Client report
to the Botanic Gardens and Parks Authority

Fungi survey - Kings Park and Botanic Garden 2017

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Fungi - Kings Park and Botanic Garden: 2017

Background and Objectives

Kings Park and Botanic Garden is located only 1.5 km from the central Perth CBD, 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 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 fungi - 67% considered to be new records for the park (Bougher 2009a). A second contract survey, in 2010, recorded a total of 108 fungi - 47% new records (Bougher 2010c, Bougher 2011a). A third contract survey, in 2011, recorded a total of 106 fungi - 25% new records (Bougher 2011b). A fourth contract survey, in 2012, recorded 123 fungi - 24% new records (Bougher 2012). No surveys were undertaken in 2013 and 2014. A fifth contract survey in 2015 recorded 169 fungi (27% new records) (Bougher 2015). After the sixth contract survey in 2016 which recorded 159 fungi (24% new records) (Bougher 2016a), a total of 265 fungi named to species level had been calculated by adding up new records from each survey that were identified to species level and considered not to have been recorded from Kings Park before that particular year. It is probable that many unidentified or possibly inaccurately identified or duplicate records from Kings Park remained 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

Fungi were recorded and collected in Kings Park from May to July/August 2017 during survey days lead by the author and assisted by numerous volunteers (Figures 1- 3, 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).

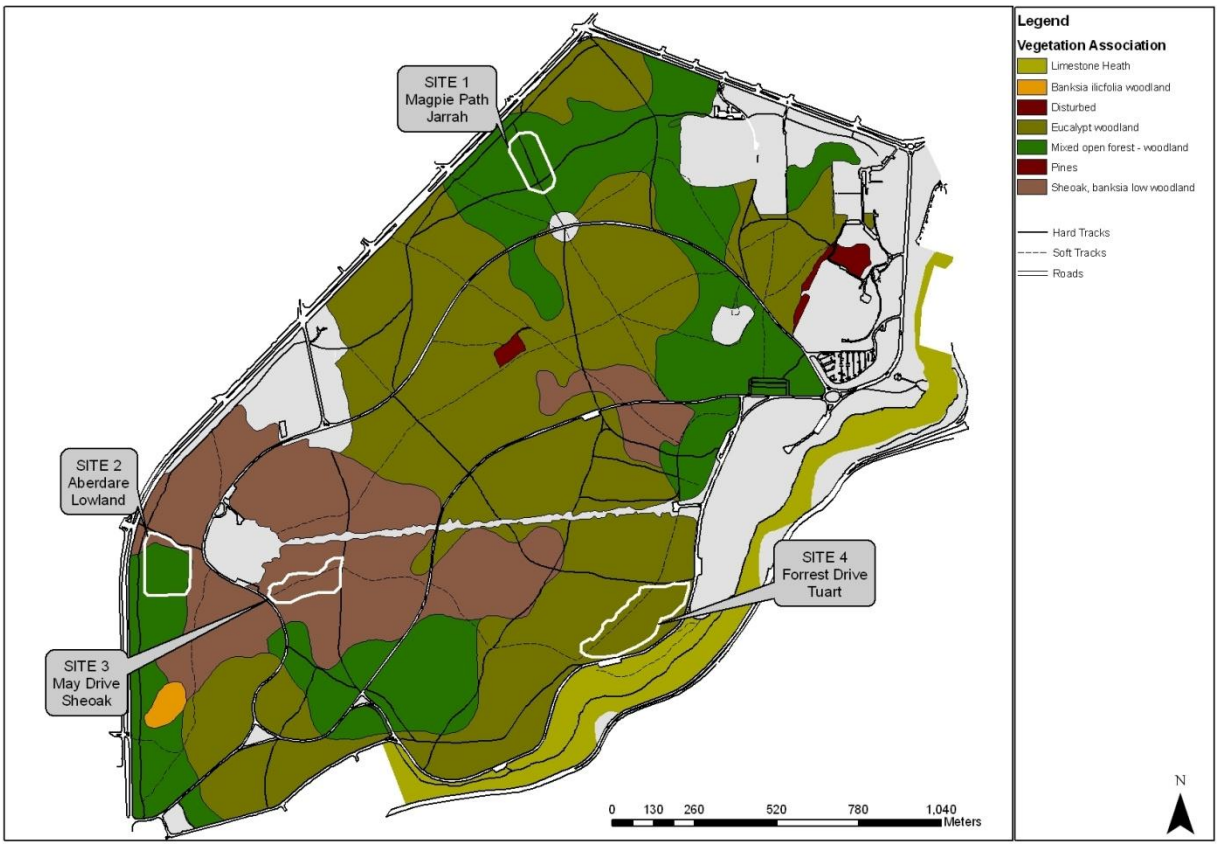
Once again the visual guide to Kings Park fungi (Bougher 2016b) proved to be a valuable tool for participants in the field during this season's survey.

Figures 1 -3 : Some of the volunteer participants examining fungi during the 2017 survey at Kings Park. Top and bottom left - with the purple coloured fungus *Phlebiopsis crassa*. Bottom right - with a cluster of the fungus *Parasola conopilus*.

Table 1: Sites surveyed for fungi at Kings Park in 2017.

Site ID	Site Name	Details/ Coordinates	Vegetation	Notes	Survey Visits 2017
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".	*Allocasuarina/Banksia* low woodland.	Last burnt probably in 1989. Dominated by *Allocasuarina* and Banksias 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 2017



Results

A total of 183 different fungi were recorded at Kings Park in 2017 during the period of this consultancy (Table 2). This number includes fungi identified to species level, fungi identified to genus level only, and undetermined and 'ragbag' records.

The fungi recorded in 2017 represent 115 known genera and 58 families (+ 11 undetermined or ragbag groupings for which genera and families unknown) (Table 3).

Some of the notable fungi are highlighted in the *Discussion*. Descriptive data for the 85 fungal collections from 2017 that were vouchered for permanent reference are given in Appendix 1.

- 20% of the fungi (37) from the current 2017 survey are considered to be new records for Kings Park (see colour entries in Table 2), i.e. they do not match any of the fungi from the 2009 to 2015 surveys, or any of the pre-2009 names that have specific epithets. *
- 80% of the fungi (146) in the current 2017 survey are considered to be the same as species recorded previously (black entries in Table 2), i.e. same as any of the pre-2017 names that have specific epithets.
- 6 fungi that had been recorded at Kings Park before the surveys began in 2009 were found for the first time on the surveys in 2017 (see colour entries in Table 2) .
- 10 species recorded at Kings Park in 2017 had not been recorded anywhere in Western Australia or in Australia. Fungi new to Australia include *Coprinellus callinus* (Figs. 4, 5), *Heterorepetobasidium* sp. (Figs. 8, 9), *Odonticium septocystidia*, *Orbilia epipora*, and *Phlebiella gaspesica* (Figs. 6, 7).
- All fungi recorded in 2017 are considered to be indigenous except two wood-inabiting fungi favouring pine wood - *Coniophora olivacea* and *Leucogyrophana pseudomollusca*, the introduced bridal creeper rust - *Puccinia mysiphylli*, and the mycorrhizal asssociates of pines - *Inocybe rufuloides, Rhizopogon rubescens* and *Suillus granulatus*.
- *Botryobasidium subcoronatum, Gymnopilus allantopus, and Laccaria lateritia* were the only species found in all five of the survey sites.
- Saprotrophic fungi (147 species) were represented by more species than mycorrhizal fungi (30) and pathogenic fungi (5) (Table 3).
- Fungi were present in a wide range of vegetation and microhabitat types. Dead wood with 101 species, and leaf litter or soil with 109 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 2017 (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-2017. Therefore e.g. *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 2017 (arranged in order of genus, species). **Green =** new records of species previously not recorded from Kings Park found during 2017, or not recorded previously in the surveys since 2009. **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	Micro habitat	Native /Exotic	Voucher Code	2017 SITES	1	2	3	4	5	ALL YEARS (2009 - 2017)	New in 2017
KP137	1. *Abortiporus biennis*	Meruliaceae		BR	S	D W	N	NLB 1511	1, 4	Y			Y		1, 4	
KP216	2. *Agaricus ragbag*	Agaricaceae	Almond Mushroom	MU	S	L	N	NLB1556	4				Y		4, 5	
KP362	3. *Agrocybe pediades*	Bolbitiaceae		MU	S	D W	N	NLB1493 NLB1555	4, 5				Y	Y	4, 5	New since 2009
KP064	4. *Aleurina ferruginea*	Pyronemataceae		CD	S	L	N	NLB1052	1	Y					1, 2	
KP149	5. *Amanita basiorubra*	Amanitaceae	Red-based Amanita	MU	M	L	N		2		Y				2, 3	
KP043	6. *Amanita preissii*	Amanitaceae		MU	M	L	N	E9424, BOUGHER 998 NLB 1105 (EMD 21-2015) EMD 34-2015	4				Y		1, 2, 4, 5	
KP075	7. *Amanita ragbag, white with ring*	Amanitaceae		MU	M	L	N	Davison30-2010 BOUGHER 746	2, 4		Y		Y		1, 3, 4, 5	
KP256	8. *Amanita xanthocephala*	Amanitaceae	Vermillion Amanita	MU	M	L	N	NLB1518	2, 4, 5		Y		Y	Y	1, 2, 4, 5	
KP354	9. *Arcyria cinerea*	Arcyriaceae		SL	S	D W	N		1	Y					1, 2	
KP258	10. *Armillaria luteobubalina*	Tricholomataceae	Australian Honey Fungus	MU	P	DT	N	NLB 1030	%					Y	5	
KP393	11. *Auriscalpium barbatum*	Auriscalpiaceae		MU	S	L	N	NLB 1549	4				Y		4	New
KP367	12. *Basidiodendron caesiocinereum*	Auriculariales		JE	S	D W	N	NLB 1497 NLB 1527	3, 4			Y	Y		3, 4	New
KP186	13. *Basidiodendron cinereum*	Auriculariales		JE	S	D W	N	NLB 1140	3			Y			1, 3	
KP260	14. *Bolbitius titubans*	Bolbitiaceae		MU	S	L	N	NLB1352	5					Y	4, 5	
KP110	15. *Bolbitus titubans var. olivacea*	Bolbitiaceae		MU	S	L	N	NLB1353	5					Y	5	
KP125	16. *Boletus prolinius*	Boletaceae		MU	M	L	N	BOUGHER 992 NLB1130	3			y			3, 5	
KP055	17. *Boletus sinapecruentus*	Boletaceae		MU	M	L	N		4				Y		3, 4	
KP388	18. *Botryobasidium sp. grey froth*	Botryobasidiaceae		RE	S	D W	N	NLB 1561	4				Y		4	New
KP192	19. *Botryobasidium subcoronatum*	Botryobasidiaceae		RE	S	D W	N	NLB 1145 NLB 1163 NLB1173 NLB 1400 NLB 1535 NLB1546	all	Y	Y	Y	Y	Y	all	
KP374	20. *Byssomerulius hirtellus*	Corticiaceae		RE	S	D W	N	NLB 1521	4				Y		4	New
KP262	21. *Calocera guepinioides*	Dacrymycetaceae	Scotsman's Beard	JE	S	D W	N		1, 4	Y			Y		all	
KP259	22. *Campanella gregaria*	Tricholomataceae	Gregarious Bells	SH	S	D W	N	E9353, E9390, E9416	1, 2, 3, 4	Y	Y	Y	Y		all	
KP387	23. *Ceriporia angular pores*	Phanerochaetaceae		RE	S	D W	N	NLB 1545	1	Y					1	New
KP072	24. *Ceriporia tarda*	Phanerochaetaceae		RE	S	D W	N	BOUGHER 652 NLB 1023 NLB1510	1	Y					1, 2, 3, 4	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Micro habitat	Native /Exotic	Voucher Code	2017 SITES	1	2	3	4	5	ALL YEARS (2009 - 2017)	New in 2017
KP156	25. *Chlorophyllum brunneum*	Agaricaceae	Shaggy Parasol	MU	S	L	N		5					Y	5	
KP348	26. *Clavulina coralloides*	Clavulinaceae		CO	M	L	N	NLB1520	1, 4	Y			Y		1, 2, 3	
KP049	27. *Clavulina vinaceocervina*	Clavulinaceae	Flesh-coloured Coral Fungus	CO	M	L	N	E9455	2, 3, 4		Y	Y	Y		all	
KP401	28. *Clitocybe brunneoceracea*	Tricholomataceae		MU	S	L	N	NLB 1576	5					Y	5	New
KP264	29. *Clitocybe cf. clitocyboides*	Tricholomataceae		MU	S	D W	N	BOUGHER 670 NLB1133 NLB 1152 NLB1153 NLB1384	1	Y					ALL	
KP263	30. *Clitocybe semiocculta*	Tricholomataceae	Shy Funnel Cap	MU	S	D W	N		4				Y		2	
KP265	31. *Clitocybe sp. crowded gills, depressed cap*	Tricholomataceae		MU	S	L/ D W	N	E9447	2		Y				1, 2, 4, 5	
KP358	32. *Clitopilus hobsonii*	Entolomataceae	Tiny White Fans	SH	S	D W	N	BOUGHER 515, 525	1, 2, 3, 4	Y	Y	Y	Y		1, 2, 3, 4	
KP266	33. *Coltricia cinnamomea*	Hymenochaetaceae	Tough Cinnamon Fungus	MU	S	L	N		1, 5	Y				Y	1, 2, 4, 5	
KP383	34. *Comatricha nigra*	Stemonitidaceae		SL	S	D W	N		3			Y			3	New since 2009
KP207	35. *Coniophora olivacea*	Coniophoraceae		RE	S	D W	E ?	NLB 1170 NLB 1171	4				Y		4, 5	
KP363	36. *Coprinellus callinus*	Psathyrellaceae		MU	S	L	N	NLB 1489	4, 5				Y	Y	4, 5	New
KP360	37. *Coprinellus flocculosus*	Psathyrellaceae		MU	S	L	N	NLB 1487	5					Y	5	New
KP210	38. *Coprinellus ragbag*	Psathyrellaceae		MU	S	L	N		4				Y		4, 5	
KP397	39. *Coprinellus truncorum*	Psathyrellaceae		MU	S	L	N	NLB 1568	5					Y	5	
KP267	40. *Coprinopsis cf. stangliana*	Psathyrellaceae	Western Australian Magpie fungus	MU	S	L	N	NLB 1424	4				Y		1, 4, 5	
KP219	41. *Coprinopsis lagopus*	Psathyrellaceae		MU	S	D W	N	NLB 1350	4, 5				Y	Y	4, 5	
KP194	42. *Cortinarius cf. clelandii*	Cortinariaceae	Cleland's Cortinarius	MU	M	L	N	NLB 1151	4				Y		4	
KP325	43. *Cortinarius ochraceofulvus*	Cortinariaceae	Golden Tuart Cortinarius	MU	M	L	N		1, 2, 4, 5	Y	Y		Y	Y	1, 2, 4, 5	
KP115	44. *Cortinarius ragbag*	Cortinariaceae		MU	M	L	N	NLB 1036	1, 3	Y		Y			1, 2, 3, 4	
KP148	45. *Cortinarius sp. silvery blue*	Cortinariaceae		MU	M	L	N	NLB 1046	2		Y				2, 4	
KP268	46. *Crepidotus eucalyptorum*	Crepidotaceae	Eucalypt Crepidotus	SH	S	B	N	E9360	2, 4, 5		Y		Y	Y	1, 2, 4, 5	
KP346	47. *Crepidotus mollis*	Crepidotaceae		SH	S	D W	N	BOUGHER 648 NLB 1034	1, 4	Y			Y		1, 2, 3, 4	
KP314	48. *Crepidotus prostratus*	Crepidotaceae		MU	S	L/ D W	N		4				Y		4	
KP270	49. *Crepidotus ragbag*	Crepidotaceae		SH	S	D W	N		1, 4	Y			Y		1, 4, 5	
KP205	50. *Crustoderma cf. marianum*	Meruliaceae		RE	S	D W	N	NLB 1172	5					Y	5	
KP242	51. *Cyathus olla*	Agaricaceae		BN	S	D W	N		4, 5				Y	Y	4, 5	
KP218	52. *Cyathus stercoreus*	Agaricaceae	Shaggy Birds Nest fungus	BN	S	D W	N	NLB 1349	4, 5				Y	Y	4, 5	
KP098	53. *Dacrymyces stillatus*	Dacrymycetaceae		JE	S	D W	N	BOUGHER 730	2		Y				1	
KP398	54. *Dendrothele cf. acerina*	Corticiaceae		RE	S	D W	N	NLB 1570	5					Y	5	New

Taxon ID	Species	Family	Common Name	Form	Life Mode	Micro habitat	Native /Exotic	Voucher Code	2017 SITES	1	2	3	4	5	ALL YEARS (2009 - 2017)	New in 2017
KP274	55. *Exidia ragbag*	Exidiaceae		JE	S	D W	N		1, 4	Y			Y		all	
KP195	56. *Exidiopsis sp. grey*	Auriculariaceae		JE	S	D W	N	NLB 1156	3			Y			4	
KP377	57. *Fistulina hepatica*	Fistulinaceae	Beefsteak Fungus	BR	S	D W	N		3			Y			3	New since 2009
KP297	58. *Fomitiporia robusta*	Hymenochaetaceae	Woody Layered Bracket Fungus	BR	P	DT	N		2, 3, 5		Y	Y		Y	1, 2, 3, 5	
KP275	59. *Fomitopsis lilacinogilva*	Coriolaceae		BR	S	D W	N		3			Y			all	
KP174	60. *Fuscoporia contigua/viticola*	Hymenochaetaceae		RE	S	D W	N	NLB 1124	3, 4			Y	Y		1, 2, 3, 4	
KP096	61. *Galerina marginata*	Cortinariaceae		MU	S	D W	N	NLB 1409	1, 5	Y				Y	1, 5	
KP081	62. *Galerina pumila*	Cortinariaceae		MU	S	L	N	BOUGHER 672 NLB1564	5					Y	5	
KP042	63. *Galerina sp. orange-brown on wood*	Cortinariaceae		MU	S	D W	N	E9417	1	Y					2, 4, 5	
KP163	64. *Ganoderma australe*	Ganodermataceae	Artists Conk	BR	P	D W	N	NLB 1102 NLB1548	1	Y					1, 5	
KP277	65. *Gymnopilus allantopus*	Cortinariaceae	Golden Wood Fungus	MU	S	D W	N	E9355	all	Y	Y	Y	Y	Y	all	
KP279	66. *Gymnopilus purpuratus*	Cortinariaceae		MU	S	D W	N		1	Y					1, 3, 4, 5	
KP389	67. *Haplotrichum sp. yellow-purple*	Botryobasidiaceae		MO	S	D W	N	NLB1566	4				Y		4	New
KP281	68. *Harknessia uromycoides*	Melanconidaceae	Tuart Nut Fungus	PS	S	D W	N		5					Y	2, 4, 5	
KP021	69. *Hemimycena cf. lactea*	Mycenaceae	Lemon Cap Mycena	MU	S	L	N	E9319 BOUGHER 771	1, 3, 4	Y		Y	Y		all	
KP006	70. *Hemimycena sp. minute, fragile, white pileus, arcuate gills*	Mycenaceae		MU	S	L	N	BOUGHER 524, 526	2, 3		Y	Y			1, 3, 4, 5	
KP282	71. *Henningsomyces candidus*	Schizophyllaceae	Miniature Chimney Pots	CY	S	D W	N	E9361	1, 3, 4	Y		Y	Y		all	
KP403	72. *Heterorepetobasidium sp. nov.*	Auriculariales		JE	S	D W	N	NLB 1577	5					Y	5	New
KP234	73. *Hohenbuehelia petaloides*	Tricholomataceae		SH	S	D W	N	NLB 1394	5					Y	5	
KP286	74. *Hyphodontia sp. white, low tubercules*	Hyphodermataceae		RE	S	D W	N	BOUGHER 754 NLB 1444	4				Y		1, 2, 3, 4	
KP372	75. *Hypocrea citrina*	Hypocreaceae		CU	S	D W	N	NLB 1507	1	Y					1	New
KP226	76. *Hypocrea gelatinosa*	Hypocreaceae		CU	S	D W	N	NLB 1396	3			Y			1, 2	
KP385	77. *Hypomyces sp. on Coltricia*	Hypocreaceae		MO	S	D W	N	NLB1539	1	Y					1	New
KP353	78. *Hypoxylon bovei*	Xylariaceae		FL	S	D W	N	NLB 1533	3			Y			1, 2, 3	
KP150	79. *Hypoxylon ragbag*	Xylariaceae		FL	S	D W	N		2		Y				1, 2, 4	
KP193	80. *Inocybe clypeata*	Inocybaceae		MU	M	L	N	NLB 1146 NLB1574	5					Y	5	
KP177	81. *Inocybe fissurata*	Inocybaceae		MU	M	L	N	NLB 1120 NLB 1344 NLB 1433	5					Y	5	
KP118	82. *Inocybe isabellina*	Inocybaceae		MU	M	L	N	BOUGHER 909 NLB1491	5					Y	2, 4, 5	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Micro habitat	Native /Exotic	Voucher Code	2017 SITES	1	2	3	4	5	ALL YEARS (2009 - 2017)	New in 2017
KP402	83. *Inocybe rufuloides*	Inocybaceae		MU	M	L	E	NLB 1573	5					Y	5	New
KP178	84. *Inocybe sp false murrayana*	Inocybaceae		MU	M	L	N	NLB 1121	5					Y	5	
KP176	85. *Inocybe violaceocaulis*	Inocybaceae		MU	M	L	N	NLB 1494	5					Y	5	
KP287	86. *Laccaria lateritia*	Tricholomataceae	Brick Red Laccaria	MU	M	L	N	E9446 NLB1473	all	Y	Y	Y	Y	Y	all	
KP371	87. *Lasiosphaeria ovina*	Lasiosphaeriaceae		PS	S	D W	N	NLB 1506	1	Y					1	New
KP227	88. *Lepiota booloola*	Lepiotaceae		MU	S	L	N	NLB 1398 NLB1399 NLB1551	4				Y		1, 4	
KP394	89. *Lepiota exocarpi*	Lepiotaceae		MU	S	L	N	NLB1552	4				Y		4	
KP198	90. *Lepiota sp. minute*	Lepiotaceae		MU	S	L	N	NLB 1150	2, 3		Y	Y			2, 3, 4	
KP400	91. *Lepista sordida*	Tricholomataceae		MU	S	L	E	NLB 1575	5					Y	5	New since 2009
KP200	92. *Leucogyrophana pseudomollusca*	Hygrophoropsidaceae		RE	S	D W	E?	NLB 1158 NLB 1159 NLB 1523	4, 5				Y	Y	4, 5	
KP290	93. *Limacella pitereka*	Amanitaceae	Slimacella	MU	S	L	N	E9351 NLB1025 NLB1148	1, 4	Y			Y		1, 2, 3, 4	
KP069	94. *Macrohyporia dictyopora*	Unknown		RE	S	D W	N	BOUGHER 638 NLB 1383	2		Y				1, 2, 4, 5	
KP396	95. *Melanoleuca cf. cognata*	Tricholomataceae		MU	S	L	N	NLB 1565	5					Y	5	New
KP228	96. *Melanoleuca cf. fusca*	Tricholomataceae		MU	S	L	N	NLB 1397	4, 5				Y	Y	1, 4, 5	
KP203	97. *Melanoleuca fusca*	Tricholomataceae		MU	S	L	N	NLB 1175 NLB1522	4, 5				Y	Y	4, 5	
	98. *Mollisia sp.tiny bluish*	Unknown		CD	S	D W	N	NLB 1538	1	Y					1	New
KP293	99. *Mycena kuurkacea*	Tricholomataceae	Bleeding Pixie Cap	MU	S	L	N	BOUGHER 724	4				Y		1, 2, 3, 4	
KP292	100. *Mycena nargan*	Mycenaceae	Spotted Pixie Cap	MU	S	D W	N	BOUGHER 520 NLB 1022 NLB1024	1, 4	Y			Y		1, 2, 3, 4	
KP045	101. *Mycena ragbag on wood*	Mycenaceae		MU	S	D W	N		1, 2, 3, 4	Y	Y	Y	Y		ALL	
KP044	102. *Mycena ragbag, chlorine, in litter*	Tricholomataceae		MU	S	L	N		1, 2	Y	Y				1, 2, 3, 5	
KP101	103. *Mycena ragbag, no chlorine odour, in litter*	Tricholomataceae		MU	S	L	N		4				Y		1, 2, 4, 5	
KP390	104. *Mycena sp. blue-green cap*	Mycenaceae		MU	S	L	N	NLB 1550	4				Y		4	New
KP143	105. *Mycena sp. minute white, deep litter*	Mycenaceae		MU	S	L	N		3			Y			1, 2, 3	
KP188	106. *Mycena subgalericulata*	Mycenaceae		MU	S	D W	N		3			Y			1, 3	
KP365	107. *Mycenastrum corium*	Agaricaceae	Tennis Ball Puffball	PF	S	L	N	NLB 1495	5					Y	5	New
KP116	108. *Nodulisporium sp.*	Xylariaceae		FL	S	D W	N		4				Y		2, 4	
KP373	109. *Odonticium septocystidia*	Unknown		RE	S	D W	N	NLB 1513 NLB1560	1, 4	Y			Y		1, 4	New
KP296	110. *Omphalotus nidiformis*	Tricholomataceae	Ghost Fungus	SH	S/P	D W/ B	N	E9423 NLB 1104	1, 3, 4, 5	Y		Y	Y	Y	ALL	
KP391	111. *Orbilia cf. xanthostigma*	Orbiliaceae		CD	S	L	N	NLB1567	4				Y		4	New

Taxon ID	Species	Family	Common Name	Form	Life Mode	Micro habitat	Native /Exotic	Voucher Code	2017 SITES	1	2	3	4	5	ALL YEARS (2009 - 2017)	New in 2017
KP378	*112. Orbilia epipora*	Orbiliaceae		CD	S	L	N	NLB1536	3			Y			3	
KP214	*113. Panaeolina foenisecii*	Strophariaceae		MU	S	L	N	NLB 1343 NLB 1377	5					Y	5	
KP364	*114. Panaeolus papilionaceus*	Strophariaceae		MU	S	L	N	NLB 1492 NLB1553	4, 5				Y	Y	4, 5	New
KP333	*115. Panus fasciatus*	Polyporaceae	Hairy Panus	MU	S	D W	N		1, 5	Y				Y	1, 2, 5	
KP124	*116. Parasola conopilus*	Psathyrellaceae		MU	S	D W	N	BOUGHER 996 NLB1347	4, 5				Y	Y	4, 5	
KP361	*117. Parasola schroeteri*	Psathyrellaceae		MU	S	D W	N	NLB 1488	5					Y	5	New
KP155	*118. Peniophora cinerea*	Corticiaceae		RE	S	D W	N	NLB1542	1, 4	Y			Y		1, 4	
KP172	*119. Perenniporia ochroleuca*	Polyporaceae		BR	S	DT	N	BOUGHER 729	2, 4		Y		Y		1, 2, 4, 5	
KP380	*120. Perichaena depressa*	Trichiaceae		SL	S	D W/ / L	N		3			Y			3	New
KP326	*121. Phaeotrametes decipiens*	Polyporaceae		BR	S	DT	N	BOUGHER 727	1	Y					1, 2	
KP299	*122. Phellinus sp. extensive resupinate*	Hymenochaetacea e		RE	S	D W	N	E9454	2, 3, 4, 5		Y	Y	Y	Y	2, 3, 4, 5	
KP300	*123. Phlebia ragbag*	Meruliaceae		RE	S	D W	N	BOUGHER 511 NLB 1543 NLB 1547	1, 2, 4, 5	Y	Y		Y	Y	all	
KP368	*124. Phlebia sp. mustard*	Meruliaceae		RE	S	D W	N		3			Y			3	New
KP370	*125. Phlebia sp. warty*	Meruliaceae		RE	S	D W	N	NLB 1505	1	Y					1	New
KP294	*126. Phlebia subceracea*	Meruliaceae	Golden Splash Tooth	RE	S	D W	N	BOUGHER 666	2		Y				1, 2, 3, 4	
KP196	*127. Phlebiella gaspesica*	unknown		RE	S	D W	N	NLB 1157 NLB1508 NLB1559	1, 4	Y			Y		1, 4	
KP343	*128. Phlebiopsis crassa*	Phanerochaetaceae	Violet Skin Fungus	RE	S	D W	N	BOUGHER 522	3, 4			Y	Y		1, 3, 4, 5	
KP301	*129. Pholiota communis*	Strophariaceae	Common Pholiota	MU	S	D W	N	NLB 1164	5					Y	4, 5	
KP170	*130. Piloderma byssinum*	Atheliaceae		RE	S	D W	N	NLB 1122 NLB 1123 NLB1525	3, 4			Y	Y		1, 2, 3	
KP142	*131. Piloderma cf. byssinum*	Atheliaceae		RE	S	L	N	NLB1050 NLB1097 NLB1098 NLB 1137 NLB 1429 NLB 1462 NLB1526	4				Y		1, 2, 3, 4	
KP303	*132. Pisolithus ragbag*	Sclerodermataceae	Dog Poo Fungus	PF	M	L	N		4, 5				Y	Y	ALL	
KP355	*133. Pluteus pauperculus*	Pluteaceae	Yellow Gilled Pluteus	MU	S	D W	N	E9352, BOUGHER 686	1	Y					1, 4	
KP395	*134. Pluteus romellii*	Pluteaceae		MU	S	D W	N	NLB 1554	4				Y		4	New
KP330	*135. Poria s.l. ragbag*	Unknown		RE	S	D W	N	NLB 1382	1, 3, 4	Y		Y	Y		ALL	
KP033	*136. Propolis farinosa*	Rhytismataceae		PS	S	D W	N	E9383 NLB1557	4				Y		1, 4	
KP215	*137. Psathyrella cf. tetrophylla*	Psathyrellaceae		MU	S	L	N	NLB 1346	2, 4		Y		Y		2, 3, 4, 5	
KP306	*138. Psathyrella ragbag, in litter*	Psathyrellaceae		MU	S	L	N	E9415	1, 4, 5	Y			Y	Y	ALL	
KP076	*139. Psathyrella ragbag, on wood*	Psathyrellaceae		MU	S	D W	N		5					Y	4, 5	
KP351	*140. Puccinia myrsiphilli*	Pucciniaceae	Bridal Creeper Rust	RU	P	DT	E		4				Y		1, 4	
KP162	*141. Punctularia strigosozonata*	Corticiaceae		RE	S	D W	N	NLB 1099 NLB 1134	2		Y				1, 2	
KP307	*142. Pycnoporus coccineus*	Coriolaceae	Scarlet Bracket Fungus	BR	S	D W	N		1, 2, 3, 4	Y	Y	Y	Y		all	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Micro habitat	Native /Exotic	Voucher Code	2017 SITES	1	2	3	4	5	ALL YEARS (2009 - 2017)	New in 2017
KP308	143. *Ramaria gracilis*	Clavariaceae	Slender Coral Fungus	CO	M	L	N		1, 4	Y			Y		1, 2, 4	
KP359	144. *Ramaria sp. pale thick wrinkly*	Clavariaceae		CO	M	L	N		1	Y					1	
KP037	145. *Ramaria sp. white*	Clavariaceae		CO	M	L	N	BOUGHER 745	4				Y		1, 3, 4	
KP254	146. *Resupinatus subapplicatus*	Tricholomataceae	Small Grey Anemone	SH	S	D W	N	E9379, E9422	1, 2, 4	Y	Y		Y		ALL	
KP366	147. *Rhizochaete radicata*	Phanerochaetaceae		RE	S	D W	N	NLB 1498	3			Y			3	New
KP399	148. *Rhizopogon rubescens*	Rhizopogonaceae		TR	M	U	E	NLB 1537	5					Y	5	New since 2009
KP080	149. *Rhodocollybia sp. leather brown*	Tricholomataceae		MU	S	D W	N	BOUGHER 668 BOUGHER 669 NLB 1147 NLB1528	3			Y			3, 4	
KP322	150. *Russula erumpens*	Russulaceae	Erupting Russula	MU	M	L	N	BOUGHER 615	3, 4			Y	Y		2, 3, 4	
KP309	151. *Schizophyllum commune*	Schizophyllaceae	Split-gill fungus	SH	S	D W	N	E9445	2, 3		Y	Y			2, 3, 5	
KP329	152. *Schizopora paradoxa*	Schizoporaceae	Split Pore Crust	RE	S	D W	N		1, 2, 4	Y	Y		Y		1, 2, 3, 4	
KP166	153. *Scleroderma cepa*	Sclerodermataceae	Onion Earthball	PF	M	L	N		4, 5				Y	Y	1, 4, 5	
KP204	154. *Scleroderma ragbag (not cepa)*	Sclerodermataceae	Earthballs	PF	M	L	N	NLB 1174	5					Y	1, 5	
KP103	155. *Sistotrema sp. grey paint on leaves*	Sistotremataceae		RE	S	D W	N	NLB 1054	2		Y				1, 2, 4, 5	
KP320	156. *Stereum illudens*	Stereaceae	Purplish Stereum	BR	S	D W	N	E9362	1	Y					1	
KP349	157. *Suillus granulatus*	Suillaceae	Slippery Jack	MU	M	L	E	NLB1101	5					Y	5	
KP310	158. *Tomentella pilosa*	Thelephoraceae		RE	S	D W	N	BOUGHER 690 NLB 1056 NLB 1058 NLB 1541	1	Y					1, 2, 4	
KP379	159. *Tomentella ragbag*	Thelephoraceae		RE	S	D W	N	NLB1540	1, 3	Y		Y			1, 3	New
KP382	160. *Tomentella sp. purple*	Thelephoraceae		RE	S	D W	N	NLB1534 NLB1544 NLB1562	1, 2, 3, 4	Y	Y	Y	Y		1, 2, 3, 4	New
KP145	161. *Tomentellopsis echinospora*	Thelephoraceae		RE	S	D W	N	NLB 1049 NLB 1095 NLB1143	1, 2	Y	Y				1, 2, 4, 5	
KP160	162. *Trechispora farinacea*	Sistotremataceae		RE	S	D W	N	NLB 1094	1	Y					1, 3	
KP319	163. *Tremella mesenterica group*	Tremellaceae	Yellow Brain Fungus	JE	S	D W	N	E9453	4, 5				Y	Y	all	
KP328	164. *Trichia decipiens*	Trichiaceae	Cute Baubles	SL	S	D W	N		4				Y		1, 3, 4	
KP020	165. *Trichia verrucosa*	Trichiaceae		SL	S	D W	N	E9476	4				Y		2, 4	
KP134	166. *Tricholoma sp. ring*	Tricholomataceae		MU	M	L	N	NLB 1032	5					Y	5	
KP376	167. *Tricholomopsis rutilans*	Tricholomataceae		MU	S	L	N	NLB 1517	4				Y		4	New since 2009
KP341	168. *Tubaria serrulata*	Crepidotaceae		MU	S	L	N	BOUGHER 521	4				Y		1, 4	
KP105	169. *Tubulicrinis calothrix*	Tubulicrinaceae		RE	S	D W	N	NLB 1430 NLB1509 NLB1515 NLB1563	1, 3, 4	Y		Y	Y		1, 3, 4	
KP059	170. *Tylopilus fuscobrunneus*	Boletaceae		MU	M	L	N	BOUGHER 616 BOUGHER 645 NLB 1045 NLB 1410	1, 2, 4, 5	Y	Y		Y	Y	all	
KP335	171. *Undetermined ascomycete ragbag on wood*	Unknown		CD	S	D W	N		2, 3		Y	Y			3	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Micro habitat	Native /Exotic	Voucher Code	2017 SITES	1	2	3	4	5	ALL YEARS (2009 - 2017)	New in 2017
KP392	*172. Undetermined ascomycete yellow pom poms*	Unknown		CD	S	DW	N	NLB1558	**4**				**Y**		**4**	New
KP375	*173. Undetermined mould birdsnest parasite*	unknown		MO	S	DW	N	NLB1522	**4**				**Y**		**4**	New
KP106	*174. Undetermined mould ragbag*	unknown		MO	S	DW	N	NLB 1021 NLB 1027 NLB 1040 NLB 1050 NLB1512	**1, 3, 4, 5**	**Y**		**Y**	**Y**	**Y**	**1, 2, 3, 4**	
KP073	*175. Undetermined resupinate mustard curtains*	unknown		RE	S	DW	N	BOUGHER 651	**1**	**Y**					**1, 2, 4**	
KP086	*176. Undetermined resupinate ragbag*	unknown		RE	S	DW	N	NLB 1021 NLB 1027 NLB 1040 NLB1050 NLB 1442 NLB1531	**2, 3**		**Y**	**Y**			**all**	
KP336	*177. Uromycladium tepperianum*	Pileolariaceae	Acacia Gall Rust	RU	P	DT	N	NLB 1569	**5**					**Y**	**4**	
KP313	*178. Volvopluteus speciosus*	Pluteaceae	Common Rosegill	MU	S	L	N	NLB 1378	**4, 5**				**Y**	**Y**	**4, 5**	
KP381	*179. Xenasma rimicola*	Xenasmataceae		RE	S	DW	N	NLB1532 NLB1571	**3, 5**			**Y**		**Y**	**3, 5**	New
KP384	*180. Xerula atrocaerulea*	Tricholomataceae		MU	S	L	N	NLB1530	**2**		**Y**				**2**	New
KP357	*181. Xerula mundroola*	Tricholomataceae	Mundroola Rooting Shank	MU	S	L	N	E9451	**3**			**Y**			**3**	
KP369	*182. Xylaria sp. asexual*	Xylariaceae		MO	S	L	N		**3**			**Y**			**3**	New
KP003	*183. Xylodon brevisetus*	Hyphodermataceae		RE	S	DW	N	BOUGHER 512 BOUGHER 774 NLB1524	**2, 3, 4**		**Y**	**Y**	**Y**		**2, 3, 4**	

Table 3: Taxonomic rank, life mode, habitat, and sites of fungi in Kings Park in 2017.
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	183 *(includes 19 ragbags)*	
Genera	115 *(+ 7 of unknown genus)*	
Families	58 *(+ 11 of unknown family)*	
Ecology/Lifemode types		
Saprotrophic	147	*Clitocybe brunneoceracea*
Pathogenic	5	*Uromycladium tepperianum*
Mycorrhizal	30	*Amanita preissii*
Saprotropic or pathogenic	1	*Omphalotus nidiformis*
Main habitat types *(some species have two or more habitats)*		
B = Bark of living tree	1	*Crepidotus eucalyptorum*
DT = Diseased or dying tree/plant	6	*Armillaria luteobubalina*
DW = Dead wood/logs	101	*Phlebiella gaspesica*
L = Leaf litter or soil	109	*Lepiota booloola*
U = underground	1	*Rhizopogon rubescens*
Survey Sites		
1	20 exclusive / 50 shared	*Tomentella pilosa*
2	10 / 27	*Amanita basiorubra*
3	22/ 26	*Xenasma rimicola*
4	31/ 60	*Haplotrichum sp. golden*
5	27 / 35	*Inocybe rufuloides*
Origin		
Native	179	*Xylodon brevisetus*
Exotic	4	*Coniophora olivacea*

Discussion

Biodiversity

A total of 183 fungi were recorded in 2017 including the fungi identified to species level, the fungi identified to genus level only, and the undetermined and 'ragbag' records. 37 of the fungi in the current survey are considered as new records for Kings Park – 20% of the fungi recorded in 2017. The number of fungi recorded in the 2017 survey is greater than that of the previous years - 159 fungi in 2016, 169 (2015), 123 (2012), 106 (2011), 108 (2010), 123 (2009). Favourable weather conditions and the abilities of experienced survey team members may have contributed to the larger number of fungi recorded in 2017.

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, 2015, 2016a, current report). The figures indicated below could be reduced if taxonomic studies and collections necessitate the merging of names, but also could be increased where they include undetermined and 'ragbag' names representing as yet unresolved mixtures of unknown numbers of species.

The surveys since 2009 at Kings Park have recorded:

- **388 different fungi** - this includes 298 fungi identified to species level, and 90 other fungi identified to genus level only and the undetermined and 'ragbag' records.

The all-time total of fungi identified to species level at Kings Park is 298:
i.e. 246 species names from the surveys since 2009, and 52 fungi assigned species names from pre-2009 that have not yet been found in the surveys since 2009.

The all-time total of different fungi identified and named to species level that have been recorded from Kings Park is derived from:

- 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 (Bougher 2015).
- 27 of the 38 new records from the 2016 survey that were identified to species level and not recorded from Kings Park before 2016 (Bougher 2016a).
- 37 of the 43 new records from the 2017 survey that were identified to species level and not recorded from Kings Park before 2017 (current report).

The above tallies up to 306, but some of the species names assigned to the new records from previous years have been re-determined since, hence adjusting the all-time total to 298.

Some notable fungi recorded at Kings Park in 2017

Of the 37 fungi recorded in 2017 for the first time at Kings Park (as indicated in Table 2). About 10 species had not been recorded anywhere in Western Australia or in Australia. New species for Australia include *Coprinellus callinus* (featured below), *Odonticium septocystidia*, *Orbilia epipora*, and *Phlebiella gaspesica* (featured below). In another case, a genus never before recorded in Australia was found in 2017 at Kings Park - *Heterorepetobasidium* sp. nov. (featured below).

1. ***Coprinellus callinus*** (Figures 4, 5):

After heavy rains the tiny brown buttons of this fungus seated amid woodchipped beds at Kings Park rapidly expand into paper-thin mature fruit bodies. If the rains are not sustained the fruit bodies rapidly wither and dry out. This species has not been previously recorded in Australia.

Figures 4, 5: *Coprinellus callinus* (NLB 1489).

2. ***Phlebiella gaspesica*** (Figures 6, 7):

A particular skin/crust fungus found at Kings Park in 2017 (NLB1508, NLB1559) with unusual microscopic features proved to be the same species as a collection from Kings Park in 2015 (NLB1157). The collection in 2015 was not identified at the time and designated as "*Undetermined resupinate pleurobasidia*" (see in Bougher 2015). The new collections in 201 revealed microscopic features identifying this fungus as *Phlebiella gaspesica*. This species has not been previously recorded in Australia.

Figure 6: *Phlebiella gaspesica* (NLB 1157) from 2015.

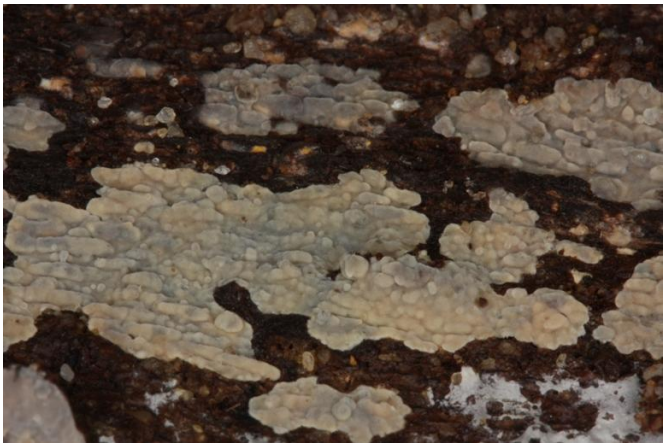
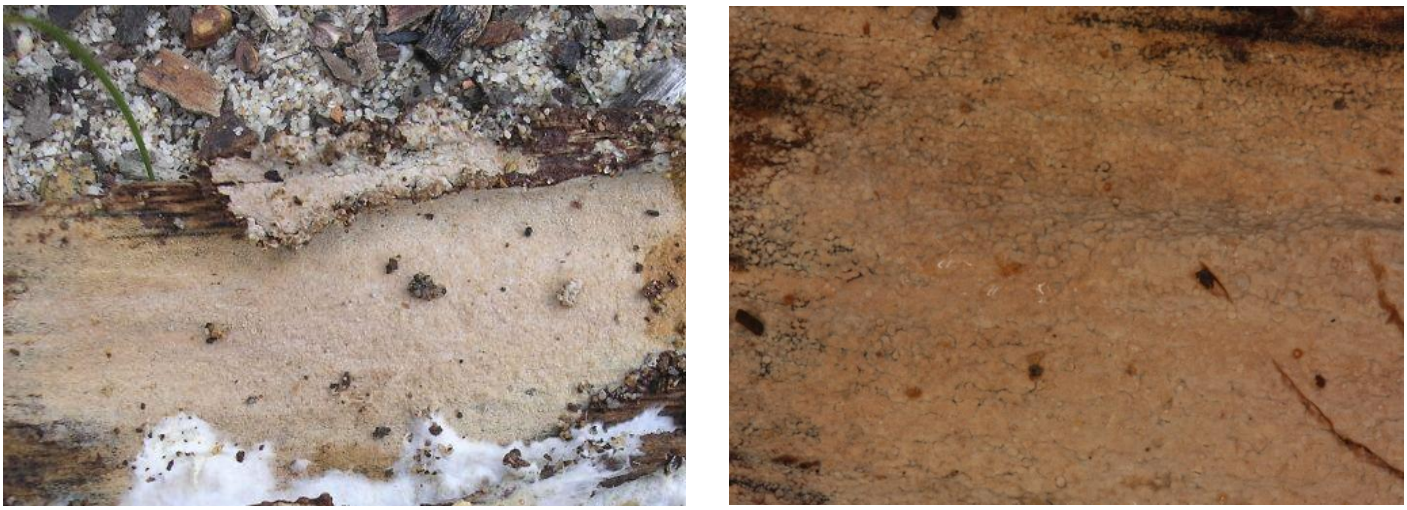


Figure 7: *Phlebiella gaspesica* (NLB1559) from 2017

3. ***Heterorepetobasidium sp. nov.*** (Figures 8, 9):

Another fungus forming a skin/crust-like growth at Kings Park in 2017 (NLB1577) proved to be quite unusual. It was found to represent a group of jelly fungi in the genus *Heterorepetobasidium* - a genus which had not been previously recorded in Australia. This fungus is related to the jelly fungi and it has longitudinally septate reptitive basidia that form in multiple layers with a central stalk and multiple upward-angled basidial remanants arranged on each side of the stalk.



Figures 8, 9: *Heterorepetobasidium sp. nov.* (NLB 1577).

4. ***Auriscalpium barbatum*** (Figures 10, 11):

This is a rarely seen species of toothed fungus was originally found and described in 1978, and had only four other collections recorded to date, all from south-west WA. Its original type collection consists of merely a single broken specimen (Maas Geesteranus1978). *A. barbatum* may be a mycorrhizal fungus or a decomposer (or both).

Figure 10: *Auriscalpium barbatum* (NLB 1549).

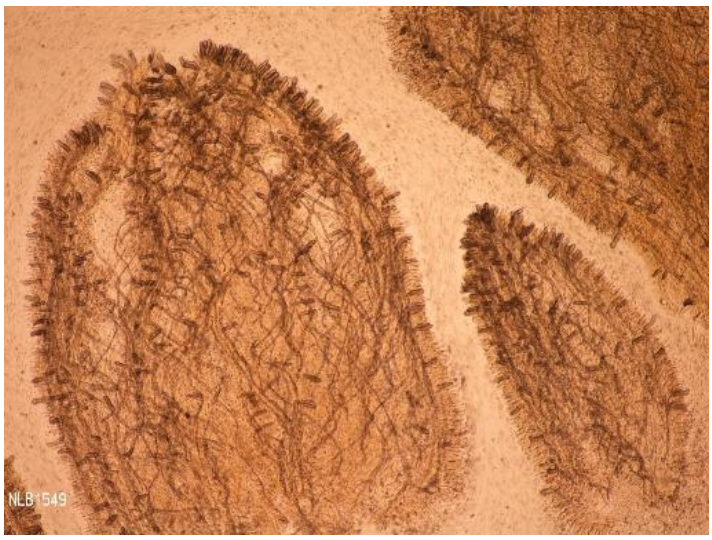


Figure 11: Microscopic view of the teeth of *Auriscalpium barbatum*, showing masses of brown oily cystidia (gloeocystidia) (NLB 1549).

5. ***Tricholomopsis rutilans*** (Figures 12, 13):

This very large and colourful fungus with purple-red scales and yellow gills is more likely to be a close relative of *Tricholomopsis rutilans* than the same species. Micromorphological and molecular data will be required to confirm its identity. This fungus is a decomposer and is always found growing on rotting wood. At Kings Park in 2017 it was found on buried rotting banksia wood.

Figure 12: *Tricholomopsis rutilans* (NLB 1517) fruit bodies in the field, showing the purple-red scales on the cap.

Figure 13: *Tricholomopsis rutilans* (NLB 1517) fruit bodies collected, showing the purple-red scales on the stem and the yellow gills.

Conclusion and recommendations

In similarity with the previous surveys (2009 to 2016), this year's survey captured many new records for Kings Park (20% of the records in 2017). A total of 298 fungi have been named to species level so far at the park, plus a further 90 undetermined fungi. Further collections and evaluations of the identities of fungi at Kings Park are required to accurately assess the diversity of fungi at the park. Many more species are likely to occur there, as indicated by the number of new fungi found each survey year and the number of unidentified or partially identified fungi.

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. 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.
- **Consolidation and 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. Current indications are that over 650 different fungi have been recorded at the two parks. 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*. This guide was updated in 2016 as *Kings Park Fungi [version 2.1]* (Bougher 2016b). This guide proved to be a valuable tool for participants in the field during this season's survey, and will be further updated for future field surveys.

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Since 2009, a total of 51 people (volunteers, students, and BGPA staff and trainees) have participated in the fungi survey days at Kings Park.

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Appendix 1

The subset of fungi that were processed, described, & prepared as herbarium vouchers from Kings Park in 2017. The 85 vouchers are lodged at the Western Australian Herbarium (PERTH).

Genus	*Species*	Collection No.	Descriptive Notes	*Plants*	Date
Abortiporus	*biennis*	NLB 1511	Pileus surface: with thick pile of tapering strigose hairs; reddish brown except at pale pinkish margin. Hymenium: of pale pinkish-cream pores circular or polygonal near the pileus margin but elsewhere becoming wider and ragged to curtain-like with fine silky-fimbriate rim; staining red upon touch, and with tubes up to 5 mm long. KOH dropped onto the hymenium turns instantly black. Flesh: thick, staining red-brown sometimes in concentric zonate lines when cut then eventually entirely dark reddish-brown. Odour: soapy. Spore print: white. KOH on pores turns black instantly. Micro: Spores: ellipsoid, smooth/thin-walled, hyaline or some with yellow oily cytoplasm, e.g. 5.8 x 3.4; 5.5 x 3.1; 5.8 x 3.5 microns. Basidia: clamped, cylindric, 4-spored. Some intra-hyphal (rather than terminal) basidia seen. Cystidia: very few sinuous-clavate seen. Hyphae: mostly hyaline but some hyphae, terminals, basidia and spores have yellow oily cytoplasm.	Eucalyptus marginata.	27/06/2017
Agaricus	*sp.*	NLB 1556	Characteristic features: (i) only minor and fleeting yellowing occurs at the extreme base of the stipe; (ii) note the black oblong-shaped young pileus and persistently black pileus centre at maturity; (iii) young lamellae cream, becoming greyish then finally chocolate brown (i.e. no stage has any pink colouration.) Odour: not pleasant. Spore print: chocolate brown.		25/07/2017
Agrocybe	*pediades*	NLB 1493	Characteristic features: (i) pileus likely to be viscid when young and/or in moist conditions; (ii) stipe base with conspicuous white rhizomorphic mycelia; (iii) older pilei with areolate fissures/cracks; (iv) upper stipe pruinose (due to cystidia?). Odour: farinaceous (cheap soap.) Spore print: dull brown.		26/05/2017
Agrocybe	*pediades*	NLB 1555	Robust fruitbodies. Odour: cheap soap - farinaceous. Spore print: dull dark brown.		25/07/2017
Amanita	*basiorubra*	NLB 1496	Characteristic features: (i) pinkish mealy veil patches on pileus; (ii) base of stipe with a reddish ovoid bulb; (iii) finely striate white (red-edged) membranous flanging superior annulus; (iv) red-staining context and stipe. Odour: not distinctive. Spore print: white.	Allocasuarina fraseriana.	20/06/2017
Amanita	*xanthocephala*	NLB 1518	This is the variety of A. xanthocephala at Kings Park which has: (i) bright orange pileus up to 40 mm diam. which fades slightly with age but doesn't turn yellow with age; (ii) entirely pure white stipe up to 50 x 12 mm with swollen (hemispherical or more angular) base with rim of white and orange floccular scales (evanescent). There is at least one other variety at Kings Park which has a yellow stipe and more yellowish pileus. Less often, white-capped individuals are present in Kings Park as well. Odour: not distinctive. Spore print: white. Micro: Spores broad ellipsoid, pale amyloid, smooth/thin-walled, conspicuous truncate apiculus, e.g. 8.7 x 6.7; 8.2 x 6.6; 9.1 x 7.5; 8.6 x 6.9 microns.	Corymbia calophylla.	03/07/2017
Auriscalpium	*barbatum*	NLB 1549	Fruitbodies caespitose, forming floral-like cluster, sharing common stipe base which incorporates a clod of very rotten woody material and sand, and with the often rosette-like pilei overlapping and loosely joining each other; often incorporating sticks, leaves etc. Pileus: up to 60 mm wide overall but with a single stipe capable of forming multiple imbricate rosette-like structures each of which is usually broadly depressed or infundibuliform; surface with minute erect, tapering scales about 0.1 mm tall increasing in density towards the pileus centre, soft dry, brown (near Methuen E7 to 7E7) uniformly so except at paler extreme margin; margin thinner than elsewhere, ragged with irregular-shaped projections/extensions up to 1 mm long. Hymenium: densely crowded spinose, with slightly tapering spines up to 4 mm long, becoming shorter at the pileal margin and absent at extreme margin; pale pinkish-cream then later becoming pale brownish, bruising slowly darker brown; sometimes spines are present up to 15 mm down the stipe but other times may be abrupt and absent on stipe. Stipe: up to 50 x 8 mm; usually contorted and somewhat flattened in section, rubbery-tough; darker reddish-brown than the pileus (near Methuen 8F7), scurfy and with short spines near apex, smooth elsewhere. Context: brown in the stipe and pileus. Odour: fragrant. Spore print: white. KOH: no reaction on hymenium or pileus. Micro: Spores: broad ellipsoid, verruculose, hyaline in KOH/water (ornaments are visible), strongly amyloid. (did not measure). Basidia: 1, 2, or 4-spored, e.g. 20.4 x 5.9; 25 x 5.6 microns. Cystidia: abundant cylindric, fusiform or irregular-shaped gloeocystidia, not projecting or only their tips barely projecting beyond hymenium, attached to and bending outwards from narrow (3 - 4.5 microns wide) conspicuous sinuous oily hyphae in the trama; cystidia and hyphae densely oily-granular in KOH, size e.g. 47 x 9.8; 88 x 9.7; 31.9 x 6.3 microns. Hymenium tramal hyphae: clamped, smooth-walled, some slightly thick-walled, 3.5 - 5.5 microns wide. Pileipellis: with thick-walled brown clamped hyphae. Clamps: present everywhere.	Xanthorrhoea, Corymbia calophylla, Allocasuarina fraseriana.	25/07/2017
Basidiodendron	*caesiocinereum*	NLB 1497	Characteristic features: (i) fully resupinate, difficult to separate from the wood; smoky grey entirely but with a pink tinge evident throughout, glistening under lens, completely dry; (iv) no reaction when KOH dropped onto it. Odour: none. Spore print: white. Micro: Basidia: hypobasidia longitudinally split into four. Cystidia: some cylindric contorted thin-walled cystidia with yellow patchy contents in KOH (look like chrysocystidia). Clamps: present on some hyphae and at base of basidia. Spores: broadly ellipsoid, thin/smooth-walled, with conspicuous apiculus, most with one oil guttule, size e.g.: 6.6 x 5.4; 6.9 x 5.1; 6.7 x 5.2; 7.5 x 5.6; 6.5 x 5.3; 6.9 x 4.6 microns.	Banksia sp.	20/06/2017
Basidiodendron	*caesiocinereum*	NLB 1527	Characteristic features: (i) fully resupinate, firmly attached fruitbody spreading over large area of the Banksia wood (e.g. 20 x 10 cm or more); (ii) very thin, pale grey, waxy smooth appearance but minutely glistening under hand lens; margin undifferentiated and quite abrupt. Odour: none. Spore print: white. Micro: Basidia: hypobasidia longitudinally split into four, ellipsoid/pyriform, appear to be densely finely punctate in KOH but in Melzers they appear smooth-walled, size e.g. 11.8 x 8.9 microns. Gloeocystidia: at least some cylindric when young, mostly later contorted, smooth/thin-walled with yellow patchy contents in KOH even more conspicuously so in Melzers, size e.g. 55 x 5.9; 32 x 8.4 microns. Clamps: could not confirm if present or not. Spores: broadly ellipsoid to subglobose, thin/smooth-walled, with large conspicuous apiculus, non-amyloid?, size e.g.: 6.5 x 6.0; 6.6 x 5.8; 6.5 x 4.8; 7.1 x 5.7; 6.5 x 4.9 microns.	Banksia sp.	04/07/2017
Botryobasidium	*sp.*	NLB 1535	Characteristic features: (i) fully resupinate, firmly attached, loosely matted, pale grey; (ii) margin not differentiated; no rhizomorphs. Micro: immature and also contaminated. Odour: none. Micro: Hyphal system: monomitic, no crystals, hyphae clamped - maybe the large clamped hyphae are rhizomorphic? Spores: none (immature). Cystidia: absent. Basidia small.		11/07/2017
Botryobasidium	*subcoronatum*	NLB 1546	Smoky grey, fully resupinate; thin open farinose surface; margin becoming gradually thinner and more open. Odour: none. Spore print: white. Micro: Spores: none seen as is immature. Hyphae of subhymenium: clamped. Hyphae of subiculum: clamped.	Banksia sp.	18/07/2017
Botryobasidium	*sp.*	NLB 1561	Very thin fully resupinate, pruinose, greyish, quite open in parts but denser in some other parts; margin simply thinning out; no rhizomorphs. Micro: Spores: not seen - (the spores from a spore print on slide were in a small patch and probably from a contaminant fungus that was also growing on the same piece of wood). Basidia: compact/squat, lightbulb shape, not clamped; only one mature basidium seen - 6-spored. Cystidia: absent. Clamps: absent. Hyphae of subhymenium/ subiculum: monomitic; septate not clamped, quite broad (6-7 microns wide), branching at right angles.	Banksia sp.	25/07/2017
Botryobasidium	*subcoronatum*	NLB 1572	Fully resupinate, firmly attached (but cleanly removed with a blade); when young appears pale grey and openly finely farinose, later becoming thicker, more contiguous, softer, and whiter (then appearing like snow-covered ground). Odour: none. Spore print: white. Micro: Hyphae: monomitic. All hyphae are clamped, including subhymenial hyphae. No crystals present. Spores: fusoid. Cystidia: absent. Basidia: clamped.	Planted eucalypts.	01/08/2017
Byssomerulius	*hirtellus*	NLB 1521	Characteristic features: (i) small patches firmly attached, fully resupinate; (ii) pale pink to pale orange folded merulioid hymenium with a waxy-gelatinous texture; (iii) white	Banksia sp.	04/07/2017

Genus	*Species*	Collection No.	Descriptive Notes	*Plants*	Date
			appressed matted mycelial margin; (iv) no rhizomorphs; (v) subiculum a layer (compared to the overlying hymenium) comprised of matted white mycelium. Micro: Subiculum: not gelatinised, of septate non-clamped narrow hyaline hyphae, thin-walled to slightly thick-walled, some with adhering small encrustations. Subhymenium and hymenium: appear to be completely gelatinised do no structure are discernible, with a yellow (in KOH) extracellular? pigment. Cystidia: seem to be absent in many parts but present in others, arising deep in the subhymenium or lower, projecting, narrowly cylindric (only 2-3 microns wide) or sometimes widening towards the obtuse apex, thin/smooth-walled, non-clamped. Spores: none seen (specimens immature?). Hyphal system: monomitic.		
Ceriporia	*tarda*	NLB 1510	Characteristic features: resupinate pored fungus, with pinkish-white with red stained areas; KOH dropped onto surface instantly turns red. Odour: none.	Allocasuarina fraseriana.	27/06/2017
Ceriporia	*sp.*	NLB 1545	Resupinate small patches (up to 8 mm wide); with angular pores (3-4 per mm), fringed at the mouth; white then pale brownish; margin appressed white mycelial. Odour: none. Spore print: white. Micro: Hyphal system: Monomitic. Mostly immature. Spores: small allantoid, smooth/thin walled, not amyloid, e.g. 3.2 x 1.5; 3.4 x 2 microns. Basidia: small, clavate, clampless, e.g. 10 x 4 microns. Cystidia: Cystidia at pore mouths: hyphoid-hyaline cylindric, smooth/thin-walled, e.g. 50 x 3 microns. Rhizomorphs: absent. Clamps: absent. Hyphae of subhymenium: not examined. Hyphae of subiculum: not examined.	Banksia sp.	18/07/2017
Clavulina	*coralloides*	NLB 1520	Characteristic features: (i) apices of branches richly divided into multiple fine sharply tapering concolorous branches; (ii) small delicate size of fruitbodies - usually only up to 35 mm tall, with only 1 to 3 dominant and vertical lower branches; (iii) colours usually quite pale e.g. cream to pale pinkish; (iv) basal mycelium whitish, not copious or rhizomorphic. Odour: none. Spore print: pale cream. Micro: Spores subglobose to broad ovoid, amyloid, smooth/thin-walled, small apiculus, e.g. 7.8 x 7.1; 7.2 x 6.6; 6.7 x 6.1; 7.9 x 7.1 microns.	Allocasuarina fraseriana.	04/07/2017
Clitocybe	*brunneoceracea*	NLB 1576	Characteristic features: (i) odour not chlorine or soapy (more oily); (ii) very crowded and shallow lamellae; (iii) strongly hygrophanous pileus; (iv) thin, white flesh, so the fruitbodies are light-weight and quite fragile when fresh; (v) stipe base without any hairs or rhizomorphs; (vi) fruitbodies dull greyish waxy-looking, drying white. Spore print: white. Micro: Spores: cylindric to narrow ellipsoid, smooth/thin-walled, size e.g. 6.7 x 31; 6.6 x 3.6; 6.5 x 3.5; 5.8 x 3.2 microns. Clamps: present but not on all septa.	Pinus pinaster.	11/08/2017
Coprinellus	*callinus*	NLB 1489	Characteristic features: (i) pilei cylindric, warm brown with dense covering of minute cystidia when in button stage; later becoming campanulate thin-fleshed, finally upturning with incomplete autodeliquescence; (ii) stipe cystidiate along entire length when in button stage. Spore print: purplish/date. Micro: Veil on pileus: absent. Pileocystidia: scattered, mainly thin-walled and collapsing but sometimes slightly thicker walled towards base and then some of those with brown encrusting pigment towards base, subulate-fusiform, tapering with obtuse apex and pedicel at base, e.g. 112 x 21 (base); 103 x 17; 52 x 13; 75 x 15; 86 x 25; 77 x 26 microns. Pileipellis: a hymeniderm of pyriform to sphaeropedunculate terminals (e.g. 28.8 x 15.7; 21.2 x 18.7; 31 x 17; microns, some with encrusting brown pigment. Pleurocystidia: none seen - presumably absent. Cheilocystidia: crowded, ellipsoid, ovoid, subglobose, sphaeropedunculate, pyriform, vesiculose, size e.g. 38.6 x 30.9; 41 x 28; 26 x 15; 37.5 x 25.9; 40 x 16; 34 x 25; 17 x 12; 53 x 34; 42 x 21 microns. All thin-walled (some appear slightly thickened) collapsing; clamped at base which is often a cylindric pedicel up to 10 x 3.5 microns attached to a similar width (or less often swollen) hypha. Very rare thin-walled lageniform to subulate-fusoid cystidia (e.g. 54 x 18 at base; 78 x 20 microns) resembling the pileocystidia / caulocystidia seen on gill edge (see images) - these may have come from the caulopellis? Spores: ellipsoid/ovoid in face, ellipsoid in side view, with a central (some slightly eccentric) germ pore, grey then brown, size e.g. 11 x 6.5; 10.1 x 6.2; 12.8 x 7.1; 9.3 x 6.2; 9.8 x 6.3 microns. Basidia: 4-spored, clamped, e.g. 26 x 8 microns. Caulocystidia: scattered, similar to the pileocystidia. Clamps: present on hymenial trama / subhymenium.		26/05/2017
Coprinellus	*truncorum*	NLB 1568	Micro: Spores: not markedly mitriform, size e.g. 9.1 x 5.8; 9.6 x 5.8; 8.2 x 5; 9 x 5.4; 8.5 x 5.4; 8.3 x 5.1; 10.2 x 5.8 (infrequent large spore); 9.1 x 6.1; 8.2 x 5.3 microns.	Eucalyptus gomphocephala.	01/08/2017
Coprinopsis	*flocculosus*	NLB 1487	Characteristic features: (i) pileus with veil of white loose (easily removed) soft scales and floccules; finely radially striate with age; (ii) stipe with cup-like rim at extreme base; seems to be without cystidia (even at apex). Spore print: black. Micro: Veil on pileus: mixture of variably-shaped cells (e.g. pyriform, ellipsoid, rhomboid) up to 100 microns wide, and septate (not constricted at the septa) non-clamped hyphae 2 - 7 microns wide. All elements hyaline, thin/smooth-walled (some slightly thickened). Some of the swollen elements form short chains. Pileipellis: a closely packed palisade of elongate-clavate terminals e.g. 20 x 9 microns. Gill edge: with a broad layer of cheilocystidia, these variable in shape e.g. pyriform, vesiculose, fusoid, clavate, size e.g. 34 x 15; 54 x 17; 60 x 50 microns. Pleurocystidia: scattered, vesiculose, ellipsoid, volumous and generally larger than the cheilocystidia, e.g. 66 x 36; 100 x 60 microns. Spores: ellipsoid in face and side view, with an eccentric germ pore, size e.g. 14.1 x 9; 15.5 x 9.4; 12.9 x 7.5; 13.3 x 8.4; 13.5 x 8.3 microns. Basidia: 4-spored. Cup-like rim at base of stipe: similar to the veil on pileus - composed of similar variably-shaped swollen elements (e.g. pyriform, ellipsoid, vesiculose), and scattered septate (not constricted at the septa) non-clamped hyphae 2 - 10 microns wide.		26/05/2017
Corticium	*sp.*	NLB 1531	Characteristic features: (i) smooth, cream, firmly attached, fully resupinate; (ii) no rhizomorphs; (iii) margin abrupt, undifferentiated; (iv) numerous brown exudate droplets on surface; (v) KOH on hymenium - no reaction at first then slowly turns hymenium brown. Odour; none. Spore print: white (with pink tinge). Micro: Hyphal system: monomitic. Spores: ellipsoid, smooth/thin-walled, pale amyloid?, very small (e.g. 3.1 x 1.9; 3.2 x 1.7; 3.4 x 2.1; 3.3 x 2 microns). Cystidia: absent. Subhymenium: hyaline narrow hyphae. Basidia: clamped.	Allocasuarina fraseriana.	11/07/2017
Cortinarius	*ochraceofulvus*	NLB 1529	Characteristic features: (i) golden pileus often pock-marked by insects, hint of purplish tinge on gills when young. This collection has particularly long stipes due to emergence from deep leaf and sheoak needle litter. Odour: none. Spore print: rusty brown. Micro: Spore size: e.g. 10.8 x 5.2; 9.9 x 5; 9.9 x 5.2; 10.7 x 5.1; 10.1 x 4.8 microns.	Allocasuarina fraseriana, Eucalyptus gomphocephala.	11/07/2017
Dendrothele	*cf. acerina*	NLB 1570	Fully resupinate pale cream to white, smooth, small patches firmly attached on the bark. Odour: none. Spore print: white. Micro: Spores: broad ellipsoid to ovoid, not asymmetrical in side view, thin/smooth-walled, with prominent hyaline apiculus up to 0.7 microns long, non-amyloid and glassy in Melzers, size 9.2-11.4 x 7.3-8.9-(9) microns; Medium: = 10.3 x 8.1. Basidia: none seen. Cystidia: none seen. Clamps: none seen.	Eucalyptus gomphocephala.	01/08/2017
Galerina	*pumila*	NLB 1564	Odour: none. Spore print: rusty brown.		25/07/2017
Ganoderma	*australe*	NLB 1548	Current year's pore surface pale pinkish-brown (near Methuen 6B4 to 6C4), instantly and permanently bruising dark brown, 4 - 5 pores per mm. Odour: none. Spore print: rusty brown. Micro: Spores: ovoid, asymmetrical in side view, finely ornamented, with hyaline mucronate perisporium, brown in Melzers, size (incl. perisporium) 12.2 x 6.8; 13.1 x 6.4; 12.7 x 6.6; 13.1 x 7.1 microns.	Allocasuarina fraseriana.	18/07/2017
Genus	*sp.*	NLB 1512	Characteristic features: (i) pulverulent cottony snow-like mould with areas coloured rose pink (near Methuen 11B4). Immature mycelium seems to be dull greyish-olive. Odour: none.	Eucalyptus marginata.	27/06/2017
Genus	*sp.*	NLB 1522	A bright orange gelatinous-waxy growth over the peridioles of Cyathus olla. Odour: none. Micro: Spores: produced in very dense radially arranged masses surrounding a core of basal hyphae, arising directly on short hyaline smooth/thin-walled hyphae delimited by a non-constricted septum. Most spores long narrow fusiform (less often cylindric) with symmetrical slightly tapered or obtuse ends. Most spores with 3 to 5 obscure septa. Size of most spores, e.g. 104 x 3.1; 89 x 4.3; 120 x 3.8; 81 x 4.3 microns. Less abundant shorter but similar-shaped spores (e.g. 55 x 3.9 microns) also present. Also, some very short spores present, including some very small ellipsoid spores (under 3 or 4 microns long). Most spores unbent, but some are sinuous or vermiform. Smooth/thin-walled. Cytoplasm finely grainy and with an orange tinge evident in KOH.		04/07/2017
Genus	*sp.*	NLB 1558	Unknown ascomycete with characteristic features: (i) yellow fruitbodies less than 0.5 mm tall; (ii) young stage appears as a densely hirsute cushion; later stage develops a short reddish stalk upon which sits an ellipsoid or cylindric head with a shaggy surface. Micro confirms this is a telemorphic ascomycete. Odour: none. Micro: Spores: very few seen as immature; cylindric, large, smooth, with oil droplets. Asci: mostly	Corymbia calophylla.	25/07/2017

Genus	*Species*	Collection No.	Descriptive Notes	*Plants*	Date
			immature; 8-spored, stalked, embedded in a sheath of abundant hyaline narrow hair-like paraphyses. Thick glassy wall with granular core. Note that some of them seem to have a papillate apex (narrow apical extension). No amyloidy seen. Outer layer of fruit body: ornamented (encrusted) septate hyphae, yellowish in KOH, orange-brown in Melzers. Orange encrusting material present at tips of asci and paraphyses.		
Haplotrichum	*sp. yellow-purple*	NLB 1566	Fully resupinate yellow (near Methuen 3A6 to 3B6) open farinose to granular growth. Drying to a more ochre colour. Odour: none. Micro: Conidia: usually ellipsoid if with two truncate apiculi thereby appearing limoniform, or often ovoid if with only one apiculus; a few conidia have up to four apiculi; with smooth wall thickened up to 1.5 microns wide; in KOH or water golden to paler with finely granular cytoplasm; size e.g. 19.5 x 13.2; 19.3 x 11.2; 17.9 x 13.1; 17.9 x 12.8; 17.7 x 10.9; 18.6 x10.8 microns. Conidia are borne on large truncate attachment points arranged in small numbers (up to about six) at and near the unswollen end of otherwise undifferentiated hyphae. Hyphae: septate, no clamps, 5 - 10 microns wide. This is a different species of Haplothrichium to NLB 1162.	Dryandra sessilis.	25/07/2017
Heterorepetobasidium	*sp.*	NLB 1577	Characteristic features: (i) fully resupinate, firmly attached, with undifferentiated appressed margin; (ii) surface uniformly pale pinkish brown (near Methuen 6B3); under hand lens appears soft finely felty forming minute rounded tubercules densely arranged; (iii) surface bruising instantly dark brown; but 3% KOH not causing any colour change. Odour: none. Spore print: white (poor print?) Micro: Hyphal system: monomitic. Spores: broad ellipsoid to ovoid, thin/smooth-walled, small apiculus, non-amyloid; size e.g. 4.7 x 3.5; 5.2 x 3.7; 4.7 x 3.6; 5 x 3.7; 5.1 x 3.4; 5 x 3.5; 5 x 3.8, 4.8 x 3.8 microns. Basidia: repetitive with sub-basidial central stalk and multiple upward-angled basidial remnants symmetrically arranged on each side of the stalk; apical basidium may be obpyriform at least when immature, may be clavate later, longitudinally septate when mature, up to 10 microns long; hyaline. Gloeocystidia: cylindric or sinuous, size e.g. 43 x 4 microns, not projecting beyond the hymenium and mainly situated lower than the hyaline cystidia; abundant; golden in water, KOH and in Melzers; size e.g. 26.3 x 3.8; 24.9 x 3.2; 30.5 x 4.2; 26 x 3.7; 23.2 x 3 microns. Hyaline cystidia: cylindric or sinuous, size similar to gloeocystidia, hyaline, thin/smooth-walled with obtuse, mucronate or constricted apex, sometimes projecting beyond the hymenium and mainly situated closer to the surface than the gloeocystidia; abundant. Hair-like projections: hyaline, up to 60 microns long, emerging from the apex or near the apex of some repetitive basidia and projecting well beyond the hymenium, not abundant. Base up to 5 microns wide, sometimes almost cylindric but mostly various-shaped and gnarled, sometimes quite knobbly. Hair-like part 0.5 - 1 micron wide sometimes septate, unbranched. Hyphae of subhymenium: very narrow subicular layer, with hyaline thin/smooth-walled compacted hyphae which individually are not easily discernible. Subiculum: partly gelatinised hyaline/glassy thick-walled, non-clamped hyphae, 2 - 2.5 microns wide. Clamps: none seen (but very difficult to discern any septa or any intact hyphae in this collection).	Allocasuarina fraseriana.	11/08/2017
Hypocrea	*citrina*	NLB 1507	Characteristic features: (i) bright yellow resupinate patches with associated white rhizomorphic mycelial threads extending beyond the margin; (ii) surface with darker circles (perithecia) embedded (not raised). Odour: none.	Allocasuarina fraseriana.	27/06/2017
Hypomyces	*sp.*	NLB 1539	Characteristic features: (i) occurring on aborted fruit bodies of Coltricia perennis as a bright yellow and white appressed-felty mould covering the entire surface; (ii) the mould bruises bright orange. Same parasite has been seen on Coltricia previously on the other side of Magpie Path (e.g. during event 75). Micro: Spores golden in KOH, globose to ovoid, thick-walled, some with truncate 'apiculus'. Also from the whitish area at the top of the Coltricia fruit bodies: Smaller hyaline cylindric conidia on acuminate septate phialides.	Eucalyptus gomphocephala.	18/07/2017
Hypoxylon	*cf. bovei*	NLB 1533	Characteristic features: occurring in crowded colonies; sessile rotund black fruitbodies ca up to 0.5 mm diam.; with projecting papillate central ostiole. Odour: none.	Allocasuarina fraseriana.	11/07/2017
Inocybaceae	*cf. clypeata*	NLB 1574	Characteristic features: (i) no odour; (ii) coarsely cystidiate gill edge; (iii) gills distinctly yellowish; (iv) stipe white, densely pruinose in upper half, longitudinally silky-fibrillose below; (v) pileus with appressed glistening fine radial fibrils. Spore print: dull brown. Micro: Spores: ellipsoid in face view, subamygdaliform in side view; smooth walled, size: 10.1 - 11.6 x 6.1 - 7.1 microns. Basidia: 4-spored. Cheilocystidia: ventricose, lageniform, thick-walled, amid crowded palisade of paracystidia, abundant forming sterile gill edge. Pleurocystidia: similar to cheilocystidia, but not abundant. Clamps: present.	Pinus pinaster (nearest eucalypt ca 5-10 m distant - tuart tree).	11/08/2017
Inocybe	*isabellina*	NLB 1491	Characteristic features: (i) finely radially fibrillose pileus; (ii) lamellae greyish when young (not yellowish); (iii) stipe white, with soft fibrils (not pruinose); (iv) spermatic odour (not strongly so). Micro: Checks out OK as Inocybe isabellina (cystidia, basidia) except the spores seem narrower/longer than in NLB 909 which was collected previously from the same spot. Spores e.g. 12.2 x 5.2; 12.3 x 5.1; 10.2 x 4.8; 10.7 x 5.4; 10 x 5; 11.1 x 5.3 microns.	Eucalyptus gomphocephala, Corymbia calophylla, Acacia sp., Dryandra sessilis.	26/05/2017
Inocybe	*violaceocaulis*	NLB 1494	Characteristic features: (I) pastel purplish stipe when in button stage later pileus brown; (ii) size is only up to: pileus 25 mm diam.; stipe 35 x 5 mm; (ii) strongly spermatic odour. Spore print: dull brown.	Eucalyptus sp.	01/06/2017
Inocybe	*rufuloides*	NLB 1573	Characteristic features: (i) conico-campanulate dull brown pileus densely covered with finely appressed radial fibrils; (ii) pruinose upper stipe; (iii) spermatic odour. Spore print: dull brown.	Pinus pinaster.	11/08/2017
Lasiosphaeria	*ovina*	NLB 1506		Allocasuarina fraseriana.	27/06/2017
Lepiota	*booloola*	NLB 1551	Note reddening of the stipe tissue when cut, and KOH turns lamellae reddish. Odour: none. Spore print: white. Micro: Spores: strongly dextrinoid, ellipsoid, size e.g. 6.7 x 4.1; 6.9 x 4.1; 6.8 x 3.9; 6.2 x 3.6 microns. Basidia: not examined. Cheilocystidia: ventricose, abundant forming sterile gill edge, e.g. 59 x 11.3; 44 x 10.7 microns. Pleurocystidia: absent. Clamps: absent.	Dryandra sessilis, Allocasuarina fraseriana.	25/07/2017
Lepiota	*exocarpi*	NLB 1552	Micro: Spores strongly dextrinoid, spurred (i.e. with lateral apiculus), size e.g. 7.6 x 3.8; 7.4 x 4.1; 7.8 x 4.2; 7.4 x 3.9; 8.3 x 3.9; 7.3 x 4.4 microns. Cheilocystidia: cylindric, some slightly ventricose, abundant forming sterile gill edge, e.g. 26 x 4.8 microns. Pleurocystidia absent.	Corymbia calophylla, Eucalyptus gomphocephala.	25/07/2017
Lepista	*sordida*	NLB 1575	Characteristic features: (i) short white stipe often with white rhizomorphs; (ii) flat convex caramel brown rather than mottled smooth pileus; (iii) crowded pale cream lamellae. Odour: fresh vegetable. Spore print: orange-brown (near 5B5). Micro: Spores: ellipsoid, slightly thick-walled, non-amyloid, size e.g. 6.3 x 3.9; 6 x 4.3; 6 x 4.5 microns.	Pinus pinaster.	11/08/2017
Leucogyrophana	*pseudomollusca*	NLB 1516	Characteristic features: (i) bright orange, soft merulioid, almost Tremella-like, convoluted hymenium, with a broad margin of white mycelium. When oriented vertically the hymenium can be irpicoid (curtain-like projections). Fruitbody is easily and cleanly removable from the substrate. Odour: none. Spore print: white.	Pinus sp.	27/06/2017
Leucogyrophana	*pseudomollusca*	NLB 1523	Bright orange merulioid (folded-convoluted) surface with whitish mycelial margin; gelatinous consistency. Odour: none. Spore print: white.	Allocasuarina fraseriana, Corymbia calophylla.	04/07/2017
Melanoleuca	*sp.*	NLB 1519	Characteristic features: (i) pileus up to 40 mm diam., almost black when young fading to grey with age, smooth becoming minutely velutinous (under hand lens), campanulate from young stage, maintaining a distinct umbo at maturity; margin strongly incurved after probably inrolled in button stage (not observed); (ii) stipe up to 40 x 7 mm; longitudinally streaked due to mainly innate fibrils; (iii) lamellae white then cream, not bruising, adnexed often with notch, edge concolorous with face and not noticeably cystidiate. Odour: sweet oily. Spore print: white. Micro: Spores ellipsoid, strongly amyloid, thin-walled, verrucose with conspicuous well-delimited suprahilar plage, size e.g. 8.6 x 6.1; 9 x 6; 9.4 x 6.3; 9.2 x 5.7; 8.8 x 5.6 microns. Cheilocystidia cylindric to slightly tapering towards apex which mostly always has a cluster of narrow sharp crystals, hyaline, size e.g. 27 x 3.2; 35 x 2.8 microns.		04/07/2017
Melanoleuca	*cognata group*	NLB 1565	Odour: grassy. Spore print: pale cream. Same species of Melanoleuca as NLB 1485 which was collected in 2016 and had mostly paler mature pilei.		25/07/2017
Mollisia	*sp.*	NLB 1538	Characteristic features: (i) sessile discs up to 1 mm diam., circular at first, later often irregular in shape; outside surface black; inside (disc) surface variable among different maturity ascocarps - some yellowish-cream, some black; rim white but not fimbriate. Odour: none. Micro: Asci: fusoid, 8-spored, undifferentiated base, tip faintly blue in Melzers, size e.g. 56 x 6.3; 60 x 5; 45 x 5.6 microns. Paraphyses: narrow cylindric, hyaline, with obtuse unbent apex, not or barely projecting, not septate, e.g. 1.5 microns wide. Spores: cylindric, sometimes slightly broader at one end or in middle, not bent, smooth/thin-walled, size e.g. 6.6 x 1.8; 7.6 x 2.2; 7.3 x 2; 8 x 2.2; 6.9 x1.9 microns.	Allocasuarina fraseriana.	18/07/2017

Genus	*Species*	Collection No.	Descriptive Notes	*Plants*	Date
			Medullary excipulum: not examined. Ectal excipulum: tight palisade of dark brown clavate thick-walled terminals (some thin-walled and hyaline). Ascocarp margin: not examined.		
Mycena	*sp.*	NLB 1550	Characteristic features: (i) fruitbodies in caespitose clumps with bases firmly attached to wood; (ii) pileus dark grey, paler at margin with blue-green tint clearly evident throughout; surface smooth, greasy; (iii) stipe pale grey with black pruinosity along entire length but those becoming denser towards the stipe apex; base sometimes with long (to 1 mm) silky white hairs; (iv) lamellae pale grey, with very fine fimbriate edge. Odour: none. Spore print: white. Micro: Spores: broad ellipsoid or ovoid, amyloid (strongly so at the apiculus), size e.g. 7.4 x 4.9; 7.3 x 5.5; 7.5 x 5.4; 6.8 x 4.8 microns. Pleurocystidia: two types?: (a) fusoid-ventricose, thick-walled towards apex, hyaline, long narrow base (sometimes with a side small projection or two) arising from the non-clamped hyphae of the hymenial trama; abundant, size e.g. 97 x 17; 125 x 20; 124 x 23; 62 x 13 microns; (b) smaller clavate forms. Cheilocystidia: similar to the pleurocystidia fusoid-ventricose but some less narrowed at apex. Pileipellis: a cutis with repent clavate to uninflated terminals with grey-brown resinous plasmatic pigment, no nodulose hyphae present, not gelatinised. Hymenial tramal hyphae: clamped (but not at all septa); in Melzers trama is only faintly dextrinoid. Stipe hyphae: septate, clamped, not nodulose. Caulocystidia: cystidia in clusters, with resinous grey-brown (mounted in water) plasmatic pigment, fusoid-ventricose, lageniform usually with blunter apex than do the hymenial cystidia.	Allocasuarina fraseriana.	25/07/2017
Mycenastrum	*corium*	NLB 1495	Characteristic features: (i) gleba dark olive-brown; (ii) peridium with remnants of the thin greyish outer layer over the reddish-brown thicker peridium. Odour: none.	Eucalyptus dunnii.	01/06/2017
Odonticium	*septocystidia*	NLB 1513	Characteristic features: (i) fully resupinate dull yellowish-greenish (near Munsell 5Y6/6; Methuen 4B4 to 4C4); dry; surface with minute fimbriate tufts sometimes forming short aculeae; margin narrow white fimbriate zone with some narrow white rhizomorphs extending outwards. Odour: none. Spore print: white. Micro: Spores: allantoid, smooth/thin-walled, pale amyloid or not? e.g. 5.3 x 2.6; 5.3 x 2.3; 5.0 x 2.1 microns. Basidia: cylindric, hyaline, 4-spored, e.g. 18.2 x 4.8 microns. Cystidia (1): abundant but scattered, projecting, multi-septate (4 - 6 septa), non-clamped, mostly thin-walled but some thick-walled, hyaline with adhering small grainy crystalline material which is easily dislodged upon mounting under a microscope slide. Size e.g. 140 x 13 microns. Hyphoid-cylindric, with obtuse or sometimes narrowed apex, often with constricted septa, long base narrow hypha-width and often with a short side branch or side entry near the base and arising as extension of subicular hyphae.Cystidia (2): infrequent small ventricose to clavate thin-walled hyaline cystidia with apical aculeate mucro, barely projecting. Possibly these are monosporic basidia but they do appear to be larger than typical basidia. Hyphal system: monomitic. Subhymenium: of loosely arranged vertical and candelabra-like non-gelatinised non-clamped thin-walled hyphae similar to those of the subiculum. Subiculum: of septate non-clamped hyphae 3 - 8 microns wide, thin-walled to slightly thick-walled, some with fine adhering encrustations.	Allocasuarina fraseriana.	27/06/2017
Odonticium	*septocystidia*	NLB 1560	Characteristic features: (i) minute tufts of projections are visible under hand lens; (ii) note the presence in this collection of a few substantial hyphal cords. Microscopically identifiable as Odonticium septocystidia by: (i) long multi-septate hyphoid cystidia some with loose encrustations; (ii) non-clamped; (iii) monomitic; (iv) allantoid spores. Same species as NLB 1513 also collected at Kings Park earlier this year.	Banksia sp.	25/07/2017
Orbilia	*epipora*	NLB 1536	Characteristic features: (i) discs under 0.5 mm diam., sessile saucer-shaped when young, later may become wavy in top view; hymenium smooth, semi-translucent pale bluish-grey; margin very finely wavy (no hairs present); outer surface same as inner surface. Odour: none. Micro: Asci: cylindric, tending to be slightly to greatly narrowed in lower part, with strongly forked base lacking any crozier, hyaline, tips not blue in Melzers, size e.g. 24 x 3.2 microns. Paraphyses: narrow cylindric with swollen apex (ellipsoid to globose), hyaline, with several obscure septa, barely projecting beyond the asci and not immersed in an epithecium although some apices do seem to have a narrow coating of resinous material; size e.g. 28 x 2.8 (head) x 1.9 (stalk) microns. Spores: minute, cylindric to narrow-fusoid (i.e. slightly widened in middle usually on both sides), not curved or bent, smooth/thin-walled, not septate, glassy, size e.g. 4.8 x 1; 4.6 x 0.8 microns. Ectal excipulum: broad layer of swollen hyaline cells up to 20 microns wide. Ascocarp margin: no hairs, just some glassy cylindric thin-walled terminals with undifferentiated apices.	Allocasuarina fraseriana.	11/07/2017
Orbilia	*cf. xanthostigma*	NLB 1567	Sessile orange-yellow saucers up to 1 mm in diameter; margin smooth (no hairs) and even (no flaps or undulations); colour is uniform over entire ascocarp and does not change with age. Odour: none. Micro: Asci: cylindric, 8-spored, amyloid reaction evident when place tissue in Melzers on slide, size e.g. 30 x 2.8; 31 x 3.7 microns. Paraphyses: with barely swollen to sometimes very swollen unbent apex, not or barely projecting, obscurely septate., e.g. 30 x 1.5 (stalk), 2.4 (head) microns.	Dryandra sessilis.	25/07/2017
Panaeolus	*papilionaceus*	NLB 1492	Characteristic features: (i) lamellae mottled; (ii) pileus dome-shaped, greyish-brown with conspicuous fissures, with fringe of veil remnants adhering to the margin; (iii) stipe tall, narrow, fragile; becoming black spotted especially near apex due to spores (sometimes a broken annular zone is also stained black). Micro: Cheilocystidia: abundant (sterile gill edge), hyaline, cylindric, digitate (apex slightly widened). Pleurocystidia: none seen. Spores: ellipsoid with truncate central germ pore, size e.g. 16.4 x 9.7; 17.6 x 9.9; 17.1 x 9.6; 18.5 x 11.3 microns. Basidia: 4-spored (rare 2-spored seen), cylindric, e.g. 24.3 x 12.7 microns. Clamps: present.		26/05/2017
Panaeolus	*papilionaceus*	NLB 1553	Characteristic features: (i) mottled dark grey/black lamellae; (ii) young pileus margin with pale appendiculate veil remnants; (iii) stipe narrow-tall, longitudinally ribbed, finely pruinose; (iv) older fruitbodies do not deliquesce. Odour: none. Spore print: black.		25/07/2017
Parasola	*schroeteri*	NLB 1488	Characteristic features: (i) pilei smooth (no cystidia?), brown persistently all the way through to maturity; becoming applanate and parasol-like (deeply radially furrowed, thin-fleshed and with slightly depressed paler centre); (ii) lamellae brown in face view until mature; (iii) stipe often with tufts of strigose or tomentose whitish hairs. Spore print: black. Micro: Veil on pileus: absent. Pileocystidia: absent. Pileipellis: a hymeniderm of clavate terminals. Cheilocystidia: abundant (sterile gill edge), hyaline (no oily inclusions), variable in shape size e.g. vesiculose, lageniform, cylindric, ventricose, size e.g. 110 x 40; 84 x 45, 53 x 23 microns. Pleurocystidia: scattered, vesiculose, cylindric, slender ovoid, some with short pedicel, size e.g. 88 x 53; 115 x 42 microns. Spores: lentiform-triangular to obscurely 6-sided angular in face view, broad ellipsoid in side view, spore apex mostly rounded but infrequently with slight mucro, germ pore slightly eccentric, brown then dark brown, size e.g. face: 17.2 x 14.9; 15.3 x 13.3; 17.8 x 13.2 microns; side: 16.1 x 11.6 microns. Basidia: 4-spored. Caulocystidia: absent.		26/05/2017
Peniophora	*sp.*	NLB 1542	Fully resupinate, firmly attached, pale dusky grey, finely felty, patchy growth pattern; no rhizomorphs; margin distinctly darker grey-brown than the interior. Odour: none. Micro: Hyphal system: monomitic. Spores: none seen as is sterile. Basidia: not seen. Metuloids with short thick-walled pedicel and heavily encrusted conical head, seem to be only in one layer at the hymenium, size e.g. total - 37 x 7.8; 34 x 6.4 microns; stalk 8 x 4.5 - head 23 x 8.5 microns. Gloeocystidia: fusoid with subacuminate apex, thick-walled toward base, e.g. 55 x 9 microns. Rhizomorphs: none. Clamps: present. Hyphae of subhymenium: not examined. Hyphae of subiculum: not examined.		18/07/2017
Phlebia	*sp.*	NLB 1505	Characteristic features: (i) fully resupinate, firmly attached, no rhizomorphs; (ii) texture somewhat wax-like; margin undifferentiated (just a narrow zone of grey waxy subiculum evident); overall colour khaki - a dull version of Munsell 2.5Y 6/4 or near Methuen 5D4; surface with abundant round-topped tubercules of variable sizes and not spaced regularly. Odour: none. Spore print: white. Micro: Hyphal system: monomitic, clamps present, all hyphae hyaline. Subiculum: not gelatinised, of clamped hyaline hyphae 3-5 microns wide, smooth/thin to thick-walled, septa not constricted. Hyphae not swelling in KOH. Subhymenium: gelatinised. Hymenium: no cystidia, all tissues hyaline. Basidia: cylindric to urniform, densely packed, 4-spored, e.g. 19 x 5.1; 21 x 5.8 microns. Cystidia absent. Melzers: hymenium unchanged; subhymenium pale red-brown (see image). Spores: ellipsoid to oblong (not allantoid), smooth/thin-walled, non	Allocasuarina fraseriana.	27/06/2017

Genus	*Species*	Collection No.	Descriptive Notes	*Plants*	Date
			amyloid, e.g. 5.5 x 3.6; 5.2 x 3.5; 5.6 x 3.5 microns.		
Phlebia	*sp.*	NLB 1543	Fully resupinate, firmly attached, convoluted-merulioid; pale cream to darker in some parts; margin appressed white mycelial fringe; soft waxy texture when young/fresh. Odour: fresh. Spore print: white. Micro: Hyphal system: Monomitic. Spores: Small cylindric, smooth/thin-walled, not amyloid, small apiculus, e.g. 3.5 x 2.1; 3.6 x 1.8; 3.6 x 1.9; 3.4 x 1.9 microns. Basidia: small, narrow-clavate/cylindric. Cystidia: absent. Rhizomorphs: absent. Clamps: absent. Hyphae of subhymenium: gelatinised. Hyphae of subiculum: septate non-clamped hyaline smooth/ thin to thick walled, some with adhering small crystals and encrustations, 2 - 3.5 microns wide., loosely arranged.	Banksia sp.	18/07/2017
Phlebia	*sp.*	NLB 1547	Fully resupinate, firmly attached, dull bluish-grey, waxy obscurely translucent, densely and very minutely with a whitish cystidiate bloom (under hand lens), tuberculate (low irregular rounded bumps) in parts; margin not differentiated; no rhizomorphs. Odour: none. Spore print: cream (slight yellowish tinge). Micro: Spores: broad ellipsoid, hyaline with granular contents in KOH, pale blue in Melzers and no granules, thin/smooth-walled, large rather eccentrically placed apiculus; size e.g. 6.7 x 5.3; 7.1 x 5.2; 6.7 x 5.1; 6.5 x 5.4 microns. Basidia: clavate, 4-spored. Cystidia: absent. Clamps: absent? Hyphae of subhymenium: not examined. Hyphae of subiculum: not examined.	Allocasuarina fraseriana.	18/07/2017
Phlebiella	*gaspesica*	NLB 1508	Characteristic features: (i) small scattered patches fully resupinate, firmly attached, no rhizomorphs; (ii) surface smooth to rugulose, densely minutely glistening under lens; dull khaki-grey (near Munsell 10YR 6/3; Methuen 5B3); margin abrupt, undifferentiated. Odour: none. Spore print: white. Micro: Basidia: pleural, cylindric, 4-spored. Spores: fusoid non-amyloid. Clamps: present.	Eucalyptus marginata.	27/06/2017
Phlebiella	*gaspesica*	NLB 1559	Fully resupinated, firmly attached, patchy growths, thin; surface dry waxy appearance, smooth in parts but areas also with low rounded tubercules; minutely glistening (under lens); margin abrupt and without a mycelial fringe. Odour: none. Spore print: white. Micro: Hyphal system: Monomitic. Spores: narrow-fusoid, strongly asymmetrical in side view, hyaline, may be pale amyloid?, prominent apiculus, size e.g. 8.1 x 33; 7.4 x 3.1; 7.1 x 3.0; 7.1 x 3.6; 8.3 x 3.9 microns. Basidia: in tight palisade, cylindro-clavate, some with basal side extension and then pleural, size e.g. 18 x 5.2; 19 x 4.7 microns. Cystidia: absent, but some hyphoid projecting elements sometimes present including some branched. Clamps: present. Hyphae of subhymenium: narrow, hyaline or glassy, sinuous, 2-3 microns wide, clamped. Hyphae of subiculum: gelatinised.	Banksia sp.	25/07/2017
Piloderma	*byssinum*	NLB 1525	Characteristic features: (i) spreading growth with loosely mycelial and rhizomorphic areas at the perimeter forming into a densely matted smooth surface; pale yellow-olivaceous (near Munsell 5Y7/3; Methuen 3B3) with numerous adhering water globules; fruitbody is quite firmly attached. Odour: none. Micro: Hyphal system: monomitic, loosely interwoven, yellowish, heavily encrusted. Basidia: 4-spored, clavate, some encrusted. Clamps: absent. Spores: appear to be subglobose, smooth/thin-walled.	Banksia sp.	04/07/2017
Piloderma	*cf. byssinum*	NLB 1526	Characteristic features: (i) fully resupinate, firmly attached, dull whitish to pale greyish, minutely velutinous to farinaceous (under hand lens), margin appressed mycelial; (ii) note presence of rusty or ochre zones. Odour: none. Micro: Hyphal system: monomitic, loosely interwoven, hyaline, often encrusted with acerose crystals. Basidia: 4-spored, sphaeropedunculate. Clamps: absent. Spores: small, broad ellipsoid to globose, smooth/thin-walled, each with one oil guttule.	Banksia sp.	04/07/2017
Pluteus	*romellii*	NLB 1554	Characteristic features: (i) bright yellow stipe; (ii) lamellae bright yellow then maturing pale pink; (iii) contrasting dark brown pileus. Odour: none. Spore print: salmon.		25/07/2017
Propolis	*farinosa*	NLB 1557	Minute flat whitish to pale bluish pustules less than 1 mm wide; surface minutely glistening when viewed by hand lens. Odour: none. Micro: Asci: cylindric, with 8 spores, stalked, with club or barbed base, e.g. 101 x 17.3 microns. Paraphyses: hair-like, some branched, hyaline very abundant. Spores: cylindric or slightly curved, hyaline with granular contents in KOH, smooth thin to slightly thickened wall, aseptate, size e.g. 22 x 6.7; 19.7 x 5.8; 22 x 5.4; 21 x 5.5; 21.1 x 7.9; 22.2 x 8.2; 23.1 x 7.5 microns.	Banksia sp.	25/07/2017
Psathyrella	*sp.*	NLB 1490	Characteristic features: (i) pileus strongly hygrophanous; translucent-striate orange-brown when young; (ii) universal veil evanescent (white small patches when young); (iii) partial veil evanescent; (iv) stipe apex sparsely pruinose. Spore print: black.	Woodchips.	26/05/2017
Rhizochaete	*radicata*	NLB 1498	Characteristic features: (i) fully resupinate, easily and cleanly removable from the wood (subiculum is of loosely interwoven hyphae); (ii) surface dry, soft, smooth to waxy but with scattered flat tubercules, mustard yellow to ochre (some parts orange) with some pinkish tinges and concolorous margin; (iii) similar-coloured mycelial cords / rhizomorphs extending from margin, appressed on the wood; (iv) under hand lens surface is densely and minutely felty; (v) 3% KOH turns surface rapidly pink-red. Odour: none. Spore print: white. Micro: Hyphal system: monomitic. Subicular hyphae: quite loosely intertwined (not agglutinated or gelatinised), septate, hyaline hyphae but many are heavily encased with yellow (in water) crystals. Basidia: cylindric, 4-spored, and clampless. Cystidia: abundant projecting, thick-walled (at least towards base), slender tapering or gently fusoid lamprocystidia with upper half often encased with fine crystals, non-septate. Hyaline but the crystals reflect pink when out of focus. Clamps: absent everywhere, including in hymenium and in rhizomorphs. Spores: very small, oblong-ellipsoid, thin/smooth-walled, hyaline, non-reacting in Melzers Reagent. Rhizomorphs: comprised of two types of hyphae - (i) dominant hyaline, septate (not clamped) branching hyphae 4 - 9 microns wide, with parallel walls, sometimes with loosely adhering crystals; (ii) scattered yellowish-oily, rarely septate or branching hyphae 8 - 15 microns wide, also with parallel walls.	Pinus sp.	20/06/2017
Rhizopogon	*rubescens*	NLB 1537	Characteristic features: (i) when young and well submerged under litter the fruitbodies are pale whitish with conspicuous pink stains. However, when older and/or exposed they develop yellow tones; (ii) interior finely chambered, white becoming pale olive-yellowish after cut; peridium in section pink, about 0.5 mm thick=k bruising dark pink-reddish upon touch (in some specimens, but not in all). Odour: none. Micro: Spores: hyaline in KOH and in Melzers, cylindric, some appearing truncate but mostly not so, size e.g. 7.1 x 2.6; 6.4 x 2.4; 6.3 x 2.5; 6.5 x 2.3 microns. Peridium: reddish in KOH (see image), simple cutis (but need to re-check for skeletal hyphae in peridium). Clamps: not confirmed if present or absent.	Pinus pinaster.	11/07/2017
Rhodocollybia	*sp.*	NLB 1528	Two small rather dried out specimens of probable new species of Rhodocollybia. Same species as BOU 668, BOU 669 and NLB 1147. Odour: fragrant soapy.	Allocasuarina fraseriana.	11/07/2017
Tomentella	*sp.*	NLB 1534	Characteristic features: (i) easily removed soft dense matted-felt patches, purple-mauve in the field darkening after picked and transported in container, developing whitish bloom in parts; (ii) margin not differentiated, rather abrupt, and without any rhizomorphs; (iii) KOH instantly turns the hymenium black. Odour: none. Spore print: white? (Poor print only). Micro: Spores: slightly to markedly lobed in frontal view, globose to broadly ellipsoid in side view; echinulate (not bifurcated, and up to 1.5 microns tall); size e.g. 5.8 x 5.5; 7.4 x 6.2; 7.2 x 6.2; 6.3 x 5.2; 7.7 x 6.1 microns. Spores in 3% KOH: prominent large bluish globule, and the actual wall hyaline and only faintly visible. Spores in water: looks bluish but there is no blue globule. Spores in Melzers: bluish, without any globule, wall is easily visible. Cystidia: absent. Rhizomorphs: absent. Clamps: absent. Hyphae of subiculum and subhymenium: loosely arranged, clampless, unswollen at septa, blue in KOH and in water (a few hyphae appear more brownish than bluish), with densely encrusted some with thick walls, 3 - 5 microns wide. Basidia: bluish when young, hyaline collapsing when mature, slender clavate then cylindric, e.g. 40 x 7 microns, clampless.	Banksia sp.	11/07/2017
Tomentella	*sp.*	NLB 1540	Fully resupinate , firmly attached, dingy brownish-grey to becoming whitish-peppery, minutely matted-felty; no rhizomorphs, margin not differentiated. Spore print: brownish. Odour: none. Subiculum densely matted, darker brown than the hymenium. Some brown soft narrow card-like structures (< 0.2 mm wide) in some parts. Micro: Spores: lobed, spinose - narrow tapering spines not bifurcated, pale brown in KOH, size e.g. 9.2 x 8.4; 8.5 x 57.5; 7.7 x 5.9; 10.5 x 8.4; 10.2 x 7.3 microns. Basidia: cylindric, (at first clavate), clamped, 4-spotred, e.g. 44 x 10 microns. Cystidia: absent. Rhizomorphs: cords (less than 0.1 mm wide) present in some parts of the fruit body but not abundant - comprised of clamped thick-walled brown hyphae up to 5 microns wide, and a few non-clamped glassy hyphae. Clamps: present. Hyphae of subiculum: brown smooth walled clamped hyphae, much branched. Hyphae of subhymenium: short-celled brown and hyaline smooth-walled, clamped.	Allocasuarina fraseriana.	18/07/2017
Tomentella	*pilosa*	NLB 1541	Fully resupinate, easily removed, felty in parts but more hyphal and with some narrow cords appressed elsewhere; ochre to more cinnamon brown. Odour: none. Spore print: brownish. Micro: Spores: 3-lobed in frontal view, golden, non-uniform warts, e.g. 7 x	Allocasuarina fraseriana.	18/07/2017

Genus	*Species*	Collection No.	Descriptive Notes	*Plants*	Date
			6.9; 7.2 x 6.9; 7.4 x 7.2 microns. Basidia: not examined. Cystidia: pilosa - type - golden, capitate, clamped. Rhizomorphs: present, including some with capitate cystidia. Clamps: present. Hyphae of subiculum: not examined. Hyphae of subhymenium: not examined.		
Tomentella	*sp.*	NLB 1544	Resupinate, easily removed, mycelial, deep violet-bluish purple (near Methuen 18F5 to 19F5) developing whitish bloom, rhizomorphs absent (margin simply thins out.) Odour: none. Spore print: white (poor prints.) Dried specimens are very dark purple to almost black. Same species as NLB 1534.	Banksia sp.	18/07/2017
Tomentella	*sp.*	NLB 1562	When fresh greyish-purple tissue of this collection was mounted in KOH on a slide it immediately changed colour to blue-green. Micro: No clamps. Subiculum with some ornamented (encrusted darker blue) non-clamped hyphae.	Allocasuarina fraseriana.	25/07/2017
Trechispora	*farinacea*	NLB 1514	Characteristic features: (i) very thin fully resupinate, whitish to grey, surface minutely felty; margin not differentiated (just thinning out); no rhizomorphs. Surface seems to be covered in patches by white cottony cushions. Odour: none. Spore print: white. Micro: Spores: broad ellipsoid, densely punctate/spinose, may be faintly amyloid? size e.g. 3.1 x 2.6; 2.9 x 2.5 microns. Basidia: 4-spored. Subiculum: none developed.	Allocasuarina fraseriana.	27/06/2017
Tricholomopsis	*rutilans*	NLB 1517	Characteristic features: (i) large robust fruitbodies - pileus up to 140 mm diam.; stipe up to 120 x 30 mm, attached to buried rotting wood; (ii) pileus with purplish-reddish fibrillose scales some of which overhang the margin; (iii) stipe yellowish with dense covering of fine scales similar in colour to those on the pileus; (iv) context yellowish dulling slightly after cut, and turning brown after KOH applied. Odour: fruity. Spore print: white. Micro: Spores broad ellipsoid, e.g. 7.1 x 4.8; 6.9 x 5.3; 7.1 x 5.8 microns.	Banksia sp.	03/07/2017
Tubulicrinis	*calothrix*	NLB 1509	Characteristic features: fully resupinate, very thin, appearing soft-powdery-felty under hand lens, ash grey entirely with undifferentiated margin. Odour: none.	Eucalyptus marginata.	27/06/2017
Tubulicrinis	*calothrix*	NLB 1515	Characteristic features: (i) very thin, ash grey, minutely felty (under hand lens), no differentiated margin or rhizomorphs. Odour: none. Micro: Spores: narrow cylindric, slightly amyloid? e.g. 5.3 x 1.6; 6.3 x 1.6; 7.8 x 1.3; 5.1 x 1.7 microns. Cystidia: projecting, cylindric, hyaline, thick-walled except at apex where lumen is often asymmetrical but also some appear to be symmetrical. Crystals at apex.	Allocasuarina fraseriana.	27/06/2017
Tubulicrinis	*calothrix*	NLB 1563	Fully resupinate pale grey; finely pruinose (under lens), tubercular in parts; no rhizomorphs. Odour: none. Spore print: white.	Allocasuarina fraseriana.	25/07/2017
Uromycladium	*tepperianum*	NLB 1569	Forming typical galls on wattles and associated with diseased and dead plants. No telia or pycnia seen. Odour: acrid.	Acacia sp.	01/08/2017
Xenasma	*rimicola*	NLB 1532	Characteristic features: (i) fully resupinate, very thin, firmly attached spreading growth on inside of fallen marri bark; (ii) surface dull dark bluish-grey, semi-translucent, smooth to the eye but densely glistening (cystidiate) under hand lens: (iii) margin undifferentiated; rhizomorphs absent. Odour: none. KOH: seems to eat it away and darken it a bit. Spore print: white. Micro: Spores: ellipsoid to ovoid, asymmetrical in side view; smooth in KOH, verruculose in Melzers - low rounded warts up to 0.2 microns tall; thin-walled to slightly thick-walled; size e.g. 8.1 x 5.3; 7 x 5; 8.1 x 5.7; 8.4 x 5.8; 7.5 x 5; 8.5 x 5.8; 7.8 x 5.2; 9 x 6.1 (biggest); 7.6 x 5.1; 8.5 x 5.4; 8.1 x 5.8; 8.2 x 5.2 microns. Cystidia: abundant, projecting, hyaline; size e.g. 80 x 9; 64 x 8.7; 74 x 8.2; 73 x 9; 50 x 6; 65 x 10.7 microns; slender, slightly tapering towards the obtuse apex which has no crystals but sometimes may have an adhering droplet; becoming thick-walled (up to 2 microns thick) towards the often ornate (usually at least with 2 protrusions only one of which is connected to an underlying hypha). Collapsed cystidia sometimes remain only as the thick-walled ornate bases embedded in the older subiculum that has become gelatinised. Leptocystidia: few scattered singly (none seen in some preps), up to 30 microns long, narrow cylindric with swollen or subcapitate apex, thin-walled, hyaline. Basidia: cylindric but usually depressed at the middle, pleurobasidial (with 1 side-branch and a lateral attachment); glassy then hyaline, size e.g. 19 x 7.5; 15 x 5.8; 21.4 x 8.1 microns. Subhymenium: no distinct development seen. Subiculum: densely interwoven hyaline narrow clamped smooth/thin-walled hyphae. May collapse or become gelatinised with age (then not reviving well).	Corymbia calophylla.	11/07/2017
Xenasma	*rimicola*	NLB 1571	Characteristic features: (i) fully resupinate, very thin, firmly attached small patches; (ii) dull dusky grey, with undifferentiated margin; densely cystidiate (glistening) under hand lens; (iii) no rhizomorphs or extending mycelium. Odour: none. Spore print: white. Micro: Spores: ellipsoid to ovoid, asymmetrical in side view; smooth in KOH, verruculose in Melzers - low rounded warts; size e.g. 9.8 x 6.9 (largest); 7.6 x 6.2; 8.2 x 6.1 microns. Cystidia: abundant, projecting, hyaline. Leptocystidia: none seen.	Eucalyptus gomphocephala.	01/08/2017
Xerula	*atrocaerulea*	NLB 1530	Characteristic features: (i) stipe 120 x 5 mm; pale grey (due to overlying pruina) except white at apex and base, bruising darker; pruinose, densely so towards apex (minute matted clumps) but along whole length; (ii) hemispherical pileus dark grey with very slight bluish tinge. Odour: none. Spore print: white. Micro: Spores: 18.2 x 12; 18 x 11.2; 20 x 11.1; 23 x 12.3 (biggest); 18.8 x 11.1; 18.9 x 12; 22.1 x 12.2 microns. Basidia: 2-spored. Clamps absent.		11/07/2017
Xylodon	*brevisetus*	NLB 1524	Characteristic features: (i) fully resupinate, firmly-attached small patches; white to pale greyish; surface densely covered with minute vertical hair-like projections; margin abrupt and not differentiated; rhizomorphs absent. Odour: none. Spore print: white. Micro: Hyphal system: monomitic, all hyaline in KOH. Subiculum: not gelatinised, of septate clamped hyaline hyphae, thin-walled to slightly thick-walled. Cystidia: projecting, in dense fascicles, cylindric but often sinuous/gnarled cystidia up to 65 x 4 microns, thin-walled (some of the more uneven-shaped cystidia seem to have a slightly thick wall), hyaline or glassy, non-septate. With loosely adhering easily dislodged crystals (best seen in water - not in KOH). Crystals also abundant in hymenium/subhymenium. Basidia: cylindric, most seem immature; size e.g. 27 x 4.7; 25 x 3.1 microns. Clamps: present in hymenium, subiculum and base of basidia and cystidia. Spores: ellipsoid to sub-oblong, smooth/thin-walled, slightly amyloid?, small apiculus, size e.g. 5.8 x 3.2; 5.2 x 3.4; 5.6 x 3.4; 5.5 x 3.5 microns.	Allocasuarina fraseriana.	04/07/2017