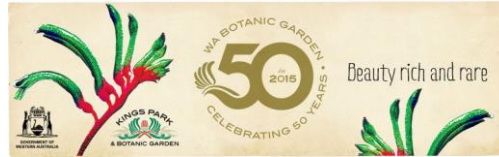


**Client report
to the Botanic Gardens and Parks Authority**



**Fungi survey -
Kings Park and Botanic Garden 2015**

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Parks and Wildlife**



November 2015



Figures 1, 2: *Pyronema omphalodes* (NLB 1087) a wonderful and extraordinary fungus at a recent experimental control burn at Kings Park. This fungus requires fire to stimulate its growth and fruiting. It fruits in abundance within a week or two after fire, and it is mainly restricted to micro sites where the fire is hottest, for example along the ash beds of logs. See *Discussion* for further notes on fire fungi. Also see *Florabase Plant of the Month — August 2015*.

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 406 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 Allocasuarina (*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 luteobubalina*. Major human-induced changes in the vegetation particularly since European settlement are likely to have caused changes in the fungus communities at Kings Park. The nature of these changes for fungi is not known because there have been only sporadic, uncoordinated records of fungi and their ecology at the park. Efforts to document the fungi at Kings Park since European settlement in the area have resulted in the accumulation of numerous records and collections, indicating that many hundreds of species of fungi are likely to occur in the park. However, the efforts have been mostly sporadic and uncoordinated and have not yielded an accurate measure of the total number of fungi species recorded to date at Kings Park. A historical investigation into the fungi recorded from Kings Park and Botanic Garden dating back to the first known scientific record in 1839 revealed that a total of 285 scientific names of fungi had been recorded from Kings Park up until 2009, with 122 of the names designated to species level (Bougher 2010a, 2010b).

Any estimate the number of fungi species known so far from Kings Park depends on the level of acceptance of the many unverified or unverifiable names as representing or not individual species. In 2009, the Botanic Gardens and Parks Authority took a significant step to address the poor knowledge base about Kings Park's fungi by contracting the first of intended annual surveys to document the macrofungi of Kings Park. The survey in 2009 recorded a total of 123 species of fungi - 67% considered to be new records for the park (Bougher 2009a). A second contract survey, in 2010, recorded a total of 108 species of fungi - 47% new records (Bougher 2010c, Bougher 2011a). A third contract survey, in 2011, recorded a total of 106 species of fungi - 25% new records (Bougher 2011b). After the fourth contract survey in 2012 which recorded 123 species of fungi (24% new records), a total of 215 different fungi (including 27 slime moulds) named to species level had been recorded from Kings Park (Bougher 2012). The total number of fungi and slime mould species known from Kings Park to date is undoubtedly much greater. Many unidentified or possibly inaccurately identified records from Kings Park remain to be verified.

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 Management Plan 2014-2019 (Botanic Gardens and Parks Authority 2014). 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 within Kings Park and Botanic Garden.

The objective of this work was to:

Undertake the annual fungi survey for the draft Kings Park and Botanic Garden Draft Management Plan 2014-2019 (Botanic Gardens and Parks Authority 2014). 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

Fungi survey

In readiness for the 2015 field season, the present author produced *Kings Park Fungi [version 1.1] A visual guide to species recorded in surveys 2009 - 2012*. This guide (Bougher 2015) proved to be a valuable tool for participants in the field during this season's survey.

Fungi were recorded and collected in Kings Park from early June to early August 2015 during survey days lead by the author and assisted by numerous volunteers (Figs 3, 4, and see Acknowledgements). Four repeat-visit sites representing different vegetation types in Kings Park were surveyed for macrofungi (Table 1, Map 1). In addition, other areas were visited to enable representation of the Botanic Gardens and areas of burnt bushland. 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, as 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 Parks and Wildlife's Western Australian Herbarium, Kensington (PERTH).

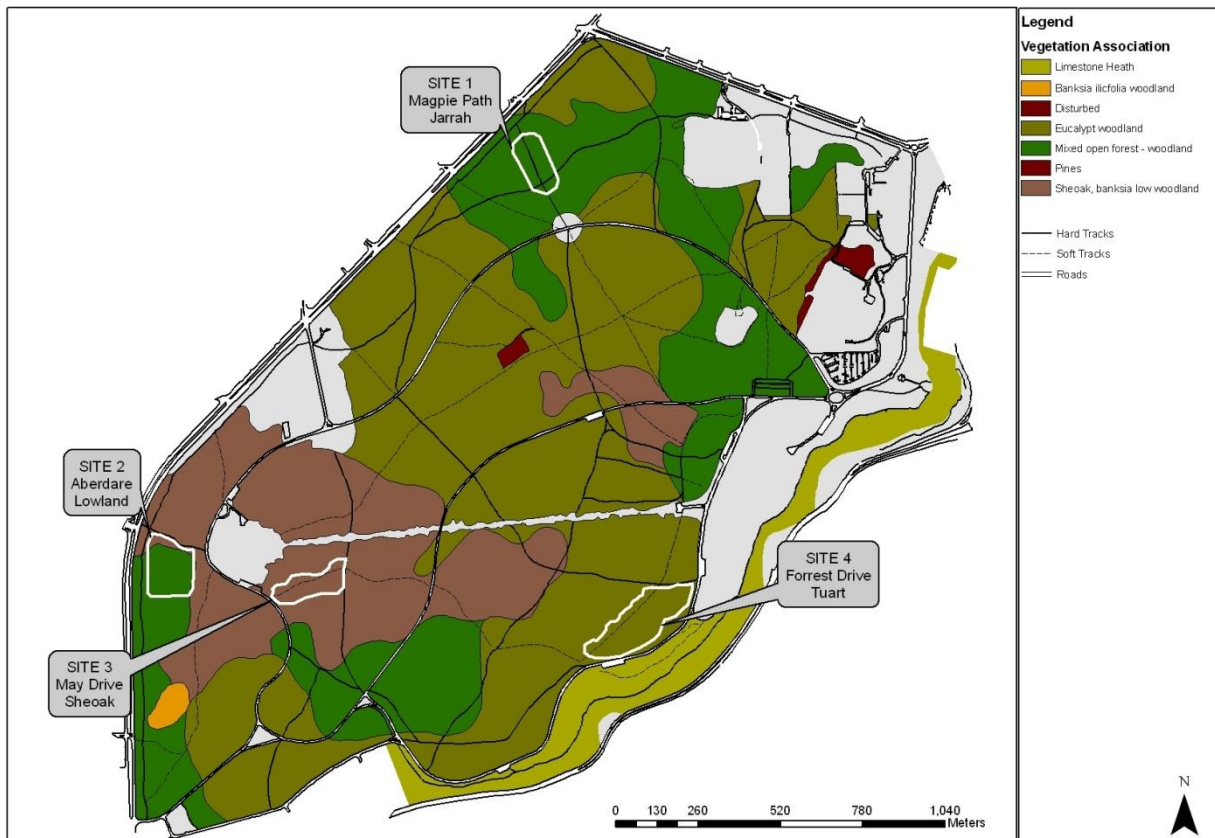


Figures 3, 4: Some of the participants during the 2015 fungi survey at Kings Park.

Table 1: Sites surveyed for fungi at Kings Park in 2015.

Site ID	Site Name	Details/ Coordinates	Vegetation	Notes	Survey Visits 2015
1	Magpie Path	Approx. 25 m on either side of 200 m length of path. Survey south point on paved path: 31° 57' 17.93" S x 115° 49' 54.83". North point on path: 31° 57' 11.71" S x 115° 49' 51.90".	Jarrah open woodland	This area was partly burnt in 2009. Some invasive sugar gums are present.	2
2	Aberdare Lowland	Approx. 25 m on either side of 150 m length of path. Survey start point on sand track off May Drive: 31° 57' 57.50" S x 115° 49' 14.80". End point on track: 31° 58' 2.32" S x 115° 49' 12.97".	Mixed open forest – woodland	South side of track last burnt 1989. More timber than in the north side (site 3).	2
3	May Drive Allocasuarina	Approx. 25 m on either side of 250 m length of path. Survey start point on sand track off May Drive: 31° 58' 0.00" S x 115° 49' 22.02". End point on track: 31° 57' 57.13" S x 115° 49' 30.53".	<i>Allocasuarina/Banksia</i> low woodland.	Last burnt probably in 1989. Dominated by <i>Allocasuarina</i> and <i>Banksias</i> but there is also a patch of young Marri.	2
4	Forrest Drive Tuart (Block S18)	Area approx. 400 m in length x 100 m wide on interior side of Forrest Drive. Area approx. bounded by the following points: NE corner - 31° 57' 59.11" S x 115° 50' 8.51". NW corner - 31° 58' 6.88" S x 115° 49' 58.90". SE corner (at Forrest Dr.) - 31° 57' 58.90" S x 115° 50' 13.06". SW corner (at Forrest Dr.) - 31° 58' 7.44" S x 115° 49' 59.60".	Tuart woodland	Extensively burnt early in 2009. Fungi survey primarily in the remaining unburnt fringes.	2
5	Opportunistic	Entire area of Kings Park.	Natural and planted	Includes other areas of bushland and gardens in the Park.	6

Map 1: Sites 1 to 4 surveyed for fungi at Kings Park and Botanic Garden in 2015



Results

A total of 169 species of fungi were recorded at Kings Park in 2015 during the period of this consultancy (Table 2). This number is a conservative figure because it includes 28 names that represent an as yet unresolved mixture of unknown numbers of species, e.g. *Crepidotus ragbag* (see Table 2).

The fungi recorded in 2015 represent 96 known genera and 56 families (+ 13 undetermined or ragbag groupings for which genera and families unknown) (Table 3).

A few of the more notable fungi are highlighted in the *Discussion*. Descriptive data for the 73 fungal collections from 2015 that were vouchered for permanent reference are given in Appendix 2.

- 27% of the species (46) from the current 2015 survey are considered to be new records for Kings Park (colour entries in Table 2), i.e. they do not match any of the fungi from the 2009 to 2012 surveys, or any of the pre-2009 names that have specific epithets. *
- 73% of the fungi (123 species) in the current survey are considered to be the same as species recorded previously (black entries in Table 2), i.e. same as any of the pre-2015 names that have specific epithets.
- All species are considered to be indigenous except the following: Two undoubtedly exotic species – *Puccinia myrsiphylli* (a rust introduced to control Bridal Creeper), and *Suillus granulatus* (a mycorrhizal associate of *Pinus*). Several species found for the first time in 2015 on *Pinus* wood in a rehabilitated area in Kings Park may also be exotic - *Leucogyrophana pseudomollusca*, *Hydnomerulius pinastris*, *Coniophora olivacea* and *Tapinella panuoides* (see *Discussion*).
- *Gymnopilus allantopus*, *Omphalotus nidiformis* and *Pisolithus microcarpus* were the only species found in all five of the survey sites.
- Saprotrophic fungi (120 species) were represented by more species than mycorrhizal fungi (43) and pathogenic fungi (5) (Table 3).
- Fungi were present in a wide range of vegetation and microhabitat types. Dead wood with 87 species, and leaf litter or soil with 71 species had the greatest diversity of fungi (Table 3).

* NOTES: (i) The figure for “new records” considers 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 2015 (as new “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-2015. Therefore *Russula ragbag* and *Scleroderma ragbag* were excluded because various records labelled as “*Russula sp.*” and “*Scleroderma sp.*” had been recorded at Kings Park in previous years (see Bougher 2010a).

Table 2: Identity and some ecological characteristics of fungal species in Kings Park 2015 (arranged in order of genus, species). **Maroon** = new records of species previously not recorded from Kings Park found during 2015. **Sp. ID** refers to 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.

Forms: BR = bracket; CD = cup/disc; CO = coral; CU = cushion; CY = cyphelloid; FL = flask; JE = jelly fungus; MO = mould; MU = mushroom; PF = puffball/earthball; PS = pustules; RE = resupinate; RU = rust; SH = shell/fan/spoon; TR = truffle. *Ecology/Life modes (putative in most cases):* S = saprotrophic; P = pathogenic; M = mycorrhizal. *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. *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

Taxon ID	Species	Family	Common Name	Form	Life Mode	Microhabitat	Native/Exotic	Voucher Code	2015 SITES	1	2	3	4	5	ALL YE ARS (2009-2015)	New in 2015
KP064	1. <i>Aleurina ferruginea</i>	Pyronemataceae		CD	S	L	N	NLB1052	1, 4	Y			Y		1, 2	
KP149	2. <i>Amanita basiorubra</i>	Amanitaceae	Red-based Amanita	MU	M	L	N		2, 3		Y	Y			2, 3	
KP057	3. <i>Amanita drummondii</i>	Amanitaceae		MU	M	L	N		4				Y		2, 4	
KP071	4. <i>Amanita ochroterrea</i>	Amanitaceae		MU	M	L	N		3			Y			3, 4	
KP075	5. <i>Amanita ragbag, white with ring</i>	Amanitaceae		MU	M	L	N	Davison30-2010 BOUGHER 746	1, 4, 5	Y			Y	Y	1, 3, 4, 5	
KP091	6. <i>Amanita ragbag, white without ring</i>	Amanitaceae		MU	M	L	N		1, 2, 4	Y	Y		Y		1, 2, 4	
KP043	7. <i>Amanita sp. ochre ring</i>	Amanitaceae		MU	M	L	N	E9424, BOUGHER 998 NLB 1105 (EMD 21-2015) EMD 34-2015	1, 4, 5	Y			Y	Y	1, 2, 4, 5	
KP070	8. <i>Amanita wadjukiorum</i>	Amanitaceae	Wadjuk Amanita	MU	M	L	N	BOUGHER 650 EMD 25-2010 EMD 30-2015	2, 5		Y			Y	1, 2, 5	
5	9. <i>Amanita xanthocephala</i>	Amanitaceae	Vermillion Amanita	MU	M	L	N		4, 5				Y	Y	1, 2, 4, 5	
KP050	10. <i>Anthracobia melaloma</i>	Pyronemataceae	Orange Fire Anthracobia	CD	S	BG	N	BOUGHER 560 NLB1131 NLB 1141	5					Y	1, 4, 5	
KP184	11. <i>Anthracobia muelleri</i>	Pyronemataceae	Orange Fire Anthracobia	CD	S	BG	N	NLB 1132 NLB 1142	5					Y	5	
7	12. <i>Armillaria luteobubalina</i>	Tricholomataceae	Australian Honey Fungus	MU	P	DT	N	NLB 1030	5					Y	5	
KP154	13. <i>Austropaxillus muelleri</i>	Boletaceae		MU	M	L	N	NLB 1138	1	Y					1	
KP186	14. <i>Basidiodendron cinereum</i>	Auriculariales		RE	S	DW	N	NLB 1140	1	Y					1	New
14	15. <i>Bolbitius titubans</i>	Bolbitiaceae		MU	S	L	N		5					Y	4, 5	
KP125	16. <i>Boletus aff. prolinius</i>	Boletaceae		MU	M	L	N	BOUGHER 992 NLB 1130	5					Y	3, 5	
KP126	17. <i>Boletus sp. brown cap, non bluing</i>	Boletaceae		MU	M	L	N	BOUGHER 997	4				Y		3, 4	
KP158	18. <i>Boletus sp. streaky fusoid stipe</i>	Boletaceae		MU	M	L	N	NLB 1088	5					Y	5	New
KP192	19. <i>Botryobasidium subconatum</i>	Botryobasidiaceae		RE	S	DW	N	NLB 1145 NLB 1163 NLB1173	5					Y	5	New
18	20. <i>Bovista ragbag</i>	Lycoperdaceae		PF	S	L	N		2, 4		Y		Y		1, 2, 4	
19	21. <i>Calocera guepinoides</i>	Dacrymycetaceae	Scotsman's Beard	JE	S	DW	N		1, 4	Y			Y		all	
9	22. <i>Campanella gregaria</i>	Tricholomataceae	Gregarious Bells	SH	S	DW	N	E9353, E9390, E9416	1, 4	Y			Y		all	
224	23. <i>Ceratiomyxa fruticulosa</i>	Ceratiomyxaceae	Icicle Fairy Fans	SL	S	DW	N	E9420 BOUGHER 752	4				Y		all	
KP199	24. <i>Ceriporia cf. reticulata</i>	Phanerochaetaceae		RE	S	DW	N	NLB 1154	4				Y		4	New
KP072	25. <i>Ceriporia tarda</i>	Phanerochaetaceae		RE	S	DW	N	BOUGHER 652 NLB 1023	1, 2	Y	Y				1, 2, 3, 4	
KP156	26. <i>Chlorophyllum brunneum</i>	Agaricaceae	Shaggy Parasol	MU	S	L	N		5					Y	5	New
KP049	27. <i>Clavulina vinaceocervina</i>	Clavulinaceae	Flesh-coloured Coral Fungus	CO	M	L	N	E9455	2		Y				1, 2	
28	28. <i>Clitocybe cf. clitocyboides</i>	Tricholomataceae		MU	S	DW	N	BOUGHER 670 NLB1133 NLB 1152 NLB1153	1, 4, 5	Y			Y	Y	ALL	
27	29. <i>Clitocybe semioculta</i>	Tricholomataceae	Shy Funnel Cap	MU	S	DW	N		2		Y				2	
28	30. <i>Clitocybe sp. crowded gills, depressed cap</i>	Tricholomataceae		MU	S	L/DW	N	E9447	2, 4		Y		Y		1, 2, 4, 5	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Mic ro Habitat	Nati ve /Exo tic	Voucher Code	2015 SITES	1	2	3	4	5	ALL YE ARS (2009 - 2015)	New in 2015
479	31. <i>Clitopilus hobsonii</i>	Entolomataceae	Tiny White Fans	SH	S	D W	N	BOUGHER 515, 525	1	Y					1, 2, 3, 4	
30	32. <i>Coltricia cinnamomea</i>	Hymenochaetaceae	Tough Cinnamon Fungus	MU	S	L	N		1, 4	Y			Y		1, 2, 4	
KP207	33. <i>Coniophora olivacea</i>	Coniophoraceae		RE	S	D W	E?	NLB 1170 NLB 1171	5					Y	5	New
KP173	34. <i>Conocybe ragbag</i>	Bolbitiaceae		MU	S	L	N		3			Y			3	New
36	35. <i>Coprinopsis cf. stangliana</i>	Psathyrellaceae	Western Australian Magpie fungus	MU	S	L	N		1, 4	Y			Y		1, 4, 5	
KP179	36. <i>Coprinopsis ragbag</i>	Psathyrellaceae		MU	S	L	N		5					Y	5	New
379	37. <i>Cortinarius archeri</i>	Cortinariaceae	Archer's Cortinarius	MU	M	L	N	BOUGHER 614 NLB1128	5					Y	2, 3, 5	
KP180	38. <i>Cortinarius ardesiacus</i>	Cortinariaceae		MU	M	L	N	NLB 1125	5					Y	5	New
KP194	39. <i>Cortinarius cf. clelandii</i>	Cortinariaceae		MU	M	L	N	NLB 1151	4				Y		4	New
232	40. <i>Cortinarius ochraceofulvus</i>	Cortinariaceae	Golden Tuart Cortinarius	MU	M	L	N		2, 4, 5		Y		Y	Y	1, 2, 4, 5	
KP115	41. <i>Cortinarius ragbag</i>	Cortinariaceae		MU	M	L	N	NLB 1036	1, 2, 3	Y	Y	Y			1, 2, 3, 4	
KP182	42. <i>Cortinarius sp. sienna cap white stipe</i>	Cortinariaceae		MU	M	L	N	NLB 1127	5					Y	5	New
40	43. <i>Crepidotus eucalyptorum</i>	Crepidotaceae	Eucalypt Crepidotus	SH	S	B	N	E9360	4				Y		1, 2, 4	
382	44. <i>Crepidotus mollis</i>	Crepidotaceae		SH	S	D W	N	BOUGHER 648 NLB 1034	2, 3, 4		Y	Y	Y		1, 2, 3, 4	
41	45. <i>Crepidotus nephrodes</i>	Crepidotaceae		SH	S	D W	N		1	Y					2, 3, 4	
43	46. <i>Crepidotus ragbag</i>	Crepidotaceae		SH	S	D W	N		4				Y		1, 4, 5	
KP205	47. <i>Crustoderma sp.</i>	Meruliaceae		RE	S	D W	N	NLB 1172	5					Y	5	New
KP098	48. <i>Dacrymyces stillatus</i>	Dacrymycetaceae		JE	S	D W	N	BOUGHER 730	1	Y					1	
47	49. <i>Descolea maculata</i>	Cortinariaceae		MU	M	L	N	BOUGHER 685	5					Y	1	
54	50. <i>Exidia ragbag</i>	Exidiaceae		JE	S	D W	N		1, 3, 4	Y		Y	Y		all	
KP195	51. <i>Exidiopsis sp. grey</i>	Auriculariaceae	Yellow scabs	JE	S	D W	N	NLB 1156	4				Y		4	New
KP015	52. <i>Exidiopsis sp. yellow scabs</i>	Auriculariaceae	Yellow scabs	JE	S	D W	N	E9320	4				Y		2, 3, 4	
119	53. <i>Fomitiporia robusta</i>	Hymenochaetaceae	Woody Layered Bracket Fungus	BR	P	DT	N		1, 2, 3, 5	Y	Y	Y		Y	1, 2, 3, 5	
56	54. <i>Fomitopsis lilacinogilva</i>	Coriolaceae		BR	S	D W	N		3, 5			Y		Y	1, 3, 4, 5	
377	55. <i>Galerina nana</i>	Cortinariaceae		MU	S	L	N		5					Y	5	
KP081	56. <i>Galerina pumila</i>	Cortinariaceae		MU	S	L	N	BOUGHER 672	5					Y	5	
KP042	57. <i>Galerina sp. orange-brown on wood</i>	Cortinariaceae		MU	S	D W	N	E9417	1	Y					2, 4, 5	
KP107	58. <i>Galerina sp. small brown in woodchips</i>	Cortinariaceae		MU	S	D W	N	BOUGHER 747 BOUGHER 770	4, 5				Y	Y	3, 4, 5	
KP163	59. <i>Ganoderma australe</i>	Ganodermataceae		BR	P	D W	N	NLB 1102	5					Y	5	New
KP169	60. <i>Geastrum australe</i>	Geastraceae		EA	S	L	N		4				Y		4	New
KP209	61. <i>Gloeoporus dichrous</i>	Meruliaceae		RE	S	D W	N	NLB 1155	4				Y		4	New
KP168	62. <i>Gloiothete globospora</i>	Peniophoraceae		RE	S	D W	N	NLB 1109	4				Y		4	New
66	63. <i>Gymnopilus allantopus</i>	Cortinariaceae	Golden Wood Fungus	MU	S	D W	N	E9355	all	Y	Y	Y	Y	Y	all	
315	64. <i>Gymnopilus cf. purpuratus</i>	Cortinariaceae		MU	S	D W	N		5					Y	3, 5	
KP197	65. <i>Gymnopilus crociphyllus</i>	Cortinariaceae		MU	S	D W	N	NLB 1149	4				Y		4	New
69	66. <i>Gymnopilus ragbag</i>	Cortinariaceae		MU	S	L	N		3			Y			3	
70	67. <i>Harknessia uromycoides</i>	Melanconidaceae	Tuart Nut Fungus	PS	S	D W	N		5					Y	4, 5	
KP021	68. <i>Hemimycena cf. lactea</i>	Mycenaceae	Lemon Cap Mycena	MU	S	L	N	E9319 BOUGHER 771	1, 3, 4	Y		Y	Y		ALL	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Mic ro habitat	Nati ve /Exo tic	Voucher Code	2015 SITES	1	2	3	4	5	ALL YE ARS (2009 - 2015)	New in 2015
KP006	69. <i>Hemimycena sp. minute, fragile, white pileus, arcuate gills</i>	Mycenaceae		MU	S	L	N	BOUGHER 524, 526	1	Y					1, 3, 4, 5	
71	70. <i>Henningsomyces candidus</i>	Schizophyllaceae	Miniature Chimney Pots	CY	S	D W	N	E9361	1, 4	Y			Y		all	
KP201	71. <i>Hydnomerulius pinastri</i>	Paxillaceae		RE	S	D W	E?	NLB 1160	5					Y	5	New
KP202	72. <i>Hydnoplicata sp</i>	Pezizaceae		TR	M	U	N	NLB 1161	5					Y	5	New
KP185	73. <i>Hymenoscyphus sp. orange then greenish</i>	Leotiaceae		CD	S	D W	N	NLB 1136	1	Y					1	New
KP003	74. <i>Hyphodontia breviseta</i>	Hyphodermataceae		RE	S	D W	N	BOUGHER 512 BOUGHER 774	3			Y			2, 3	
78	75. <i>Hyphodontia sp. white, low tubercules</i>	Hyphodermataceae		RE	S	D W	N	BOUGHER 754	1, 2	Y	Y				1, 2, 3, 4	
440	76. <i>Hypoxylon bovei</i>	Xylariaceae		FL	S	D W	N		1	Y					1, 2, 3	
KP150	77. <i>Hypoxylon ragbag</i>	Xylariaceae		FL	S	D W	N		4				Y		1, 4	
KP116	78. <i>Hypoxylon sp. asexual phase</i>	Xylariaceae		FL	S	D W	N		4				Y		2	
KP193	79. <i>Inocybe clypeata</i>	Inocybaceae		MU	M	L	N	NLB 1146	5					Y	5	New
KP177	80. <i>Inocybe fissurata</i>	Inocybaceae		MU	M	L	N	NLB 1120	5					Y	5	New
KP118	81. <i>Inocybe isabellina sp. nov. in ed.</i>	Inocybaceae		MU	M	L	N	BOUGHER 909	5					Y	2, 4, 5	
KP178	82. <i>Inocybe sp false murrayana</i>	Inocybaceae		MU	M	L	N	NLB 1121	5					Y	5	New
KP176	83. <i>Inocybe violaceocaulis</i>	Inocybaceae		MU	M	L	N		5					Y	5	
82	84. <i>Laccaria lateritia</i>	Tricholomataceae	Brick Red Laccaria	MU	M	L	N	E9446	1, 2, 3, 5	Y	Y	Y		Y	1, 2, 3, 5	
KP077	85. <i>Lachnum virgineum</i>	Hyaloscyphaceae		CD	S	D W	N	NLB 1039	1	Y					1, 2, 4	
84	86. <i>Laetiporus portentosus</i>	Fomitopsidaceae		BR	P	DT	N		4				Y		3, 4	
293	87. <i>Lepiota ragbag</i>	Lepiotaceae		MU	S	L	N	E9450	2		Y				2, 4	
KP198	88. <i>Lepiota sp. minute</i>	Lepiotaceae		MU	S	L	N	NLB 1150	4				Y		4	New
KP200	89. <i>Leucogrophana pseudomolluscae</i>	Hygrophoropsidaceae		RE	S	D W	E?	NLB 1158 NLN1159	5					Y	5	New
92	90. <i>Limacella pitereka</i>	Amanitaceae	Slimacella	MU	S	L	N	E9351 NLB1025 NLB1148	1, 2, 4	Y	Y		Y		1, 2, 3, 4	
KP203	91. <i>Melanoleuca fusca</i>	Tricholomataceae		MU	S	L	N	NLB 1175	5					Y	5	New
KP136	92. <i>Mycena carmeliana</i>	Mycenaceae		MU	S	D W	N	NLB1035	1	Y					1, 4	
102	93. <i>Mycena kuurkacea</i>	Tricholomataceae	Bleeding Pixie Cap	MU	S	L	N	BOUGHER 724	2, 3		Y	Y			1, 2, 3, 4	
101	94. <i>Mycena nargan</i>	Mycenaceae	Spotted Pixie Cap	MU	S	D W	N	BOUGHER 520 NLB 1022 NLB1024	1, 4	Y			Y		1, 2, 3, 4	
KP044	95. <i>Mycena ragbag, chlorine, in litter</i>	Tricholomataceae		MU	S	L	N		1, 2	Y	Y				1, 2, 5	
KP101	96. <i>Mycena ragbag, no chlorine odour, in litter</i>	Tricholomataceae		MU	S	L	N		1, 4	Y			Y		1, 2, 4	
KP045	97. <i>Mycena ragbag, on wood</i>	Mycenaceae		MU	S	D W	N		1, 2, 3, 4	Y	Y	Y	Y		ALL	
KP009	98. <i>Mycena sp. black cap, hairy base, chlorine odour</i>	Mycenaceae		MU	S	D W	N		4, 5				Y	Y	1, 2, 3, 4, 5	
KP171	99. <i>Mycena sp. no gills</i>	Mycenaceae		MU	S	D W	N		2		Y				2	New
KP188	100. <i>Mycena subgalericulata</i>	Mycenaceae		MU	S	D W	N		1	Y					1	
110	101. <i>Omphalotus nidiformis</i>	Tricholomataceae	Ghost Fungus	SH	S/P	D W/ B	N	E9423 NLB 1104	ALL	Y	Y	Y	Y	Y	1, 3, 4, 5	
219	102. <i>Panaeolus ragbag</i>	Strophariaceae		MU	S	L	N		5					Y	5	
290	103. <i>Panus fasciatus</i>	Polyporaceae	Hairy Panus	MU	S	D W	N		1	Y					1	
KP155	104. <i>Peniophora cinerea</i>	Corticiaceae		RE	S	D W	N		4				Y		1	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Mic ro habitat	Nati ve /Exo tic	Voucher Code	2015 SITES	1	2	3	4	5	ALL YE ARS (2009 - 2015)	New in 2015
237	<i>105. Perenniporia ochroleuca</i>	Polyporaceae		BR	S	DT	N		2		Y				2	New
KP206	<i>106. Peziza repanda</i>	Pezizaceae		CD	S	L	N	NLB 1176	5					Y	5	New
237	<i>107. Phaeotrametes decipiens</i>	Polyporaceae		BR	S	DT	N	BOUGHER 727	1	Y					1,2	
KP174	<i>108. Phellinus contiguus</i>	Hymenochaetaceae		RE	S	DW	N	NLB 1124	3			Y			3	New
120	<i>109. Phellinus sp. extensive resupinate</i>	Hymenochaetaceae		RE	S	DW	N	E9454	4,5				Y	Y	2,3,4,5	
122	<i>110. Phlebia ragbag</i>	Meruliaceae		RE	S	DW	N	BOUGHER 511	4				Y		1,2,3,4	
106	<i>111. Phlebia subceracea</i>	Meruliaceae	Golden Splash Tooth	RE	S	DW	N	BOUGHER 666	1	Y					1,2,3,4	
123	<i>112. Pholiota communis</i>	Strophariaceae	Common Pholiota	MU	S	DW	N	NLB 1164	4,5				Y	Y	4,5	
KP053	<i>113. Phylloporus clelandii</i>	Boletaceae	Cleland's Gilled Bolete	MU	M	L	N	BOUGHER 646	2,4,5		Y		Y	Y	2,4,5	
KP170	<i>114. Piloderma byssinum</i>	Atheliaceae		RE	S	DW	N	NLB 1122 NLB 1123	2		Y				2	New
KP159	<i>115. Pisolithus microcarpus</i>	Sclerodermataceae	Dog Poo Fungus	PF	M	L	N	NLB 1093	ALL	Y	Y	Y	Y	Y	ALL	
128	<i>116. Pisolithus ragbag</i>	Sclerodermataceae	Dog Poo Fungus	PF	M	L	N		2,3,5		Y	Y		Y	ALL	
KP127	<i>117. Pisolithus sp small globose</i>	Sclerodermataceae	Rotund Dog Poo Fungus	PF	M	L	N	BOUGHER 995	4,5				Y	Y	3,4,5	
KP167	<i>118. Pluteus cervinus</i>	Pluteaceae		MU	S	DW	N	NLB 1110	4				Y		4	New
KP190	<i>119. Pluteus ragbag in litter</i>	Pluteaceae		MU	S	L	N		1	Y					1	
271	<i>120. Poria s.l. ragbag</i>	Unknown		RE	S	DW	N		1,4,5	Y			Y	Y	ALL	
375	<i>121. Porostereum crassum</i>	Phanerochaetaceae	Violet Skin Fungus	RE	S	DW	N	BOUGHER 522	1,5	Y				Y	1,3,4,5	
KP100	<i>122. Postia pelliculosa</i>	Coriolaceae		BR	S	DW	N	NLB1135	1	Y					1	
138	<i>123. Psathyrella ragbag, in litter</i>	Psathyrellaceae		MU	S	L	N	E9415	2		Y			Y	ALL	
KP124	<i>124. Psathyrella sp. smooth brown woodchips</i>	Psathyrellaceae		MU	S	DW	N	BOUGHER 996	5					Y	5	
KP068	<i>125. Psathyrella sp. strong veil, burnt wood</i>	Psathyrellaceae		MU	S	DW	N	BOUGHER 634 NLB1108	4				Y		1,4	
406	<i>126. Puccinia myrsiphilli</i>	Pucciniaceae	Bridal Creeper Rust	RU	P	DT	E		1,4	Y			Y		1,4	
KP162	<i>127. Punctularia strigosozonata</i>	Corticaceae		RE	S	DW	N	NLB 1099 NLB 1134	1	Y					1	New
140	<i>128. Pycnoporus coccineus</i>	Coriolaceae	Scarlet Bracket Fungus	BR	S	DW	N		1,2,3,5	Y	Y	Y		Y	ALL	
KP157	<i>129. Pyronema omphalodes</i>	Pyronemataceae	Ash bed Fungus	OT	S	BG	N	NLB 1087	5					Y	5	New
141	<i>130. Ramaria gracilis</i>	Ramariaceae	Slender Coral Fungus	CO	M	L	N		1,2,4	Y	Y		Y		1,2,4	
KP037	<i>131. Ramaria sp. white</i>	Ramariaceae		CO	M	L	N	BOUGHER 745	1,4	Y			Y		1,4	
1	<i>132. Resupinatus subapplanatus</i>	Tricholomataceae	Small Grey Anemone	SH	S	DW	N	E9379, E9422	1,4	Y			Y		ALL	
KP080	<i>133. Rhodocollybia sp. leather brown</i>	Tricholomataceae		MU	S	DW	N	BOUGHER 668 BOUGHER 669 NLB 1147	4				Y		3,4	
134	<i>134. Royoporus badius</i>	Polyporaceae		BR	S	B	N		5					Y	4,5	
221	<i>135. Russula erumpens</i>	Russulaceae	Erupting Russula	MU	M	L	N	BOUGHER 615	2,3		Y	Y			2,3,4	
KP164	<i>136. Russula marangania</i>	Russulaceae		MU	M	L	N	NLB 1103	4,5				Y	Y	4,5	New
KP175	<i>137. Russula ragbag</i>	Russulaceae		MU	M	L	N		3			Y			3	
149	<i>138. Schizophyllum commune</i>	Schizophyllaceae	Split-gill fungus	SH	S	DW	N	E9445	5					Y	2,5	
262	<i>139. Schizopora paradoxa</i>	Schizoporaceae	Split Pore Crust	RE	S	DW	N		4				Y		1,2,3,4	
KP166	<i>140. Scleroderma cepa</i>	Sclerodermataceae		PF	M	L	N		4,5				Y	Y	4,5	
KP204	<i>141. Scleroderma ragbag (not cepa)</i>	Sclerodermataceae		PF	M	L	N	NLB 1174	5					Y	5	
KP112	<i>142. Sistotrema cream to ash grey</i>	Sistotremataceae		RE	S	DW	N	BOUGHER 773 BOUGHER 775	5					Y	2,3,5	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Mic ro Hab itat	Nati ve /Exo tic	Voucher Code	2015 SITES	1	2	3	4	5	ALL YE ARS (200 9 - 2015)	New in 2015
KP103	143. <i>Sistotrema sp. grey paint on leaves</i>	Sistotremataceae		RE	S	D W	N	NLB 1054	4, 5				Y	Y	1, 4, 5	
KP079	144. <i>Skeletocutis amorpha</i>	Polyporaceae		RE	S	D W	N	BOUGHER 691 NLB 1053	1, 2	Y	Y				1, 2, 3	
211	145. <i>Stereum illudens</i>	Stereaceae	Purplish Stereum	BR	S	D W	N	E9362	1	Y					1	
400	146. <i>Suillus granulatus</i>	Suillaceae	Slippery Jack	MU	M	L	E	NLB1101	5					Y	5	
KP208	147. <i>Tapinella panuoides</i>	Boletaceae		MU	M	L	E?	NLB 1196	5					Y	5	New
KP191	148. <i>Tomentellopsis cf. echinospora</i>	Thelephoraceae		RE	S	D W	N	NLB 1144	5					Y	5	New
KP145	149. <i>Tomentellopsis echinospora</i>	Thelephoraceae		RE	S	D W	N	NLB 1049 NLB 1095 NLB1143	1, 2, 4, 5	Y	Y		Y	Y	1, 2, 4, 5	
KP160	150. <i>Trechispora sp. cream</i>	Sistotremataceae		RE	S	D W	N	NLB 1094	3			Y			3	New
207	151. <i>Tremella mesenterica group</i>	Tremellaceae	Yellow Brain Fungus	JE	S	D W	N	E9453	1, 3, 5	Y		Y		Y	1, 3, 4, 5	
250	152. <i>Trichia decipiens</i>	Trichiaceae	Cute Baubles	SL	S	D W	N		1, 4	Y			Y		1, 3, 4	
KP183	153. <i>Tricholoma sp. large clustered</i>	Tricholomataceae		MU	M	L	N	NLB 1129	5					Y	5	New
KP181	154. <i>Tricholoma sp. no odour</i>	Tricholomataceae		MU	M	L	N	NLB 1126	5					Y	5	New
KP105	155. <i>Tubulicrinis calothrix</i>	Tubulicrinaceae		RE	S	D W	N		1	Y					1, 4	
KP059	156. <i>Tylophilus fuscobrunneus</i>	Boletaceae		MU	M	L	N	BOUGHER 616 BOUGHER 645 NLB 1045	1, 2, 4, 5	Y	Y		Y	Y	all	
KP187	157. <i>Undetermined agaric ragbag in litter</i>	Unknown		MU	S	L	N		1, 5	Y				Y	1, 5	New
KP189	158. <i>Undetermined agaric ragbag on wood</i>	Unknown		MU	S	L	N		1	Y					1	New
KP089	159. <i>Undetermined ascomycete minute dull tan discs on wood</i>	Unknown		CD	S	D W	N		2		Y				1, 2, 3	
KP065	160. <i>Undetermined mould ochraceous</i>	unknown		MO	S	D W	N	NLB1162	5					Y	1, 2, 5	
KP106	161. <i>Undetermined mould ragbag</i>	unknown		MO	S	D W	N		1, 4	Y			Y		1, 4	
KP165	162. <i>Undetermined resupinate curtain rows</i>	unknown		RE	S	D W	N	NLB 1110	4				Y		4	New
KP142	163. <i>Undetermined resupinate grey soft litter</i>	unknown		RE	S	L	N	NLB1050 NLB1097 NLB1098 NLB 1137	1, 2, 3, 4	Y	Y	Y	Y		1, 2, 3, 4	
KP073	164. <i>Undetermined resupinate mustard curtains</i>	unknown		RE	S	D W	N	BOUGHER 651	1, 2	Y	Y				2, 4	
KP161	165. <i>Undetermined resupinate pale yellow eggs</i>	Unknown		RE	S	D W	N	NLB 1096	1	Y					1	New
KP196	166. <i>Undetermined resupinate pleurobasidia</i>	unknown		RE	S	D W	N	NLB 1157	4				Y		4	New
KP086	167. <i>Undetermined resupinate ragbag</i>	unknown		RE	S	D W	N	NLB 1021 NLB 1027 NLB 1040 NLB1050	1, 2	Y	Y				all	
107	168. <i>Undetermined slime mould ragbag</i>	Unknown		SL	S	D W/ /L	N		2		Y				2, 3, 4	
172	169. <i>Volvopluteus speciosus</i>	Pluteaceae	Common Rosegill	MU	S	L	N		5					Y	4, 5	

Table 3: Taxonomic rank, life mode, habitat, and sites of fungi in Kings Park in 2015.
 Note: some fungi may have more than one life-mode type, and modes for most species have not been confirmed.

Category	No. species	Example species
Taxonomic ranks		
Species	169	(includes 28 ragbags)
Genera	96	(+ 13 of unknown genus)
Families	56	(+ 13 of unknown family)
Ecology/Lifemode types		
Saprotrophic	120	<i>Botryobasidium subcoronatum</i>
Pathogenic	5	<i>Ganoderma australe</i>
Mycorrhizal	43	<i>Amanita drummondii</i>
Saprotropic or pathogenic	1	<i>Omphalotus nidiformis</i>
Main habitat types (+ 5 species with two or more habitats)		
B = Bark of living tree	2	<i>Royoporus badius</i>
BG = Burnt ground/litter	3	<i>Pyronema omphalodes</i>
DT = Diseased or dying tree/plant	6	<i>Laetiporus portentosus</i>
DW = Dead wood/logs	87	<i>Gymnopilus crociphyllus</i>
L = Leaf litter or soil	71	<i>Geastrum australe</i>
U = underground	1	<i>Hydnoplicata sp.</i>
Survey Sites		
1	21 exclusive / 43 shared	<i>Punctularia strigosozonata</i>
2	8 / 31	<i>Mycena sp. no gills</i>
3	7 / 18	<i>Fomitipora robusta</i>
4	45 / 23	<i>Rhodocollybia sp. leather brown</i>
5	43 / 32	<i>Leucogyrophana pseudomollusca</i>
Origin		
Native	164	<i>Melanoleuca fusca</i>
Exotic	5	<i>Puccinia myrsiphilli</i>

Discussion

Biodiversity

In the 2015 season warm dry weather persisted into mid June. Then several periods of reasonably heavy rainfall were sufficient to soak the soil beneath litter layers in time to stimulate the fruiting of a rich diversity of fungi particularly late season fungi, some of which were still fruiting well into August. Hence the 2015 survey recorded significantly more fungi than in previous survey years - 123 species in 2012, 106 (2011), 108 (2010), 123 (2009). A total of 169 fungi designated as species or species complexes were recorded in 2015 including 46 of the fungi in the current survey considered as new records for Kings Park – 27% of the fungi recorded in 2015. The newly produced guide - *Kings Park Fungi [version 1.1] A visual guide to species recorded in surveys 2009 - 2012* (Bougher 2015) proved to be a valuable tool in this season's field survey. An updated version of this guide which includes the new fungi records from 2015 will be produced for future field surveys.

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, including those recorded before 2009 (Bougher 2010a, b) together with the undetermined and 'ragbag group' names recorded in surveys since 2009 (Bougher 2009a, 2010c, 2011b, 2012, current report). Since 2009 there are 313 different fungi recorded for Kings Park including all the undetermined and 'ragbag group' names.

After the 2015 survey, a total of **242 different fungi identified and named to species level** (including slime moulds) have been recorded from Kings Park. This total is comprised of:

- 122 named species recorded before 2009 (Bougher 2010a).
- 72 new records that were identified to species level from years 2009 and 2010 (Bougher 2011a).
- 12 of the 27 new records from the 2011 survey that were identified to species level and not recorded from Kings Park before 2011 (Bougher 2011b).
- 9 of the 29 new records from the 2012 survey that were identified to species level and not recorded from Kings Park before 2012 (Bougher 2012).
- 27 of the 46 new records from the 2015 survey that were identified to species level and not recorded from Kings Park before 2015 (current report).

Some notable fungi recorded at Kings Park in 2015

1. Pine associates (introduced exotic fungi) (Figures 5 - 8):

Numerous exotic fungi introduced from elsewhere occur in Kings Park, and some of these were observed during 2015. *Suillus granulatus* is a mycorrhizal associate of *Pinus* introduced to W.A. in the early 1900's to enable plantation *Pinus* plantations to flourish (Figure 5). This fungus is particularly abundant each June-July in Kings Park under and near the pine trees at Saw Avenue. Several wood-decay species associated with *Pinus* were found in Kings Park for the first time in 2015 - *Leucogyrophana pseudomollusca* (Figure 6) only the second confirmed record in Australia, *Hydnomerulius pinastri* (Figure 7) only the third record in Australia, *Tapinella panuoides* (Figure 8) and *Coniophora olivacea*. These four fungi species were found in an area between the Kulbardi carpark and Thomas Road that was rehabilitated in 2012-2014. The area was mulched with hammer milled *Pinus* wood sourced from within the former pine plantation (*Pinus radiata*) that occupied this same site and then put through a composting process. The fungi were growing on a mixture of woody debris under the leaf litter, favouring pine (*Pinus*) sticks often about 2 to 5 cm wide and about 20 cm long. *Coniophora olivacea* was also observed on a large *Pinus* log.

Figures 5 - 8: Some introduced exotic fungi associated with *Pinus* recorded at Kings Park in 2015.



Figure 5: *Suillus granulatus* (NLB 1101). A large edible fungus that occurs in abundance near pine trees in Kings Park.



Figure 6: *Leucogyrophana pseudomollusca* (NLB 1158). Only the second confirmed record from Australia.



Figure 7: *Hydnomerulius pinastri* (NLB 1160). Only the third confirmed record from Australia.



Figure 8: *Tapinella panuoides* (NLB 1196).

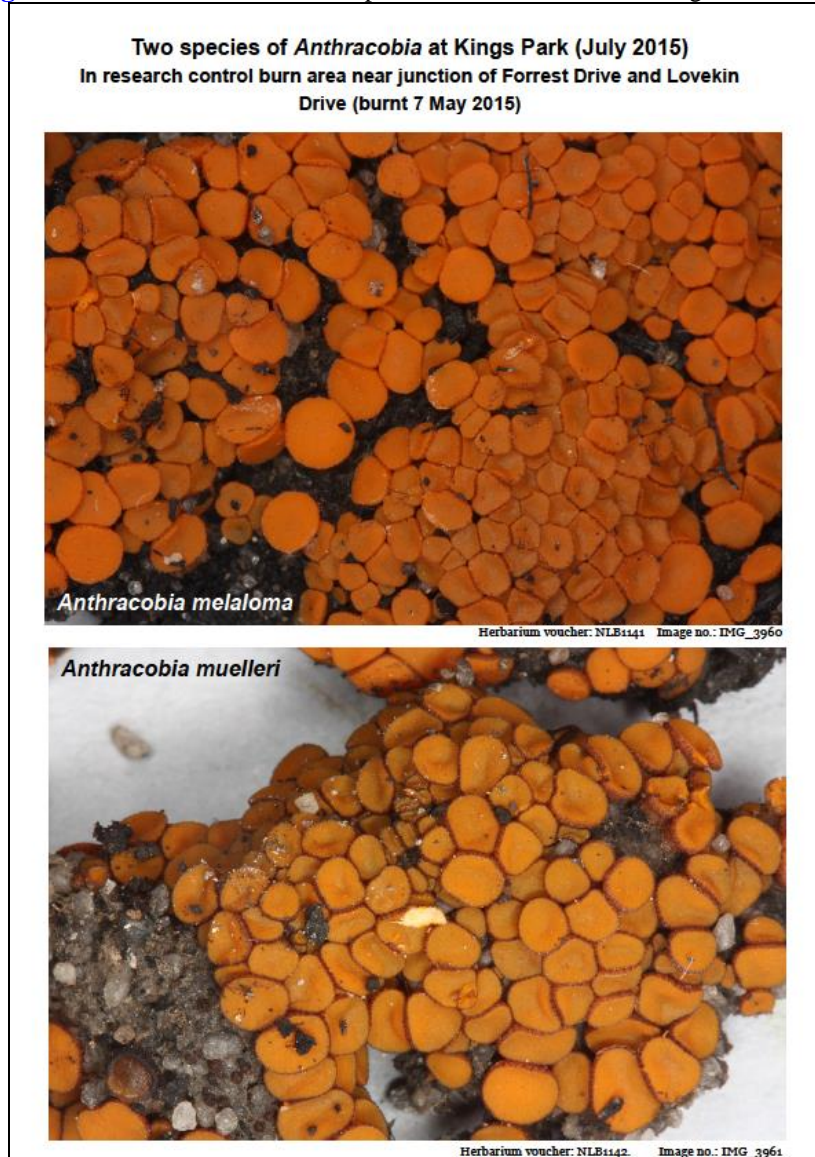
Some notable fungi recorded at Kings Park in 2015

2. Fire fungi (Figures, 1,2, 9):

An experimental control burn at Kings Park (burnt 7 May 2015) provided an incidental opportunity to search for fire-responsive (pyrophilous) fungi known to occur elsewhere (Robinson and Bougher 2003) but not yet observed in the park. One such species - *Pyronema omphalodes* - was found for the first time in Kings Park at the control burn site forming extensive carpets contrasting against the blackened ground (see Figures 1, 2). Elsewhere, *Pyronema omphalodes* is known to be usually followed by a succession of other fire-dependant fungi. In 2015 two of those species were observed at the experimental burn area - *Anthracobia melaloma* and *Anthracobia muelleri*. Superficially the two species are difficult to distinguish, and microscopically they are similar (Figure 9). However they do subtly differ in the colour of their discs, size, shape (rim height) and degree of crowdedness of their fruit bodies. *Anthracobia melaloma* tends to be brighter orange and slightly larger than *A. muelleri*.

In previous fungi surveys some other later-succession pyrophilous fungi have been observed at Kings Park, including - *Peziza tenacella* (see Figure 5, Bougher 2009a; page 15, Bougher 2015), *Pholiota highlandensis* (in 2011, see page 50 Bougher 2015), and *Pulvinula archeri* (see Figure 6, Bougher 2009a; page 16, Bougher 2015). These fungi are likely also to occur at the May 2015 experimental control burn at Kings Park, but a more intensive (rather than incidental) study of the area is required to observe them all.

Figure 9: *Anthracobia* from an experimental control burn at Kings Park in 2015.



Some notable fungi recorded at Kings Park in 2015

3. *Gliothele globospora* (Figures 10, 11):

Originally described from Taiwan, this species has not been recorded before in Australia. It is a smooth, waxy resupinate fungus found in Kings Park in 2015 growing on rotting wood of *Agonis flexuosa*. It has granular cystidia, and globose smooth spores.



Figure 10: *Gliothele globospora* fruit body (NLB 1109). The first confirmed record from Australia.

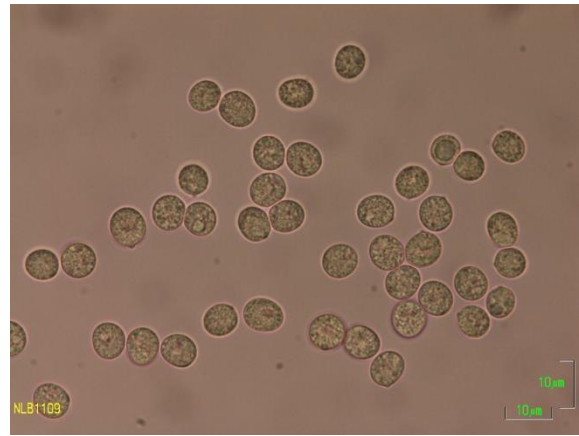


Figure 11: *Gliothele globospora* spores (NLB 1109).

4. *Inocybe* species (Figures 12, 13):

In 2015 three species of the ectomycorrhizal genus *Inocybe* were found that were previously unrecorded in Kings Park - *Inocybe clypeata*, *Inocybe fissurata* (Figure 12), and *Inocybe sp. false murrayana* (Figure 13). Six species of the ectomycorrhizal genus *Inocybe* (the fibre cap fungi) have been confirmed at Kings Park so far. The other species are *Inocybe violaceocaulis*, *Inocybe isabellina* (Figure 4, Bougher 2011b; page 44 Bougher 2015), and *Inocybe froudistii* (see page 44, Bougher 2015). The latter is the correct identity for two names used in the 2012 season report (Bougher 2012) - *Inocybe fibrillosibrunnea* (Figure 1, Bougher 2012) and *Inocybe* sp. nov. cf. BOU494 (Figure 2, Bougher 2012). There are two records of other *Inocybe* species at Kings Park, but no voucher specimens or notes were kept - *Inocybe* sp. 'brown' 13/06/1999 N.L. Bougher et al. (unpubl. foray data), and *Inocybe* sp. 'small fibrillose' 13/06/1999 N.L. Bougher et al. (unpubl. foray data). Yet more species of *Inocybe* may be expected at Kings Park.



Figure 12: *Inocybe fissurata* (NLB 1120).



Figure 13: *Inocybe sp. false murrayana* (NLB 1121).

Conclusion and recommendations

A total of 242 fungi identified and named to species level now have been recorded from Kings Park, but many more species occur there, as indicated by an extra 70 unidentified and 'ragbag' records so far. In similarity with the previous surveys (2009 to 2012), this year's survey captured many new records for the Park (27% of records in 2015).

Recommendations include:

- **Surveys:** Annual surveys of fungi should be continued in order to adequately document the diversity of fungi at Kings Park, including with continuing support from staff and volunteers.
- **Taxonomic work:** Like at Bold Park, resolution of the identity of fungi at Kings Park will continue as a developmental process, with the identity of more species gradually resolved each year. Continued support of the Western Australian Herbarium will be critical to help facilitate taxonomic studies needed to resolve the identity of more of the records of fungi from Kings Park. Financial support targeted specifically for taxonomic studies would accelerate resolution of the identity of fungi at Kings Park. Particular financial support is needed for DNA sequencing to help expedite the identification of specimens.
- **Training:** Further education, training, and awareness of volunteers and staff would be desirable in order to recognize a greater array of fungi, particularly the less conspicuous types of fungi. This will help provide a more accurate assessment of the numbers of fungi species present at Kings Park.
- **Book:** 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 2009b). However it is recommended that an account of the fungi in Kings Park (and Bold Park) be produced, such as a colourful field book and/or pamphlets and posters. The initial basis for such a book was materialised in 2015 with the production of *Kings Park Fungi [version 1.1] A visual guide to species recorded in surveys 2009 - 2012* (Bougher 2015). This guide proved to be a valuable tool for participants in the field during this season's survey, and will be updated for future field surveys.

Acknowledgements

Since 2009, a total of 44 people (volunteers, students, and BGPA staff and trainees) have participated in the fungi survey days at Kings Park. Thanks to the following 14 volunteers who donated their time and efforts to participate as members of the “collecting crew” for one or more of the fungi surveys days at Kings Park in 2015: Peter Broome, Yvonne Broome, Jonica Foss, Rosemary Gillen, Patricia Gurry, Roz Hart, Laurton McGurk, Francis Millhouse, Val Preston, Kay Rae, Lyn Rowland, Kirsten Tullis, Pat Wenham, and Peter Wilshaw. Eight staff and trainees from the Botanic Gardens and Parks Authority (BGPA) assisted in the field on at least one of the survey days – Bronwyn Bader, Marty Brotherson, Ryan Glowacki, Peter Goodsell, Rachel Guilfoile, Heather McCheshey, Tahani Richer, Sarah Robb, and Jordan Tuner. Steve Easton (BGPA) advised and assisted with the selection of fungi survey sites, participating BGPA staff, and in the production of maps. BGGPA staff Ryan Glowacki, Grady Brand and Jeremy Thomas provided information about the the origin of mulch at Kings Park.

DNA sequences undertaken by Matt Barrett (BGPA) confirmed the identity of several fungi, e.g. *Gloeoporus dichrous*. Studies on *Inocybe* species in this report were undertaken in a collaborative project by the current author and Brandon Matheny (University of Tennessee, USA) supported by a research grant from the Australian Government’s Australian Biological Resources Study National Taxonomy Research Grant Program (grant no. RFL211–31) which includes some financial support from the Western Australian Naturalists’ Club Inc., and a research grant from the United States of America Government’s National Science Foundation (REVSYS grant no. DEB-0949517).

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Appendix 1

The subset of fungi that were processed, described, & prepared as herbarium vouchers from Kings Park and Botanic Garden 2015. Vouchers lodged at the Western Australian Herbarium (PERTH).

<i>Genus</i>	<i>Species</i>	Collection No.	PERTH No.	Descriptive Notes	Plants	Date
<i>Amanita</i>	<i>sp.ochre ring</i>	NLB 1105	8690766	Characteristic Features: (i) tall white stipe but usually barely emerging from the sand; (ii) upper stipe with striate fragile band-like annulus; (iii) stipe base with ovoid bulb without any detaching velar material but concentric rings at rim; (iv) pileus white but later greyish-orange and shiny, then white appressed veil sometimes more evident; (v) strong sour odour. Pileus: 40-50 mm diameter; 5 mm thick above stipe; when young entirely white but when older becomes shiny and entirely brownish yellow (near Munsell 10YR 6/6, or near Methuen 5B4 to 5B5 'greyish orange'); flat-convex becoming almost applanate and finally with shallow broad depression at centre; margin non-striate with ragged non-appendiculate ochre velar remnants which contrast against the white pileus; dry (but with some adhering sand grains - mostly easily brushed off); not bruising or staining (but note colour change when old); context white, unchanging when exposed, context gradually thins from the stipe to a very thin width at the pileal margin. Universal veil on pileus inconspicuous to naked eye but becomes apparent in older specimens as then contrasts against greyish orange pileal surface; under lens veil glistening, white, thin and fully appressed, mealy / submembranous, not easily removed. Lamellae: white to pale cream, edge and face concolorous; up to 9 mm wide; adnexed; slightly ventricose; very short and half length lamellules abundant, quite consistently present between each pair of lamellae; spacing not particularly crowded not distant. Stipe: 40-55 mm (to the top of bulb) x 10-12 mm (mid stipe), bulb up to 30 mm long x 20 mm wide; ovoid with taper at extreme base; white and not staining, cylindrical or slightly tapering towards apex with only a slight flaring at apex; smooth above annulus, with small scurfy scales and floccose material below. Annulus: always present but fragile and often disappears with age, superior position, forming a horizontal longitudinally striate band up to 5 mm broad with upper part firmly appressed and lower part free, becomes ragged with age, pale ochre cream, sometimes becoming more intense with age. Rim of stipe base with some concentric bands of glistening white velar material, otherwise no loose tissues and no detaching material. Odour: sour (strongly so). Spore print: white.	Eucalyptus gomphocephala, Corymbia calcephala, Allocasuarina and Macrozamia.	25/06/2015
<i>Anthracobia</i>	<i>melaloma</i>	NLB 1131	8690944	*Compare this collection with NLB 1132 from the same location and time. This collection (NLB 1131) seemed to be much less abundant than NLB 1132 and to form small colonies rather than the extensive carpets formed by NLB 1132. NLB 1131 has discs with a pronounced rim (so they are cup-like / concave), up to 4 mm diameter, whereas NLB 1132 has flatter discs (rim barely above centre), only up to 2 mm in diameter, but mostly only about 1 mm diameter and much more crowded than in NLB 1131 (closest to Munsell 5YR 6/8 but brighter than that; between Methuen 6A8 and 6B8 'orange' or 'orange peel'); versus in NLB 1131 orange-yellow (quite yellowish when in sunlight) (closest to Munsell 10YR 6/8 'brownish yellow' but a bit more yellow than that; between Methuen 4B8 and 5B8 'orange-yellow-golden yellow'). See comparative images. Need to check micro to determine if the macro features that point to NLB 1131 and NLB 1132 being two separate species. Micro: spores cylindro-ellipsoid, 2 oil bubbles, size 14-18.8 x 7.5-8.2 microns. Paraphyses strongly amyloid, septate, apex clavate, 6-7.5 microns wide, orange in water. Medullary excipulum parenchymous (large subglobose to polygonal) orange-filled cells. Odour: none.	Open burnt woodland of Allocasuarina fraseriana and some Corymbia calophylla and Banksia.	09/07/2015
<i>Anthracobia</i>	<i>melaloma</i>	NLB 1141	8691045	Odour: none. This is a second collection of <i>A. melaloma</i> from this burnt area, vouchered because there are more fruitbodies than in NLB 1131, and because this species and <i>A. muelleri</i> were fruiting side by side within the same small patch of ground. See images showing this co-fruiting, and also close-ups comparing the two species side by side.	Open burnt woodland of Allocasuarina fraseriana and some Corymbia calophylla and banksia.	16/07/2015
<i>Anthracobia</i>	<i>muelleri</i>	NLB 1132	8690952	Compare this collection with NLB 1131 from the same location and time. That collection (NLB 1131) seemed to be much less abundant than NLB 1132 and to form small colonies rather than the extensive carpets formed by NLB 1132. NLB 1131 has discs with a pronounced rim (so they are cup-like / concave), up to 4 mm diameter, whereas NLB 1132 has flatter discs (rim barely above centre), only up to 2 mm in diameter, but mostly only about 1 mm diameter and much more crowded than in NLB 1131 (closest to Munsell 5YR 6/8 but brighter than that; between Methuen 6A8 and 6B8 'orange' or 'orange peel'); versus in NLB 1132 orange-yellow (quite yellowish when in sunlight) (closest to Munsell 10YR 6/8 'brownish yellow' but a bit more yellow than that; between Methuen 4B8 and 5B8 'orange-yellow-golden yellow'). See comparative images. Need to check micro to determine if the macro features that point to NLB 1131 and NLB 1132 being two separate species. Odour: none.	Open burnt woodland of Allocasuarina fraseriana and some Corymbia calophylla and Banksia.	09/07/2015
<i>Anthracobia</i>	<i>muelleri</i>	NLB 1142	8691053	Odour: none. This is a second collection of <i>A. muelleri</i> from this burnt area (previous coll. NLB 1132). It was vouchered again because today it was seen fruiting side-by-side with <i>A. melaloma</i> . See comparative images of these two species. Also note: after about a week of dry weather most of the colonies of <i>A. muelleri</i> now appear to the eye to be quite dull yellow-orange, and almost a dull ochre colour.	Open burnt woodland of Allocasuarina fraseriana and some Corymbia calophylla and banksia.	16/07/2015
<i>Austropaxillus</i>	<i>muelleri</i>	NLB 1138	8691010	Odour: mushroom. Spore print: brown. Vouchered as a representative of this broad species concept from Kings Park.	Eucalyptus marginata, Allocasuarina fraseriana woodland.	14/07/2015
<i>Basidiodendron</i>	<i>cinereum</i>	NLB 1140	8691037	Characteristic Features: (i) fully resupinate, thin, smooth with some pronounced but low dome-shaped tubercles, margin quite abrupt, not easily removed; (ii) drab greyish-brown, slightly waxy appearance. Odour: none. Micro: longitudinally septate basidia (2-celled only) with acute sterigmata place this collection in the Exidiopsis / Sebacina / Basidiodendron grouping. No very long sterigmata were observed - only up to 8 microns long (see images). Possibly has repetospores. Spores broad ellipsoid, smooth / thin-walled, asymmetrically flattened on one side. Most tissues collapsed. Gloeocystidioid elements also in hymenium (smooth / thin-walled, no crystals). See images. Presence of gloeocystidioid elements and repetospores points to genus Basidiodendron. Compare micro and DNA sequence of NLB 1140 with E 6852, E 6859 and E 6895 (made in early 2000s at Alcoa bauxite mine rehab sites). Basidia form, gloeocystidia size and shape, and the broad ellipsoid spores in NLB 1140 are most similar to Basidiodendron cinereum. That species has been recorded from N.Z. but not yet from Australia. o	Eucalyptus cladocalyx.	14/07/2015
<i>Boletus</i>	<i>sp. streaky fusoid stipe</i>	NLB 1088	8690626	Characteristic Features: (i) Fusoid stipe with longitudinal streaks, pale off-white, flesh white, not bluing - just drab and watery bruises; (ii) Pileus smooth, dry, white thick at margin, drab greyish-cream, uniformly so; (iii) Tubes and pores bright yellow, sparsely bruising blue (dulling rapidly after becoming blue). Odour: not distinctive. Spore print: dull greenish-grey (near Methuen4E4). This has a streaky stipe in similarity with KP 120 Boletus sp. red brown cap, but that has a red pileus and a more clavate-shaped stipe. KP 126 Boletus sp. brown also seems different with its brown pileus and cylindrical stipe (but does not show hymenium coloration, and reluctant bluing flesh when cut / bruised). So it must be concluded that NLB 1088 represents another species of Boletus not yet seen / collected in Kings Park.	Allocasuarina fraseriana, Banksia, Corymbia calophylla open woodland.	09/06/2015
<i>Boletus</i>	<i>aff. prolinius</i>	NLB 1130	8690936	Characteristic Features: (i) flesh bright yellow, instantly turning blue (blue fades away after an hour or so); (ii) stocky, robust fruit bodies with red-brown or paler yellowish (but then with some red areas) smooth convex pileus; (iii) stipe sharply tapering to base, bright yellow with some blue and red stains; (iv)	Woodland (jarrah, banksia, sheoak) on one side, planted eucalypts along the road on other side.	09/07/2015

				pores small, bright yellow, instantly bluing; (v) thick-fleshed over stipe apex (25-30 mm); (vi) tubes concolorous with pores; (vii) red staining where insect damage. This has previously been referred to as <i>Boletus prolinus</i> (e.g. E 8180), but it is not that species (nor are any of the previous ascribed to it as the exposure of the fruit bodies and flesh is not matching that species. Odour: none.		
<i>Botryobasidium</i>	<i>subcoronatum</i>	NLB 1145	8691096	Characteristic Features: (i) fully resupinate, thin, easily removed, white, smooth and contiguous (minutely glistening under lens) like paint; (ii) margin quite abrupt with a narrow zone of sparse arachnoid white growth. The micro characters (see below and images) suggest this is <i>Botryobasidium subcoronatum</i> (e.g. spore form and size, basidia size, all septa clamped). See also E 8229, and BOU 682. The local representatives seem to have a continuous smooth fruit body surface, whereas the literature says it should be more arachnoid. Local collections seem to favour burnt wood. Micro: all tissues hyaline or pale yellowish in water, and in Melzers. Basidia uriform / squat / cylindrical clamped, e.g. 17 x 6.5 microns, hyaline. Hymenium not a palisade, but in clusters. Sterigma small, 6-spored. Subiculum of slightly thick-walled, hyaline or pale yellowish hyphae (7-10 microns wide), always with large loopy clamps, and branching at right angles, loosely arranged, hyaline in water, pale yellowish in Melzers (see images) with granular contents; size: e.g. 7.0 x 3.3; 8.2 x 5.5; 6.8 x 3.1 microns, with prominent rounded apiculus. Monomitic. No crystals on hyphae. Odour: none. Spore print: white.	Open burnt (5 years ago?) woodland (sheoak, marri, banksia, dryandra, acacia).	16/07/2015
<i>Botryobasidium</i>	<i>subcoronatum</i>	NLB 1163	8691290	Characteristic Features: (i) fully resupinate, thin, easily removed spreading growths. Surface dry, smooth to the eye (finely farinose under lens), white; margin abrupt with no external mycelium but with a sparse more openly farinose region. No rhizomorphs. Micro: subiculum of broad (5-7 microns) clamped, hyaline, thin/smooth-walled hyphae branched at right angles. Spores fusoid, smooth/thin-walled, large apiculus, pale greenish and granular in Melzers (see images), small e.g. 6.3 x 2.7; 5.4 x 2.7; 6.9 x 2.7; 6.9 x 3.0; 6.3 x 3.0 microns, basidia uriform, globose when young, 6-spored. Odour: none. Spore print: snuff brown.	Rehabilitated area planted with eucalypts - <i>Eucalyptus gomphocephala</i> , <i>Corymbia calocephala</i> .	27/07/2015
<i>Botryobasidium</i>	<i>subcoronatum</i>	NLB 1173	8691347	Characteristic Features: fully resupinate, very thin and easily removed patchy growths. Surface farinose, more or less contiguous, dry-soft, pale grey (near Methuen 12C1). Margin quite abrupt but simply a concolorous thinning of the growth. Hyphal strands sparsely present beyond the fruit bodies, but no rhizomorphs. Micro: spores fusoid, hyaline in water and KOH, granular pale yellowish in Melzers, smooth/thin-walled, quite small e.g. 6.8 x 2.8; 7.4 x 3.2; 7.7 x 2.9; 6.2 x 2.5 microns. Context of broad clamped hyphae branching at right angles. Basidia uriform-cylindric, clamped. Odour: not distinctive. Spore print: white.	Rehabilitated area planted with eucalypts and acacias.	03/08/2015
<i>Ceriporia</i>	<i>reticulata</i>	NLB 1154	8691193	Characteristic Features: (i) fully resupinate, not easily removed, quite waxy, pale cream to white; (ii) poroid with angular-polygonal irregular-shaped pores (quite large e.g. 2 pores per mm) and raised curtain-like walls; (iii) margin quite abrupt with a brief zone of watery subiculum. Odour: none. Pores similar to those of <i>Ceriporia reticulata</i> , and micro seems acceptable. Micro: all tissues hyaline and not reactive in Melzers. Hymenial cystidia scattered, projecting, tapering subulate, thin/smooth-walled, e.g. 25 x 4 microns, some multi-septate (see images). Subicular hyphae non-clamped, branching, smooth and slightly thick-walled, 2.5-4 microns wide. Monomitic. Sterile: no spores seen and no spore print formed.	<i>Eucalyptus gomphocephala</i> open woodland.	21/07/2015
<i>Clitocybe</i>	<i>clitocyboides</i>	NLB 1133	8690960	Characteristic Features: (i) aniseed odour absent; (ii) crowded decurrent lamellae; (iii) smooth centrally depressed pileus, yellowish-brown then hygrophanous (becomes pale whitish) and with inrolled margin; (iv) base of stipe with some white coarse hairs but no rhizomorphs. Pileus: up to 35 mm diameter; at first flat-convex with inrolled margin covered with a fine white frostiness, some with broad-shallow to deep central depression; surface smooth, dry, but with a waxy appearance when young, hygrophanous (becoming pale from centre outwards); yellowish-brown (near 5D5 to 5D6) when young, some more greyish (near 5C4) and eventually pale cream-whitish when dry and older. Lamellae: decurrent, very shallow (only to 2 mm deep), not ventricose, very crowded, with abundant lamellules, pale cream dulling slightly with age, not bruising; edge smooth and entire. Stipe: up to 40 x 8 mm; usually cylindrical or slightly swollen at base; often flattened rather than always terete; developing hollow in upper half; surface smooth to eye but with longitudinal appressed fine silky fibrils especially densely so when young; dingy cream, dulling with age; with some coarse tomentum of white hairs at base, no rhizomorphs observed. Flesh: white in pileus and stipe, becoming dull-watery with age. Odour: mushroom (not aniseed). Spore print: white.	<i>Eucalyptus marginata</i> , <i>Allocaurina</i> woodland.	14/07/2015
<i>Clitocybe</i>	<i>cf. clitocyboides</i>	NLB 1152	8691177	Characteristic Features: (i) lubricious dull drab thin-fleshed pileus becoming wavy-undulating but without deep central depression, hygrophanous; (ii) crowded subdecurrent greyish lamellae; (iii) no odour; (iv) stipe with easily disappearing white fibrils, then drab-watery. Spore print: white. Compare against NLB 1153 which has a similarly lubricious pileus but that is paler and browner, its stipe is longer, and its lamellae are cream (not grey). Perhaps they are simply colour variations of the same species, despite the macro differences. Nothing microscopically to suggest they are not the same. Micro: spores narrow ellipsoid to subcylindric, smooth/thin-walled, hyaline, and not reactive in Melzers, cytoplasm with one large guttule or many smaller ones (see images in Melzers).	<i>Eucalyptus gomphocephala</i> open woodland.	21/07/2015
<i>Clitocybe</i>	<i>cf. clitocyboides</i>	NLB 1153	8691185	Characteristic Features: (i) pileus dull brownish drab lubricious without central depression and with inrolled margin when young, hygrophanous; (ii) crowded subdecurrent cream lamellae; (iii) no odour; (iv) stipe clothed with white fine fibrils but these easily disappear (e.g. on handling) and then stipe is drab-watery. Compare against NLB 1152 which differs by having a more greyish pileus, grey lamellae and a shorter stipe. Perhaps they are simply colour variations of the same species? Nothing microscopically to suggest they are not the same. Micro: spores similar to those of NLB 1152 i.e. narrow ellipsoid to subcylindric, smooth/thin-walled, hyaline, not reactive in Melzers, cytoplasm with one large guttule or many smaller ones.	<i>Eucalyptus gomphocephala</i> open woodland.	21/07/2015
<i>Coniophora</i>	<i>olivacea</i>	NLB 1170	8691312	Fully resupinate, thin but not easily removed, spreading growths on sizeable wood sticks (mainly Pinus wood) and all over smaller woody debris. Surface velvety, smooth to the eye but densely glistening (due to cystidia) under lens, olivaceous (between Methuen 3F8 and 4F8) except at the broad (up to 3 mm wide) cream and white, fimbriate-fringed margin. Surface bruises black upon damage to it. Although predominately olivaceous, some parts are brown (near 6D5) (see images). No rhizomorphs or any mycelium beyond the margin. Micro: spores ellipsoid to ovoid, smooth-walled, yellow-brown in melzers, similar in KOH and in water, size e.g. 10.1 x 6.1; 9.5 x 6.3; 9.0 x 5.3; 10.5 x 6.3 microns; apiculus pale but prominent. Hymenial cystidia projecting cylindrical, sometimes multi-septate, thin-walled to slightly thick, adorned with angular clumps of crystals, hyaline some with amber cytoplasmic pigment, size e.g. 76 x 12.5; 63 x 9.4 microns; apex obtuse or papillate (see images). Rarely branched. Basidia cylindrical to cylindro-clavate, 4-spored, hyaline, not clamped, e.g. 26 x 6.5 microns. Subicular hyphae 3-12 microns wide, smooth, slightly thick-walled, sometimes (on the broad type of hyphae only) clamped, with yellowish cytoplasm (see images). Minor crystals on some hyphae. Actually two types of hyphae: (i) broad (up to 12 microns), slightly thick-walled, pale yellow cytoplasm hyphae, not frequently branched, some septa with big loopy clamps; (ii) narrow (up to 5 microns), hyaline, slightly thick-walled branching hyphae (see images). Odour: not distinctive. Spore print: yellow-brown.	Rehabilitated area planted with eucalypts and acacias.	03/08/2015
<i>Coniophora</i>	<i>olivacea</i>	NLB 1171	8691320	Appears to be the same olivaceous species as NLB 1170, collected about 10 m away, growing amid the woody litter debris. In the case of NLB 1171, it was growing on a large log (Pinus) and forming large sheets along several metres of the log. Micro: spores ellipsoid to subcylindric, smooth-walled, yellow-brown in Melzers, similar in water and KOH, size e.g. 11.0 x 6.1; 8.8 x 5.2; 8.1 x 5.3; 9.5 x 6.5; 9.9 x 5.7; 9.1 x 6.1; 8.5 x 5.3 microns, apiculus pale but prominent. Odour: not distinctive. Spore print: yellow-brown.	<i>Pinus radiata</i> log. Felled after tree became diseased after a storm in 2010.	03/08/2015

<i>Coprinopsis</i>	<i>aff. stangliana</i>	NLB 1100	8690707	Characteristic Features: (i) note the quite pale colouration of this collection, otherwise typical of this fungus (see photos). Odour: none.	Corymbia calophylla, Eucalyptus marginata and Allocasuarina woodland.	23/06/2015
<i>Cortinarius</i>	<i>archeri</i>	NLB 1128	8690901	Characteristic Features: (i) typical vivid pileus colour, persistent narrow annular zone on stipe. Odour: none. Spore print: bright brown.	Woodland of jarrah, banksia, sheoak.	09/07/2015
<i>Cortinarius</i>	<i>ardesiacus</i>	NLB 1125	8690863	Characteristic features: (i) pale greyish pileus developing radial streaks, and zonations near margin with age; (ii) grassy odour; (iii) yellow velar bands on young white stipe and patches on young pileus, and yellow at base of stipe when young. Morphologically NLB 1125 is very similar to <i>Cortinarius ardesiacus</i> described from Tasmania by Gasparini (2008). However, according to Gasparini's description, NLB 1125 differs by not drying 'slate or leaden grey' (it becomes pale grey only), and by having larger spores. Pileus: up to 80 mm; at first convex with strongly incurved and appendiculate margin, soon flattening then finally upturning with broad depression and markedly undulating / convoluted near the margin; surface dry, smooth (fine appressed radial silky fibrils increasing evident under lens with age); pale greyish (near Methuen 6C3) at first with scattered yellowish velar remnants, retaining that colour but with sometimes appearing conspicuously radially streaked (due to innate and the sheen from the surface fibrils) and zonate near the margin (dark dull brown and paler zones). Pileus becomes pale greyish but does not become slate grey or leaden grey on drying. Lamellae: adnexed, to 5 mm deep; not markedly ventricose; edge smooth and entire; bright brown ('sienna') from the earliest button stage and remaining fulvous (near Methuen 6D7) with age (edge and face concolorous), crowded. Stipe: up to 80 x 30 mm but may be much less e.g. 50 x 15 mm; variable in shape: cylindrical, clavate, ventricose, with base usually tapering; solid at first, often developing a wide hollow with age; white with narrow yellow velar bands and yellow at base when young, later white and with longitudinal silky appressed fibrils. Cortina white, silky, evanescent, leaving superior fibrillose zone on stipe or not. Flesh: dull cream almost pale grey, sometimes dulling with exposure, insect damage brown, becoming watery in stipe with age. Micro: spores subamygdaliform (ellipsoid in face view), apex not attenuated, size e.g. 8.8 x 5.1; 8.6 x 5.3; 8.2 x 5.6 microns. Pileipellis not gelatinised. Broadly clavate to sphaeropedunculate cystidia on gill edge. Odour: grassy. Spore print: bright brown.	Woodland of jarrah, banksia, sheoak.	09/07/2015
<i>Cortinarius</i>	<i>clelandii</i>	NLB 1151	8691169	Characteristic Features: (i) dark brown pileus; (ii) olive yellowish lamellae; (iii) mycelium yellow. Odour: not distinctive. This Dermocybe has been vouchered from Kings Park before.	Eucalyptus gomphocephala open woodland.	21/07/2015
<i>Cortinarius</i>	<i>sp. sienna cap white stipe</i>	NLB 1127	8690898	Characteristic Features: (i) red-brown ('sienna'), greasy but not viscid, smooth pileus to 35 mm diameter; (ii) white, shiny (longitudinal silky appressed fibrils) stipe up to 50 x 7 mm; (iii) lamellae similar colour to pileus; (iv) stipe often hollowed out. Odour: none. This seems to be an abundant species in Periti's bushland, rarely found when young.	Woodland of jarrah, banksia, sheoak.	09/07/2015
<i>Crustoderma</i>	<i>marianum</i>	NLB 1172	8691339	NLB 1172 shares some similarities with <i>Hyphoderma</i> . e.g. <i>H. obtusiforme</i> but the cystidia and basidia of that species are shorter, and the fruit body appears to be much more densely cystidiate (see NZ photo). However NLB 1172 appears to better fit the genus <i>Crustoderma</i> . Characters in NLB 1172 pointing to this include: (i) Projecting very long (e.g. 200 or more microns) cylindrical hymenial cystidia, scattered singly (not abundant), smooth-walled, thin-walled but thickening towards the base which is embedded deep in the context; (ii) Very long (40 or 50 microns or more) narrow cylindrical basidia with oily-granular contents; (iii) Clamps present at base of basidia and in the subiculum and dense subhymenium. (iv) Spores longer than 8 microns and wider than 2 microns, ellipsoid-cylindrical, with one large guttule. NLB 1172 may therefore be related to, but is not the same as, the larger-spored, shorter cystidiate Australian/NZ species <i>Crustoderma patricium</i> (= <i>Hyphoderma assimile</i> ?) In ALA there are six records of <i>Crustoderma</i> listed but only one from Australia (as sp. 'Corticoid fungus on fallen, rotten eucalypt branch. White margin, otherwise creamy. Pilose'). NLB 1172 is either a new species, or may be one of the named species particularly those found on conifer wood and without an entirely coriaceous fruit body (as NLB 1172 has a mycelial subicular fringe), e.g. <i>C. resinatum</i> , <i>C. carolinense</i> , <i>C. marianum</i> or <i>C. borbonicum</i> . There are DNA sequences available of many species, so a sequence of NLB 1172 will be useful (air-dried sample prepared and ready to go). All <i>Crustoderma</i> species except <i>C. longicystidium</i> are said to be associated with brown rot, are associated with brown-rotted decay of wood (Nagasone 1984). I saw no evidence of brown rot in the wood with NLB 1172. NLB 1172 appears to be the same fungus as I recorded last week parasitising fruit bodies of a convoluted ascomycete (see NLB 1161). Fully resupinate, quite easily removed, thin, wax-like consistency. Surface smooth to the eye, but also with randomly placed rounded tubercles up to 1 mm tall x 1.5 mm wide; predominantly dull greyish-khaki (near 5D3), but also with cream coloured areas. Margin white, up to 5 mm wide, or very narrow elsewhere, of thin and appressed matted-fibrillose (sometimes fibrillate) mycelium. Surface under lens minutely glistening. No bruising. External mycelium sometimes forming thicker hyphal strands, but no rhizomorphs seen. Micro: spores narrow-ellipsoid to cylindrical, smooth/thin-walled, with 1 large guttule; pale greenish-yellow in Melzers, hyaline in water, size e.g. 9.8 x 5.2; 9.5 x 6.1; 9.1 x 5.6 microns. Hymenial cystidia greatly projecting, cylindrical with obtuse apex, hyaline-glassy, thin-walled but thick-walled in lower part, scattered singly, deeply embedded, very long (e.g. 195 x 10 microns). Sinuous gloeocystidia also present, not projecting (or are these just young basidia?) Basidia narrowly cylindrical, 4-spored, clamped, quite long - e.g. 55 x 8; 50 x 7; 57 x 6.5; 53 x 5.8; 55 x 6.2; 38 x 8.2 microns. Subicular hyphae hyaline with granular contents, clamped, thin to slightly thick-walled, branching, 2.5-4.5 microns wide. Monomitic. Narrow cystidioles also present (see images). Cystidia walls up to 3.5 microns thick towards their base. More cystidia sizes: 177 long; 134 x 6.4 microns. Narrowest cystidia 3.5 microns wide. Odour: not distinctive. Spore print: white. See notes for discussion on identity of NLB 1172.	Rehabilitated area planted with eucalypts and acacias.	03/08/2015
<i>Exidiopsis</i>	<i>sp. grey</i>	NLB 1156	8691215	NLB 1156 is <i>Exidiopsis</i> - large or suballantoid spores, tremelloid basidia with long sterigmata (see images). Fruit body fully resupinate, forming small patches, dry coriaceous texture, grey (sometimes with reddish tinges) and minutely glistening (under lens). Odour: none.	Eucalyptus gomphocephala open woodland.	21/07/2015
<i>Ganoderma</i>	<i>australe</i>	NLB 1102	8690723	Characteristic Features: (i) broadly attached tough-woody, hemispherical bracket with a lumpy upper surface with areolate fine fissures; (ii) pale grey upper surface except dark brown in a zone near the margin and pale at the thick rounded margin; (iii) tubes about 12-15 mm long, no distinct layering or intervening layers of context evident, deep brown with some pale streaks where cut in half; pores pale clay buff, circular, very small (e.g. 3-4 per mm), no dissepiments; (iii) flesh / context tough fibrous, bright orange-rusty brown, up to 20-50 mm thick, no dark zone above the tubes; (iv) narrow (1 mm) black resinous smooth (in section) distinct layer in between the context and the upper surface (see images). In addition, this fungus is distinctive because the pores instantly bruise dark brown (due to oxidation or exposure of the brown tubes) and therefore can be drawn or written upon. The brown does not fade with time. This appears to fit better with <i>G. australe</i> than <i>G. applanatum</i> because: (i) the spores are longer than 8.5 microns; (ii) intervening layers of context are not evident in the tubes. DNA sequence required to confirm species ID. Micro: spores all ellipsoid, often with truncate base and indistinct germ-pore; thin-walled, finely verrucose but embedded in a hyaline exosporium which is often extended or micronate at the spore base; golden brown (in KOH); size e.g. 9.3x6.1; 9.6x6.3; 9.1x5.5 microns. Context of long unbranched thick-walled brown skeletal hyphae and some hyaline branched binding hyphae (see images). Narrow black layer between the tubes and the context consists of densely arranged thick-walled refractive skeletal hyphae (lumens of hyphae not evident). Odour: not distinctive. Spore print: brown.	<i>Agonis flexuosa</i> .	25/06/2015

<i>Gloeoporus</i>	<i>dichrous</i>	NLB 1155	8691207	<p>Characteristic Features: (i) resupinate, almost elliptic small patches and sometimes small bracket-like forms; (ii) hymenium soft-fleshy consistency – elastic or gelatinous due to subiculum, pale warm brown, bruising darker and with whitish rim; (iii) margin a broad (1-1.5 mm) white densely silky-fibrillose fimbriate non-gelatinised zone. In bracket forms this constitutes the 'pileus' with a blunt-rounded pileal margin. In cross section, the fruit body can be seen as comprised of a broad white gelatinised subiculum with shallow saucer-like pores seated on its surface. The rim of the pores is white and minutely granular (seen under lens) and the interior of the pores is pale brown. The shallow saucer-like pores embedded in a thick gelatinous sub-layer suggest this could be a cyphelloid fungus. However, the pores of NLB 1155 do appear to be co-joined, unlike in <i>Stigmatolemma</i>, and more like a polypore. Sample for DNA taken. DNA sequence shows it is close to <i>Gloeoporus dichrous</i> (Matt Barrett, Oct 2015). NLB 1155 is immature but the following fits OK with <i>G. dichrous</i>: (i) Monomitic with clamps on all hyphae; (ii) small allantoid spores; (iii) gelatinised hyphae in subhymenial region; (iv) 4-5 pores / mm; (v) fruit bodies pale warm brown but with darker bruising. Micro: spores (in a sparse spore print on a slide) narrow allantoid-curved, smooth/thin-walled, hyaline-greyish, not amyloid or dextrinoid, very small, e.g. 4.3 x 1.1; 4.1 x 1.3; 4.4 x 1.2; 5 x 1.1; 3.4 x 1 microns, contents with 1,2 or 3 dark inclusions, apiculus not conspicuous (see images in Melzers). No spores or mature Basidia with sterigmata were seen in the tissues, so it is yet to be proven that those spores were from this fungus or from a contaminant fungus. Subiculum: gelatinised hyaline matrix with loosely arranged hyaline, clamped smooth-walled hyphae (2.5-4 microns wide) with undifferentiated end-cells (see images in water). Hymenium with a hyaline palisade arrangement of holobasidia, clamped at base, cylindro-clavate, no sterigmata seen (all immature). Rim of pores is sterile with hyaline thin/smooth-walled narrow cylindrical or tapering-subulate cystidia, e.g. 17 x 3; 20 x 2.5 microns. Marginal fringe comprised of clamped, hyaline smooth/thin-walled hyphae up to 4 microns wide. Odour: none.</p>	Eucalyptus gomphocephala open woodland.	21/07/2015
<i>Gloiothele</i>	<i>globosa</i>	NLB 1109	8690790	<p>Characteristic Features: (i) fully resupinate thin, not easily detached, waxy, smooth (minutely glistening under lens) dull greyish-bluish (near Methuen 4C5), margin diffuse - simply a thinning of the fruit body without any mycelial form. This appears to be <i>Gloeocystidium</i> s.l. monomitic, with amyloid spores and gloeocystidia present. It fits genus <i>Gloiothele</i> (granular contents in cystidia?). The globose spores with conspicuous apiculus match it to <i>Gloiothele globosa</i>. Micro: No well developed subiculum. Monomitic. All tissues not gelatinised, hyaline in KOH. Very long cylindrical to narrow clavate smooth walled gloeocystidia not emerging with granular contents with obtuse apices, e.g. 86 x 8; 130 x 6; 71 x 7.5 microns, often extending right through to the base of fruit body. Basidia 4-spored, cylindro-clavate, e.g. 28 x 7 microns, hyaline. Subhymenium / subiculum not well - developed, simply a narrow layer of hyaline, septate but not clamped, narrow hyphae 2-3 microns wide. Spores globose to very broad ellipsoid obovate, smooth and thin-walled, hyaline in KOH, apiculus conspicuous, rather eccentrically positioned, e.g. 8.2 x 7.3; 7.9 x 7.0; 8.1 x 6.7; 7.5 x 6.1 microns. Odour: none. Spore print: white.</p>	Eucalyptus gomphocephala woodland.	30/06/2015
<i>Gymnopilus</i>	<i>crociphyllus</i>	NLB 1149	8691142	<p>Characteristic Features: (i) large size; (ii) pilei with erect scales and retain golden-red-orange colouration at maturity except yellow at margin; (iii) long narrow stipe, yellow at apex and reddish at base; (iv) orange-yellow lamellae; (v) rapidly evanescent cortina in button, leaving no trace on mature stipe. Pileus: 30-90 mm diameter; convex-hemispherical and dark red in button stage with sparse (but definitely present) cortina which is rapidly evanescent, soon flat-convex often developing a low broad umbo; surface punctate with small erect reddish scales less frequent or absent at the margin, retaining orange-red colours at maturity – then orange-red at centre (near Munsell 10R 4/8 or Methuen 8D8), grading to red-brown nearer to margin (near Munsell 2.5YR 4/8) and distinctly yellower at margin. Not hygrophanous. Stipe: 30-100 x 5-15 mm; cylindrical or tapering to base slightly, central narrow hollow developing with age; surface smooth or innately longitudinally silky appearance, without annular zone, dull cream except yellow at apex and reddish at base, bruising brown in parts. Lamellae: adnate, to 8 mm deep, closely spaced, not ventricose, edge smooth-entire but becoming ragged when older, pale yellow in button, orange yellow (near Methuen 4B7-B6) [at maturity]. Context: pale yellowish in stipe, white in pileus but also brown-watery in upper pileus. Micro: spores ellipsoid, verrucose, perispore not conspicuous, not dextrinoid (although somewhat paler in water than in Melzers), no suprahilar plage or germ spore evident; size: e.g. 6.9 x 4.9; 7.4 x 4.9; 7.7 x 4.7; 6.7 x 4.8; 8.2 x 4.9 microns. Cheilocystidia consistently capitate, clamped at base, abundant. No pleurocystidia seen. Pileipellis end-cells not differentiated (see images). Basidia cylindro-clavate, 4-spored, e.g. 25 x 7.7 microns. Clamps present. Odour: distinctly farinaceous (cheap soap).</p>	Eucalyptus gomphocephala open woodland.	21/07/2015
<i>Hydnomerulius</i>	<i>pinastri</i>	NLB 1160	8691266	<p>Characteristic Features: (i) fruit bodies fully resupinate, loosely attached to substrate. Soft texture, forming spreading growths over all types of woody materials. Immature patches very pale yellow, finely cottony and silky-fimbriate at the margin. Soon developing a merulioid (firstly) and then irregularly labyrinthine or irpicoid pale greenish yellow (between 2A6 and 3A6) hymenium. Then the mostly appressed silky white or pale yellow margin becomes more conspicuous, and may extend for up to 2 mm across. The older hymenium bruises dark red-brown to black, and so too does the subiculum (when uplifted and exposed). Rhizomorphs seen - these quite thin but distinct by being black or brown. Although the growth habit of NLB 1160 is very similar to that of NLB 1158, that differs by having a bright orange non-bruising hymenium which is also more strictly merulioid, rather than curtain-like (irpicoid). NLB matches <i>Hydnomerulius pinastri</i>. This is only the third confirmed record of this species in Australia. Micro: spores broad ellipsoid, with small but prominent pale rounded apiculus, dull yellow with dark thin wall in melzers, size e.g. 5.1 x 4.2; 5.2 x 3.9; 5.4 x 3.9; 4.9 x 3.8; 4.4 x 3.7; 5.7 x 4.0; 5.8 x 3.7 microns. Spores pale yellow in water, slightly thick wall evident, with 1 large guttule (see images). Wall cyanophilic? (but no darker than in water). Basidia slender-clavate, 4-spored, clamped, e.g. 28 x 6.5 microns, large sterigmata. No cystidia seen. Monomitic. Subicular hyphae clamped, thin-walled, hyaline, no crystals, 3-5.5 microns wide (see images), some with yellow granular cytoplasmic pigment. Rhizomorphs have the hyphal polymorphism as shown by Hallenberg & Eriksson, i.e. large central clamped hyphae (e.g. 8 microns wide) with clamped narrow hyphae (e.g. 2 microns wide) coiled around it (see images). Odour: none. Spore print: yellow.</p>	Rehabilitated area planted with eucalypts - <i>Eucalyptus gomphocephala</i> , <i>Corymbia caloccephala</i> .	27/07/2015
<i>Hydnoplicata</i>	<i>sp.(parasitised)</i>	NLB 1161	8691274	<p>Characteristic Features: (i) convoluted sessile ascocarps up to 7 mm wide. When young, almost cupulate with thick rounded margin, later densely convoluted and therefore outwardly lumpy. Surface cream when young maturing slightly darker/duller, smooth to the eye but fine erect pubescent hairs evident under lens. This ascomycete has been parasitised by a resupinate fungus - <i>Crustoderma</i> (=NLB 1172). Many of the ascocarps are growing directly on top of a grey thin glistening (under lens) resupinate fungus. This association seen in a second observation of this ascomycete (about 20 m away from NLB 1161) The resupinate fungus has colonised the ascocarps - hence the pubescent hairs. Micro: the fine hairs evident under hand lens are the long cylindrical cystidia of the resupinate fungus (see images). The surface of the ascocarp is completely covered by a fertile hymenial layer of that fungus. No mature asci seen. Spores of the resupinate fungus are narrow ellipsoid to cylindrical, hyaline, no reaction in Melzers, smooth/thin-walled, with a large oil guttule (see images), e.g. 12 x 6.5; 12.3 x 6.3; 10.4 x 5.0 microns. Odour: none.</p>	Rehabilitated area planted with eucalypts - <i>Eucalyptus gomphocephala</i> , <i>Corymbia caloccephala</i> .	27/07/2015
<i>Hymenoscyphus</i>	<i>sp. orange then greenish</i>	NLB 1136	8690995	<p>Characteristic Features: (i) this is a quite abundant sessile, woody litter 'Hymenoscyphus' with inverted conical-shaped flat discs which are bright yellow-orange when young but mature to become greenish-grey. Same as E 8091 from Baldivis in 2004. (ii) discs up to 10 mm diameter; (iii) the rim is often black; the outside of the receptacle is smooth. (iv) often a tomentum of brownish hyphae at the base of the sessile (though narrowed) attachment. No rhizomorphs or blackening of the wood. Micro: paraphyses very abundant, filiform, e.g. 3 microns wide, without a swollen apex, granular content, not</p>	Eucalyptus marginata, <i>Allocasuarina fraseriana</i> woodland.	14/07/2015

<i>Inocybe</i>	<i>clypeata</i>	NLB 1146	8691118	amyloid. Spores narrow ellipsoid-fusoid, often flattened on one side, smooth / thin-walled, granular contents, not amyloid, size e.g. 17-23.5 x 7-8.45 microns. Asci tubular, faintly amyloid at and near apex, 8-spored. Inoperculate (pore clearly outlined in Melzers - see images), base simple or slightly flared (see image). Wall of receptacle of thick-walled yellow brown (in Melzers) hyphae (see image). Ectal excipulum of yellowish hyphae up to 9 microns wide (see image). Context of interwoven, thin-walled hyphae (see image). Odour: none. Characteristic Features: (i) pileus approximately 15 mm diameter, coarsely radially fibrillose with some imbricate scales (aggregations of fibrils) especially near margins; (ii) stipe 15-20 x 4 mm, cylindrical with barely swollen base; dull pinkish-brown, pruinose at least in upper half, lower part scurfy - longitudinal fibrillose; (iii) lamellae adnate with small decurrent tooth; edge finely and densely cystidiate; (iv) context dull brownish in stipe, white in pileus. NLB 1146 appears to fit <i>Inocybe clypeata</i> : (i) densely - fibrillose pileus, (ii) pruinose - branny over most of stipe, (iii) habit on soil over limestone (Kings Park scarp), with Acacia nearby, (iv) spores smooth amygdaliform, some adaxially depressed, (v) pleurocystidia with distinct pedicel, (vi) caulocystidia present at apex and mid stipe, (vii) caulocystidioid hairs present over entire stipe and exclusively at lower stipe. Micro: spores smooth subamygdaliform, sometimes with some adaxial depression, smooth-walled, size: e.g. 9.3 x 4.7; 9.4 x 4.7; 10.1 x 4.9; 9.0 x 4.8; 11.2 x 4.5; 10 x 4.9 microns. Basidia 4-spored. Cheilocystidia lageniform, with apical crystals, wall to 3.4 microns thick; paracystidia clavate, quite large e.g. 40 x 12 microns. Pleurocystidia similar to cheilocystidia. Caulocystidia similar to cheilocystidia, in dense isolated clusters with paracystidia; present at stipe apex (1 image), mid stipe (2 images), but lower stipe only has thin-walled longer caulocystidia hairs (1 image), some of which have cystidioid-shaped end cells. Odour: not distinctive.	Near Allocasuarina in open burnt (5 years ago?) woodland (sheoak, marri, banksia, acacia).	16/07/2015
<i>Inocybe</i>	<i>fissurata</i>	NLB 1120	8690812	Characteristic Features: (i) pileus with red-brown centre and contrasting paler yellow-brown elsewhere; (ii) white, non-pruinose stipe; (iii) pileus coarsely split - rimose when mature. Pileus: 20 - 45 mm diameter; flat campanulate with low umbo; surface smooth, becoming coarsely rimose - split when older but remaining smooth at centre; red-brown (between 4F8 and 7F8) at centre, contrasting with paler and yellow-brown elsewhere (between 4B5 and 5B5). Velipellis not seen. Lamellae: adnexed, ventricose, edge paler than face but not noticeably cystidiate; olive brown (near 5D6). Pale yellow-cream in button. Stipe: up to 40 x 10 mm; cylindrical with base barely wider; surface white, finely longitudinally, silky fibrillose but not pruinose anywhere, minutely scurfy at extreme apex. Flesh: white, unchanging. Micro: spores cylindrical to suballantoid, large, e.g. 17 x 6.5; 14 x 6.5; 11 x 6.5 microns; smooth / thin-walled; yellow-brown in KOH. No pleurocystidia. Sterile gill edge of cylindrical to slender-clavate, thin-walled, hyaline, crowded cheilocystidia. (See images). Odour: present, maybe slightly sweet.	<i>Eucalyptus botryoides</i> .	09/07/2015
<i>Inocybe</i>	<i>sp. false murrayana</i>	NLB 1121	8690820	Characteristic Features: (i) very pale lamellae with conspicuous cystidiate edge; (ii) pinkish stipe pruinose along whole length; (iii) smooth subamygdaliform spores 10.5-12 x 4-6.0 microns. This appears to fit closely with <i>Inocybe clypeata</i> - spore size and shape, absence of long caulocystidioid hairs, stipe pruinose entire length. But note that all previous records of that species were found on limestone near Acacias and Eucalypts. NLB 1121 seems to fit a species concept we did not include in the Australian <i>Inocybeaceae</i> book pending further collections. We refer to this species as <i>Inocybe</i> 'hoped to be murrayana'. It is not <i>I. murrayana</i> . Other collections include E 7015 (PBM 2166), E 7027, E 7028, E 7029. Macroscopically it has very pale lamellae, and sometimes a large obtuse umbo. Microscopically it has quite large spores, and broad ventricose hymenial cystidia. Previous collections of it were, like NLB 1121, from grassed parkland near isolated and planted mature eucalypt trees (tuart and sugar gum). Pileus: 10- 35 mm diameter; at first convex then campanulate with a low umbo; margin with fibrillose appressed fringe when young - finely radially appressed fibrillose (appressed fibrils) becoming split when old; surface densely scurfy-pruinose when young, later more sparsely pruinose towards base but pruinose along entire length; pale pinkish with white sheen (due to pruinosity); cylindrical with unswollen base. Lamellae: adnexed, to 3 mm deep; slightly ventricose; closely spaced; edge conspicuously cystidiate; pale cream when at button stage, remaining quite pale grey (near Munsell 2.5Y-7/2; near Methuen 4A3), eventually darkening to dull brown (near Methuen 6E6). Flesh: cream or white with some pinkish staining near edge of stipe. Micro: spores smooth-walled, amygdaliform, size e.g. 11 x 5.4; 12 x 5.6; 10.5 x 6.0 microns. (See images). Cheilos metuloid and variable shape e.g. ventricose, lageniform, subcylindrical, with small clavate paracystidia. Cheilos thick-walled, 2 to 4.5 microns thick. Clamps present. Basidia with long stalk, 4-spored. Pleurocystidia similar to the cheilocystidia. Odour: not distinctive.	<i>Eucalyptus botryoides</i> .	09/07/2015
<i>Lepiota</i>	<i>sp. minuta</i>	NLB 1150	8691150	Small delicate stature - pileus only up to 12 mm diameter, with central umbo, cream with fine dark grey and glistening appressed scales at least near centre (scales not fibrillose, but more like granular in texture), obscurely translucent-striate near margin; (ii) lamellae free, edge very finely fimbriate (under lens), cream but later attaining reddish discoloration in parts; (iii) stipe up to 12 x 1 mm, often bent or tortuous, cylindrical, dull watery, with central narrow white annulus (easily soon dislodging); base binding small clod of humus with white rhizomorphic mycelium; surface without any scales on it. Micro: spores ellipsoid with small, not spurred apiculus, smooth / slightly thick-walled, dextrinoid, size: e.g. 6.0 x 3.9; 5.2 x 3.4; 6.3 x 3.9; 5.4 x 3.2 microns. Cheilocystidia polymorphic e.g. ventricose, fusoid, strangled (see images), always thin-walled and hyaline (in water). Basidia cylindro-clavate e.g. 21 x 6.7 microns, 4-spored. No clamps seen (including at base of Basidia). Scales on pileus are comprised of inflated elements (pyriform, bladder-like) up to 25 microns broad, barely thick-walled (up to 1 micron thick), and some non-clamped thin-walled hyphae e.g. 3 microns wide. Hence the granular, rather than fibrillose appearance of the scales on the pileus. Odour: mushroom. This collection (NLB 1150) has some similarities to <i>Lepiota kamatae</i> (e.g. reddening lamellae, inflated elements in pileal scales, a dark annulus, and larger fruit bodies, clamp connections). So NLB 1150 does not represent any of the Cleland / Grgurinovic Australian species of <i>Lepiota</i> , and therefore must be considered a sp. nov.	<i>Eucalyptus gomphocephala</i> open woodland.	21/07/2015
<i>Leucogyrophana</i>	<i>pseudomollusca</i>	NLB 1158	8691231	Characteristic Features: (i) fruit bodies fully resupinate, loosely attached to substrate, with soft texture, forming membranous spreading patches (often small - only up to 5 cm wide) engulfing woody material and grass stems. Immature patches pastel pink-orange (near Methuen 5A5) and smooth (densely farinose under lens), mature patches bright orange (6A8) with white-fringed margin of appressed silky fine mycelium, hymenium fleshy-meruloid (but at first may be rugulose), less often irpicoid (descending curtains) depending on orientation. Old patches become intensely red-orange (near Methuen 8A8) and the once fleshy hymenium tends to shrivel up. Subiculum a thin layer of loosely woven fine white mycelium. No rhizomorphs seen - connections across gaps in the substrate are arachnoid white mycelia. This is only the second record of <i>Leucogyrophana pseudomollusca</i> in Australia. Micro: spores broad, ellipsoid, smooth-walled, with small but prominent rounded apiculus, pale blue-grey in water, cyanophilic (slightly thick-walled, sometimes subcylindrical or obovate in face view), size e.g. 6.5 x 4.7; 5.5 x 4.2; 6.1 x 4.3; 5.9 x 4.1; 5.6 x 3.8; 6.8 x 4.7 microns. Note about 1% or less of spores are brown in Melzers, i.e. showing a dextrinoid (see image). Cytoplasm quite unclear with numerous minute inclusions (globules and granules), in both water and Melzers. Basidia clavate, 4-spored (less often 2-spored), clamped, e.g. 25 x 7 microns. Subhymenium of narrow (3-4 microns) clamped hyaline thin/smooth-walled hyphae. Subiculum of smooth/thin-walled clamped hyphae with yellow cytoplasmic pigment (see images), 2.5-5.5 microns wide, sometimes with scattered small crystals (see images). Hymenium a well-formed palisade. Hymenial cystidia (acystidioides) rare-infrequent, barely projecting, smooth/thin-walled, lageniform subsinuous tapering (see image). Odour: none.	Rehabilitated area planted with eucalypts - <i>Eucalyptus gomphocephala</i> , <i>Corymbia calocephala</i> .	27/07/2015

<i>Leucogyrophana</i>	<i>pseudomollusca</i>	NLB 1159	8691258	Spore print: white. Characteristic Features: (i) fruit body forming elongate patches up to 5 cm long, effuso-reflexed (margin upturning to reveal fine silk white mycelia of the subiculum). Hymenium pinkish-orange (near Methuen SAS), fleshy-meruloid, margin white finely silky-fibrillose (tending to upturn). No rhizomorphs. Fruit bodies easily removed from the wood. This - (with NLB 1158 collected under the same tree but about 2 m away) - is only the second record of <i>Leucogyrophana pseudomollusca</i> in Australia. NLB 1159 has more substantial and contiguous fruit bodies and is only found on a sizeable fallen piece of <i>Pinus</i> wood, not spreading over the woody litter. Micro: spores same as NLB 1158 - the very rare dextrinoid spores also noted here (see images). Other micro matches NLB 1158 (see images). No hymenial cystidia seen. Spores all cyanophilic (wall is blue in Tryptan Blue), and the slightly thick-walled nature of the wall becomes evident in some spores. Odour: none. Spore print: white.	Rehabilitated area planted with eucalypts - <i>Eucalyptus gomphocephala</i> , <i>Corymbia calcephala</i> .	27/07/2015
<i>Limacella</i>	<i>pitereka</i>	NLB 1148	8691134	Odour: not distinctive. Spore print: white.	<i>Eucalyptus gomphocephala</i> open woodland.	21/07/2015
<i>Melanoleuca</i>	<i>fusca</i>	NLB 1175	8691363	Pileus 35 mm diameter, applanate, smooth to irregularly uneven-pitted, dark almost black but with a slight reddish tinge except at the pale thin margin; (ii) lamellae sinuate, 3 mm deep, slightly ventricose, crowded, lamellules abundant, cream (edge and face), edge very minutely cystidiate under lens; (iii) stipe 20 x 5 mm, cylindrical, dull grey (paler towards apex), smooth except with mid stipe having minute gelatinous-granular or mealy debris loose on surface, and apex densely pruinose (minute erect short hairs seen under lens); (iv) context drab watery in stipe and with red damaged parts. Pileipellis quite thick (1 mm) and black in section. Compare with NLB 1194 which is macroscopically similar but has smaller, narrower, less densely ornamented spores. Micro: spores ellipsoid, strongly amyloid, verrucose with very distinct suprahilar plage, size e.g. 8.7 x 6.5; 8.0 x 6.4; 8.0 x 5.8; 7.5 x 5.4; 7.7 x 5.3; 8.2 x 6.1 microns. Cheilocystidia scattered (not abundant), tapering 'harpoon' type with apical crystals (see images). No pleurocystidia seen. Basidia 4-spored, cylindro-clavate, not clamped. Dense fascicles of cystidia present at the stipe apex, including 'harpoon' types (like the cheilocystidia) and various other shapes such as clavate and ventricose without apical crystals (see images). Odour: none. Spore print: white.	Tuart woodland, but growing with moss on track.	03/08/2015
<i>Omphalotus</i>	<i>nidiformis</i>	NLB 1104	8690758	Characteristic Features: (i) a rather pale variety of this species; (ii) odour: mushroom. Spore print: pale cream.	<i>Eucalyptus gomphocephala</i> .	25/06/2015
<i>Peziza</i>	<i>repanda</i>	NLB 1176	8691371	Large (50 mm wide) ellipsoid cavernous ascocarp with wide open ostiole. Internally wrinkled, externally brownish with zone near the ostiole sprinkled with short pegs some of which are blackish at their tip. Base sessile, and without any conspicuous mycelium or any whitish bloom. Interior similar colour to the exterior, except exterior base is slightly paler and with pale dendritic veins (or showing signs of hygrophanity?). Flesh 2 mm thick, moist-gelatinous, concolorous with exterior, not zoned in cross section. Note exterior develops a more conspicuous whitish surface (matted-fibrillose) as it becomes a bit drier. Micro: asci cylindrical with blue tip in Melzers and brown lower half when immature, 8-spored, base flared but not branched. Medullary excipulum of very large inflated cells (see images). Surface hairs branching hyaline hyphae 5-8 microns wide (see images). Paraphyses cylindrical, septate (not constricted), apex not swollen (or barely so) or bent, hyaline with granular content, 3.5-5 microns wide (see images). Spores narrow ellipsoid, hyaline, smooth/thin-walled, e.g. 19.5 x 10 microns, without oil guttules. Odour: slightly grassy.	Rehabilitated area mulched and planted with eucalypts and acacias.	03/08/2015
<i>Phellinus</i>	<i>contiguus</i>	NLB 1124	8690855	Characteristic Features: (i) contiguous and small patches, fully resupinate, margin abrupt with low tomentum of same colour as elsewhere - dark reddish-brown (near Methuen 7E8), with some darker (almost black) parts (where wet). KOH applied on the fruit body turns immediately black. Pores small (2 - 3 per mm), not mostly circular. Micro: dark brown subulate setae present along tubes, and narrow hyaline filiform 'cystidia'. Pore mouth with dense arrangement of thick-walled brown terminals (see image). Dimitic - generative hyphae without clamps. Skeletal hyphae brown, thick-walled. Basidia 4-spored. No spores seen. Odour: not distinctive.	<i>Banksia</i> , <i>Allocasuarina</i> woodland.	07/07/2015
<i>Pholiota</i>	<i>communis</i>	NLB 1164	8691304	Odour: not distinctive.	Rehabilitated area planted with eucalypts - <i>Eucalyptus gomphocephala</i> , <i>Corymbia calcephala</i> .	27/07/2015
<i>Piloderma</i>	<i>byssinum</i>	NLB 1122	8690839	Characteristic Features: (i) thin, fully resupinate, soft, farinose yellow growth over woody debris, with some areas of bright orange staining. No rhizomorphs. This appears to be <i>Piloderma byssinum</i> , and though less bright than NLB 1123, it seems the same species, i.e. <i>P. byssinum</i> . Also see notes re BOU 677. Micro: basidia 4-spored, with long narrow sterigmata, clavate, often with granular yellow-golden contents, clampless, not in a well-formed palisade but rather in tree-like formation on end of long narrow (e.g. 2.5 microns) septate (not clamped) slightly to coarsely encrusted but thin-walled hyphae. Hair-like cystidioid hyphae, tapering, encrusted with crystals, narrow (e.g. 1.5 - 2 microns wide), not frequent. (See images). Context hyphae yellowish in water, encrusted, septate (no clamps), branching, 1.5 - 2.5 microns wide. Spores small (e.g. 3.2 x 2.6 microns), subglobose to broad ellipsoid, smooth/thin-walled, hyaline and a large oil drop glossy in water; subiculum not differentiated from context. No tissues dextrinoid (all yellowish in Melzers). Tissues densely arranged. Monomitic. Odour: not distinctive.	<i>Banksia</i> , <i>Allocasuarina</i> woodland.	07/07/2015
<i>Piloderma</i>	<i>byssinum</i>	NLB 1123	8690847	Characteristic Features: (i) fully resupinate growths enveloping sheoak needles and woody debris; (ii) most growth is pale dull cream, but in parts it is bright yellow-orange; (iii) surface farinose-glistening, and some brown exudate droplets also present. This appears to match <i>Piloderma byssinum</i> . Seems to be the same species as NLB 1122 despite macro difference: whitish growth with areas of bright golden in NLB 1123 versus dull yellowish thicker growth without any golden areas in NLB 1122. See notes re collection BOU 677 from Bold Park. Note: although the spores are quite glassy (and have a single oily guttule), and their wall appears quite dark in side view, they are not otherwise noticeably thick-walled (as it is supposed to be a characteristic of the genus <i>Piloderma</i>). Micro: in KOH all tissues are hyaline (see images), except some yellow content in young basidia. In water the tissues are yellowish. Spores small, hyaline, glassy, subglobose. Basidia 4-spored, on end of encrusted hyphae. Clampless. Hair-like encrusted, narrow cystidioid structures present (not abundant). Odour: not distinctive.	<i>Banksia</i> , <i>Allocasuarina</i> woodland.	07/07/2015
<i>Pisolithus</i>	<i>microcarpus</i>	NLB 1093	8690634	Characteristic Features: (i) tall cylindrical narrow stipe with small globose or turbinate spore sac; (ii) mature spore mass rich reddish-brown (not ochre); (iii) drab surface colour with black bruises; (iv) base of stipe with only a few thick short root-like rhizomorphs. Odour: none.	<i>Eucalyptus marginata</i> , <i>Allocasuarina fraseriana</i> in open sheoak-banksia-jarra/marri woodland.	16/06/2015
<i>Pluteus</i>	<i>cervinus</i>	NLB 1107	8690774	Characteristic Features: (i) lamellae white then pale pinkish; free (distant from stipe), slightly ventricose; edge concolorous and smooth and entire; (ii) stipe 40 x 50 mm, base widened to 10 mm; white except pale grey-brown near base, smooth dry, flesh solid white and unchanging; (iii) pileus dry, smooth-shiny, 48 mm diameter; hazel to milky coffee (near Methuen 8E5), darker at centre; margin thin, entire, decurved. Micro: cheilo and pleurocystidia with barbed apex present. Spores oblong-cylindrical, e.g. 5.5 x 3.4; 5.8 x 4; 5.7 x 4 microns. Clamp connections absent. (See micro images). Odour: sclerodermoid. Spore print: cinnamon-pinkish.	<i>Eucalyptus gomphocephala</i> woodland.	30/06/2015
<i>Postia</i>	<i>pelliculosa</i>	NLB 1135	8690987	Characteristic Features: (i) top surface dark reddish-brown, with dense mat of coarse erect sharp-pointed strigose tufts of hairs especially prominent towards the pileal margin; (ii) tubes long (up to 20 mm long), pale cream but dulling when exposed and then also developing red-brown stains, not zoned (without any horizontal divisions); (iii) pores concolorous with tubes and also bruising red-brown; variable in shape and size and only rarely circular, only 1 or 2 per	<i>Eucalyptus marginata</i> .	14/07/2015

				mm, walls quite thin and no dissepiments; (iv) context very thick (50 mm at point of attachment to the wood), dense but quite watery or spongy, dull reddish-brown (paler than the pileus surface though). Micro: spores ellipsoid, smooth / thin-walled, hyaline, not amyloid or dextrinoid, size e.g. 5.6 x 3.2; 4.9 x 3.7; 5.0 x 3.7 microns (see images, in melzers). Odour: pleasant - floury. Spore print: white.		
<i>Psathyrella</i>	<i>sp. strong veil, burnt wood</i>	NLB 1108	8690782	Characteristic Features: (i) same species as BOUGHER 00634 (PERTH 08630356) collected in 2010 at Kings park Magpie Path (site 1); (ii) caespitose growth habit; (iii) conspicuous but easily removed where scales on the pileus and appendiculate pileus margin. Odour: not distinctive. Spore print: dark date brown. Note that this collection was fruiting in sand (no sign of burning), whereas BOUGHER 00643 was on burnt wood at the base of a tree.	Eucalyptus gomphocephala woodland.	30/06/2015
<i>Punctularia</i>	<i>strigosozonata</i>	NLB 1099	8690693	Characteristic Features: (i) long rows of shelf-like pilei; (ii) smooth to wrinkled dark reddish-brown hymenium; (iii) upper surface obscurely zoned, and with pale brown margin. Micro: presence of a highly gelatinised layer of paraphysate hyphae in the hymenium suggests this is Stereum (<i>Punctularia</i>) <i>strigosozonatum</i> . Clamp connections present. The white bloom on the top of the fruitbodies appears to be simply hyaline thick-walled clamped hyphae (no spores) growing directly out of the pigmented but otherwise similar hyphae of the pileipellis. See micro images. Odour: none.	Corymbia calophylla, Eucalyptus marginata and Allocasuarina woodland.	23/06/2015
<i>Punctularia</i>	<i>strigosozonata</i>	NLB 1134	8690979	Characteristic Features: (i) extensive shelf-like growths with zonate upper surface and smooth dark reddish fertile surface. Odour: none.	Eucalyptus cladocalyx.	14/07/2015
<i>Pyronema</i>	<i>omphalodes</i>	NLB 1087	8670315	Characteristic Features: (i) extensive orange colonies on soil in charred / charcoal ash beds; (ii) nodulose-undulating, coalescing growths binding the underlying soil layer; (iii) bright orange and globose at first (including sometimes turning the soil orange), then more deeper orange, and finally pinkish-orange with white fringe of mycelium (a subiculum?) with age. The fruit body colonies were only occurring in microsites where the fire had been hottest, such as in the ash beds of burnt-out stumps and former fallen logs / large branches. The fungus transformed the soil orange in some places. The fruitbodies mostly formed directly on the soil, with only minor fruiting directly on charcoal pieces. Micro notes (see images): Spores ellipsoid, smooth walled, 12-15 microns long, pale in KOH or in Melzers. Asci not amyloid with 8 spores, cylindrical, constricted at round base. Paraphyses narrow-cylindrical with slightly swollen unbent apex, with orange pigment (sometimes evident shrivelled-up in KOH), not projecting beyond the asci. Medullary excipulum of thin-walled swollen collapsing hyaline cells. Narrow hyphae of the white subiculum present. Odour: not distinctive.	Open burnt woodland of Allocasuarina fraseriana and some Corymbia calophylla and Banksia.	09/06/2015
<i>Rhodocollybia</i>	<i>sp. leather brown</i>	NLB 1147	8691126	This is the same species as BOU 663 (PERTH 8565422) and BOU 784 (PERTH 8318298) which were also collected at Kings Park but in a different part of the park. Once again the long-narrow stipes were often co-joined at the base and embedded in well-rotted bark attached to the base of a sheoak tree below a thick covering of sheoak needle litter. Once again the dark dusky colouration is evident: pileus dark reddish brown (near Munsell 5YR 3/3 and near Methuen 7E7) when young, and then darker (near Munsell 5YR 2/2 and near Methuen 7F6) when mature. Lamellae very crowded pinkish-brown (near Munsell 2.5YR 4/2 and near Methuen 7D4) when young, then darker dusky red-brown (near Munsell 2.5YR 3/2 and near Methuen 8E4) when mature. Stipe similar in colour to pileus, smooth or rugulose except for a region at apex with a continuous matted-fibrillose paler brown thin covering (broken into scales / patches in older specimens (see image). Base embedded in rotting bark and with some white rhizomorphs emerging from that bark. Other notes: Edge of lamellae is pale but smooth / entire (not cystidiate), attachment is free but with a very narrow gap. This collection was in part attacked by a fungal parasite (see images). White mycelium rapidly matures to produce yellow globose spore sacs on long wiry stalks, and judging by the stages observed in this collection, can cause aborted fruit body development of the host fungus. Under micro the parasite fungus has chains of small conidia, subglobose but with uneven / angular outline (see images). Micro fruit bodies: the matted-fibrillose material at stipe apex is comprised of clamped hyphae, richly branched and with many swellings / knobs (see images). Also some encrusting material of hyphal walls. Hyphae 3.5-5 microns wide. Pileipellis a loose trichoderm of clamped hyphae without any swellings / knobs but with an encrusting pigment and an orange-brown (in water) plasmatic pigment (see images). Spores lacrimiform, hyaline in water. Hymenial trama of parallel hyphae (see images). No hymenial cystidia seen. Basidia narrow cylindrical, 4-spored. Spores turn yellow when Melzers applied (as seen by the eye). Under micro the spores in Melzers are not really dextrinoid as they do not turn brown but rather appear to only pale yellowish, and only a bit darker when spores are coagulated together (see images). Odour: acidulous. Spore print: white.	Allocasuarina fraseriana.	21/07/2015
<i>Russula</i>	<i>marangania</i>	NLB 1103	8690731	Characteristic Features: (i) deeply funnel-shaped white then cream, smooth pileus; (ii) white, non-bruising quite short stipe; (iii) cream adnate lamellae; (iv) white context; (v) Taste mild. This appears to be <i>Russula marangania</i> due to: spore shape, size and ornamentation; hymenial cystidia size and shape; macroscopic form of the fruitbodies. Pileus: 35-50 mm diameter; deeply infundibuliform; margin thin, smooth and entire; surface smooth, dry (but some sand grains adhering); white sometimes with some ochre staining near centre, dulling to dirty cream when older. Lamellae: adnate (not really decurrent - it is just the funnel-shaped pileus shape that causes the lamellae to be angled downwards); to 5 mm deep, not ventricose; edge and face concolorous - pale cream when young (contrast with the pure white flesh), later dull cream with some rusty stains and spots developing with age; edge smooth and entire (very fine fringe evident at high power magnification). Stipe: 30-40 x 15-18 mm; cylindrical or slightly tapering towards the base; solid but may develop some caverns with age and insect / millipede foraging; surface entirely white, only with some watery bruise marks after handling. Flesh: white everywhere and unchanging with exposure. Odour: pleasant soapy. Taste: mild (context); slightly hot (gills) (lamellae and stipe context were tested). Consistency of the fruit bodies: quite compact / solid but easily snapped. Micro: spores broad ellipsoid to broad ovoid in face view, with prominent apiculus; amyloid (pale blue, not vivid blue); finely warted with very small isolated warts (no interconnections); size e.g. 8.7-10 x 6.5-5 microns. Basidia narrow clavate, 4-spored, e.g. 45 x 9.5; 54 x 10 microns; Cheilo and pleurocystidia cylindrical to narrowly fusoid with strangulated / capitate or mucronate apex, e.g. 70 x 7; 61 x 6; 68 x 5.5; 72 x 6 microns. Spore print: white to very pale cream.	Eucalyptus gomphocephala, Corymbia calophylla.	25/06/2015
<i>Scleroderma</i>	<i>sp. ragbag (not cepa)</i>	NLB 1174	8691355	Coarsely areolate, tough coriaceous consistency, reddening flesh, yellow in between the pallid flat areolae, irregular dehiscence, minimal basal development and inconspicuous non-rhizoidal mycelium. Micro: spores globose, dark yellow-brown in KOH, densely spinose, without any (or very few) anastomoses between the spines. Spines tapering aculeate (sharp-pointed) up to 1-1.5 microns tall, size e.g. 13.3;14.2; 14.7; 11.2 microns diameter. Gleba not clamped. Odour: none. Field name: <i>Scleroderma</i> sp. not <i>cepa</i> . The ID of NLB 1174, like many collections of sclerodermas, is not certain. NLB 1174 could be <i>S. albidum</i> : That species is said to have a compact, solid (not fibrous/rhizoidal) base, as seems to be the case with NLB 1174. However, note that the dehiscence of <i>S. albidum</i> is said to be not lobed, and that it has a minutely areolate pallid peridium (see Grgurinovic/Cleland). NLB 1172 varies in dehiscence (sometimes stellate, sometimes irregular), and develops a coarsely areolate peridium with pallid warts and yellow in between those. NLB 1174 could also be <i>Scleroderma flavidum</i> : This name is synonymised under <i>S. cepa</i> by most authors, e.g. Guzman (1970), Grgurinovic (1997). I think we should discount this name for NLB 1174 because my concept of <i>S. cepa</i> is a much more compact rounded fungus than NLB 1174 and with a stellate dehiscence and a rhizoidal rooting base. Also the spores of NLB 1174 are larger than ascribed for <i>S. cepa</i> (Grgurinovic: 8.8-13 (-14), av. 11.2 microns).	Rehabilitated area planted with eucalypts (tuart and marri) and acacias.	03/08/2015

<i>Suillus</i>	<i>granulatus</i>	NLB 1101	8690715	Characteristic Features: pileus viscid when moist, when mature fulvous brown (Munsell near 7.5YR 5/6 Sayal Brown to 10YR 5/8 Buckhorn Brown), darker brown when button (near Methuen 6D7); with inrolled margin remaining as an appendiculate membranous flap at maturity; (ii) pores and tubes concolorous, pale yellow in button, then brighter yellow at maturity; not bruising; (iii) stipe often about same length as pileus diameter or sometimes less; white grading upwards to yellow, also pinkish at base, adorned over whole length with small dark brown scabres; no annulus or annular zone; (iv) flesh pale yellow in pileus and stipe (a bit more intensely so near the outside). Odour: mushroom. Spore print: brown (slight orange tinge?). A classic example of <i>Suillus granulatus</i> .	Near old pine (<i>Pinus</i>) trees.	25/06/2015
<i>Tapinella</i>	<i>panuoides</i>	NLB 1196	8691398	Characteristic Features: (i) dense clusters of small shell-shaped yellowish fruit bodies; (ii) lamellae pale yellow, often corrugated when young and some bifurcated. Odour: none. Spore print: yellow-brown (near Methuen 4B7). <i>T. panuoides</i> has now also been found in other similar habitats where woodchips have been spread in parkland in the Perth region, e.g. NLB 1082.	Rehabilitated area planted with eucalypts - <i>Eucalyptus gomphocephala</i> , <i>Corymbia calcephala</i> .	23/08/2015
<i>Tomentellopsis</i>	<i>echinospora</i>	NLB 1095	8690650	Characteristic Features: (i) easily peeled off the wood leaving a very sparse white mycelial subiculum on the wood; (ii) fully resupinate tending effuso-reflexed at margin when very old; (iii) entirely bright yellow (near Methuen 2A7), becoming less bright and may develop some dull fawn patches when old and drier (near Methuen 4B5); (iv) surface smooth to the naked eye with areas of shallow rounded bumps and nodules, minutely glistening under lens; margin with arachnoid white or pale yellow mycelium which sometimes forms mycelial cords (rhizomorphs) extending across the wood. The absence of inflated septa boundaries on hyphae, and absence of clamp connections makes it doubtful this would be <i>Trechispora</i> . May be instead <i>Tomentellopsis</i> . Micro: spores globose / subglobose, hyaline in KOH and in Melzers (some pale brown), finely spinose, 4-5.5 microns diameter. Basidia cylindrical, 4-spored, hyaline. Cystidia sparse, simple cylindrical, hyaline, thin-walled without crystals. Clamp connections absent in all places. Subiculum narrow, of hyaline, thin-walled, smooth, septate cylindrical hyphae 2.5-3.5 microns wide. All tissues hyaline in KOH, pale yellow in Melzers. Spore print: white.	Banksia sp. in open sheoak-banksia-jarrah/marri woodland.	16/06/2015
<i>Tomentellopsis</i>	<i>echinospora</i>	NLB 1143	8691061	Characteristic Features: (i) fully resupinate, easily removed, thin, pale cream-yellow, smooth to the eye - minutely granular under lens. Numerous pale yellow mycelial strands present. Micro: spores hyaline, punctate-spinose (short spines), subglobose, e.g. 4.6 x 4.2 microns with 1 large guttule. basidia cylindrical, hyaline, e.g. 28 x 5.5 microns, 4-spored, not clamped. No cystidia. Monomitic. See micro and macro images. Odour: none.	Conostylis, in open burnt (5 years ago?) woodland (sheoak, marri, banksia, dryandra, acacia).	16/07/2015
<i>Tomentellopsis</i>	<i>echinospora</i>	NLB 1144	8691088	Characteristic Features: (i) fully resupinate, extensive, thin, easily removed patches on burnt bark; (ii) surface soft, minutely farinose becoming sparsely so and mycelial at margin; a dull cream (with slight yellowish tinge) with some dull brown bruised areas; (iii) numerous appressed pale yellow mycelial strands or rhizomorphs (concolorous with elsewhere) present extending from the margin. At first this appears to be the very common species <i>Tomentellopsis echinospora</i> again but actually is a different species because it has (i) larger basidia and spores than the other collections such as NLB 1143, NLB 1095 (see images); (ii) paler cream fruit bodies forming extensive continuous sheets (see images); (iii) substantial hyphal strands (see images). So best to designate as <i>Tomentellopsis</i> cf. <i>echinospora</i> until DNA comparisons can be done. Micro: spores subglobose, echinulate, hyaline. Rhizomorphs / mycelial strands comprised of hyaline, smooth / thin-walled, non-clamped hyphae, 3-5 microns wide (see images). Basidia cylindro-clavate, hyaline, 4-spored, size e.g. 30 x 8 microns. Odour: none. Spore print: white.	Open burnt (5 years ago?) woodland (sheoak, marri, banksia, dryandra, acacia).	16/07/2015
<i>Trechispora</i>	<i>sp.cream</i>	NLB 1094	8690642	Characteristic Features: (i) very thin, fully resupinate fruit body; (ii) entirely white to pale cream; (iii) surface dry, smooth to the naked eye but finely granular under lens; (iv) margin with sparse arachnoid white appressed mycelium; no rhizomorphs. Micro: spores broad ellipsoid, hyaline in KOH, amyloid, thin walled, finely spinose, 3-3.5 x 2.2-3 microns, faintly amyloid?, clamp connections abundant. Basidia cylindroclavate, hyaline, 4-spored. Cystidia absent. All tissues hyaline in KOH. Odour: none. Spore print: white.	Banksia sp. in open sheoak-banksia-jarrah/marri woodland.	16/06/2015
<i>Tricholoma</i>	<i>sp.no odour</i>	NLB 1126	8690871	Characteristic Features: (i) no odour; (ii) context white and unchanging when cut / damaged except becomes brown in lower stipe; (iii) cream crowded lamellae, not staining; (iv) pileal margin thick and inrolled when young. Odour: none at all. Spore print: white.	Woodland (jarrah, banksia, sheoak) on one side, planted eucalypts along the road on other side.	09/07/2015
<i>Tricholoma</i>	<i>sp.large clustered</i>	NLB 1129	8690928	Characteristic Features: (i) large robust fruit bodies in tight clusters; (ii) pileus deeply convoluted, (iii) solid-fleshy (not brittle) consistency; (iv) white, mainly unchanging context; (v) soapy odour. This is a large pale-capped species of <i>Tricholoma</i> , probably a sp. nov.? Pileus: up to 130 mm diameter; these quite mature specimens all developed strong, deep convolutions; margin thin, entire not translucent striate; surface dry, smooth to minutely radially silky (appressed or innate), dull cream, not staining or reluctantly staining browner when old. Lamellae: adnexed; to 10 mm deep; not markedly ventricose; edge smooth and entire, edge and face pale cream, dulling slightly when older and then eventually attaining dull-brown (not rusty) stains; close to crowded. Stipe: up to 80 x 30 mm, usually equal to or less than pileus diameter; slightly widening towards apex and tapered at base; smooth, dry; similar colour to pileus; solid, developing fibrous hollow with age. Flesh: up to 20 mm thick at stipe apex, white slowly discolouring in parts of the stipe brownish where damaged; not particularly brittle but quite solid-fleshy. Micro: spores broad ellipsoid, thin/smooth-walled, 1 large oil globule, hyaline, non amyloid, e.g. 6.6 x 4.3; 7.0 x 5.8; 5.7 x 4.3 microns. Basidia long narrow clavate, 4-spored, size e.g. 30 x 5.7; 33 x 6.5 microns. No hymenial cystidia. Clamp connections absent. All tissues hyaline in water. Odour: fragrant soap. Spore print: white.	Woodland (jarrah, banksia, sheoak) on one side, planted eucalypts along the road on other side.	09/07/2015
<i>Tubulicrinis</i>	<i>calothrix</i>	NLB 1139	8691029	Characteristic Features: (i) very thin fully resupinate white spreading growth, smooth or minutely granular, sometimes tuberculate (low rounded warts). Abundant projecting cystidia evident (under lens). This is not any of the <i>Tubulicrinis</i> species in Cunningham's book, but seems close to <i>T. calothrix</i> . NLB 1139 differs from that species by having shorter cystidia. Micro: spores narrowly cylindrical, hyaline, smooth / thin-walled, with 2 oil globules, 5.5 x 2.0; 5.7 x 2.0 microns (see images in Melzers). Cystidia isolated singly, projecting well beyond hymenium, cylindrical to slightly widening towards base, typical lycocystidia (thick-walled except at apex), with apical crystals in large amorphous or dome-shaped clump; size e.g. 64 x 7; 49 x 6.9; 48 x 6.5; 83 x 7.6 microns. Most cystidia are symmetrically thickened, but some are definitely asymmetrical (see images). Wall 2-4 microns thick, lumen very narrow. Strongly amyloid. Basidia cylindro-clavate, hyaline, 4-spored. No skeletal hyphae seen. Odour: none. Spore print: white.	<i>Eucalyptus marginata</i> , <i>Allocasuarina fraseriana</i> woodland.	14/07/2015
Undetermined Mould	" = KP065 "	NLB 1162	8691282	Mould with characteristic features: (i) fruit bodies fully resupinate forming extensive growths mainly on wood but also extending over soil. Easily removed from wood. Surface soft farinose-tomentose - almost floccose/cottony, cinnamon brown (between 5C7 and 6C7; near Munsell 7.5YR 5/6 'Sayal Brown'), bruising slightly darker. Margin quite abrupt with a brief region of very fine appressed rather sparse pale subicular hyphae. No rhizomorphs seen, and no mycelia extending beyond the fruit bodies. Micro: lineariform brown conidia present. two types of septate hyphae: (i) narrow (2 microns); (ii) broader (8-10 microns) bearing the conidia (see images). Odour: none. Spore print: brownish	Rehabilitated area planted with eucalypts - <i>Eucalyptus gomphocephala</i> , <i>Corymbia calcephala</i> .	27/07/2015
Undetermined resupinate	" grey soft litter "	NLB 1097	8690677	Undetermined resupinate (=KP142) with Characteristic Features: (i) fully resupinate, submembranous, easily peeled off (particularly when growing on leaves); pure white entirely, except for some rusty brown stains when older; margin with densely silky white mycelium appressed on the wood; no rhizomorphs; (ii) micro: subiculum hyphae adorned with narrow crystals, no cystidia, no clamp connections; clavate short basidia; all elements hyaline; spores broad ellipsoid, smooth, hyaline / faintly amyloid. Micro: spores broad ellipsoid, smooth-thin walled hyaline in KOH, pale blue (amyloid) in Melzers, with a single guttule, very small (i.e. 3-3.5 x 2.2 microns). Subiculum hyphae hyaline, thin-walled with persistent elongate-narrow crystals on surface; clamped, unswollen septa; 2-4 microns wide; branching at right angles.	<i>Corymbia calophylla</i> , <i>Eucalyptus marginata</i> and <i>Allocasuarina</i> woodland.	23/06/2015

<i>Undetermined resupinate</i>	"grey soft litter"	NLB 1098	8690685	Basidia hyaline thin-walled, clavate, 4-spored, no clamp at base, e.g. 11.5 x 4 microns. No cystidia. All elements hyaline in KOH, and in Melzers (except spores faintly amyloid). Odour: none. Spore print: white. Undetermined resupinate (=KP142) with Characteristic Features: (i) fully resupinate, thin, cream coloured with some brown stains; (ii) some rhizomorphs / hyphal strands present. Micro: this is immature or sterile. The hyaline hyphae with narrow crystals suggest it is the same as NLB 1097 (KP 142) = NLB 1050 (PERTH 08478309). Odour: none. Spore print: white.	Corymbia calophylla, Eucalyptus marginata and Allocasuarina woodland.	23/06/2015
<i>Undetermined resupinate</i>	"grey soft litter"	NLB 1137	8691002	Undetermined resupinate (=KP142) with Characteristic Features: (i) soft white thin, easily removed, fully resupinate; (ii) surface smooth (developing low flat tubercles in parts), continuous; (iii) margin silky-fimbriate mycelial. Micro: all tissues hyaline, basidia clavate, 4-spored, e.g. 12 x 4.7 microns. No cystidia in hymenium. Clamps absent. Monomitic. Subiculum thin, of hyaline hyphae bearing sharp crystals, hyphae 2-2.5 microns wide. See micro images. Field name: Undetermined resupinate 'soft white snowy'. KP142? Other code: red 23. Same species as collected before this year, e.g. NLB 1097, and NLB 1050 in 2012. Seems very common in local bushlands around Perth region; and seems to grow on fallen wood as well as on woody debris buried underneath leaf or sheoak needle litter.	Eucalyptus marginata, Allocasuarina fraseriana woodland.	14/07/2015
<i>Undetermined resupinate</i>	"pleurobasidia"	NLB 1157	8691223	Undetermined resupinate (=KP196) with characteristic features: (i) fully resupinate small patches, not easily removed, thin, smooth, dry, khaki-grey with some reddish tinges (see images); (ii) margin abrupt and not differentiated; (iii) pleurobasidia, gnarled elements and long, thin-walled narrow cystidial hairs in hymenium. Micro: spores fusoid, hyaline in water and in Melzers, smooth/thin-walled, with conspicuous apiculus, several to many small dark guttules, size e.g. 9 x 3.3; 8.0 x 3.0; 8.8 x 3.0; 8.7 x 2.7; 8.7 x 3.2 microns (see images). Clamps present (not consistently). Basidia mostly as pleurobasidia with base often bifurcate (see images), cylindrical to utriform, no sterigmata seen on them, e.g. 18 x 5 microns (see images). In hymenium many gnarled elements. Sometimes projecting and long e.g. 60 x 1 microns, rarely branched, joined to knobby hyphae in subhymenium (see images). No gloecystidia or metuloids present. Monomitic. All elements hyaline. Bases of long projections often broader, gnarled, or some almost pleurobasidia-like (see image); others do not seem to be swollen at base but rather just have a gnarled base. Clamps often present at or near base. Odour: none. Spore print: white.	Eucalyptus gomphocephala open woodland.	21/07/2015
<i>Undetermined resupinate</i>	"curtain rows"	NLB 1110	8690804	Undetermined resupinate (=KP165) with Characteristic Features: (i) fully resupinate, not easily detached, extensive sheets with irregular margin of appressed arachnoid white mycelium; (ii) overall colour pale cream to buff (near Methuen 5B4 greyish orange); (iii) comprised of effuso-reflexed ridges of a densely farinose whitish upper surface, and blunt, thick edged irregular curtain-like irregular shallow pores; (iv) subiculum of thin arachnoid white mycelium. Micro: All tissue hyaline (in KOH) except some yellowish pigment in the gelatinised layer. Subiculum of branched hyaline, thick-walled, smooth-walled clampless hyphae (2.5 x 3.5 microns). Gelatinised layer below the hymenium. Hymenial cystidia (leptocystidia), hyaline narrow cylindrical to subulate, thin/smooth-walled, e.g. 37 x 3.5 microns. Basidia slender clavate, 4-spored, e.g. 14 x 4 microns. Clamp connections absent (including at base of basidia). Spores: cylindrical, hyaline (2 or 3 guttules in KOH), smooth/thin-walled, very small, e.g. 3.5 x 2; 4.5 x 1.7 microns. Odour: not distinctive. Spore print: white.	Eucalyptus gomphocephala woodland.	09/07/2015
<i>Undetermined resupinate</i>	"yellow eggs"	NLB 1096	8690669	Undetermined resupinate (=KP161) with Characteristic Features: (i) fully resupinate pale yellow clusters of lens-shaped to globose bodies (each less than 0.2 mm diameter) with fine mycelium radially extending out from them; (ii) fine sparse arachnoid mycelium appressed to the substrate occurs in between the clusters, also a few thin hyphal strands. This appears to be either sterile or immature. Micro: outer surface consisting of very narrow, hyaline smooth and thin-walled, non-clamped hyphae. Internally the bodies are comprise of glassy variably-shaped elements, often coraloid with short projections. Occasional thick-walled elements also observed. No spores. Hyphal strands simple narrow, hyaline, non-clamped hyphae. Odour: none.	Corymbia calophylla, Eucalyptus marginata and Allocasuarina woodland.	23/06/2015