

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

**Fungi survey
Bold Park 2016**

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Figures 1 - 8: Examples of fungi discovered in Bold Park during the 2016 survey.

 <p>Figure 1: <i>Scleroderma areolatum</i> (NLB 1370). A mycorrhizal puffball species previously not recorded in Bold Park.</p>	 <p>Figure 2: <i>Pyronema omphalodes</i> (NLB 1335) on burnt soil after experimental fire near Wollaston.</p>
 <p>Figure 3: <i>Punctularia strigosozonata</i> (NLB 1423). Bracket or shelf-like fungus on fallen logs.</p>	 <p>Figure 4: <i>Hohenbuehelia bingarra</i> (NLB 1437) occurs in large numbers on living tuart trees.</p>
 <p>Fig 5: A fallen, invertebrate-inhabited fruit body of White Punk (<i>Piptoporus laetiporus</i>).</p>	 <p>Figure 6: <i>Coprinellus</i> cf. <i>hercules</i> (NLB 1359). A tiny wood-inhabiting species in Bold Pk.</p>
 <p>Figure 7: <i>Coprinopsis</i> "peaches & cream" (NLB1393). Second record of this new species.</p>	 <p>Figure 8: <i>Hypocrea rufa</i> (NLB 1454). A cushion-like wood-inhabiting species.</p>

Background and Objectives

Bold Park is a regionally significant bushland located in the west metropolitan area of Perth, Western Australia. The park incorporates 437 hectares of diverse vegetation types on Spearwood and Quindalup dune systems such as eucalypt and banksias woodlands, acacia shrublands, and coastal and limestone heath (Keighery *et al.*, 1990; Barrett and Tay, 2005). A large diversity of fungi occurs in Bold Park but little is known about their identity or ecology. Many hundreds of species of microfungi, including some that benefit native orchids, are likely to occur in the park. In the first major study of fungi in the park and outline of management issues for fungi in the park, 120 species of macrofungi were identified in the 14 vegetation types surveyed in Bold Park over a two month period in 1999 (Bougher 1999).

Subsequent annual surveys to build a baseline inventory of fungal diversity in Bold Park were carried out in 4 vegetation types in 2002, 2003, 2004 and 2005 (Bougher 2002 - 2005). These surveys were undertaken in line with performance indicator no. 8 of the Bold Park Environmental Management Plan 2000-2005 which required that “Known species richness of native fungal taxa (is) retained over five years” (Botanic Gardens & Parks Authority 2000). Subsequently, fungi have been included in the Bold Park Management Plan for 2006-2011 (Botanic Gardens & Parks Authority 2006) as part of ongoing goals to conserve and protect the local biodiversity in Bold Park. Four annual fungi surveys for the Bold Park MP 2006-2011 have been carried out: in 4 vegetation types in 2007, 2008, 2010 and 2011, and in 14 vegetation types in 2009 (Bougher 2007, 2008, 2009a, 2010, 2011). Fungi have also been incorporated in the Bold Park Management Plan 2011-2016 (Botanic Gardens & Parks Authority 2011).

To date (prior to 2016), an estimated 479 fungi have been recorded in the Park (see Bougher 2011). This total includes fungi identified to species level, fungi identified to genus level only, and all the undetermined and ‘ragbag’ records. Many unidentified or possibly inaccurately identified and possibly duplicate records from Bold Park remained to be verified. It is likely that surveys so far have captured only a fraction of the fungi likely to exist in Bold Park. Fungi produce fruit bodies intermittently and unpredictably but the mycelia of each fungus may be active for long periods of each year. It is necessary to survey fruit bodies at the same location over many years if such data is to be used as an accurate measure of fungal diversity.

This survey in 2016 addressed the following requirements for fungi relating to the current Bold Park Management Plan:

The objective of this work was to:

Undertake the annual fungi survey for the Bold Park Management Plan 2011-2016 (Botanic Gardens and Parks Authority 2011). 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 Bold Park from May to July 2016 during survey days lead by the author and assisted by numerous volunteers (Figures 3, 4, and see Acknowledgements). Repeat-visit sites representing different vegetation types in Bold 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 some cases quite inaccurate. A range of resources were utilized for identification: direct comparisons of macro and micro characters between Bold 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 Bold Park comparable to available data of other similar woodland bushland areas. All of the fungi collected were photographed and preserved as air-dried, coded herbarium voucher material lodged at the Department of Parks and Wildlife’s Western Australian Herbarium, Kensington (PERTH).



Figures 9 (left), 10 (right): Some of the participants examining fungi during the 2016 survey at BoldPark.

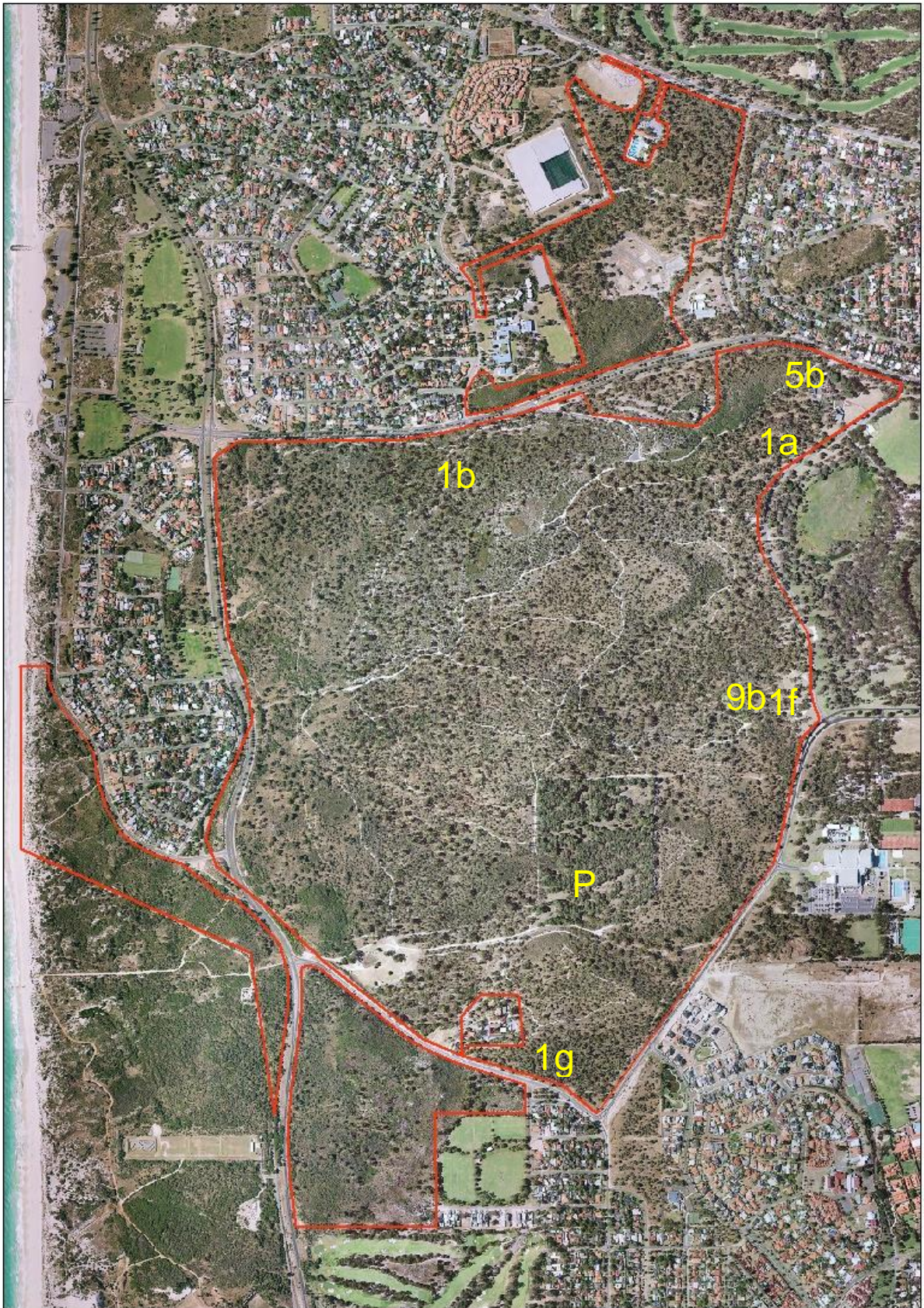
Figure 9: Examining the ubiquitous Scarlet Bracket fungus - *Pycnoporus coccineus*.

Figure 10: Discovering on *Macrozamia* fronds at Bold Park only the second record for Australia of the inconspicuous fungus - *Litschauerella gladiola*.

Table 1: Vegetation and plant community types surveyed for fungi, and number of sampling times for each type. Surveys undertaken during current consultancy indicated in blue, with sampling times in 2016 indicated. Surveys indicated in black were undertaken in the initial 1999 survey (Bougher, 1999) but not in 2016.

Vegetation code	Plant communities	2016 Survey visits
Eucalypt Woodlands over Shrublands		
1a	Woodland of <i>Eucalyptus gomphocephala</i> over a variable understorey on grey sand	7
1b	Woodland of <i>Eucalyptus gomphocephala</i> over an understorey dominated by <i>Allocasuarina humilis</i> on grey sand	2
1d	Open woodland of <i>Eucalyptus gomphocephala</i> , with occasional <i>Banksia attenuata</i> and <i>B. menziesii</i> , over shrubs dominated by <i>Macrozamia riedlei</i> , <i>Xanthorrhoea preissii</i> , <i>Acacia rostellifera</i> , and <i>Jacksonia</i> spp. on grey sand	0
1e	Woodland of <i>Corymbia calophylla</i> , with occasional <i>Eucalyptus gomphocephala</i> , and <i>Banksia</i> spp., over tall shrubs on grey sand	0
1f	Woodland of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> over a variable, often disturbed understorey on grey sand	2
1g	Woodland to Open Woodland of <i>Eucalyptus marginata</i> over a variable understorey on grey sand	1
1h	Woodland of <i>Eucalyptus decipiens</i> over <i>Melaleuca acerosa</i> , <i>Hardenbergia comptoniana</i> , <i>Xanthorrhoea preissii</i> and mixed low shrubs and herbs on pale grey sand	0
1i	Open woodland of <i>Eucalyptus decipiens</i> , <i>Banksia attenuata</i> and <i>Banksia menziesii</i>	0
Open Eucalypt Woodlands over Heath		
2a	Open Woodland of <i>Eucalyptus gomphocephala</i> over low to medium shrubs generally associated with heath communities, on grey sand	0
Woodlands dominated by Banksia		
4a	Woodland of <i>Banksia attenuata</i> and <i>Banksia menziesii</i> , with emergent <i>Eucalyptus gomphocephala</i> , over a variable understorey on grey sand	0
Shrublands		
5a	Closed shrubland of <i>Acacia rostellifera</i> over mixed shrubs and herbs on pale grey sand	0
5b	Closed shrubland of <i>Acacia xanthina</i> over mixed shrubs and herbs on pale grey sand, often underlain with limestone	2
Wetlands and drainage lines		
9b	Woodland of <i>Eucalyptus rudis</i> on brown sandy-loam on fringes of Camel Lake	1
Modified areas		
D	Disturbed ground (including Skyline site)	0
P	Pine plantation - mainly <i>Pinus pinaster</i> , some <i>Pinus radiata</i>	3
Opportunistic		
0	Includes other areas in the Park that are not within the initial 1999 survey sites	5

Map 1: Sites surveyed for fungi at Bold Park in 2016.



Results

A total of 144 different fungi were recorded at Bold Park in 2016 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 2016 represent 99 known genera and 56 families (+ 12 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 81 fungal collections from 2016 that were vouchered for permanent reference are given in Appendix 1.

- 32% of the fungi (46) from the current 2016 survey are considered to be new records for Bold Park (colour entries in Table 2). The new records do not include any of the 7 new "ragbag" categories.
- 68% of the fungi (98 species) in the current survey are considered to be the same as species recorded previously (black entries in Table 2) or are new "ragbag" categories.
- 7 species recorded in 2016 are considered to be exotic: This includes 1 introduced rust fungus - *Puccinia mysiphilli*, and 5 fungi that are mycorrhizal associates of *Pinus* - *Amphinema byssoides*, *Rhizopogon lutescens*, the two species of *Suillus* and *Inocybe rufuloides*. Several of the fungi found proliferating on woodchips may also be exotic but this cannot readily be determined - e.g. *Cyathus olla*.
- Saprotrophic fungi (111 species) were represented by more species than mycorrhizal fungi (25) and pathogenic fungi (8) (Table 3).
- Fungi were present in a wide range of vegetation and microhabitat types. Dead wood with 72 species, and leaf litter or soil with 48 species had the greatest diversity of fungi (Table 3).

Table 2: Identity and some ecological characteristics of fungal species in Bold Park 2016 (arranged in order of genus, species). **Maroon** = new records of species or taxon categories previously not recorded from Bold Park found during 2016. **Sp. ID** refers to Project code numbers assigned to taxa. **“Ragbag” species names** refer to uncertain numbers of undetermined species grouped under a common name pending further studies to resolve their identity.

Forms: BR = bracket; CD = cup/disc; CO = coral; CU = cushion; CY = cyphelloid; FL = flask; JE = jelly fungus; MO = mould; MU = mushroom; PF = puffball/earthball; PS = pustules; RE = resupinate; RU = rust; SH = shell/fan/spoon; TR = truffle. **Ecology/Life modes (putative in most cases):** S = saprotrophic; P = pathogenic; M = mycorrhizal. **Microhabitat types:** A = Animal; B = Bark of living tree; BG = Burnt ground/litter; D = Dung; DT = Diseased or dying tree/plant; DW = Dead wood/logs; L = Leaf litter or soil; MB = Moss on bark of living tree; MG = Moss on ground, wood or rocks; U = Underground. **Ecology/Life modes:** S = saprotrophic; P = pathogenic; M = mycorrhizal; ? = not known or cannot be assumed with confidence. **Microhabitat types:** A = Animal; B = Bark of living tree; BG = Burnt ground/litter; D = Dung; DT = Diseased or dying tree/plant; DW = Dead wood/logs; L = Leaf litter or soil; MB = Moss on bark of living tree; MG = Moss on ground, wood or rocks; U = Underground

Taxon ID	Species	Family	Common Name	Form	Life Mode	Microhabitat	Native/Exotic	Voucher Code (all yrs)	Veg. Type	New in 2016
BP001	<i>Agaricus campestris</i> (formerly listed as <i>A. cf. campestris</i>)	Agaricaceae	Field mushroom	MU	S	L	E/N?	BOU 768	0	
BP004	<i>Agrocybe pediades</i>	Bolbitiaceae		MU	S	L	N	E 8208, NLB1331	1f	
BP488	<i>Amanita ragbag</i> , white with ring	Amanitaceae		MU	M	L	N		1f	New
BP026	<i>Amphinema byssoides</i>	Thelephoraceae		RE	M	L	E	NLB 1439	P	
BP506	<i>Anthracobia muelleri</i>	Pyronemataceae	Orange Fire Anthracobia	CD	S	BG	N	NLB 1335	0	New
BP030	<i>Arcyria insignis</i>	Arcyriaceae		SL	S	DW	N		5b	
BP043	<i>Bisporella citrina</i> (formerly as <i>Bisporella sp.</i>)	Helotiaceae		CD	S	L	N	E 8108, E 9469, BOU 486, BOU 564, NLB 1455	5b	
BP049	<i>Botryobasidium subcoronatum</i>	Thelephoraceae		RE	S	DW	N	BOU 681, BOU 682 NLB1405	1b, 9b	
BP053	<i>Calocera guepininoides</i> (formerly as <i>C. cf. sinensis</i>)	Dacrymycetaceae		JE	S	DW	N	E 6124	1a, 1b	
BP055	<i>Campanella gregaria</i>	Marasmiaceae		SH	S	DW	N	E 7434	0, 1b, 1g	
BP056	<i>Ceratiomyxa fruticulosa</i> (formerly as <i>C. sp.</i>) (slime mould)	Ceratiomyxaceae		SL	S	DW	N	E 8072	1g	
BP058	<i>Ceriporia tarda</i>	Phanerochaetaceae		RE	S	DW	N	E 9278	0, 5b	
BP064	<i>Clavulina vinaceocervina</i> (formerly as <i>Ramaria sp.2</i>) - dull pink, dark tip	Clavulinaceae		CO	M	L	N	E 6121, BOU 678 NLB1390, NLB 1456, E 6076, E 9201,	1a, 1g, 5b	
BP066	<i>Clitocybe cf. kenkulunea</i> crowded gills, in soil	Tricholomataceae		MU	S	L	N	E 9047 E6141	1f	
BP067	<i>Clitocybe semiocculta</i>	Tricholomataceae		MU	S	DW	N	BOU 422 NLB1387 E8275	1a, 1b	
BP509	<i>Clitopilus cf. lateritius</i>	Tricholomataceae		MU	S	L	N	NLB 1445	1a, 5b	New
BP499	<i>Clitopilus cf. fuliginus</i>	Tricholomataceae		MU	S	L	N	NLB 1412	1g	New
BP075	<i>Clitopilus hobsonii</i> (formerly listed as <i>Crepidotus sp.</i> tiny white fans, and as <i>Marasmiellus sp. 1</i>)	Tricholomataceae		SH	S	DW/L	N	E 8066, BOU 531, 532, 539, 640, 736, NLB1360	0, 1a, 9b	
BP474	<i>Collybia nijerria</i>	Tricholomataceae		MU	S	DW/L	N	NLB 1355	1a	New
BP477	<i>Coprinellus cf. xanthothrix</i>	Psathyrellaceae		MU	S	DW	N	NLB 1361	0, 1a	New
BP476	<i>Coprinellus cf. hercules</i>	Psathyrellaceae		MU	S	DW	N	NLB 1359	0	New
BP489	<i>Coprinellus ragbag on soil</i>	Psathyrellaceae		MU	S	L	N		1f	New
BP099	<i>Coprinellus truncorum</i>	Psathyrellaceae		MU	S	DW	N	E 8296, E 9237	0, 1a	
BP089	<i>Coprinopsis cf. stangliana</i> (formerly as <i>Coprinus aff. picaceus</i>)	Psathyrellaceae		MU	S	L	N	E 6190, E 8211	5b	
BP088	<i>Coprinopsis sp. peach cap</i>	Psathyrellaceae		MU	S	L	N	BOU 911 NLB 1393	1a	
BP093	<i>Coprinus sp.</i>	Psathyrellaceae		MU	S	L	N	E 7315	1a	
BP104	<i>Cortinarius ochraceofulvus</i> (formerly as <i>C. sp. 2 – golden tuart cortinarius</i>)	Cortinariaceae		MU	M	L	N		1f, 5b	
BP110	<i>Cortinarius sp. 4 small white</i>	Cortinariaceae		MU	M	L	N	E 9191	1a	
BP501	<i>Cortinarius sp. greenish myxaciium</i>	Cortinariaceae		MU	M	L	N		1g	New
BP113	<i>Crepidotus eucalyptorum</i>	Crepidotaceae		SH	S	DW	N	E 6083, E 7277, E 7149, BOU 621, NLB 1371	0, 1a, 1b, 1f, 5b	

Taxon ID	Species	Family	Common Name	Form	Life Mod e	Mic ro habi tat	Nati ve /Exo tic	Voucher Code (all yrs)	Veg. Type	New in 2016
BP114	<i>Crepidotus mollis</i>	Crepidotaceae		SH	S	D W	N	E 6108	1a, 1f	
BP116	<i>Crepidotus prostratus</i>	Crepidotaceae		MU	S	L	N	BOU 533	0	
BP479	<i>Crepidotus sp. 2016</i>	Crepidotaceae		SH	S	D W	N	NLB 1364	1a	New
BP123	<i>Cyathus olla</i>	Nidulariaceae		BN	S	D W/ L	E/ N?		0, 1a	
BP517	<i>Dendrominia cf. dryina</i>	Corticaceae		RE	S	D W	N	NLB 1479 NLB 1482	1b	New
BP524	<i>Dendrothele cf. acerina</i>	Corticaceae		RE	S	D W	N	NLB 1478 NLB 1480, NLB 1481, NLB 1483	1a, 1b	New
BP516	<i>Dichostereum rhodosporum</i>	Lacnociaceae	Smooth ochre skin fungus	RE	S	D W	N	NLB 1474	0, 1b	New
BP144	<i>Exidia glandulosa</i>	Exidiaceae		JE	S	D W	N	E 6118	1b, 9b	
BP145	<i>Exidia sp. bluish grey</i>	Exidiaceae		JE	S	D W	N	E 9280	1a, 1g	
BP316	<i>Fomitipora robusta</i>	Hymenochaetaceae		BR	P	DT	N		9b	
BP152	<i>Galerina marginata (formerly as Galerina cf. autumnalis - pale on wood)</i>	Cortinariaceae		MU	S	D W	N		0, 1a, 1g, 5b, P	
BP160	<i>Galerina sp. small, chestnut, translucent striate cap</i>	Cortinariaceae		MU	S	D W/ L	N	BOUGHER 717 NLB 1388	1a	
BP161	<i>Galerina unicolor</i>	Cortinariaceae		MU	S	M G	N	E 6117	5b	
BP471	<i>Geastrum elliptice</i>	Geastraceae		EA	S	L	N	NLB 1332	1f	New
BP167	<i>Gymnopilus allantopus</i>	Cortinariaceae		MU	S	D W	N	E 6153	0, 1a, 1f, 1g	
BP168	<i>Gymnopilus cf. purpuratus</i>	Cortinariaceae		MU	S	D W	N	E 6133	1b, 1g	
BP169	<i>Gymnopilus perplexus (formerly as G. cf. perplexus)</i>	Cortinariaceae		MU	S	D W	N		1g	
BP174	<i>Gyroporus cf. cyanescens</i>	Boletaceae		MU	M	L	N	BOUGHER 427	1f	
BP175	<i>Harknessia uromycoides</i>	Melanconidaceae		PS	S	D W	N	E 9050, E 9442	1a, 1b, 1f, 5b	
BP289	<i>Hemimycena cf. lactea</i>	Tricholomataceae		MU	S	D W	N	E 9242	1f, 5b, 9b	
BP179	<i>Hemimycena sp. minute, fragile, white pileus, arcuate gills, on wood (formerly listed as Mycena sp. minute, fragile, white pileus, arcuate gills, on wood)</i>	Tricholomataceae		MU	S	L	N	BOUGHER 547	5b	
BP180	<i>Henningsomyces candidus</i>	Schizophyllaceae		TU	S	D W	N	E 7267, E 8109, E 9464	0, 1b, 1f, 1g	
BP181	<i>Hexagonia vesparia</i>	Polyporaceae		BR	S	D W	N	E 6821, E 7225, NLB1373	0, 1a, 1b	
BP183	<i>Hohenbuehelia bingarra</i>	Tricholomataceae		SH	S	D W	N	E 9084, BOUGHER 434, 529, 759, NLB 1436, NLB 1437	0, 1b, 1g	
BP513	<i>Hyalopeziza sp.</i>	Hyaloschyphaceae		CD	S	L	N	NLB 1453	5b	New
BP189	<i>Hydnoplicata convoluta (formerly listed as Peziza whitei)</i>	Pezizaceae		TR	M	U	N	H 7725, E 8052, E 8298, E 9439	1a	
BP511	<i>Hyphoderma sp. grey</i>	Meruliaceae		RE	S	D W	N	NLB 1449	5b	New
BP523	<i>Hyphodontia arguta</i>	Schizoporaceae		RE	S	D W	N	NLB 1475	0	New
BP494	<i>Hyphodontia breviseta</i>	Schizoporaceae		RE	S	D W	N	NLB 1418	1g	New
BP519	<i>Hypochniciellum sp.</i>	Atheliaceae		RE	S	D W	N	NLB 1469	1b	New
BP200	<i>Hypocrea rufa</i>	Hypocreaceae		CU	S	D W	N	E 9443, BOUGHER 764, NLB 1454	1b, 5b	
BP490	<i>Hypoxylon sp. asexual phase</i>	Xylariaceae		FL	S	D W	N		5b, 9b	New
BP206	<i>Hypoxylon sp. shiny blobs</i>	Xylariaceae		CU	S	D W	N	NLB 1466	1b	
BP212	<i>Inocybe clypeata</i>	Inocybaceae		MU	M	L	N	BOUGHER 904, 905, NLB 1386	1a, 5b	

Taxon ID	Species	Family	Common Name	Form	Life Mod e	Mic ro habi tat	Nati ve /Exo tic	Voucher Code (all yrs)	Veg. Type	New in 2016
BP208	<i>Inocybe rufuloides</i> (formerly as <i>Inocybe sp. pines</i>)	Inocybaceae		MU	M	L	E	BOUGHER 479, 541, 618, 913, NLB 1438	P	
BP214	<i>Inocybe sabulosa</i>	Inocybaceae		MU	M	L	N	BOUGHER 901, NLB 1357	1a, 5b	
BP495	<i>Kurtia argillacea</i>	Corticiaceae		RE	S	D W	N	NLB 1419	1g	New
BP223	<i>Laccaria lateritia</i>	Tricholomataceae		MU	M	L	N	E 6069, E 9238	0	
BP500	<i>Lachnum virgineum</i>	Hyaloscyphaceae		CD	S	D W	N		1g	New
BP225	<i>Laetiporus portentosus</i>	Coriolaceae		BR	P	DT	N	E 6085	1a, 5b	
BP229	<i>Lentinellus pulvinulus</i> (formerly as <i>L. hepatotrichus</i>)	Lentinellaceae		SH	S	B	N	E 6200, BOUGHER 433 NLB1372	0, 1a, 1f	
BP231	<i>Lepiota discolorata</i>	Lepiotaceae		MU	S	L	N	E 8286	1f	
BP481	<i>Lepista sordida</i>	Tricholomataceae		MU	S	L	E	NLB1374	P	New
BP505	<i>Leucocoprinus badhamii</i>	Agaricaceae		MU	S	L	N	NLB 1434	0	New
BP507	<i>Lindtmeria chordulata</i>	Stephanosporaceae		RE	S	D W	N	NLB 1447 NLB1448	5b	New
BP504	<i>Litschauerella gladiola</i>	Hyphodontaceae		RE	S	D W	N	NLB 1411	1g	New
BP240	<i>Macrohyporia dictyopora</i> (was as <i>Resupinate Undetermined # 2 (2005) – spreading, large-spored</i>)	Undetermined		BR/ RE	S	D W	N	E8213, BOUGHER 709	1f	
BP487	<i>Melanoleuca fusca</i>	Tricholomataceae		MU	S	L	N		1f	New
BP255	<i>Mycena kuurkacea</i> (formerly as <i>Mycena sanguinolenta</i>)	Tricholomataceae		MU	S	L	N	BOU 354, E 6115, E 7270, E 8031, E 9199	1a, 1g, 9b	
BP485	<i>Mycena ragbag on wood</i>	Tricholomataceae		MU	S	D W	N		1a, 1g, 9b	New
BP292	<i>Mycena subgalericulata</i> (formerly as <i>M. yuulongicola = cf. subgalericulata</i>)	Tricholomataceae		MU	S	D W	N	E 6070 E 6129, E 8249, BOUGHER 497	1a, 1g	
BP518	<i>Mycocalicium subtile</i>	Mycocaliciaceae		OT	S	D W	N	NLB 1465	1b	New
BP297	<i>Omphalotus nidiformis</i>	Paxillaceae		MU	P	DT /D W	N	E 6135, E 6155	0, 9b	
BP354	<i>Parasola conopilus</i> (formerly as <i>Psathyrella chestnut cap, troops</i>)	Psathyrellaceae		MU	S	L	N		1a, 9b	
BP512	<i>Peniophora scintillans</i>	Corticiaceae		RE	S	D W	N	NLB 1451	5b	New
BP304	<i>Peniophora cinerea</i>	Corticiaceae		RE	S	D W	N	BOUGHER 696, 710, 761	1b, 5b	
BP483	<i>Perenniporia ochroleuca</i>	Polyporaceae		BR	S	DT	N		1a, 5b	New
BP510	<i>Peziza cf. thozetii</i>	Pezizaceae		MU	S	D W	N	NLB 1446	5b	New
BP317	<i>Phellinus sp.</i>	Hymenochaetaceae		BR	P	DT	N		5b	
BP498	<i>Phellinus sp. ochre resupinate</i>	Hymenochaetaceae		RE	S	D W	N	NLB 1421	1g	New
BP319	<i>Phlebia rufa</i>	Meruliaceae		RE	S	B	N	E 8051, BOUGHER 655, 695, 741	1a, 1g	
BP484	<i>Phlebia sp. mustard</i>	Meruliaceae		RE	S	B	N	NLB1389	1a	New
BP321	<i>Phlebia subceracea</i> (formerly <i>Mycocacia subceracea</i>)	Meruliaceae		RE	S	D W	N	E8037, E 9271, E 9271, BOUGHER 535	5b	
BP182	<i>Phlebiopsis crassa</i> (formerly as <i>Peniophora sp.</i>)	Phanerochaetaceae		RE	S	B	N	E 9046, E 9372, NLB 1358, NLB 1476	0, 1a, 1b, 5b	
BP496	<i>Physarum viride</i>	Physariaceae		SL	S	L	N		1g, 5b	New
BP328	<i>Piptoporus australiensis</i>	Coriolaceae		BR	P	DT	N	E 6051, NLB 1329	0, 1a, 1f, 5b	
BP331	<i>Pisolithus microcarpus</i>	Sclerodermataceae		PF	M	L	N	H 7529	1g	
BP332	<i>Pisolithus sp. – cylindric, chocolate spore mass</i>	Sclerodermataceae		PF	M	L	N	H 7543	1f	
BP334	<i>Pleuroflammula praestans</i> (formerly listed as <i>Pleuroflammula sp.</i>)	Strophariaceae		SH	S	D W	N	E 6302, E 9436, BOUGHER 653	1a	

Taxon ID	Species	Family	Common Name	Form	Life Mode	Micro habitat	Native / Exotic	Voucher Code (all yrs)	Veg. Type	New in 2016
BP336	<i>Plicaria cf. alveolata</i> (formerly as <i>Plectania sp.</i>) then as <i>Plicaria sp.</i>	Pezizaceae		CD	S	L	N	BOUGHER 349 NLB1417	1g	
BP339	<i>Pluteus paupercaulis</i> (formerly listed as <i>P. lutescens</i>)	Pluteaceae		MU	S	D W	N	E 6107, E 9239	9b	
BP342	<i>Poria sp. white resupinate</i>	Polyporaceae		RE	S	D W	N	NLB 1477	0, 1a, 1b, 1g, 5b	
BP344	<i>Protuberia canescens</i>	Protophllaceae		TR	M	U	N	H 7545 NLB 1415	1g	
BP345	<i>Psathyrella candolleana</i>	Psathyrellaceae		MU	S	L	N	E 6079, E 6100, E 8017, NLB 1354	1a	
BP475	<i>Psathyrella ragbag</i>	Psathyrellaceae		MU	S	L	N		1a, 1f	New
BP356	<i>Puccinia myrsiphilli</i>	Pucciniaceae		RU	P	DT *	E	E 9086	5b	
BP503	<i>Punctularia strigosozonata</i>	Corticaceae		RE	S	D W	N	NLB 1423	1g	New
BP358	<i>Pycnoporus coccineus</i>	Corioliaceae		BR	S	D W	N	E 6109	0, 1a, 9b	
BP472	<i>Pyronema omphalodes</i>	Pyronemataceae	Ash bed Fungus	OT	S	BG	N	NLB 1335	0	New
BP361	<i>Ramaria sp. pure white 2007</i>	Ramariaceae		CO	M	L	N		1g	
BP391	<i>Resupinatus subapplicatus</i> (formerly as <i>Resupinatus sp.</i>)	Tricholomataceae		SH	S	D W	N	BOUGHER 499, E 9202, E 9209	0, 1b	
BP392	<i>Rhizopogon lutescens</i>	Rhizopogonaceae		TR	M	U	E		P	
BP395	<i>Rickenella fibula</i>	Tricholomataceae		MU	S	M G	N	E 9204	1g	
BP397	<i>Royoporus badius</i> (formerly listed as <i>Polyporus badius</i>)	Polyporaceae		BR	S	B/ D W	N	E 6068, E 6192, E 6145, E 6160, E 8079, BOU 353	1a, 1b, 1f, 5b	
BP405	<i>Schizopora paradoxa</i>	Polyporaceae		RE	S	D W	N	E 7221, BOUGHER 625 NLB1404	1a, 1b, 9b	
BP480	<i>Scleroderma areolatum</i>	Sclerodermataceae		PF	M	L	N	NLB 1370	0	New
BP407	<i>Scleroderma cepa</i>	Sclerodermataceae		PF	M	L	N	H 7560	1a, 1f	
BP408	<i>Scleroderma sp.</i>	Sclerodermataceae		PF	M	L	N		1a	
BP497	<i>Sebacina sp.</i>	Sebacinaceae		RE	S	D W	N	NLB 1422	1g	New
BP412	<i>Sistotrema sp. 2 grey paint on leaves</i>	Sistotremaceae		RE	M	L	N	BOUGHER 563 NLB1402	1a, 1b, 1f, 5b	
BP417	<i>Steccherinum ochraceum</i>	Steccherrinaceae		RE	S	D W	N	E 6074 NLB1414	1g	
BP521	<i>Steccherinum sp. layered</i>	Steccherrinaceae		RE	S	D W	N	NLB 1468	1b	New
BP418	<i>Stemonitis sp.</i>	Slime mould		SL	S	D W	N		1g	
BP422	<i>Suillus collinitus</i>	Boletaceae		MU	M	L	E	BOUGHER 481, E 9211	P	
BP482	<i>Suillus subacerbus</i>	Boletaceae		MU	M	L	E	NLB 1375	P	New
BP426	<i>Tomentella cf. pilosa</i> – kahki-ochre, on wood	Thelephoraceae		RE	M	D W	N	E 8041, E 8304, BOUGHER 447	5b	
BP491	<i>Tomentella scobinella</i>	Thelephoraceae		RE	M	D W	N	NLB 1403	5b, 9b	New
BP435	<i>Trechispora sp. 2 spiny, white resupinate</i>	Sistotremaceae		RE	S	D W	N	E 9460 NLB1467	1b	
BP437	<i>Tremella mesenterica/aurantia</i>	Tremellaceae		JE	P	D W	N	E 6075, E 6102, E 6123	0, 1b, 1g, 5b, 9b	
BP486	<i>Trichia decipiens var. olivacea</i>	Trichiaceae		SL	S	D W	N		1a, 1g	New
BP444	<i>Tubaria serrulata</i> (formerly as <i>furfuracea</i>)	Crepidotaceae		MU	S	L	N	E 8209	1a	
BP445	<i>Tubifera ferruginosa</i> (formerly as <i>Dictydiaethelium plumbeum</i>)	Lycogalaceae		SL	S	D W	N	E 7153, BOUGHER 346	1b, 1g	
BP448	<i>Tubulicrinis sp. – grey resupinate</i>	Tubulicrinaceae		RE	S	D W	N	E 8040, E 9274, BOUGHER 425, 644	1b	
BP478	<i>Undetermined agaric ragbag in litter</i>	Unknown		MU	S	L	N		0	New
BP520	<i>Undetermined bracket fungus ragbag</i>	Unknown		BR	S	B	N		1b	New

Taxon ID	Species	Family	Common Name	Form	Life Mode	Micro habitat	Native / Exotic	Voucher Code (all yrs)	Veg. Type	New in 2016
BP502	<i>Undetermined mould</i>	Undetermined		MO	P	DW	N		1g	New
BP514	<i>Undetermined mould ochraceous</i>	unknown		MO	S	DW	N		5b	New
BP508	<i>Undetermined resupinate mustard curtains</i>	unknown		RE	S	DW	N		5b	New
BP515	<i>Undetermined resupinate pale yellow eggs</i>	Unknown		RE	S	DW	N	NLB 1457	5b	New
BP493	<i>Undetermined resupinate ragbag</i>	Undetermined		RE	S	DW	N	NLB 1420	1b, 9b, 1g	New
BP492	<i>Undetermined resupinate sterile pink grey</i>	Undetermined		RE	S	DW	N	NLB1407	9b	New
BP415	<i>Undetermined slime mould dark brown slime</i>	Undetermined		SL	S	DW	N		5b	
BP522	<i>Volvopluteus sp. small</i>	Pluteaceae		MU	S	L	N		1b	New
BP466	<i>Volvopluteus speciosus</i>	Pluteaceae		MU	S	L	N/E?	E 6197	0	

Table 3: Taxonomic rank, life mode, habitat, and sites of fungi in Bold Park in 2016. 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	144 (includes 7 ragbags)	
Genera	99 (+ 9 of unknown genus)	
Families	56 (+ 10 of unknown family)	
Ecology/Lifemode types		
Saprotrophic	111	<i>Cyathus olla</i>
Pathogenic	8	<i>Fomitipora robusta</i>
Mycorrhizal	25	<i>Inocybe fissurata</i>
Main habitat types		
B = Bark of living tree	6	<i>Royoporus badius</i>
BG = Burnt ground/litter	2	<i>Pyronema omphalodes</i>
DT = Diseased or dying tree/plant	5	<i>Laetiporus portentosus</i>
DW = Dead wood/logs	72	<i>Mycocalicium subtile</i>
L = Leaf litter or soil	48	<i>Leucocoprinus badhamii</i>
U = underground	3	<i>Protuberia canescens</i>
Vegetation types		
P	6 exclusive / 1 shared	<i>Lepista sordida</i>
0	11 / 21	<i>Anthracobia muelleri</i>
9b	3 / 10	<i>Pluteus paupercaulis</i>
5b	18 / 23	<i>Peziza cf. thozetii</i>
1a	12 / 50	
1g	19 / 15	<i>Litschauerella gladiola</i>
1f	10 / 13	<i>Lepiota discolorata</i>
1b	9 / 23	<i>Dendrominia cf. dryina</i>
Origin		
Native	137	<i>Omphalotus nidiformis</i>
Exotic	7	<i>Rhizopogon lutescens</i>

Discussion

Biodiversity

A total of 144 fungi designated as species or species complexes were recorded in 2016 including 46 of the fungi in the current survey considered as new records for Bold Park – 32% of the fungi recorded in 2016. The proportion of new fungi recorded for the Park in 2016 is quite large compared with previous surveys, e.g. 15% in 2011, 19% in 2010. This may be due to a number of reasons. A survey had not been undertaken at Bold Park for 5 years. During that time advancements were made in the knowledge base particularly for Kings Park, and this enabled recognition of more species at Bold Park. For example, the field guide - *Kings Park Fungi [version 2.1] A visual guide to species recorded in surveys 2009 - 2015* (Bougher 2016) proved to be a valuable tool in this season's field survey at Bold Park as well as at Kings Park. An updated version of this guide will be produced for future field surveys.

After the 2016 survey:

- **512 fungi are now currently listed from Bold Park** - this includes the fungi identified to species level, the fungi identified to genus level only, and the undetermined and 'ragbag' records.
- **216 fungi have been identified to species level.**

No doubt the updated total could be subject to considerable re-evaluation upon taxonomic assessment of vouchered specimens and increased knowledge. The total could be reduced if taxonomic studies and collections necessitate the merging of species names, but also it could be increased as it includes many undetermined and 'ragbag' names representing an as yet unresolved mixture of unknown numbers of species. For example, the increased knowledge gained since 2011 enabled some names listed by 2011 to be updated and merged in the 2016 survey: e.g. the number of *Inocybe* species listed for Bold Park was reduced from 13 in 2011 to 10 in 2016 because three previously listed *Inocybe* names - "sp. 7", "sp. 2", and "possibly sp. 2" - are now recognised as *Inocybe froudistii*. Another example is *Micromphale australiense* which previously had been listed as two separate species - "*Collybia eucalyptorum*" and "*Collybioid sp. red brown cap*". Hence although there were 46 new records for 2016, the net increase in the total of fungi recorded from Bold Park fungi between 2011 (479) and 2016 (512) was 33.

Some notable fungi recorded at Bold Park in 2016

1. *Mycocalicium subtile* (Figures 11, 12):

Mycocalicium subtile occurs in large patches on decorticated wood of tuart trees at Bold Park. It produces minute dome-shaped to ellipsoid black heads up to 0.5 mm wide on a dark brown to black narrow stalk up to 1 mm tall. *Mycocalicium subtile* is a 'calicioid fungus' - many of which are lichen-associated fungi.



Figure 11: *Mycocalicium subtile* on a dead standing tuart tree in Bold Park (NLB 1465).



Figure 12: *Mycocalicium subtile* fruit bodies (NLB 1465).

2. *Dendrominia cf. dryina* (Figures 13, 14):

Dendrominia was found in two locations in Bold Park for the first time. This is the first discovery of the genus *Dendrominia* in Australia. At Bold Park this fungus forms exposed patches of crusty white flat growths on the bark of living tuart trees. Fertile fruit bodies are difficult to find because: (a) The basidia (spore-producing structures) are scattered singly amid a dense sea of crystals and other debris; (b) It is probable that spores are only produced for a brief period during sustained rainfall events.

The collections NLB1479 and NLB 1482 from Bold Park are likely to be a new species of *Dendrominia* most similar to *Dendrominia dryina* by virtue of their large allantoid basidiospores and clamped hyphae. However the Bold Park collections are certainly not *D. dryina* which occurs on *Quercus* in the northern hemisphere and has larger spores.



Figure 13: A discrete patch of *Dendrominia cf. dryina* on a tuart tree in Bold Park (NLB 1479).



Figure 14: *Dendrominia cf. dryina* fruit bodies (NLB 1479).

3. *Dendrothele cf. acerina* (Figures 15, 16):

Four collections from Bold Park in 2016 were recognised as belonging to the genus *Dendrothele* for the first time. Like *Dendrominia* they form crusty white patches on the bark of living tuart trees. The Bold Park collections are likely to represent a new species of *Dendrothele* similar in micro-morphology to the northern hemisphere species *Dendrothele acerina* which is found on *Acer*. The genus *Dendrothele* has been reported in Australia before, including *Dendrothele cornivesiculosa* from the Kimberley region of W.A. (Hjortstam et al. 2009). That species differs from the Bold Park fungus by having smaller, thin-walled ellipsoid spores, cystidia with an elaborate apex, and broader hyphae.



Figure 15: Extensive patches of *Dendrothele cf. acerina* on a tuart tree in Bold Park (NLB 1478).

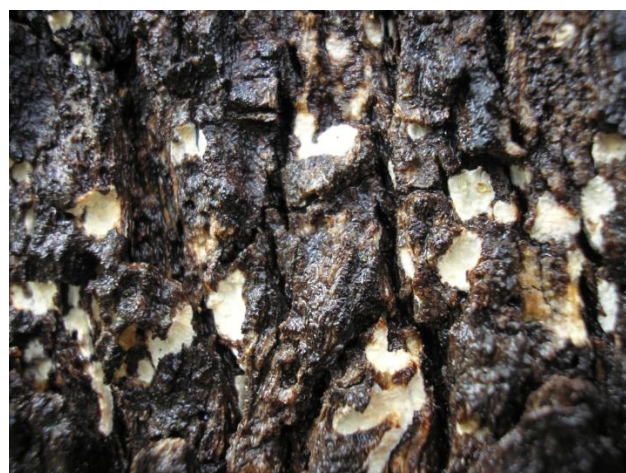


Figure 16: *Dendrothele cf. acerina* fruit bodies (NLB 1478).

4. *Lindtneria chordulata* (Figures 17, 18):

Lindtneria chordulata occurs on burnt wood and forms dull cream to slightly yellowish, thin, easily removed, extensive patches. It usually has numerous pale yellow mycelial strands or rhizomorphs. Microscopically, it has globose finely echinulate spores with prominent apiculus, clamped basidia but clampless underlying hyphae and hyphal cords (unlike *Lindtneria pellicularis* from eastern Australia), no cystidia, and bluish inclusions in the basidia.

At Kings Park, this fungus previously had been referred to as *Tomentellopsis* cf. *echinospora* (KP191).

Lindtneria chordulata has been recorded in Australia as *Cyanobasidium chordulatum* by Hjortstam *et al.* (2009) in the Kimberley Region. This fungus was once placed in genus *Cyanobasidium*, but *Cyanobasidium* and *Lindtneria* are now considered by some authors as synonyms of *Mycolindtneria*.



Figure 17: *Lindtneria chordulata* in Bold Park (NLB 1447).



Figure 18: *Lindtneria chordulata* in Bold Park (NLB 1448).

5. *Litschauerella gladiola* (Figures 19, 20):

Litschauerella gladiola had only been found once before in Australia (PERTH8700702 - NLB1119) in 2015 at Alison Baird Reserve, Kenwick, Perth on a fallen branch of *Actinostrobus*. At Bold Park in 2016 it was found growing on *Macrozamia* fronds. Its fruit bodies are very inconspicuous as they consist of small pale grey thin patches which when viewed under hand lens appear densely hirsute (of small hairs, due to abundant long cystidia).



Figure 19: *Litschauerella gladiola* (NLB 1411) patchy fruit bodies on *Macrozamia* fronds.



Figure 20: A higher magnification of *Litschauerella gladiola* (NLB 1119) showing the hairs (cystidia).

6. *Collybia nijerria* (Figures 21, 22):

Collybia nijerria produces gregarious fruit bodies on the ground amid leafy and woody debris. At Bold Park in 2016 it was particularly abundant in mulched beds around planted eucalypts near the tuart carpark. The fruit bodies are dark reddish-brown when young but soon become pale, thin-fleshed, and have a densely hairy stem. The species belongs in the genus *Gymnopus* but has not been officially transferred to that genus.



Figure 21: Gregarious fruiting of *Collybia nijerria* in Bold Park (NLB 1435).



Figure 22: *Collybia nijerria* fruit bodies (NLB 1435).

7. *Leucoagaricus badhamii* (Figures 23, 24):

Leucoagaricus badhamii had not been previously recorded for Australia. At Bold Park in 2016 it was found near the base of a tuart tree. The fruit bodies not remarkable except the gills instantly bruise red upon touch. Other similar reddening fungi known in Australia include *Lepiota haemorrhagica* but that differs in staining reaction and cystidia morphology.



Figure 23: *Leucoagaricus badhamii* in Bold Park (NLB 1434).



Figure 24: *Leucoagaricus badhamii* cystidia with long apical extension (NLB 1434).

Conclusion and recommendations

After the 2016 survey, a total of 512 fungi are now listed for Bold Park – this includes 216 fungi identified and named to species level, as well as fungi identified to genus level only and all the undetermined/ ‘ragbag’ records. Further taxonomic evaluations are required to improve the accuracy of the total. In similarity with the previous surveys, this year’s survey captured many new records for the Park (32% of the records in 2016), indicating that many more fungi are yet to be found.

Recommendations include:

- **Surveys:** Annual surveys of fungi should be continued in order to adequately document the diversity of fungi at Bold Park, including with continuing support from staff and volunteers.
- **Taxonomic work:** Like at Kings Park, resolution of the identity of fungi at Bold Park will continue as a developmental process, with the identity of more species gradually resolved each year. Continued support of the Western Australian Herbarium will be critical to help facilitate taxonomic studies needed to resolve the identity of more of the records of fungi from Bold Park. Financial support targeted specifically for taxonomic studies would accelerate resolution of the identity of fungi at Bold 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 Bold Park.
- **Book:** Some of the fungi recorded so far in Bold 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 Bold Park (and Kings Park) be produced, such as a colourful field book and/or pamphlets and posters. The initial basis for such a book was materialised in 2015 with the production of *Kings Park Fungi [version 1.1] A visual guide to species recorded in surveys 2009 - 2012*. This guide was updated in 2016 as *Kings Park Fungi [version 2.1]* (Bougher 2016). This guide proved to be a valuable tool for participants in the field during this season’s survey at both Bold Park and Kings Park, and will be updated for future field surveys, perhaps with the inclusion of fungi from both parks.

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References quoted

- Barrett, R.L., and Tay, E.P. (2005). *Perth Plants. A field guide to the bushland and coastal flora of Kings Park and Bold Park, Perth, Western Australia*. Botanic Gardens and Parks Authority, Perth, Western Australia.
- Botanic Gardens & Parks Authority (2000). *Bold Park Environmental Management 2002-2005*. ISBN 1876479035.
- Botanic Gardens & Parks Authority (2006). *Bold Park Management Plan 2006-2011*.
- Botanic Gardens & Parks Authority (2011). *Bold Park Management Plan 2011-2016*.
- Bougher, N.L. (1999). *Environmental Management of Bold Park, Western Australia: Urban Bushland Fungi*. CSIRO Report to the Botanic Gardens and Parks Authority.
- Bougher, N.L. (2002). *Fungi survey Bold Park 2002*. CSIRO Report to the Botanic Gardens and Parks Authority.
- Bougher, N.L. (2003). *Fungi survey Bold Park 2003*. CSIRO Report to the Botanic Gardens and Parks Authority.
- Bougher, N.L. (2004). *Fungi survey Bold Park 2004*. Perth Urban Bushland Fungi (PUBF) Report to the Botanic Gardens & Parks Authority.
- Bougher, N.L. (2005). *Fungi survey Bold Park 2005*. Perth Urban Bushland Fungi (PUBF) Report to the Botanic Gardens & Parks Authority.
- Bougher, N.L. (2007). *Fungi survey Bold Park 2007*. Perth Urban Bushland Fungi (PUBF) Report to the Botanic Gardens & Parks Authority.
- Bougher, N.L. (2008). *Fungi survey Bold Park 2008*. Perth Urban Bushland Fungi (PUBF) Report to the Botanic Gardens & Parks Authority.
- Bougher, N.L. (2009a). *Fungi survey Bold Park 2009*. Perth Urban Bushland Fungi (PUBF) Report to the Botanic Gardens & Parks Authority.
- Bougher, N.L. (2009b). *Fungi of the Perth Region and Beyond*. Perth Urban Bushland Fungi, Perth, Western Australia. Western Australian Naturalists Club (Inc.), Perth, Western Australia. (Also at www.fungiperth.org.au).
- Bougher, N.L. (2010). *Fungi survey Bold Park 2010*. *Department of Environment and Conservation and Perth Urban Bushland Fungi (PUBF) Report to the Botanic Gardens & Parks Authority*. Client Report Department of Environment and Conservation.

- Bougher, N.L. (2011). Fungi survey Bold Park 2011. *Department of Environment and Conservation and Perth Urban Bushland Fungi (PUBF)* Report to the Botanic Gardens & Parks Authority. Client Report Department of Environment and Conservation.
- Bougher, N.L. (2016). *Kings Park Fungi [version 2.1] A visual guide to species recorded in surveys 2009 - 2015*. Department of Parks and Wildlife. 119 pages.
- Hjortstam, K., Roberts, P.J., & Spooner B.M. (2009). Corticioid fungi from the Kimberley Region, Western Australia. *Kew Bulletin* 64: 353–368.
- Keighery, G.J., Harvey, J., and Keighery, B.J. (1990). Vegetation and flora of Bold Park, Perth. *The West Australian Naturalist* 18:100-122.

Appendix 1

The subset of fungi that were processed, described, & prepared as herbarium vouchers from Bold Park in 2016. Vouchers lodged at the Western Australian Herbarium (PERTH).

Genus	Species	Collection No.	Descriptive Notes	Plants	Date
<i>Agaricus</i>	<i>campestris</i>	NLB 1369	Characteristic features: (i) lamellae cream when young in button, soon dull pinkish (near Methuen 7C4), not bright pinkish (as in some <i>A. campestris</i>), finally chocolate brown (near Methuen 7E6) bruising darker; (ii) flesh white, dulling slightly slowly after cut but little or no reddening; (iii) membranous white partial veil breaking to leave a single membranous appendiculate pileal margin up to 4 mm wide, and a persistent broad white membranous annulus; (iv) pileus white and smooth at first, later attaining cream to brown tinges and some radial scales (largest at the centre); up to 150 mm diam. Odour: quite acidic, ant-like (not pleasant). Spore print: chocolate brown (near Methuen 6F8).	<i>Corymbia calophylla</i>	11/06/2016
<i>Agrocybe</i>	<i>pediades</i>	NLB 1331	Characteristic features: (i) viscid orange-brown pileus; (ii) narrow tough stipe; (iii) dull brown lamellae. Odour: none.	<i>Corymbia calophylla</i>	20/04/2016
<i>Amphinema</i>	<i>byssoides</i>	NLB 1439	Fully resupinate, easily removed (and cleanly so), soft membranous very thin, farinose (under hand lens) smooth with low irregular undulations and aggregations in some parts; margin undifferentiated, abrupt and sometimes effuse relaxed; overall colour - pale yellowish cream; rhizomorphs absent. Young fruit bodies perhaps whiter and appressed silky-fibrillose at the margin with some narrow rhizomorphs. Odour: none. KOH: no reaction on hymenium. Micro: Spores: very small, ellipsoid/subcylindric, smooth-walled, guttulate in KOH, not reactive in Melzers, size e.g. 4.5 x 2.9, 4 x 2.6, 4.1 x 2.8 microns. Cystidia: hyphoid, septate, projecting, encrusted with fine crystals (disappear when squash mounted in KOH (as in images)). Basidia: cylindroclavate, 4-spored, e.g. 18 x 4.6 microns. Subiculum: very loosely arranged yellowish (in KOH and in Melzers) clamped sometimes finely crusted hyphae.	<i>Pinus radiata</i>	11/07/2016
<i>Bisporella</i>	<i>citrina</i>	NLB 1455	Odour: none.		14/07/2016
<i>Botryobasidium</i>	<i>subcoronatum</i>	NLB 1405	Characteristic features: (i) fully resupinate extensive growths, minutely felty white, no rhizomorphs; (ii) micro confirmed - fusoid spores, clamped broad hyphae branching at right angles. Odour: none. Spore print: white.	<i>Banksia littoralis</i>	23/06/2016
<i>Clavulina</i>	<i>vinaceocinerea</i>	NLB 1390	Slender and more cluster-coral-like fruitbodies with mauve-purplish colour and often very dark reddish tips.	<i>Macrozamia</i>	16/06/2016
<i>Clavulina</i>	<i>vinaceocervina</i>	NLB 1456	Characteristic features: (i) flesh-coloured with upright branches and concolorous tips of various forms from clavate, dentate, to richly branched; (ii) surface conspicuously pubescent under lens; (iii) basal mycelium white but not rhizoidal or conspicuous. Odour: none. Spore print: white.	<i>Eucalyptus gomphocephala</i>	14/07/2016
<i>Clitocybe</i>	<i>semiocculata</i>	NLB 1387	Odour: musty cheap soap. Spore print: white.	<i>Eucalyptus gomphocephala</i>	16/06/2016
<i>Clitopilus</i>	<i>hobsonii</i>	NLB 1360	Characteristic features: (i) thin-fleshed white to pale cream fan-shaped fruit bodies, up to 15 mm, sessile and often broadly attached to woody debris; (ii) pileus surface finely matted fibrillose or minutely cottony with strongly incurved (perhaps inrolled when very young?) thick margin; (iii) lamellae concolorous with pileus when young but developing a faint pinkish tinge later, edge smooth/entire, lamellules present, not anastomosing or bifurcating; (iv) stipe absent; (v) soapy odour. Spore print: pink. Micro: NLB 1360 fits <i>Clitopilus hobsonii</i> : Spores: 6.5 - 7.2 x 4.1 - 4.8 microns, ellipsoid with prominent apiculus, guttulate, thin-walled, 7 or 8 longitudinal ridges evident in end-view (not easily visible in side view unless stained). Basidia: clavate, clamped, 4-spored, size e.g. 24 x 6.7 microns. No clamps on hyphae. No hymenial cystidia. All tissues hyaline (in KOH).	Young planted eucalypt, with woodchips and woody debris	28/05/2016
<i>Clitopilus</i>	<i>cf. lateritus</i>	NLB 1445	Characteristic features: (i) pinkish brown smooth pileus with some white frostiness near centre; (ii) pale cream/white lamellae, adnexed/sinuate notch; (iii) yellowish cream spore print. Odour: not distinctive. Spore print: yellow tinged cream (near Methuen 4A3 to 4B4). Micro: Spores: broad ellipsoid, darkened in Trypan blue (cyanophilic) and in Melzers [but probably not strictly amyloid as spore wall is no darker than are the walls of basidia], very minutely pustulate or at least uneven thin wall, size e.g. 6.9 x 4.6; 5.8 x 4.1 microns. Cystidia: absent. Basidia: cylindroclavate, 4-spored, guttulate, size e.g. 24 x 6.2 microns. Hyphae: all hyaline in KOH; hyphae clamped.	<i>Eucalyptus gomphocephala</i>	14/07/2016
<i>Clitopilus</i>	<i>cf. fuliginus</i>	NLB 1412	Characteristic features: (i) dull pinkish adnate waxy lamellae with smooth/entire edge; (ii) dark grey-brown smooth pileus up to 35 mm diam., becoming depressed with age; (iii) stipe up to 50 x 3 mm, finely longitudinally silky-fibrillose when young but easily removed revealing drab stipe surface. Micro: spores appear to be of the <i>Rhodocybe</i> type.	<i>Eucalyptus marginata</i> and <i>Banksia</i>	30/06/2016
<i>Collybia</i>	<i>nijerria</i>	NLB 1355	Characteristic features: (i) pileus up to 35 mm diam., thin-fleshed, campanulate at first but rapidly appanulate eventually and wrinkled, obscurely translucent-striate near margin, smooth, dark reddish-brown when young then brown and strongly hygrophanous eventually entirely pale and shiny; (ii) lamellae adnexed, to 3 mm deep, closely spaced, pale pinkish grey in button, light brown with pale minutely cystidiate edge when mature; (iii) stipe tall-narrow, up to 50 x 3 mm; reddish-brown to snuff brown, densely covered by sharp-pointed (under lens) cystidia over entire length. Odour: not distinctive. Spore print: pale cream. Micro: Spores: (see images in Melzers): size (including apiculus) e.g. 8.9 x 4.1; 8.7 x 3.8; 8.1 x 3.5; 9.7 x 3.7; 8.9 x 3.6; 9.5 x 4.3 microns; fusoid to narrow ellipsoid, often with flattened adaxial in side view; no apical extensions (such as seen in NLB1470 & NLB1115) seen, thin/smooth-walled, not reactive in Melzers, apiculus large (up to 1 micron long) conspicuous; contents smooth-glassy in Melzers, many with a large guttule in KOH. Basidia: slender clavate, 4-spored, clamped, size e.g. 24 x 7.3; 19 x 6.9 microns. Cheilocystidia: abundant forming sterile gill edge; highly variable e.g. clavate, ventricose, fusoid, hyphoid, finger-like, sometimes branched and multiseptate, often with markedly constricted septa, outline ranging from not or barely angular-nodulose to markedly nodulose, with variable apex - e.g. obtuse or narrowed, angular-truncate, or nodulose; thin-walled; clamped at base; contents glassy or finely granular/guttulate. Pleurocystidia: absent. Pileipellis: brown-encrusted (sometimes plaque-like) hyphae with finely encrusted undifferentiated, fusoid or lageniform terminals not nodulose or diverticulate forming trichodermial bundles in parts; not gelatinised. Stipitipellis: with densely entangled fascicles of sinuous, thin (up to only 0.3 microns)/smooth-walled, pale yellowish or hyaline (in KOH), clamped hyphae 3.5 - 5 microns wide arising from the clamped hyphae of the stipe, apex obtuse undifferentiated.	On old woodchips (now very weedy) around a young planted eucalypt.	27/05/2016
<i>Coprinellus</i>	<i>hercules</i>	NLB 1359	Characteristic features: (i) pileus up to 10 mm diam., cylindrical and deep reddish-brown in button stage, soon campanulate grey except for tan at centre, finally plicate-striate, eventually appanulate and thin-fleshed sparingly deliquescent only; surface smooth (no setules or veil evident); (ii) lamellae pale cream soon grey, edge not conspicuously cystidiate; (iii) stipe up to 25 x 1.5 mm, cylindrical, smooth (including at apex) or finely silky longitudinally fibrillose. Odour: not distinctive. Spore print: blackish. Micro: Spores: in face view - markedly heart-shaped, triangular, some 5-sided, size e.g. 14.4 x 11.2, 15.3 x 13.2, 16 x 12.7, 16.5 x 13.8 microns; inside view ellipsoid, size e.g. 13.7 x 9, 15.8 x 9.8, 14.4 x 9.3 microns; with conspicuous small eccentric germ pore. Cheilocystidia: crowded, variously shaped - e.g. lageniform, ventricose, cylindro-clavate, or utriform with broad rounded apex and short but distinct pedicel., 46 - 64 x 19 - 26 microns, hyaline, thin/smooth-walled, collapsing. Pleurocystidia: scattered, similar to cheilocystidia. Basidia: 4-spored. Pileipellis: a well-structured hymeniderm of clavate-pedicellate terminals, no cystidia. Clamp connections: present but not frequently seen.	Young planted eucalypt, with woodchips and woody debris.	28/05/2016

Genus	Species	Collection No.	Descriptive Notes	Plants	Date
<i>Coprinellus</i>	<i>cf. xanthothrix</i>	NLB 1361	NLB 1361 is the same species as NLB 1363, i.e. with characteristic features: (i) pileus cylindrical when young, reluctantly expanding and never fully so, surface with glistening spherical cells (see under lens); (ii) young stipe covered with erect fine white hairs especially in upper half; (iii) young lamellae avellaneous, later tan and spotted black, not deliquescent. Note under hand lens it is possible to see piles of glistening spheres on the pileus surface. Odour: none. Micro: Spores: (tending to mitriform: size (including apiculus) e.g. 10.3 x 6.3; 10.5 x 6.1; 11.3 x 7.1 (face); 10 x 6.4 microns. Cheilocystidia: none seen. Pleurocystidia: none seen. Pileipellis: a hymeniderm without any pileocystidia or setules. Veil on pileipellis: dominated by all brown, coarsely-encrusted (sometimes distinctly areolate pattern) globose (sometimes pyriform) cells up to at least 70 microns wide and with walls up to 2 microns wide; infrequently in short chains. Also narrow brown encrusted septate (non-clamped) hyphae 3 - 8 microns wide present but not abundant and mainly subtending the inflated elements. Upper stipe: with scattered lageniform cystidia with long cylindrical neck and swollen base. Clamp connections: none seen.	Young planted eucalypt, with woodchips and woody debris.	28/05/2016
<i>Coprinellus</i>	<i>cf. xanthothrix</i>	NLB 1363	Characteristic features: (i) pileus cylindrical when young, reluctantly expanding and never fully so, surface with glistening spherical cells (see under lens); (ii) young stipe covered with erect fine white hairs especially in upper half; (iii) young lamellae avellaneous, later tan and spotted black, not deliquescent. Odour: not distinctive. Spore print: date (purplish-black). Micro: Spores: In side view - ellipsoid to ovoid to subamygdaliform (and then markedly flattened on adaxial); in face view - ovoid to mitriform, with large conspicuous central truncate to slightly convex germ pore, smooth-walled, dark brownish-grey in KOH, size e.g.: 10.3 x 6.4; 11.3 x 6.3, 11 x 6.9 microns. Basidia: dimorphic, 4-spored, clampless. Cheilocystidia: lageniform with swollen ellipsoid base up to 35 long x 30 microns wide often subtended by a short pedicel, and with very long often sinuous neck not tapering and without swollen apex, up to 90 microns long, non-clamped, occurring singly or in clusters; size e.g. : 67 x 14 (base) x 4.2 (neck); 59 x 14 x 4.1; 46 x 11 x 4 microns. No volumous cheilocystidia seen (including no volumous cystidia seen on gill edges of very young button - only some lageniform types scattered singly on the gill edge). Pleurocystidia: none seen (including none seen on gills of very young button). Pileipellis: a hymeniderm without any pileocystidia or setules. Veil on pileipellis: dominated by brown, thin-walled/collapsing, coarsely-encrusted (sometimes distinctly areolate pattern) globose cells up to at least 80 microns wide, tended by narrow brown encrusted septate (non-clamped) hyphae but otherwise hyphae not abundantly present. Upper stipe: with scattered cystidia similar to the hymenial cystidia with long cylindrical or slightly tapering neck, e.g. 68 x 16 (base)x 6 (neck); 40 x 7.6 x 3.7 microns. Clamp connections: absent from hyphae and basidia in hymenium and trama; only a few clamps seen elsewhere - those on some hyphae in the stipe.	Around young planted Eucalyptus sp.	02/06/2016
<i>Coprinopsis</i>	<i>cf. roseotinctus</i>	NLB 1393	NLB1393 seems to be the same species found in a different part of Bold Park in 2011 (1 km distant, BOU 911 = PERTH 8566712). Characteristic features: (i) fruit bodies at button stage with globose pileus covered with pale pastel pink-orange veil; stipe white and smooth and with rusty sock at base; (ii) fruit body at maturity with convex radially split-ragged pileus up to 2 mm wide with large patches of membranous-filiform white veil (some pink-orange tinges are still evident in some parts of the mature veil). Micro: Spores: ellipsoid with flattened adaxial in side view, ellipsoid-cylindrical in face view; germ pore central, not particularly truncate; dark brownish-black in KOH; size e.g. 9.8 x 5.9 (face); 10.1 x 6.1 (face); 8.1 x 5.8 (face); 9.1 x 5.7 (side); 8.9 x 5.9 (side); 10.2 x 5.9 (side). Veil from older pileus: hyaline smooth/thin-walled hyphae 3-8.5 microns wide, clamps on some septa but not all, branching. Veil younger pink pileus: hyphae some with pale orange-pink in KOH encrusting pigment; some scattered clamps seen; no swollen elements. Odour: not distinctive.	Eucalyptus gomphocephala - open woodland rehabilitated from area that was an unpaved carpark.	16/06/2016
<i>Corticium</i>	<i>sp.</i>	NLB 1407	Characteristic features: (i) fully resupinate, grey sometimes with pink tinges evident; quite loosely matted-fibrillose (under lens); (ii) conspicuous white rhizomorphs appressed on fruit body surface and not seeming to extend out beyond the fruit body. Micro: appears to be sterile. Cords consist of hyaline finely encrusted non-clamped hyphae. odour: none. Spore print: maybe white (poor or no print).	Eucalyptus rudis.	23/06/2016
<i>Corticium s.l.</i>	<i>sp.</i>	NLB 1420	Fully resupinate yellowish-cream, with low rounded undulations and tubercles, smooth but appears minutely 'frosty' under hand lens. Micro: Spores: narrow, allantoid with equal-sized ends, smooth/thin-walled, non-amyloid, one or more guttules (in KOH, none in Melzers), size e.g. 6.1 x 2.6; 5.7 x 1.9; 7 x 2.2 microns. Basidia: 4-spored, size e.g. 11.6 x 4.7 microns, sterigmata not particularly long. Hyphal system: monomitic, all hyaline. Next to the substrate is a loose layer of narrow (up to 2.5 microns wide) septate hyaline hyphae with clamps and sometimes ampullate at the septa, and crystals scattered. Context gelatinized. Cystidia: absent. Odour: none. Spore print: white.	Eucalyptus marginata and Banksia.	30/06/2016
<i>Cortinarius</i>	<i>sp.</i>	NLB 1413	Characteristic features: (i) glutinous pileus and stipe; (ii) pileus beige with greenish tinges when young, later brown at centre; (iii) young lamellae in button dull tan (no purplish tinges evident); (iv) basal mycelium white, rhizomorphic; (v) toffee odour. Spore print: brown (a poor print).	Eucalyptus marginata and Banksia.	30/06/2016
<i>Crepidotus</i>	<i>sp.</i>	NLB 1364	Characteristic features: (i) sessile hemispherical/fan-shaped soft fruitbodies up to 30 mm wide; (ii) pileus white, dry, smooth to the eye, but with appressed fine network of hyphae sometimes forming small scabres near the pileal margin and sometimes contrastingly brown; (iii) lamellae pale brown with finely cystidiate edge, bruising darker brown; (v) flesh white, unchanging, up to 8 mm thick. Odour: none. Spore print: snuff brown.	Eucalyptus gomphocephala.	02/06/2016
<i>Crepidotus</i>	<i>eucalyptorum</i>	NLB 1371	Odour: not distinctive. Spore print: snuff brown (near Brit. Flora Chart 'Snuff Brown').	Eucalyptus gomphocephala	11/06/2016
<i>Dendrominia</i>	<i>cf. dryina</i>	NLB 1479	Micro: Hymenium: not organised into a palisade, but appears to be formed irregularly and is scattered within the fruit bodies. The basidia and spores are quite sparsely scattered in the fruit bodies of this collection. Context: The context has an abundance of angular oxalate-type crystals and larger crystalline elements up to 65 microns wide, some thin-walled collapsing and some thick-walled (up to 5 microns wide) polygonal and yellowish in KOH. Spores: allantoid in side view, cylindrical with varying degree of central constriction in face view, sometimes slightly wider at the distal end, smooth-walled, always thin-walled; hyaline, non-amyloid, not guttulate (at least in KOH or Melzers but sometimes with finely granular material; apiculus large and rounded; sometimes adhering in tetrads; 17.8 - 23 x 7.4 - 10.2 microns (including apiculus), e.g. 20 x 8.2; 17.9 x 8.1; 22.3 x 9; 21.4 x 10.6; 21.2 x 9.5; 17.8 x 7.4; 21.9 x 8.9; 21.5 x 7.9; 19.2 x 7.5; 22.8 x 10.2; 19.2 x 7.4; 20.2 x 8.4; 21.3 x 9.1; 23 x 9.5; 19.7 x 7.7; 19.3 x 8.6; 20.8 x 7.7; 23.7 x 8.1 microns. Basidia: scattered throughout, often sinuous cylindrical to slender clavate; 4-spored with large stubby rounded sterigmata up to 12 microns long; size e.g. 48 x 11.9; 84 x 11.7; 91 x 10.2; 64 x 10.3 microns. Hyphal system: monomitic, of very narrow hyaline hyphae 1-2 microns wide, clamped, thin-walled, mainly smooth-walled but sometime encrusted; giving rise to hymenial elements and encrusted dendrohyphidia. Dendrohyphidia: crystal-covered, gnarled, abundant. Cystidia: very few seen so may be rare, ventricose-fusoid or subcylindrical, e.g. 50 x 13 microns (without extension), smooth/thin-walled, with hypha-like extension up to 35 microns long or branched apical extension. Odour: none.	Eucalyptus gomphocephala	21/07/2016
<i>Dendrominia</i>	<i>cf. dryina</i>	NLB 1482	The specimens seem to be heavily grazed and old, so that all that is remaining is masses of oxalate crystals. Odour: none.	Eucalyptus gomphocephala	14/08/2016

Genus	Species	Collection No.	Descriptive Notes	Plants	Date
<i>Dendrothele</i>	<i>cf. acerina</i>	NLB 1478	Small (up to 1 cm long) circular to irregular thin patches firmly attached to the bark, remaining well-separated but some co-joining. Surface dry firm but quite soft (harder when old); smooth (minutely felty under hand lens); white to pale cream (sometimes a hint of pink or orange) not reacting to KOH. Margin abrupt, appressed, not fimbriate. Odour: none. Micro: Hymenium: The hymenium is not organised into a palisade, but appears to be formed irregularly and scattered within the fruit bodies. The basidia and spores are quite sparsely scattered in the fruit bodies of this collection. Context: The context has an abundance of angular oxalate-type crystals and larger crystalline elements up to 50 microns wide, some thin-walled collapsing and some thick-walled polygonal and yellowish in KOH. Spores: ovoid to ellipsoid; smooth-walled, thin-walled, or some with thickened wall; hyaline, non-amyloid, with some granular or resinous material in the centre of some spores, not guttulate in KOH or Melzers; apiculus large and rounded; 10.5 - 13.6 x 7.4 - 8.8 microns, e.g. 12.6 x 8.8; 10.5 x 8.3; 13.6 x 7.8; 12.6 x 8.2; 12.5 x 7.9; 11.4 x 7.5; 13.1 x 7.4; 13.4 x 8.5 microns. Basidia: cylindrical to slender clavate, sometimes suburniform and centrally constricted; clamped at the often narrow pedicellate base; 4-spored with large sterigmata; with finely granular contents when young; size e.g. 5.2 x 10; 61 x 10.1; 61 x 11.3 microns. Hyphal system: monomitic, of very narrow hyaline hyphae 1.5 - 2 microns wide, clamped, thin-walled, mainly smooth-walled but sometime encrusted; giving rise to hymenial elements and encrusted dendrohyphidia. Dendrohyphidia: abundant, often encrusted with crystals. Cystidia: fusoid to ventricose with apical mucro; very few seen.	<i>Eucalyptus gomphocephala</i>	21/07/2016
<i>Dendrothele</i>	<i>cf. acerina</i>	NLB 1480	The specimens seem to be badly degraded and full of bacteria, so that all that little tissue and no spores were seen. However, suggest calling it <i>Dendrothele</i> (same as NLB1478) as the macro looks like NLB1478 rather than the <i>Dendrominia</i> (NLB1479). If so, NLB1480 probably represents a new species similar in micro-morphology to the northern hemisphere species <i>Dendrothele acerina</i> found on Acer and <i>Dendrothele commixta</i> found mainly on Quercus - so refer to it for the time being as <i>Dendrothele cf. acerina</i> . Odour: none.	<i>Eucalyptus gomphocephala</i>	14/08/2016
<i>Dendrothele</i>	<i>cf. acerina</i>	NLB 1481	Spores: ellipsoid-ovoid, mainly thin-walled (some appear thickened), apiculus prominent (up to contents sometimes granular but never guttulate, some in tetrads, size (incl. apiculus) e.g. 10.8 x 7.9; 11 x 7 microns. Basidia cylindrical constricted, 4-spored, clamped, densely finely granular contents when young, e.g. 5.6 x 12; 7.2 x 12.1; 5.6 x 8 microns. Hyphae monomitic, clamped, narrow. Cystidia none seen, just young basidia? with obtuse apex. Crystals: abundant, oxalate type and larger sometimes thick-walled type sometimes yellowish in KOH. Odour: none.	<i>Eucalyptus gomphocephala</i>	14/08/2016
<i>Dendrothele</i>	<i>cf. acerina</i>	NLB 1483	Spores: ellipsoid-ovoid, mainly thin-walled (some appear thickened), apiculus prominent (up to some in tetrads, size (incl. apiculus) e.g. 10.8 x 7.8; 11 x 7.3; 12.6 x 7.1; 12.7 x 8.1; 12.2 x 7.9; 12.9 x 7.6; 13.6 x 8.1; 12.2 x 8; 11.8 x 7.7; 12.7 x 8.3; 12.6 x 7.5; 12.4 x 7.6; 13.8 x 8.4; 13.3 x 8.7; 13.4 x 8.7 microns. Basidia: long, 4-spored, clamped, e.g. 5.7 x 9.9; 6.5 x 12; 6.6 x 11.5; 5.7 x 9.5 microns. Hyphae: monomitic, clamped, narrow. Cystidia: none seen. Odour: none.	<i>Eucalyptus gomphocephala</i>	14/08/2016
<i>Dichostereum</i>	<i>rhodosporum</i>	NLB 1474	Fully resupinate, firmly attached, thin (up to 0.5 mm thick, brown in section), smooth soft, minutely felty under lens; margin undifferentiated abrupt appressed; narrow hyphal strands scattered over the surface (not extending out beyond the fruit body); overall colour - pinkish tan (near Brit. Flora Chart no. 31, Vinaceous Buff and near Methuen 6B3 to 6C3). 3% KOH dropped onto the surface turns dark reddish-black instantly. Odour: none. Spore print: pinkish. NLB1474 matches <i>Dichostereum rhodosporum</i> : (i) Fruit body distinctly pinkish-tan, with broad context-subicular layer (0.5 mm wide); (ii) Context of densely arranged bright orange-brown compound dendrohyphae; (iii) Spores globose, 5.7 - 6.5 microns diam., ornamented, strongly amyloid, apiculus usually not conspicuous; (iv) Spores also present amid the dendrohyphae subicular layer; (v) Variably-shaped gloeocystidia with obtuse apex. Micro: Spores: globose; verruculose with rounded verrucae less than 0.5 microns tall; hyaline or sometimes with yellow-orange granular contents in KOH, strongly amyloid; mostly without distinct apiculus, size e.g. 5.7 - 6.5 microns diam. Also present in the subicular layer. Basidia: long narrow cylindrical, e.g. 3.7 x 6; 5.4 x 5.5 microns; 4-spored; sterigmata long narrow e.g. 10 x 1 microns. Cystidia: scattered gloeocystidia projecting and in the subicular layer, variably-shaped often contorted, with obtuse apex, e.g. 4.5 x 7.8 microns. dendrohyphae: compound, bright orange-brown in KOH, some thick-walled, present in hymenium and also forming a broad layer up to 0.5 mm wide which is visible in section under stereo microscope as a dense brown layer.	<i>Eucalyptus gomphocephala</i>	09/08/2016
<i>Galerina</i>	<i>sp.</i>	NLB 1388	Characteristic features: (i) pileus up to 20 mm diam., thin-fleshed, translucent striate, fulvous brown but rapidly paler (hygrophanous), surface dry finely matted in button later smooth; (ii) lamellae adnate, cream in button, soon orange-brown, edge very finely fringed; (iii) stipe up to 25 x 2 mm, drab (paler than pileus) longitudinally fibrillose, without annular zone evident; (iv) partial veil cortinoid, rapidly evanescent very pale brownish; (v) base of stipe with compact white mycelium binding soil and woody debris. Odour: none. Spore print bright brown.	<i>Eucalyptus gomphocephala</i>	16/06/2016
<i>Galerina</i>	<i>marginata</i>	NLB 1401	Characteristic features: (i) pileus: to 50 mm diam., at first greasy dark red-brown, later dry smooth fulvous brown obscurely translucent-striate at margin, strongly hygrophanous; (ii) lamellae: broadly adnexed with a notch, tan in button, bright orange-brown later; edge smooth to the eye but minutely cystidiate under lens; (iii) stipe: up to 35x5 mm; densely whitish longitudinally fibrillose in button stage, soon fibrils dispersed then drab often watery with whitish flecks and patches of fibrils remaining; (iv) partial veil: membranous (densely fibrillose) white, breaking to briefly leave some appendiculate material on the pileal margin and a superior membranous annulus which usually reduces or completely disappears with age. (v) Flesh: brown watery. Odour: none. Spore print: brown (near fulvous Brit. Flora Chart).		23/06/2016
<i>Galerina</i>	<i>marginata</i>	NLB 1435	Characteristic features: (i) pileus convex (no umbo), 40 mm diam., smooth greasy with a thick gelatinous pellicle which is appendiculate on the pileal margin, bright reddish brown; (ii) stipe 50 x 4mm, dirty grey with superior membranous rusty annulus; (iii) lamellae golden brown, adnate, edge not noticeably cystidiate. Micro: presence of lageniform chelo and pleurocystidia (apices not of barely swollen, unbranched), barely gelatinised hyphae in pileipellis, and verrucose spores with plage suggest this still fits as <i>G. marginata</i> . Odour: not distinctive. Spore print: rich brown.	<i>Eucalyptus gomphocephala</i>	10/07/2016
<i>Geastrum</i>	<i>ellipticum</i>	NLB 1332	Characteristic features: (i) mature fruit bodies 20-30 mm tall x 15-25 mm wide; (ii) peristome conical beak-like, ridged, darker than spore sac, not surrounded by depressed or coloured zone; (iii) spore sack seated upon a dark narrow stalk up to 3 mm tall; (iv) exoperidium of up to 8 or 9 ragged rays up to 10 mm long, curved downwards when old, then the fruit body usually detaches from the soil; (v) spore powder very dark brown (almost black); (vi) base of spore sack surface not different to elsewhere (i.e. it is smooth and without any striations); (vii) undersurface of rays has adhering soil/debris. Odour: none.	<i>Corymbia calophylla</i>	20/04/2016
<i>Genus</i>	<i>sp.</i>	NLB 1457	Soft yellow-pale yellow bodies embedded in a silky arachnoid mycelial bed. Same species as NLB 1096 (PERTH 08690669). Sterile (no spores). Odour: none.	<i>Eucalyptus gomphocephala</i>	14/07/2016
<i>Genus</i>	<i>sp.</i>	NLB 1469	Undetermined resupinate with characteristic features: (i) fully resupinate, very thin, soft texture and cleanly peelable off the wood; (ii) pale yellowish, crowded tuberculate under lens, young growth farinose/arachnoid appressed. Micro: All tissues hyaline. Monomitic. Spores broad ovoid, hyaline in KOH, amyloid, smooth-walled. Basidia narrowly cylindrical, 4-spored. Clamps present. Odour: none. Spore print: white.	<i>Eucalyptus gomphocephala</i>	21/07/2016
<i>Hemimycena</i>	<i>cf. lactea</i>	NLB 1406	Characteristic features: (i) pileus smooth, dry, up to 15 mm diam., yellow (with slight green tinge) when young, soon pale cream then eventually may develop orange-brown coloration especially at the centre; (ii) lamellae white, crowded, edge very minutely cystidiate; (iii) stipe up to 40 x 1.5 mm; creamy when young but may become orange-rown (concolorous with pileus) when older, entire surface with a very minute dense covering of white glistening presumably cystidia but this cover easily removed upon handling. Odour: grassy. Spore print: white.	<i>Eucalyptus rudis</i> .	23/06/2016
<i>Hexagonia</i>	<i>vesparia</i>	NLB 1373	Characteristic features: (i) woody hard consistency with a tough dense brown context not zonate in section, up to 50 mm thick in these specimens; (ii) hymenium of large (up to 5x2 mm) thick and blunt edged elongated pores; (iii) upper surface dull brown but covered with a white minutely hairy (under lens) growth sometimes also extending over the hymenium. Odour: fragrant-pleasant. Spore print: white.	<i>Eucalyptus gomphocephala</i>	11/06/2016

Genus	Species	Collection No.	Descriptive Notes	Plants	Date
<i>Hohenbuehelia</i>	<i>bingarra</i>	NLB 1436	Pileus: up to 25 mm wide, shell-shaped (never kidney-shaped) to semicircular; rubbery consistency; surface with thick (up to 1mm) dark gelatinous layer overlain by a tomentose thin layer with erect sharp-pointed paler brown bundles of hairs which may give the pilei a frosty appearance in dried conditions, gelatinous layer is easily separable from the underlying pileal context; overall colour of pileus varies from very dark brown-almost black to date brown (near Brit. Flora Chart No.24) often paler at the obscurely translucent-striate plain and non-appendiculate margin. Stipe: absent, or occasionally with short button-like point of attachment. Lamellae: closely spaced, lamellules abundant, no bifurcating or anastomosing, pale cream at first dulling with age and developing a yellowish tinge, edge smooth/entire may become darker and reddish when older. Flesh: pale cream, dulling with age and may be watery near the lamellae. Odour: not distinct. KOH: no reaction of pileus or lamellae. Spore print: white.	Eucalyptus gomphocephala. Bushland was burnt on 24th April 2016.	11/07/2016
<i>Hohenbuehelia</i>	<i>bingarra</i>	NLB 1437	Same species as NLB 1436, collected on same day ca 50 away. Description for that species: Pileus: up to 25 mm wide, shell-shaped (never kidney-shaped) to semicircular; rubbery consistency; surface with thick (up to 1mm) dark gelatinous layer overlain by a tomentose thin layer with erect sharp-pointed paler brown bundles of hairs which may give the pilei a frosty appearance in dried conditions, gelatinous layer is easily separable from the underlying pileal context; overall colour of pileus varies from very dark brown-almost black to date brown (near Brit. Flora Chart No.24) often paler at the obscurely translucent-striate plain and non-appendiculate margin. Stipe: absent, or occasionally with short button-like point of attachment. Lamellae: closely spaced, lamellules abundant, no bifurcating or anastomosing, pale cream at first dulling with age and developing a yellowish tinge, edge smooth/entire may become darker and reddish when older. Flesh: pale cream, dulling with age and may be watery near the lamellae. Odour: not distinct.	Eucalyptus gomphocephala. Bushland was burnt on 24th April 2016.	11/07/2016
<i>Hyalopeziza</i>	<i>sp.</i>	NLB 1453	Characteristic features: (i) minute flat, sessile discs less than 1 mm diam., cream to flesh-coloured, with paler whitish rim which has short white hairs; (ii) young ascocarps spherical, then cup-like, paler than when mature; (iii) outline of mature ascocarps often wavy/crenate/undulating. Odour: none. Micro: Spores: narrow fusoid, flat or slightly concave on one side, smooth/thin-walled, non-septate, hyaline in KOH and not reactive in melzers, size e.g. 9.1 x 2.1; 8 x 1.9 microns. Asci: ventricose-fusoid, non-amyloid, 8-spored, irregularly biseriate, size e.g. 56 x 5.7 microns. Paraphyses: abundant, not projecting, narrow cylindrical, apex unswollen, hairs: scattered, lanceolate or lageniform with cylindrical base and long cylindrical neck, septum in some, thick-walled towards base, brown in melzers, size e.g. 29 x 3.8; 23 x 3.2 microns.	Eucalyptus gomphocephala	14/07/2016
<i>Hyphodontia</i>	<i>brevisetata</i>	NLB 1418	Characteristic features: (i) pale cream spreading fully resupinate growths with some rusty-stained areas; margin not differentiated; (ii) hymenium of densely arranged short pegs with dentate apex. Odour: none. Spore print: white.	Eucalyptus marginata and Banksia.	30/06/2016
<i>Hyphodontia</i>	<i>sp.</i>	NLB 1475	Characteristic features: (i) fully resupinate, firmly attached extensive elongate growths with undifferentiated abrupt margin and no rhizomorphs; (ii) overall colour dull drab cream; (iii) hymenium of densely arranged short pegs (not aculeate and less than 0.5 mm tall) usually brush-like or crowned or dentate but some aculeate with a single tapering apex; (iv) subiculum a narrow fleshy but not gelatinised layer darker brown than the pegs (which are fleshy but perhaps not gelatinised and many are pale and white at least at their apex) Odour: none. Spore print: white. Micro: cylindrical (rare, capitate) cystidia, crystal-covered present at apex of pegs. No spores seen and basidia clavate but none yet with sterigmata. Various shapes non-projecting cystidia in the hymenium. No true lagenocystidia seen.	Eucalyptus gomphocephala	09/08/2016
<i>Hypocrea</i>	<i>rufa</i>	NLB 1454	Characteristic features: (i) pinkish-brown cushions up to 5 mm diam.; sessile on the wood; surface with darker brown non-projecting (or a slight bump only) ostioles; (ii) in section white and fleshy with brown flask-shaped perithecia embedded near the surface. Odour: none.	Eucalyptus gomphocephala	14/07/2016
<i>Hypoxylon</i>	<i>diatrypeoides</i>	NLB 1452	Flat cushion-like black fruit bodies up to 2 mm tall with small pimple-like ostioles scattered over the surface. Specimens all seem immature.	Eucalyptus gomphocephala	14/07/2016
<i>Hypoxylon</i>	<i>sp.</i>	NLB 1466	Irregular-shaped scab-like black hard cushions with conspicuous ostioles, with nipple-like centre when unopened, then with crater-like with broad circular opening surrounded by a raised lip-like rim. No intervening mycelium or colouration evident in between the stroma. Stromata: single and circular, or compound. Ostioles: not encircled by a disc, higher than the stromatal surface, with low nipple-like papilla when immature. Micro: Spores: ellipsoid-fusoid, some slightly inequilateral, some mucronate at one end, dark brown to black when in KOH (olive when young) with longitudinal (entire length) dorsal germ slit evident in some young spores (not visible when mature), aseptate, smooth/thin-walled without perisporium evident, with 1 or 2 (3) guttules, size e.g. 19.1 x 7.7; 17.5 x 8.1; 18.5 x 8.4; 18.7 x 7.7 microns. Asci: tubular, apical apparatus amyloid tubular in optical section; base pedicellate-tapering up to 30 microns long. (2), 3-8-spored, size e.g. width 8.1, 7.6 microns; length -162 (8-spored), 71 (3-spored) microns. Paraphyses: abundant, very narrow filiform (2-2.5 microns wide, unbranched, apex unswollen/unbent. Pigments: no colour exudes when mounted in 3% KOH. Odour: none.	Eucalyptus gomphocephala	21/07/2016
<i>Ileodictyon</i>	<i>gracile</i>	NLB 1415	Note some of these specimens of 'Protuberba canescens' had their spore mass already deliquescing, with no signs of the peridium splitting open or any different internal structure configuration. These more mature specimens also had no particular odour. Note: like most of the local WA collections of 'Protuberba canescens', NLB 1415 has perfectly spherical fruit bodies. Unlike the images shown in the paper (May et al 2010) which shows a somewhat puckered base, our local collections do not show these features. After they are dug up it is usually difficult to determine where the base of the fruit bodies is, except by pin-pointing the point of attachment of any rhizomorphs. odour: not distinctive. The dark brown felty pileus, yellowish young lamellae, and strongly spermiatic odour suggests this is <i>Inocybe sabulosa</i> .		30/06/2016
<i>Inocybe</i>	<i>sabulosa</i>	NLB 1357		Open tuart woodland and planted acacias.	27/05/2016
<i>Inocybe</i>	<i>clypeata</i>	NLB 1386	Pileus: 10-25 mm diam., conico-campanulate with distinct conic umbo when young and remaining so with umbo still prominent, eventually almost applanate with the umbo still present; densely appressed radially fibrillose without any organisation into scales (except sometimes at extreme pileus margin); greyish-brown (near Munsell 2.5Y 5/4; near Methuen 5D6) darkening when old and exposed, slightly darker at the umbo; margin incurved with sparse fine velar remnants in button, later plane. Partial veil rapidly evanescent scant fine whitish fibrils, leaving no trace on the mature stipe. Lamellae: adnexed, slightly ventricose, closely spaced, edge finely cystidiate; pale cream to ivory (near Munsell 10YR 7/2; Methuen near 4B3), remaining so for much of development into maturity, eventually attaining a pale brownish tinge. Stipe: 10-22 x 3-5 mm; cylindrical without swollen base; very densely and finely (very fine short cystidia) pruinose in upper half, finely longitudinally silky fibrillose lower half, pallid sometimes with a pinkish tinge; base with a bound clod of sand but mycelium not conspicuous (is white though). Flesh: white but strong reddish discoloration after cut, especially in the stipe. Odour: not distinctive. Spore print: snuff brown (Brit. Flora Chart). Micro: Spores: ellipsoid to amygdaliform, smooth-walled, size e.g. 10.5 x 7.1; 9.9 x 6.5; 10.1 x 6.3; 10.5 x 6.1 microns. Cheilocystidia: abundant, lageniform with apical crystals, thick-walled (up to 2.5 microns), size e.g. 60 x 25microns. Pleurocystidia: similar to cheilocystidia.	Eucalyptus gomphocephala.	16/06/2016
<i>Inocybe</i>	<i>rufuloides</i>	NLB 1438	Odour: spermiatic.	Pinus radiata	11/07/2016

Genus	Species	Collection No.	Descriptive Notes	Plants	Date
<i>Kurtia</i>	<i>cf. argillacea</i>	NLB 1419	Fully resupinate, thin but contiguous; pale cream; smooth to the eye but densely cystidiate when seen with a hand lens; margin not differentiated; rhizomorphs absent. Micro: A red pigment dissolves out of the tissue when mounted in KOH. Cystidia: (1) arising from the hymenium and projecting well beyond it are abundant smooth/thin-walled cystidia of perhaps two types: (a) hyaline large lageniform or tapering with rounded apex (not acute) often with pedicel, size e.g. 135 x 13.7; 92 x 7.5; 57 x 6.7 microns; (b) shorter type with long narrow cylindrical neck (e.g. 2.5 microns wide), swollen ellipsoid base, and glassy/resinous contents; (2) scattered shorter cylindrical to ventricose capitate thin/smooth-walled hyaline cystidia No encrusting crystals observed on any cystidia in KOH or in Melzers. Spores: ellipsoid-subcylindrical with flat adaxial, smooth/thin-walled, finely granular contents (in KOH), conspicuous apiculus, not amyloid, size e.g. 8.6 x 4.8; 9.4 x 6.1; 8.7 x 5.3; 8.9 x 5.2 microns. Basidia: clavate (at least when young), not pleural, clamped, 4-spored. Subiculum: hyaline clamped hyphae 3-4 microns wide. Hyphal system: monomitic, clamps present. Monolimitoid hyphae: in one or two patches seen with clamped, linked, ellipsoid, swollen elements e.g. 18.8 x 13.5; 16.2 x 13.7 microns. No stephanocyst-like equatorial zone seen. Odour: none. Spore print: white.	Eucalyptus marginata and Banksia.	30/06/2016
<i>Lentinellus</i>	<i>pulvinulus</i>	NLB 1372	Characteristic features: (i) coarsely toothed cream lamellae; edge not cystidiate but may bruise brown; (ii) pileus sessile with short sharp-pointed hairs grading into greyish matted-fibrillose patch sometimes spreading out over more than half of the pileus; otherwise smooth reddish-brown (close to 'rusty tawny' British Flora Chart). Odour: sclerodermoid. Spore print: white.	Eucalyptus gomphocephala	11/06/2016
<i>Lepista</i>	<i>sordida</i>	NLB 1374	Characteristic features: (i) pileus smooth dark red russet brown (near Munsell 2.5 YR/3/6; Methuen near 8E8); (ii) lamellae arcuate, crowded, cream turning dull pinkish brown when old; edge smooth/entire; (iii) stipe whitish, smooth (innately longitudinally finely silky fibrillose under lens), cylindrical, solid with dull drab watery flesh; (iv) spore print pink, near British Flora Chart '10-Cinnamon', near Munsell 2.5YR 6/4, near Methuen 8B4-8B5; (v) mild taste; (vi) odour: none. Micro: Spores: broad ellipsoid, non-amyloid but apiculus dark in Melzers, very finely verruculose (barely discernible), size e.g. 5.9 x 4.6; 5.6 x 4.5; 6 x 4.6; 6.7 x 4.9 microns. Basidia: cylindro-clavate, clamped, 4-spored, e.g. 20 x 6 microns. Cystidia: absent. Trama: of clamped narrow hyphae 2.5 - 4.5 microns wide.	Pinus radiata and Corymbia calophylla	11/06/2016
<i>Leucoagaricus</i>	<i>badhamii</i>	NLB 1434	Instant reddening of the flesh and gills but soon fades. Pileus: 32-40 mm diam.; flat convex with entire non-appendiculate margin, surface finely radially fibrillose, soft, dry, cream near margin and tan-brown elsewhere. Lamellae: free to 4 mm deep; closely spaced, fragile (easily broken on touch), pale cream when young, later dull brownish-stained edge concolorous and entire (not noticeably cystidiate), turning bright red instantly upon touch but rapidly fading again. Stipe: up to 40x5 mm but mostly short in relation to the pileus diam., cylindrical or tapering towards base, densely finely silky longitudinally fibrillose, no annulus or annular zone evident, pale at first but mat become dark grey entirely or in part when old. Rather easily broken. Flesh: white, becoming watery in the stipe; instantly bruising red upon touch but rapidly fading. Dried specimens with blackish stipe (with a hint of greenish), lamellae reddish brown (also with a hint of greenish). Micro: Spores: amygdaliform to more usually subamygdaliform in side view, ovoid to triangular in face view, smooth/thick-walled, hyaline in KOH or water, strongly dextrinoid, no germ pore evident, most with a large guttule in KOH (not so in Melzers), size e.g.: 7.9 x 4.9; 7.8 x 5; 7.9 x 5.2; 8 x 5.2; 7.3 x 4.8 microns. Cheilocystidia: scattered (gill edge not sterile), basal part clavate (mostly) to fusoid to ventricose with long (up to 20 microns) narrow (e.g. 1.8 microns) apical extension which may be cylindrical or sinuous, size e.g.: 47 x 12; 62 x 11.8 microns. Basidia: 4-spored, e.g. 30 x 9.4 microns. Pleurocystidia: absent. Odour: not distinctive. Macrochemical: 3% KOH no reaction on flesh or gills or pileus. Spore print: white.	Eucalyptus gomphocephala.	10/07/2016
<i>Lindtmeria</i>	<i>chordulata</i>	NLB 1447	Fully resupinate, white, cottony (under lens); margin not differentiated; rhizomorphs present. Same species as NLB 1448 and NLB 1144. Micro: Spores: globose to subglobose, hyaline, cyanophilic, thin-walled, finely and densely echinulate, with a large guttule (in KOH but not so in Melzers), conspicuous peg-like apiculus up to 1.2 microns long, size e.g. 4.9; 5.1; 5.4; 6.3; 5.9 microns diam. Basidia: cylindrical to suburniform sometimes constricted, not pleural, large clamp at base, 4-spored, cyanophilic contents, size e.g. 26 x 7.8; 31 x 8.6 microns. Subhymenium: clamped. Subiculum: monomitic; hyaline, not often clamped, loosely arranged, branching at right angles. Hyphae in cord: narrower (3 - 4 microns wide) than other hyphae, septate but no clamps, oily contents. Cystidia: absent. Odour: none. Spore print: white.	Eucalyptus gomphocephala	14/07/2016
<i>Lindtmeria</i>	<i>chordulata</i>	NLB 1448	Fully resupinate dirty whitish; farinose (sometimes developing low mounds under lens); margin rather arachnoid gradually thinning. Same species as NLB 1447 and NLB 1144. Micro: Spores: globose, finely echinulate thin to slightly thick-walled, hyaline in KOH, strongly cyanophilic, prominent apiculus on most spores, size e.g. 5.0 to 5.3 microns diam. Cystidia absent. Basidia cylindrical, clamped, 4-spored, with cyanophilic wall and contents, size e.g. 37 x 8 microns. Hyphae: branching right-angles, not clamped, including hyphae in the abundant hyphal cords. All tissues hyaline in KOH, yellowish in Melzers. Odour: none. Spore print: white.	Acacia saligna understorey in Eucalyptus gomphocephala	14/07/2016
<i>Litschauerella</i>	<i>gladiola</i>	NLB 1411	Small pale grey thin resupinate patches which when viewed under hand lens appear densely hirsute (small erect hairs); margin abrupt and not differentiated. Micro: confirmed thick-walled roughened tapering cystidia, and globose/subglobose spores.	Macrozamia	30/06/2016
<i>Micromphale</i>	<i>australiense</i>	NLB 1470	Characteristic features: (i) pileus to 20 mm diam., dark red-brown when young, later less so and translucent-striate; (ii) lamellae white when young, later warm brownish; edge smooth/entire; (iii) stipe up to 30 x 1 mm; dark pinkish-reddish (blackish in lower part), densely covered with short dark hairs along the entire length; (iv) basal mycelium not conspicuous - is white sparse. Micro: Spores: (see images in Melzers): size e.g. 8.5 x 4.2; 9.3 x 4.3; 10.2 x 5.3; 8.1 x 4.2; 9.3 x 3.8; 9.5 x 4.3; 8.9 x 4.1 microns; fusoid to narrow ellipsoid, often with flattened adaxial in side view, some with hyphoid apical extension up to 8 microns long (these also seen in NLB1115, but not in NLB1355), thin/smooth-walled, not reactive in Melzers, apiculus conspicuous. Basidia: slender clavate, 4-spored, clamped. Cheilocystidia: abundant forming sterile gill edge; size e.g. 27 x 9; 31 x 7; 18 x 5 microns; highly variable e.g. clavate, ventricose, fusoid, hyphoid, sometimes branched and multiseptate often with constricted septa, outline ranging from not or barely angular-nodulose to markedly nodulose, with variable apex - e.g. obtuse or narrowed, angular-truncate or dentate, or nodulose; thin-walled; clamped at base; contents glassy or finely granular/guttulate. Pleurocystidia: absent. Pileipellis: brown-encrusted hyphae with finely encrusted undifferentiated terminals rarely branching but not nodulose or divaricate forming trichodermial bundles in parts; not gelatinised. Stiptipellis: with densely entangled fascicles of sinuous, thin/smooth-walled clamped hyphae 3.5 - 4.5 microns wide arising from the clamped hyphae of the stipe, apex obtuse undifferentiated.	Eucalyptus gomphocephala	21/07/2016
<i>Mycocalicium</i>	<i>subtile</i>	NLB 1465	Minute dome-shaped to ellipsoid black heads up to 0.5 mm wide on a dark brown to black narrow stalk up to 1 mm tall. No evidence of intervening mycelium in between the individual fruit bodies. Surface of the heads appears to be smooth or sometimes with low lobes. Old stroma can become flat-topped. Could this possibly be produced by a lichen? if so, This is a 'calicioid fungus'. Micro: Spores fusoid, not inequilateral, brown in KOH (greenish when young), aseptate, thick-walled, minutely punctulate? (or a wrinkling perisporium?), size e.g. 9.8 x 4.8; 10.9 x 4.7; 7.9 x 4.6; 8.5 x 4.4 microns. Asci: cylindrical, 8-spored, size e.g. 66 x 4.5 microns. Not forming in discrete perithecia but lining the perimeter of the head. Paraphyses: abundant, hair-like (very thin-flexuous), branching hyaline, usually not projecting. In melzers: spores still seem greenish when young, same mature colour as in KOH, fine ornamentation and thick wall evident. Asci not amyloid. Odour: none.	Eucalyptus gomphocephala	21/07/2013
<i>Peniophora</i>	<i>sp.</i>	NLB 1449	Undetermined grey resupinate with characteristic features: (i) fully resupinate, thin, firmly attached; (ii) mature areas grey densely cystidiate (very short crowded cystidia?) (iii) immature areas darker grey, thinner and filmy, minutely farinose under lens; (iv) margin abrupt, undifferentiated; (v) no rhizomorphs. Micro: spores ellipsoid, hyaline, finely punctate. Cystidia thin-walled at apex but thicker lower with obtuse unswollen apex, base broadening with abrupt-angular point joined to pedicel. Odour: none. Spore print: white.	Eucalyptus gomphocephala	14/07/2016
<i>Peniophora</i>	<i>cinerea</i>	NLB 1450	Characteristic features: (i) grey with slight reddish tinge, under lens appears frosty due to very dense covering of short cystidia; (ii) margin often darker reddish than elsewhere, quite abrupt and not fimbriate. Odour: none. Spore print: white. Micro: abundant metuloid cystidia with crystal-encased apex.	Eucalyptus gomphocephala	14/07/2016

Genus	Species	Collection No.	Descriptive Notes	Plants	Date
<i>Peniophora</i>	<i>scintillans</i>	NLB 1450	Fully resupinate, yellowish-cream with some slightly reddish stained areas; surface smooth, appearing densely frosty under lens; margin undifferentiated abrupt sometimes reddish; no rhizomorphs. micro: Abundant metuloids with conical crystal-encrusted apex; in multiple layers. Spores small, ellipsoid, smooth-walled, hyaline. odour: none. Spore print: white.	Eucalyptus gomphocephala	14/07/2016
<i>Peziza</i>	<i>cf. thozetii</i>	NLB 1446	Characteristic features: (i) ascocarp 18 x 10 mm, x 1 m deep; sessile; concave; (ii) outer surface of ascocarp pale greyish-cream, smooth (minutely glistening under lens); (iii) upper surface of ascocarp purplish-beige, uniformly so, (near Brit. Fl. Chart No. 31 - vinaceous buff); (iv) rim of ascocarp pale grey, smooth to the eye but minutely fimbriate or crystalline under lens. Odour: none. Micro: Spores: ellipsoid to subfusoid, often with a truncate apiculus-like peg (e.g. 2 x 2 microns) at each end; finely and densely verruculose uniformly over entire surface, warts not circular but irregular in shape; slightly thick-walled, hyaline to pale yellowish in Melzers; not guttulate; size (including apiculae) e.g. 20.5 x 9.9; 16.7 x 8.7; 17.7 x 9.4; 19.4 x 8.7; 15.8 x 7.1 microns. Asci: cylindrical with simple base; 8-spored; strongly amyloid tip and wall at least in upper half; width e.g. 13.3; 13.7 microns. Paraphyses: projecting just beyond the asci; abundant; filiform (narrow cylindrical) 3 - 5 microns wide, not branched, apex not or only slightly swollen (up to 6 microns) and not bent: smooth-walled with granular orange-yellow contents in Melzers; sparsely septate. In KOH: spores usually with 2 guttules but sometimes with more smaller guttules, all hyaline, ornaments and but obscure and better visible in side view; pegs visible but obscure; paraphyses with glassy smooth contents.	Eucalyptus gomphocephala	14/07/2016
<i>Phellinus</i>	<i>sp.</i>	NLB 1421	Characteristic features: (i) fully resupinate contiguous growth and small isolated patches; (ii) pores small (3-4 per mm) circular or elongated, rusty brown; (iii) tubes paler, pinkish, up to 1 mm long, subtended by a narrow dark brown subiculum; (iv) KOH applied on the hymenium turns it instantly black. Odour: none.	Eucalyptus marginata and Banksia.	30/06/2016
<i>Phlebia</i>	<i>sp.</i>	NLB 1389	Surface is smooth except for rounded low tubercles. Colour: it has various colours but is dominated by parts which are tan-coloured (near Methuen 5C5; near Munsell 6C7; near Brit. Flora Chart 'fulvous' and 'sienna'). The fruit body margin is much paler-cream forming an appressed narrow densely fimbriate border. Micro: Spores subcylindric with slightly concave adaxial, thin walled, 1 large guttule (in KOH), not amyloid, size e.g. 3.5 x 2.1 microns. Cystidia: absent. Basidia: cylindrical, clamped, long narrow sterigmata (up to 5 microns long), size e.g. 24 x 4; 25 x 4.1 microns. Subhymenium: clamped hyphae 2 - 3 microns wide, increasingly gelatinised towards the completely gelatinised subiculum. Hyphal system: monomitic, clamps present, all hyphae hyaline. Purplish extracellular pigment evident in Melzers?	Eucalyptus gomphocephala	16/06/2016
<i>Phlebiopsis</i>	<i>crassa</i>	NLB 1358	Purplish-lilac, fully resupinate, smooth, finely dotted black (under lens), margin with a band of white fimbriate mycelium. Odour: none. Micro: fusoid brown, encrusted, metuloid projecting cystidia on long pedicels; loosely arranged context hyphae, septate, lacking clamps.	Eucalyptus gomphocephala	27/05/2016
<i>Piptoporus</i>	<i>australiensis</i>	NLB 1329	Characteristic features: (i) bright orange pores/tubes and context; (ii) exuding copious saffron yellow liquid when cut. Odour: mushroom (not curry).	Eucalyptus gomphocephala	25/03/2016
<i>Pleuroflammula</i>	<i>sp.</i>	NLB 1356	Characteristic features: (i) pileus up to 35 mm wide, rich agate brown (Methuen 7E8), with paler network of coarsely matted-fibrillose appressed surface especially dense and forming scales at the pileus margin which is strongly incurved (perhaps inrolled?); (ii) stipe up to 4 mm long x 3 mm wide, white densely hirsute (erect white hairs), enveloped by the pileus (i.e. a caudate form); (iii) lamellae yellow in button, pale brown when mature, coarsely cystidiate irregularly dentate edge, broadly adnexed to adnate. Odour: none. Micro: Spores 6.7 - 9.5 x 4.9 - 6 microns, ellipsoid, apex not mucronate, no germ pore obvious, pale brown in KOH, smooth-walled, some spores thick-walled. Cheilocystidia: crowded forming sterile gill edge, multi-septate (no clamps), variously shaped - e.g. cylindrical, contorted/distorted, stragulate, sometimes branched once or more, with apex not swollen or swollen clavate or subcapitate up to 12 microns wide, below (i.e. the main part) 4-5.5 microns wide, overall length 25 - 82 microns, hyaline, thin-smooth-walled. Pleurocystidia: absent. Basidia: e.g. 31 x 7.4 microns, clavate, hyaline, 4-spored, clampless. Pileipellis: has trichodermal bundles of brown-encrusted, thick-walled, clampless hyphae.	Eucalyptus gomphocephala	27/05/2016
<i>Plicaria</i>	<i>cf. alveolata</i>	NLB 1417	NLB1417 seems close to <i>Plicaria alveolata</i> but is more likely a different or new species; by virtue of: (a) reticulate spore ornamentation; (b) presence of brown amorphous substance (as noted in the type material by Rifai 1968). Differences may include: (1) type material is sessile whereas NLB1417 has a well-developed tapering stalk; (2) type material spores has regular (6-sided) reticulate ornamentation, whereas NLB1417 is irregular. Characteristic features: (i) black with slight purplish tinge, with the cup seated at ground level supported by a subterranean tapering stalk up to 15 mm long concolorous with the cup; (ii) all surfaces smooth, and the cup rim without any adornments. Odour: none. Micro: Hymenium: asci and paraphyses overlain by a continuous layer: outermost part dark brown (in KOH) of refractive angular and amorphous elements; then below a gelatinous matrix up to 25 microns wide in which lie the tips of the asci and paraphyses. Spores: globose, pale brown in KOH, with a reticulate ornamentation of narrow ridges up to 1 micron wide and up to 4 (4.5) microns tall, embedded in a pale brown perisporium; size (including ornamentation) e.g. 20.1; 18.7; 17.7; 20; 22.3 microns diam. Asci: cylindrical, 8-spored, blue tipped in Melzers, wall up to 2 microns thick at apex, width e.g. 25.4; 24.9; 24.6 microns. Paraphyses: barely projecting beyond the asci, apex unswollen, sometimes suppressed sideways due to overlying matrix, abundant, very narrow cylindrical (3.5-4.5 microns wide), unbranched, sparsely septate, hyaline/glassy-pale yellowish (in KOH), not reactive in Melzers.	Eucalyptus marginata and Banksia.	30/06/2016
<i>Poria</i>	<i>sp.</i>	NLB 1477	Fully resupinate, firmly attached; when young, white circular patches with densely fimbriate appressed margin and small (6-8 per mm) pores. When older and exposed, the patches coalesce and become dull brownish as if bruised (while patches do not bruise upon touch). Odour: none. KOH no reaction on surface. Spore print: white. Micro: Immature, no mature basidia or spores. Dimittic hyphal system; clamps on generative hyphae. Scattered hyphae-like cystidia with upper part coated with angular crystals.	Eucalyptus gomphocephala	09/08/2016
<i>Porostereum</i>	<i>crassum</i>	NLB 1476	Fully resupinate, smooth, glistening under lens, purple-magenta (near Methuen 13F5), with white fimbriate margin. Not mature (not sporing). Odour: none.	Eucalyptus cladocalyx	09/08/2016
<i>Psathyrella</i>	<i>candolleana</i>	NLB 1354	Characteristic features: (i) pileus pale tan to pale grey towards the margin, strongly hygrophanous, smooth (minutely glistening under lens), convex to bluntly campanulate, young margin with adhering ragged fibrillose white velar remnants, not or very obscurely only translucent striate, up to 50 mm diam.; (ii) stipe up to 70x5 mm, white, silky longitudinally fibrillose, pruinose at apex, hollow, base unswollen; (iii) lamellae adnexed, to 4 mm deep, crowded, cream in button eventually chocolate brown, edge minutely cystidiate. Odour: none. Spore print: chocolate brown. Micro: Spores: ellipsoid in side view, ellipsoid to ovoid in face view, with wide central germ pore, thin/smooth-walled, pale brownish in KOH; size e.g. 7.2 x 5.7; 8.8 x 4.8; 8.3 x 5.2 (Face); 8.8 x 5.2 (F); 7.7 x 4.9; 8.1 x 5.1; 7.7 x 4.6 microns. Cheilocystidia: crowded, cylindrical to utriform, some apices slightly swollen, some with a few resinous bubbles at apex, clamped at base, size e.g. 39 x 8.8; 30 x 8.6; 19 x 7.5 microns. Pleurocystidia: none seen. Veil from pileus margin: cylindrical hyphae 3 - 12 microns wide, smooth-walled, clamps present on most (all?) septa. Upper stipe: with a few scattered cylindrical cystidia similar to the cheilocystidia, clamped, e.g. 47 x 7.5 microns.	Eucalyptus gomphocephala	27/05/2016
<i>Punctularia</i>	<i>strigosozonata</i>	NLB 1423	Presence of tree-like branched dendrophysoid hyphae in hymenium confirmed under microscope. Odour: none.	Eucalyptus marginata and Banksia.	30/06/2016
<i>Pyronema</i>	<i>omphalodes</i>	NLB 1335	Bright orange lumpy coalescing mats sometimes associated with soil transformed orange due to its mycelial growth. Odour: not distinctive.	Open banksia-tuart woodland burnt 10 days previous (on 24th April 2016).	04/05/2016
<i>Schizopora</i>	<i>paradoxa</i>	NLB 1404	Resupinate forming lacerate curtain-like tubes (irpicoid); dry hard consistency; cream with a slight pinkish tinge; margin with a zone of appressed white loosely matted fibrils. Micro: Spores: ellipsoid, smooth/thin-walled, with a large guttule, small apiculus, size e.g. 4.7 x 3.8; 5 x 3.6; 4.6 x 3.7; 5.4 x 3.8 microns. Hyphae: dimittic? but most of the thick-walled hyphae have clamped septa, not giving rise to skeletocystidia; generative hyphae with clamps, all hyaline (in KOH). Cystidia: (i) Cylindrical cystidia some with crystals; (ii) Capitate cystidia, some with apical crystals. [Aculeate cystidia were also seen in abundance in one patch seen only, suggesting these may be of a contaminant origin?, size e.g. 25 x 2.5 microns.] Odour: none. Spore print: white.	Eucalyptus rudis	23/06/2016
<i>Scleroderma</i>	<i>areolatum</i>	NLB 1370	Characteristic features: (i) small size, only up to 15 mm diam.; (ii) peridium thin, finely scaly; (iii) base with short stipe and compact rhizoidal part below. Odour: strong sclerodermid.	Corymbia calophylla	11/06/2016

Genus	Species	Collection No.	Descriptive Notes	Plants	Date
<i>Sebacina</i>	<i>sp.</i>	NLB 1422	Fully resupinate gelatinous-like (not liquid, but more waxy-like) spreading growth; grey but with various tinges of blue and pink; smooth but with minute waxy globose and rounded tubercles; no rhizomorphs. Micro: Basidia: globose to pyriform, with sharp sterigmata up to 10 microns long, 4-spored, size e.g. 11.1 x 9.1; 13 x 6.6; 19 x 9.1 microns. Spores: ellipsoid, smooth/thin-walled, granular contents, size e.g. 7.1 x 5.9; 7 x 5.2 microns. No clamps seen. Odour: none.	Eucalyptus marginata and Banksia.	30/06/2016
<i>Sistotrema</i>	<i>sp.</i>	NLB 1402	Fully resupinate grey thin patches on leaves, easily removed. Micro: Basidia: normal as 7 -8 spored, but also single spored aculeate cystidia-like types present, e.g. 30 x 2 microns. Hyphal system: monomitic, clamped. Cystidia: scattered gloeocystidia cylindrical with obtuse apex, oily-grainy contents, not projecting, e.g. 23 x 4.5; 34 x 4.5 microns. Spores: ellipsoid, small e.g. 2.8 x 2.2 microns.	Eucalyptus gomphocephala and Corymbia calophylla	23/06/2016
<i>Steccherinum</i>	<i>ochraceum</i>	NLB 1414	Characteristic features: (i) hymenium of pale pinkish-orange mainly blunt teeth perhaps less than 0.5 mm tall; (ii) fruit bodies forming resupinate patches or with upper margin effuso-reflexed to form small shelf-like fruit bodies scattered on the substrate. Odour: none.	Woodland of Eucalyptus marginata and Banksia.	30/06/2016
<i>Steccherinum</i>	<i>sp.</i>	NLB 1468	Fully resupinate, extensive sheets of horizontal layers of cream curtain-like projections up to 2 mm long, mainly with blunt apices subtended by a narrow brown perhaps gelatinised subiculum. Margin abrupt. NLB 1468 may well be of genus <i>Steccherinum</i> and is likely to be the same species as E 8372 (PERTH 7700296)? (i) hyphal system with thin-walled clamped hyphae - the latter otherwise resembling skeletal; (ii) encrusted terminals at the tips of the aculei (not present at the sides); (iii) smooth ellipsoid-cylindrical spores non-reactive in Melzers. Micro: Subiculum (very thin) and the context of the aculei: comprised of thin-walled and thick-walled clamped hyphae 1.5-5 microns wide - the latter otherwise resembling skeletal (and some may be true skeletal?), pale yellowish in KOH. Subhymenium: of hyaline thin-walled clamped hyphae. Spores: ellipsoid-subcylindrical, smooth/thin-walled, hyaline, not reactive in melzers, 1 guttule (as seen in water, none in melzers), size: e.g. 5.3 x 2.3; 5.5 x 3.3; 5 x 3.21 microns. Cystidia: lageniform to variable ends of hyphae, thin-walled but many encrusted (scattered - not densely encrusted, best visible in water as dissolves in KOH), these present at the tips of the aculei but absent or less so on the sides; size e.g. 22 x 4.7; 13 x 5 microns. On the sides there are often scattered more uniformly lageniform cystidia delimited by a clamped septum at their base. Odour: none. Spore print: white.	Eucalyptus gomphocephala	21/07/2016
<i>Suillus</i>	<i>subacerebus</i>	NLB 1375	Main features: (i) flesh pale yellow intensifying a bit after cut, paler in the stipe; (ii) scabres on stipe dark brown extending over whole length but larger towards the stipe base; (iii) pileus dark red brown (near Methuen 8E8 to 9F8), viscid; (iv) stipe length similar to or shorter than (particularly in large specimens) the pileus diameter; (v) hymenium not bruising; (vi) when 3% KOH drops applied instantly turns the pileus context and hymenium (tubes) dark red but this dulls in the context and rapidly becomes very dark on the hymenium. Becomes rapidly grey on the pileus and remains grey. Leonard & Batchelor (2010) key to the <i>Suillus</i> species in Aust/NZ, suggest <i>S. granulatus</i> is associated with European pines (e.g. <i>P. sylvestris</i>) and its pileus does not react with to KOH, whereas <i>S. subacerebus</i> is with North American pines (e.g. <i>P. radiata</i>) and its pileus does react to KOH. Given that NLB 1375 (i) was collected under <i>P. radiata</i> and (ii) has distinctive reactions to KOH, it seems appropriate to identify it as <i>Suillus subacerebus</i> and not <i>S. granulatus</i> .	<i>Pinus radiata</i>	11/06/2016
<i>Tomentella</i>	<i>cf. scobinella</i>	NLB 1403	Fully resupinate mauve (between date brown-purplish date - British Flora Chart); minutely felty to granulose-pulverulent (minute mounds of felty material - not powdery though); no rhizomorphs; margin not differentiated and quite abrupt; easily removed. Micro: Spores: frontal - slightly lobed to triangular; lateral - ellipsoid; echinulate (up to 1.5 microns tall); brown in KOH, with a large guttule; size (excluding spines): e.g. 8.6 x 7.1 (Frontal); 8.9 x 6.8 (Lateral); 8.6 x 5.7 (L); 8.5 x 6.6 (F); 7.8 x 5.7 (F); 8.5 x 6.5 (L). Basidia: cylindrical sometimes sinuous, not pedicellate (not stalked); pale brown; sterigmata large and curved up to 10 microns long; clamped; e.g. 45 x 9.8; 47 x 8; 34 x 7.5 microns. Subhymenium: hyphae not short or inflated, brown, sometimes slightly thick-walled. Subicular hyphae: monomitic; pale to dark brown (in KOH); not short or inflated; clamps on many (but not all) septa; thin to thick-walled; branching at near right-angles, cross-shaped branching rare; 3 - 6.5 microns wide. Hyphal cords: rare but when sought out (by picking off some with tweezers) monomitic, clamped, brown. Cystidia: absent (no capitate or other distinct types). Some narrow cylindrical to slender-clavate, hyaline or pale brown, barely projecting, aseptate, smooth-walled terminals with obtuse apex present e.g. 29 x 3.7 microns - these may be immature basidia. Odour: none. Spore print: brown.	<i>Eucalyptus rudis</i>	23/06/2016
<i>Trechispora</i>	<i>sp.</i>	NLB 1467	Fully resupinate, firmly attached, very thin, pale grey, under lens minutely pulverulent or nodulose. No differentiated margin. No rhizomorphs. Micro: Spores: very small, e.g. 3 x 2.6; 3.1 x 2.6 microns, broad ellipsoid, spinulose, hyaline, non-reactive in Melzers. Basidia: small stubby cylindrical, clamped, don't appear to be pleuropodial, 10-15 x 4.5 microns, spored, sterigmata slender up to 4.5 microns long. Cystidia: absent. Subicular hyphae: monomitic; a very narrow layer of hyaline, clamped narrow (1-2 microns wide) thin/smooth-walled hyphae loosely arranged. Odour: none. Spore print: white.	<i>Eucalyptus gomphocephala</i>	21/07/2016