Perth
Urban
Bushland
Fungi

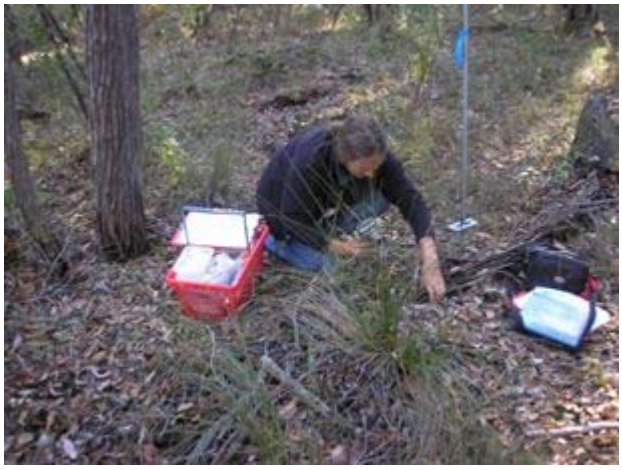
Wungong Catchment Trial Fungi Report 2008

Written and produced by
Neale L. Bougher, Roz Hart,
Sarah de Bueger & Brett Glossop
Department of Environment and Conservation – Perth Urban Bushland Fungi Project

Group ready to set out

Checking the GPS

Photographing fungi with GPS close by



Checking out the fungus before photographing it

PUBF Website : www.fungiperth.org.au

Western Australian Naturalists Club
WATER CORPORATION
Department of Environment and Conservation
Urban Bushland Council WA Inc
lotterywest supported

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Department of Environment and Conservation (DEC) – *Perth Urban Bushland Fungi Project*

Advice about the identity of the fungi was provided by Dr Neale Bougher, Mycologist. Organisational and technical support was provided by officers on the PUBF project – Roz Hart, Sarah de Bueger, and Brett Glossop.

Photos and field assistance by PUBF Fungi Leaders and participants

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PUBF Website : www.fungiperth.org.au

The Perth Urban Bushland Fungi project (PUBF) began in 2004 as a partnership between the Urban Bushland Council, the Western Australian Naturalists' Club and DEC's WA Herbarium, to raise awareness about fungi and their importance and role in bushland management, and to increase community skills for undertaking surveys of fungi. At the present time the WA Naturalists' Club is the lead partner. The mission of the Naturalists' Club is to encourage the study and protection of the natural environment and thus the Club and its members are fully involved in and support the Project.

Introduction

The Wungong Catchment is a forested catchment of 12,845 hectares near the city of Perth in Western Australia, and has supplied water to Perth since 1925 (see maps 1, 2). The Water Corporation is chartered with providing sustainable management of water services in Western Australia, including water supply from the Wungong Catchment (Water Corporation 2007). A 12 year silviculture trial funded by the Water Corporation aims to enhance water availability, biodiversity and timber values in the Wungong catchment. The trial involves operations such as thinning, control of coppice and regrowth and prescribed burning. Community involvement in understanding the management of water and the environment in the Wungong Catchment is crucial to the Water Corporation operations in the catchment. The potential impacts of operations in the Wungong Catchment on biodiversity - flora, fauna and fungi - are a major issue.

Fungi are a diverse and functionally significant component of eucalypt forests and woodlands, including bushlands of the Perth region. Fungi are not plants but have their own Kingdom, more closely related to animals than plants. Far more species of fungi than plant species occur in ecosystems such as the tall eucalypt forests dominating much of the Wungong Catchment. Legislative, corporate and community profile and awareness of fungi has increased in recent years in line with increased recognition that fungi interlink with flora and fauna to help sustain the long-term health and resilience of bushland. In Australia, hundreds of species of fungi form beneficial symbiotic partnerships with many of our native plants such as eucalypts and wattles. Extensive fungal networks transport nutrients and carbon throughout soil, recycle nutrients, buffer plants against stresses such as disease, bind soil, improve the soil organic matter, and provide food and/or habitat for many animals such as bandicoots and insects. Fungi are highly sensitive to changes and disturbances; fire, removal of logs and other events can affect the spatial distribution and abundance of fungi.

In 2008 for the first time, protocols for community-based fungi surveys developed by the Perth Urban Bushland fungi project (PUBF) were applied in the Wungong Catchment Trial. The purpose of undertaking a public community-based study of fungi biodiversity in the Wungong Region was to:

- foster public participation, awareness and education about fungal biodiversity and the role of fungi for the long-term health of Wungong Catchment.

- help build scientific data for benchmarking and for monitoring fungal biodiversity.

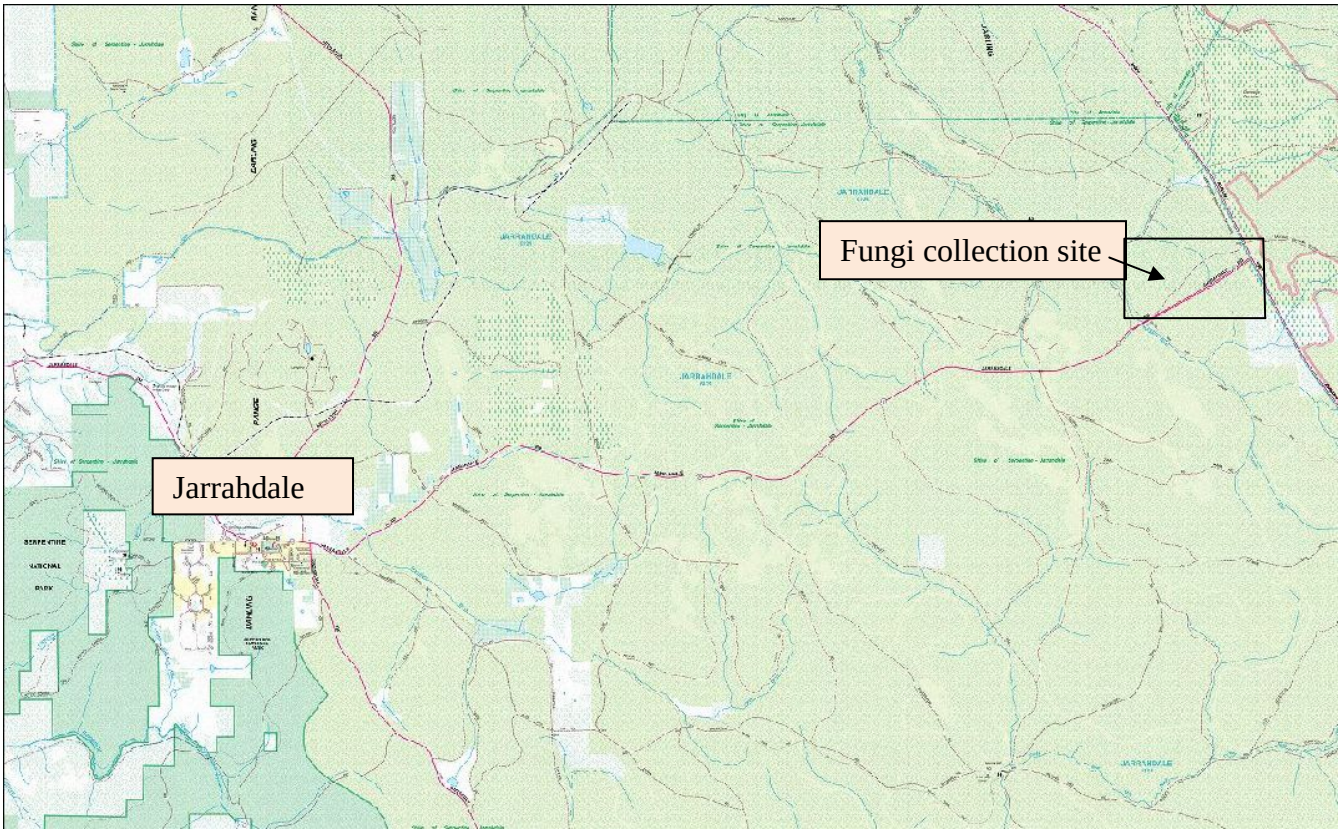
This report presents data resulting from a Perth Urban Bushland Fungi (PUBF) Project event held with the sponsorship of the Water Corporation of Western Australia over two days on the weekend of 14 & 15 June 2008 in their Wungong Catchment Trial area. The event was organised with the assistance of the Water Corporation. This report also provides management recommendations for understanding and conserving fungi biodiversity in this bushland. A preliminary field survey of fungi in the Catchment Trial area was undertaken by volunteers and Fungi Leaders from the PUBF Project on Saturday 14 June, when the weather was mild.

Despite the inclement weather, members of the public were still keen to venture outdoors to see fungi

However the weather turned stormy on Saturday night. In spite of the awful weather, 49 people attended the Sunday workshop for interested members of the public. The workshop was held in the large hall at the Grass Roots Holiday Haven, just west of Jarrahdale. Mycologist Neale Bougher talked to the public about the 3 Fs, and about why considering Flora, Fauna and Fungi together is important for managing natural bushland. The weather made it dangerous to collect in the trial area, so, when there was a lull in the rain, the workshop was interrupted and all those who wished to, were taken for a short walk outside the hall to see the fungi in the bush there. After lunch, Neale led a workshop session where he identified many of the fungi collected by the leaders the day before and talked about their characteristics, while the PUBF volunteer leaders and staff led other workshop sessions for small groups about how to record fungi and use GPS technology to locate them, where to find further resources and information, how to draw and photograph fungi, and one group examined fungi under the microscope. People rotated through the different workshop topics during the afternoon.

Map 1 : showing the location of Perth in Western Australia

Map 2 : Aerial photo of the Perth region showing the location of the Wungong Catchment



Map 3 : Location of the fungi collection site in relation to the nearby town of Jarrahdale.
The aerial photo below is of the fungi collection site box marked above

Map 4 : Tracks made by the 5 groups of leaders collecting on Saturday 14 June.
Please note that the scale is very different to that of Map 3 above.

Wungong Catchment Fungi

Dangerously windy and stormy weather on the weekend of this event in June 2008 restricted the field survey to a single site and time, and it was not possible to lead community members on a planned second foray. Nevertheless, the fungi survey that was undertaken at the Wungong Catchment Trial area (see maps 3 and 4) resulted in 85 records, comprising 51 different fungi species (Table 1). Fifteen collections were vouchered into the Western Australian Herbarium (Table 2). The fungi included genera of decomposer fungi such as *Fomitopsis*, *Panellus*, and *Mycena*, and mycorrhizal fungi belonging to genera such as *Amanita, Inocybe,* and *Russula*. The pathogenic (disease) fungus *Armillaria luteobubalina* also was observed (fungus voucher E9113). At the survey location there were no obvious disease symptoms shown by the vegetation (such as deaths of trees or shrubs) that could be attributable to *Armillaria*.

Many of the fungi recorded in this survey remain tentatively identified or unidentified pending further collections, or more detailed comparative analyses. Some of the fungi could only be identified to genus level. This is because detailed taxonomic examinations are yet to be completed or perhaps some are undescribed species.

Management recommendations for understanding and conserving fungi biodiversity in the Wungong Catchment

This work has for the first time engaged the community, in beginning to understand and build base-line information about fungi as a major component of biodiversity in the Wungong Catchment. The Wungong Catchment has a wide range of natural and rehabilitated vegetation types that undoubtedly influence the presence, abundance and spatial distribution of fungi species in the region. Fungal communities are likely to vary in relation to management operations such as thinning and burning. Vegetation-fungi patterns could be clarified if surveys of fungi were carried out annually over many years in selected permanent plots to augment other surveys monitoring changes in other biodiversity due to operations being undertaken in the Wungong Catchment Trial.

Management recommendations involving fungi include:

1. **Undertake biological surveys to build up an inventory of fungi and to monitor changes in relation to management operations:** Broader surveys undertaken elsewhere in jarrah forests suggest that many more fungi species occur in the Wungong Catchment than the 51 species recorded in the current survey. The fruiting of fungi is very weather dependent and one season will not provide sufficient data to document the fungi of any particular area. Due to the unpredictable nature of fungi fruiting, surveys need to be conducted over many years in order to capture the biodiversity of fungi present in any given area. Such inventory data may be used to classify fungi communities in the Wungong Catchment, and may serve as a baseline for monitoring changes in biodiversity in the Catchment - e.g. any trend towards changes in the diversity of significant ecological groups of fungi such as mycorrhizal species, and the effects of major operations such as thinning and fire.
2. **Record comprehensive data on surveys:** (i) the identity of the fungi (ii) the main features of the fungi (including close-up photographs) (iii) habitat (in litter, on dead wood etc.) and (iv) plant species associated with each of the fungi. Standard recording sheets for fungi biodiversity surveys are available on request from PUBF (DEC Western Australian Herbarium), or from the website at www.fungiperth.org.au.

3. **Georeference the surveys:** It would be desirable to georeference the surveys at Wungong Catchment in order to build up a spatial map of distribution of individual fungi species. Such data can be overlain onto vegetation, soil and fire-age maps so as to potentially recognise associations between particular fungi and plants, or vegetation and landscape types. A georeferencing survey kit developed by John Weaver for PUBF is available on loan from the Western Australian Herbarium.
4. **Involve community:** It is recommended that further fungi surveys, involving members of the Wungong/Jarrahdale community, be undertaken in the Wungong Catchment Trial. The involvement of local community members can facilitate a greater sampling effort, a general increase in awareness about fungi and their roles and linkages in bushlands, and a greater appreciation of the need to preserve bushland. Fungi surveys are well suited to annual involvement of Friends Groups and volunteers from the local community.
5. **Determine the mycorrhizal plant partners of fungi.** To understand the mycorrhizal relationships between fungi and plants in the Wungong Catchment, a list of known plants at the bushland should be annotated with the likely mycorrhizal status of each plant (e.g. categories such as, ectomycorrhizal, arbuscular, epacrid, orchid, and not mycorrhizal). This will help understanding of how the pattern of occurrence of various species of fungi relates to the distribution of vegetation types in the Wungong Catchment.
6. **Determine the animal interactions with fungi:** Determine what truffle fungi are present in the Wungong Catchment and if they and other fungi are being used as a food resource by local native mammals such as bandicoots. Such knowledge has significant application if mammals are being encouraged or relocated into the area, or to help understand why there may have been declines in mammal populations in the Wungong Catchment. Insects that use fungi as food and/or habitat are also likely to be present in the bushland.
7. **Management and monitoring of Armillaria:** *Armillaria luteobubalina* was recorded during the 2008 survey in the Wungong Catchment. This fungus is a pathogenic (disease) fungus that can infect and kill many types of native and exotic trees (see Bougher 2007, page J2). The most obvious consequences of *Armillaria* infestation can include the death of trees and shrubs, but the overall effect on bushland ecology and the capacity of bushlands to recover is not known. *Armillaria luteobublalina* is considered to be a native fungus in southwest Australia, so presumably has long been part of bushland ecology in the region, probably including the Wungong Catchment. For the Wungong Catchment, the presence of *Armillaria* may not be a major concern at the present time as it may be infrequent and in balance with the ecosystem. The occurrence of high biodiversity of all types of fungi in bushlands and therefore the various contributions of those fungi to the overall health of bushlands may be one factor determining the frequency and severity of infestations of *Armillaria* (and other disease fungi).

   Management strategies that aim to nurture fungi biodiversity in bushlands such as the Wungong Catchment therefore may be desirable from a disease management perspective as well as from a more general biodiversity perspective. Direct management to contain particular *Armillaria* infestations is complex and an analysis of the various intervention options is beyond the scope of this report. In most cases in southwest Australia, *Armillaria* infestations have been periodic, often flaring up and diminishing after a period of time. The underlying causes of such fluxes are not fully understood. *Armillaria* may or may not ever cause major disease issues in the Wungong Catchment. However, it is recommended that georeferenced surveys of *Armillaria* be undertaken to create a spatial map of the distribution of this fungus. This data can be overlain onto vegetation, soil and fire-age maps so as to

potentially recognise associations between its occurrence and plants or vegetation and landscape types. It would be desirable to undertake the surveys successively over time to be able to monitor the spread, intensity and duration of *Armillaria* in the Catchment.

8. **Include Flora, Fauna and Fungi in signage and interpretative material at the Bushland:** To promote public awareness and appreciation of the conspicuous and less conspicuous biodiversity in the Wungong Catchment and the linkages between the 3Fs that influence the long-term health of the bushland.
9. **Support a strategy to preserve representative landscapes:** Support a management plan that aims to preserve a variety of natural vegetation types and the diversity of plant species within the types. Also preserve a diversity of fire ages, including at least some long unburnt patches if possible. This strategy will help retain a variety of microhabitats for fungi – e.g. specific components of wood (logs, banksia bark, twigs etc.), litter, moss beds and specific mycorrhizal partner plants. In turn, this strategy may foster fungi biodiversity and also help to limit disease incursions in the Wungong Catchment.

References

Bougher, N.L (2007) Perth Urban Bushland Fungi Field Book. Perth Urban Bushland Fungi, Perth, Western Australia (self managed format linked to www.fungiperth.org.au).

Water Corporation (2007) Wungong Catchment environment and water management project. Water Corporation, Leederville, Western Australia.

Table 1 : Wungong Catchment Trial, Fungi List: 14-15 June 2008

Life Mode Key: M = Mycorrhizal, S = Saprotrophic (Decomposer), S/P = Saprotrophic and Parasitic. Life Mode allocation is based on probability only, as many fungi have not been tested.

Field Book Page # refers to the Perth Urban Bushland Fungi Field Book which is available for downloading from the project website at www.fungiperth.org.au

Fungimap Target: refers to species that have been selected by the Australia-wide mapping project, Fungimap, for collecting detailed records to be compiled into distribution maps. See Fungimap on-line at www.rbg.vic.gov.au/fungimap and the book *Fungi Down Under* by Grey, P. and Grey, E (2005).

Scientific Name	Common Name	Form	Habitat	Life Mode	Fungimap Target Species	Field Book Page #	Specimen ID
***Agaricus* sp.**		mushroom	litter/ground	S			3614
Amanita xanthocephala		mushroom	litter/ground	M	Yes		3633
Armillaria luteobubalina	**Australian Honey Fungus**	mushroom	dead/living trees & roots	P	Yes	J-2	3615
Austroboletus occidentalis		mushroom	litter/ground	M			3622
Austropaxillus infundibuliformis	**Funnel Pax**	mushroom	litter/ground	M		J-25	3631
***Banksiamyces* sp.**		cup	dead wood	S			3661
Calocera guepinioides	**Scotsman's Beard**	jelly fungus	dead wood	S		Q-1	3587, 3627
Ceratiomyxa fruticulosa	**Slime Mould**	slime mould	dead wood	S	Yes	Z-2	3654
Coltriciella dependens		mushroom	litter/ground	S			3666
Cortinarius sinapicolor		mushroom	litter/ground	M		J-39	3586, 3667
***Cortinarius* sp.**		mushroom	litter/ground	M			3595, 3640 3648
Cortinarius* sp. subgenus *myxaceum		mushroom	litter/ground	M			3642
Cortinarius* sp. subgenus *phlegmacium		mushroom	litter/ground	M			3647
Crepidotus nephrodes		shell	dead wood	S			3616, 3669
***Crepidotus* sp.**		shell	dead wood	S			3626
Crepidotus sphaerosporus		shell	dead wood	S			3620

Scientific Name	Common Name	Form	Habitat	Life Mode	Fungimap Target Species	Field Book Page #	Specimen ID
Dacryopinax spathularia		jelly	dead wood	S			3660
***Entoloma* sp.**		mushroom	litter/underground	S			3602, 3621
Fistulina hepatica	**Beefsteak Fungus**	bracket	dead wood	P/S	Yes	N-9	3609, 3629, 3655
Fomitopsis lilacinogilva	**Lilac Bracket Fungus**	bracket	dead wood	S		N-2	3618, 3636
***Grandinia* sp.**		resupinate	dead wood	S			3668
***Gymnopilus* sp.**		mushroom	dead wood	S			3625, 3639, 3643
Harknessia uromycoides	**Tuart Nut Fungus**	pustules	dead wood	S		C-1	3606
Henningsomyces candidus	**Miniature Chimney Pots**	tubular	dead wood	S		R-1	3650
Hypholoma australe		mushroom	dead wood/litter/ground	S			3612
***Inocybe* sp.**		mushroom	litter/ground	M			3619
Lactarius eucalypti		mushroom	litter/ground	M			3607, 3649
Laetiporus australiensis		bracket	dead wood	S	Yes		3662
***Lepiota* sp.**		mushroom	litter/ground	S			3603
***Marasmius* sp.**		mushroom	litter/ground	S			3637
Mycena carmeliana	**Orange Footed Pixie Cap**	mushroom	dead wood	S			3659
***Mycena* sp.**		mushroom	litter/ground	S			3588, 3598, 3604, 3632, 3641, 3645, 3646
Mycena subgalericulata		mushroom	litter/ground	S			3644
Panellus ligulatus		shell	dead wood	S			3613
***Peniophora* sp.**		resupinate	dead wood	S			3605
Phellodon niger		mushroom	litter/ground	M			3596, 3599 3623, 3656
Podoserpula pusio	**Pagoda Fungus**	mushroom	litter/ground	M	Yes		3594
***Poria* sp.**		resupinate	dead wood	S			3589, 3665
Psilocybe coprophila		mushroom	dung	S			3597, 3634
Ramaria capitata* var. *ochraceosalmonicolor		coral	litter/ground	M			3591, 3608

Scientific Name	Common Name	Form	Habitat	Life Mode	Fungimap Target Species	Field Book Page #	Specimen ID
***Ramaria* sp.**		coral	litter/ground	M			3585, 3635, 3658
Rickenella fibula	**Orange Mosscap**	mushroom	litter/ground	S		J-27	3638
Russula clelandii	**Cleland's Russula**	mushroom	litter/ground	M			3592, 3601, 3611, 3624, 3663, 3664
***Russula delica* group**		mushroom	litter/ground	M			3593, 3653
Russula flocktonae		mushroom	litter/ground	M			3590
***Russula neerimea* group**		mushroom	litter/ground	M			3617
***Russula* sp.**		mushroom	litter/ground	M			3652, 3657
***Schizopora* sp.**		resupinate	dead wood	S			3651
Sphaerobolus stellatus	**Cannonball Fungus**	birdsnest	dead wood	S		L-5	3628
***Tricholoma* sp.**		mushroom	litter/ground	S			3600, 3610, 3630

Table 2 : Permanent Vouchered Specimens

Fifteen of the fungi collected during this event were deposited into the Western Australian Herbarium with the following details:

Armillaria luteobubalina	**Voucher ID:** E9113	**Specimen ID:** 3615
Cortinarius sinapicolor	**Voucher ID:** E9129	**Specimen ID:** 3667
Cortinarius sp.	**Voucher ID:** E9116	**Specimen ID:** 3642
Fomitopsis lilacinogilva	**Voucher ID:** E9117	**Specimen ID:** 3618
Gymnopilus sp.	**Voucher ID:** E9121	**Specimen ID:** 3625
Gymnopilus sp.	**Voucher ID:** E9123	**Specimen ID:** 3639
Hypholoma australe	**Voucher ID:** E9127	**Specimen ID:** 3612
Inocybe sp.	**Voucher ID:** E9114	**Specimen ID:** 3619
Lactarius eucalypti	**Voucher ID:** E9115	**Specimen ID:** 3649
Mycena carmeliana	**Voucher ID:** E9120	**Specimen ID:** 3659
Mycena sp.	**Voucher ID:** E9118	**Specimen ID:** 3632
Mycena sp.	**Voucher ID:** E9125	**Specimen ID:** 3641
Panellus ligulatus	**Voucher ID:** E9126	**Specimen ID:** 3613
Psilocybe coprophila	**Voucher ID:** E9128	**Specimen ID:** 3634
Russula clelandii	**Voucher ID:** E9119	**Specimen ID:** 3624

Georeferenced Track and Photos

Jolanda Keeble's group, Wungong Catchment Trial, 14 June 2008.

The numbers on the coloured dots in the fungi photos correspond to the collecting number and usually **do not** match the photo number. It is the **photo number** preceding the fungus name that correlates with the site on the map above.

Event: Water Corporation Wungong Catchment Date: 14/06/2008
Group Number: 234 Leader Jolanda Keeble
Photographers Wayne Merritt, Joyce Evans

03 ***Ramaria*** **sp.**

Specimen ID: 3585
Amongst litter *in Eucalyptus marginata* (jarrah) woodland.
Latitude: 32° 18' 35.7"South Longitude: 116° 11' 18.9"East
14/06/2008 Image: WC83_234WM03

09 ***Calocera guepinioides*** **Scotsman's Beard**

Specimen ID: 3587
On dead wood in *Eucalyptus marginata-Corymbia calophylla* (jarrah-marri) woodland.
Latitude: 32° 18' 35.7"South Longitude: 116° 11' 18.4"East
14/06/2008 Image: WC83_234WM09

15 ***Poria*** **sp.**

Specimen ID: 3589
On dead wood in jarrah-marri woodland.
Latitude: 32° 18' 35.3"South Longitude: 116° 11' 18.2"East
14/06/2008 Image: WC83_234WM15

22 ***Russula clelandii***

Specimen ID: 3592
Growing amongst litter in jarrah-marri woodland.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 18.7"East
14/06/2008 Image: WC83_234WM22

24 ***Podoserpula pusio*** **Pagoda Fungus**

Specimen ID: 3594
Emerging through bark of dead eucalypt trunk in jarrah-marri woodland.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 18"East
14/06/2008 **Fungimap Target** Image: WC83_234WM24

28 ***Phellodon niger***

Specimen ID: 3596
Growing amongst woody litter in jarrah-marri woodland.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 17.8"East
14/06/2008 Image: WC83_234WM28

31 ***Mycena*** **sp.**

Specimen ID: 3598
Growing on dead wood in jarrah-marri woodland.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 17.8"East
14/06/2008 Image: WC83_234WM31

35 ***Tricholoma*** **sp.**

Specimen ID: 3600
Growing in sand amongst litter in jarrah-marri woodland.
Latitude: 32° 18' 34.8"South Longitude: 116° 11' 18"East
14/06/2008 Image: WC83_234WM35

	36 ***Russula clelandii*** Specimen ID: 3601 In sand amongst litter in jarrah-marri woodland. Latitude: 32° 18' 34.8"South Longitude: 116° 11' 18"East 14/06/2008 Image: WC83_234WM36
	37 ***Entoloma* sp.** Specimen ID: 3602 On jarrah nut amongst litter in jarrah-marri woodland. Latitude: 32° 18' 34.8"South Longitude: 116° 11' 17.9"East 14/06/2008 Image: WC83_234WM37
	39 ***Lepiota* sp.** Specimen ID: 3603 Growing on dead decorticated wood in jarrah-marri woodland. Latitude: 32° 18' 34.9"South Longitude: 116° 11' 18.1"East 14/06/2008 Image: WC83_234WM39

Georeferenced Track and Photos

Roz Hart's group, Wungong Catchment Trial, 14 June 2008.

The numbers on the coloured dots in the fungi photos correspond to the collecting number and usually **do not** match the photo number. It is the **photo number** preceding the fungus name that correlates with the site on the map above.

Event: Water Corporation Wungong Catchment Trial Date: 14/06/2008
Group Number: 235 Leader Roz Hart
Photographers: Wayne Eddy, Derek Mead-Hunter

05 ***Cortinarius sinapicolor*** **Slimy Yellow Cortinar**
Specimen ID: 3586
Amongst litter in *Eucalyptus marginata-Corymbia calophylla* (jarrah-marri) woodland.
Latitude: 32° 18' 36"South Longitude: 116° 11' 18.5"East
14/06/2008 Image: WC83_235DMH05

09 ***Mycena*** **sp.**
Specimen ID: 3588
Growing on dead wood in jarrah-marri woodland.
Latitude: 32° 18' 35.2"South Longitude: 116° 11' 18"East
14/06/2008 Image: WC83_235DMH09

14 ***Russula flocktonae***

Specimen ID: 3590
Amongst litter in jarrah-marri woodland.
Latitude: 32° 18' 35"South Longitude: 116° 11' 18.1"East
14/06/2008 Image: WC83_235DMH14

15 ***Ramaria capitata* var. *ochraceosalmonicolor*** **Coral Fungus**

Specimen ID: 3591
Amongst litter in jarrah-marri woodland.
Latitude: 32° 18' 35"South Longitude: 116° 11' 18.1"East
14/06/2008 Image: WC83_235DMH15

17 ***Russula delica* group**

Specimen ID: 3593
Growing amongst litter in jarrah-marri woodland.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 18"East
14/06/2008 Image: WC83_235DMH17

22 ***Cortinarius* sp.**

Specimen ID: 3595
Amongst litter in jarrah-marri woodland.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 17.8"East
14/06/2008 Image: WC83_235DMH22

25 ***Psilocybe coprophila*** **Dung Fungus**

Specimen ID: 3597
Growing on kangaroo dung in jarrah-marri woodland.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 17.8"East
14/06/2008 Image: WC83_235DMH25

27 ***Phellodon niger***

Specimen ID: 3599
Growing amongst litter in jarrah-marri woodland.
Latitude: 32° 18' 34.7"South Longitude: 116° 11' 17.9"East
14/06/2008 Image: WC83_235DMH27

38 ***Mycena*** **sp.**

Specimen ID: 3604
Growing on dead wood in jarrah-marri woodland.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 18.3"East
14/06/2008 Image: WC83_235DMH38

39 ***Peniophora*** **sp.**

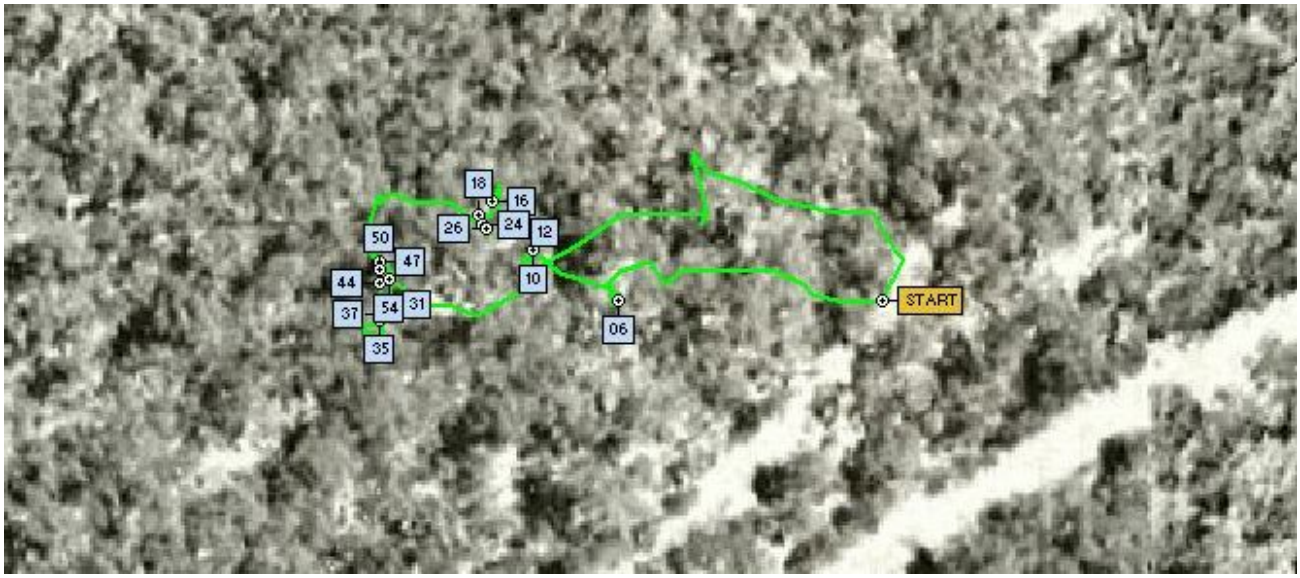
Specimen ID: 3605
On dead eucalyptus twig in jarrah-marri woodland.
Latitude: 32° 18' 34.8"South Longitude: 116° 11' 18.2"East
14/06/2008 Image: WC83_235DMH39

40 ***Harknessia uromycoides*** **Tuart Nut Fungus**

Specimen ID: 3606
Growing on jarrah nut in jarrah-marri woodland.
Latitude: 32° 18' 35"South Longitude: 116° 11' 18.2"East
14/06/2008 Image: WC83_235DMH40

Georeferenced Track and Photos

Neale Bougher's group, Wungong Catchment Trial, 14 June 2008.



The numbers on the coloured dots in the fungi photos correspond to the collecting number and usually **do not** match the photo number. It is the **photo number** preceding the fungus name that correlates with the site on the map above.

Event: Water Corporation Wungong Catchment Date: 14/06/2008
Group Number: 236 Leader Neale Bougher
Photographer: Margaret Langley

06 ***Lactarius eucalypti***

Specimen ID: 3607
Growing in sand amongst litter in *Eucalyptus marginata-Banksia grandis* (jarrah-bull banksia) forest.
Latitude: 32° 18' 36.1"South Longitude: 116° 11' 16.9"East
14/06/2008 Image: WC83_236ML06

10 ***Ramaria capitata* var. *ochraceosalmonicolor***
Coral Fungus
Specimen ID: 3608
In sand amongst litter in *Eucalyptus marginata* (jarrah) forest.
Latitude: 32° 18' 35.6"South Longitude: 116° 11' 16.1"East
14/06/2008 Image: WC83_236ML10

12 ***Fistulina hepatica*** **Beefsteak Fungus**
Specimen ID: 3609
Growing on dead part of live tree in jarrah forest.
Latitude: 32° 18' 35.4"South Longitude: 116° 11' 15.7"East
14/06/2008 **Fungimap Target** Image: WC83_236ML12

16 ***Tricholoma*** **sp.**
Specimen ID: 3610
In sand amongst litter in jarrah forest.
Latitude: 32° 18' 35.3"South Longitude: 116° 11' 15.6"East
14/06/2008 Image: WC83_236ML16

18 ***Russula clelandii***
Specimen ID: 3611
In sand amongst litter in jarrah forest.
Latitude: 32° 18' 35.3"South Longitude: 116° 11' 15.6"East
14/06/2008 Image: WC83_236ML18

24 ***Hypholoma australe***
Specimen ID: 3612
In sand amongst litter in jarrah-bull banksia forest.
Latitude: 32° 18' 35.4"South Longitude: 116° 11' 15.6"East
14/06/2008 Image: WC83_236ML24
Vouchered WA Herbarium: **E9127**

26 ***Panellus ligulatus***
Specimen ID: 3613
In sand in jarrah-bull banksia forest.
Latitude: 32° 18' 35.4"South Longitude: 116° 11' 15.6"East
14/06/2008 Image: WC83_236ML26
Vouchered WA Herbarium: **E9126**

27 ***Agaricus*** **sp.**
Specimen ID: 3614
In sand amongst litter in jarrah-bull banksia forest.
Latitude: 32° 18' 35.4"South Longitude: 116° 11' 15.3"East
14/06/2008 Image: WC83_236ML27

31 ***Armillaria luteobubalina*** **Australian Honey Fungus**
Specimen ID: 3615
In sand amongst litter in jarrah-bull banksia forest.
Latitude: 32° 18' 36"South Longitude: 116° 11' 14.7"East
14/06/2008 **Fungimap Target** Image: WC83_236ML31

Vouchered WA Herbarium: E9113

35 ***Crepidotus nephrodes***
Specimen ID: 3616
Growing on dead sheoak stem in jarrah-bull banksia forest.
Latitude: 32° 18' 36.2"South Longitude: 116° 11' 14.5"East
14/06/2008 Image: WC83_236ML35

37 ***Russula neerimea*** **group**
Specimen ID: 3617
In sand amongst litter in jarrah-bull banksia forest.
Latitude: 32° 18' 36.2"South Longitude: 116° 11' 14.5"East
14/06/2008 Image: WC83_236ML37

40 ***Fomitopsis lilacinogilva*** **Lilac Bracket Fungus**
Specimen ID: 3618
Growing on dead jarrah log in jarrah-bull banksia-sheoak forest.
Latitude: 32° 18' 36.2"South Longitude: 116° 11' 14.5"East
14/06/2008 Image: WC83_236ML40
Vouchered WA Herbarium: **E9117**

44 ***Inocybe*** **sp.**
Specimen ID: 3619
Growing in sand amongst litter in jarrah-bull banksia-sheoak forest.
Latitude: 32° 18' 36.2"South Longitude: 116° 11' 14.5"East
14/06/2008 Image: WC83_236ML44
Vouchered WA Herbarium: **E9114**

50 ***Crepidotus sphaerosporus***
Specimen ID: 3620
Growing on dead wood in jarrah-bull banksia-sheoak forest.
Latitude: 32° 18' 35.6"South Longitude: 116° 11' 14.5"East
14/06/2008 Image: WC83_236ML50

47 ***Entoloma* sp.**

Specimen ID: 3621
Growing in sand amongst litter in jarrah-bull banksia-sheoak forest.
Latitude: 32° 18' 35.6"South Longitude: 116° 11' 14.5"East
14/06/2008 Image: WC83_236ML47

54 ***Austroboletus occidentalis***

Specimen ID: 3622
Growing in sand amongst litter in jarrah-bull banksia-sheoak forest.
Latitude: 32° 18' 35.9"South Longitude: 116° 11' 14.6"East
14/06/2008 Image: WC83_236ML54

Georeferenced Track and Photos

Mark Brundrett's group, Wungong Catchment Trial, 14 June 2008.

The numbers on the coloured dots in the fungi photos correspond to the collecting number and usually **do not** match the photo number. It is the **photo number** preceding the fungus name that correlates with the site on the map above.

Event: Water Corporation Wungong Catchment Date: 14/06/2008
Group Number: 237 Leader Mark Brundrett
Photographer: Louise Little

04 ***Phellodon niger***

Specimen ID: 3623
Growing amongst litter in *Eucalyptus marginata* (jarrah) forest.
Latitude: 32° 18' 34.2"South Longitude: 116° 11' 18.2"East
14/06/2008 Image: WC83_237LL04

09 ***Russula clelandii***

Specimen ID: 3624
Growing amongst litter in jarrah forest.
Latitude: 32° 18' 34.2"South Longitude: 116° 11' 18.2"East
14/06/2008 Image: WC83_237LL09
Vouchered WA Herbarium: **E9119**

11 ***Gymnopilus*** **sp.**

Specimen ID: 3625
Growing on decorticated rotten banksia in jarrah forest.
Latitude: 32° 18' 34.3"South Longitude: 116° 11' 17.6"East
14/06/2008 Image: WC83_237LL11
Vouchered WA Herbarium: **E9121**

15 ***Crepidotus*** **sp.**

Specimen ID: 3626
Growing on decorticated rotten banksia in jarrah forest.
Latitude: 32° 18' 34.3"South Longitude: 116° 11' 17.6"East
14/06/2008 Image: WC83_237LL15

16 ***Calocera guepinioides*** **Scotsman's Beard**

Specimen ID: 3627
Growing on rotten banksia in jarrah forest.
Latitude: 32° 18' 34.3"South Longitude: 116° 11' 17.6"East
14/06/2008 Image: WC83_237LL16

17 ***Sphaerobolus stellatus*** **Cannonball Fungus**

Specimen ID: 3628
Amongst litter in *Eucalyptus marginata-Corymbia calophylla* (jarrah-marri) forest.
Latitude: 32° 18' 34.1"South Longitude: 116° 11' 17.4"East
14/06/2008 Image: WC83_237LL17

20 ***Fistulina hepatica*** **Beefsteak Fungus**

Specimen ID: 3629
Growing on living tree on a burn scar in jarrah-marri forest.
Latitude: 32° 18' 34.1"South Longitude: 116° 11' 17.1"East
14/06/2008 **Fungimap Target** Image: WC83_237LL20

21 ***Tricholoma*** **sp.**

Specimen ID: 3630
Amongst litter in jarrah-marri forest.
Latitude: 32° 18' 34.3"South Longitude: 116° 11' 17.1"East
14/06/2008 Image: WC83_237LL21

24 ***Austropaxillus infundibuliformis*** **Funnel Pax**
Specimen ID: 3631
Growing amongst litter in jarrah-marri forest.
Latitude: 32° 18' 33.7"South Longitude: 116° 11' 16.5"East
14/06/2008 Image: WC83_237LL24

25 ***Mycena*** **sp.**
Specimen ID: 3632
On dead decorticated jarrah in jarrah-marri forest.
Latitude: 32° 18' 33.7"South Longitude: 116° 11' 16.5"East
14/06/2008 Image: WC83_237LL25
Vouchered WA Herbarium: **E9118**

26 ***Amanita xanthocephala***
Specimen ID: 3633
Growing in gravel in jarrah-marri forest.
Latitude: 32° 18' 33.2"South Longitude: 116° 11' 16"East
14/06/2008 **Fungimap Target** Image: WC83_237LL26

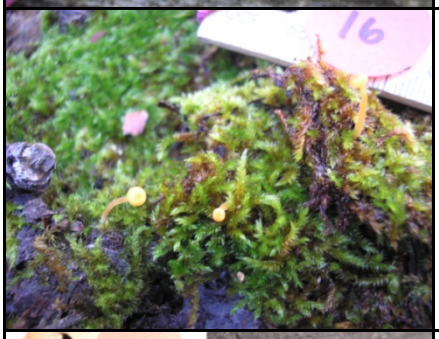
28 ***Psilocybe coprophila***
Specimen ID: 3634
On kangaroo dung in jarrah-marri forest.
Latitude: 32° 18' 32.8"South Longitude: 116° 11' 16.2"East
14/06/2008 Image: WC83_237LL28
Vouchered WA Herbarium: **E9128**

32 ***Ramaria*** **sp.** **Coral Fungus**
Specimen ID: 3635
Growing amongst litter in jarrah-marri forest.
Latitude: 32° 18' 33.4"South Longitude: 116° 11' 14.4"East
14/06/2008 Image: WC83_237LL32

33 ***Fomitopsis lilacinogilva*** **Lilac Bracket Fungus**
Specimen ID: 3636
Growing on dead decorticated jarrah in jarrah-marri forest.
Latitude: 32° 18' 33.4"South Longitude: 116° 11' 14.4"East
Image: WC83_237LL33
14/06/2008

35 ***Marasmius*** **sp.**

Specimen ID: 3637
On nuts and twigs amongst litter in jarrah-marri forest.
Latitude: 32° 18' 33.4"South Longitude: 116° 11' 14.4"East
14/06/2008 Image: WC83_237LL35



37 ***Rickenella fibula*** **Orange Mosscap**

Specimen ID: 3638
Growing amongst moss on rock in jarrah-marri forest.
Latitude: 32° 18' 33.5"South Longitude: 116° 11' 14.2"East
14/06/2008 Image: WC83_237LL37

39 ***Gymnopilus*** **sp.**

Specimen ID: 3639
Growing on dead fallen tree in jarrah-marri forest.
Latitude: 32° 18' 32.9"South Longitude: 116° 11' 12.7"East
14/06/2008 Image: WC83_237LL39
Vouchered WA Herbarium: **E9123**

42 ***Cortinarius*** **sp.**

Specimen ID: 3640
Growing in gravel amongst litter in jarrah-marri forest.
Latitude: 32° 18' 32.9"South Longitude: 116° 11' 12.7"East
14/06/2008 Image: WC83_237LL42

45 ***Mycena*** **sp.**

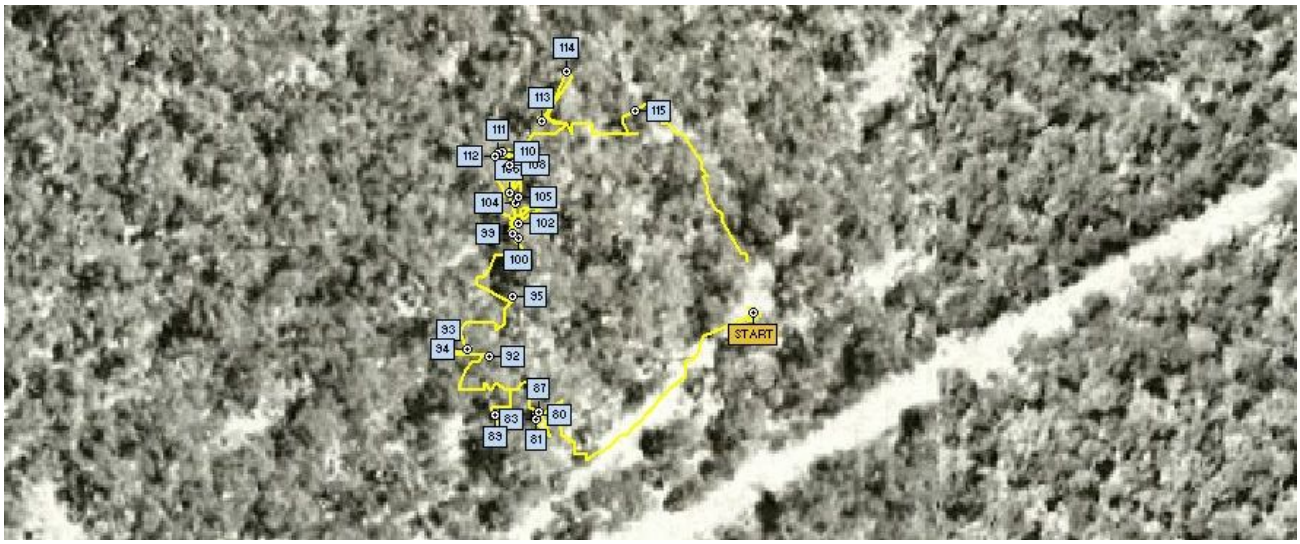
Specimen ID: 3641
Growing under jarrah on decorticated fallen log in jarrah-marri forest.
Latitude: 32° 18' 32.9"South Longitude: 116° 11' 12.7"East
14/06/2008 Image: WC83_237LL45
Vouchered WA Herbarium: **E9125**

48 ***Cortinarius*** **sp.**

Specimen ID: 3642
Growing on dead wood in jarrah-marri-sheoak forest.
Latitude: 32° 18' 35.5"South Longitude: 116° 11' 17.7"East
14/06/2008 Image: WC83_237LL48
Vouchered WA Herbarium: **E9116**

Georeferenced Track and Photos

Joe Froudist's group, Wungong Catchment Trial, 14 June 2008.



The numbers on the coloured dots in the fungi photos correspond to the collecting number and usually **do not** match the photo number. It is the **photo number** preceding the fungus name that correlates with the site on the map above.

Event: Water Corporation Wungong Catchment Date: 14/06/2008
Group Number: 238 Leader Joe Froudist
Photographer: Kevn Griffiths

80 ***Gymnopilus* sp.**

Specimen ID: 3643
In rich loamy-gravel on dead marri nut in *Eucalyptus marginata-Corymbia calophylla-Allocasurarina* sp. (jarrah-marri-sheoak) forest.
Latitude: 32° 18' 37.2"South Longitude: 116° 11' 16.6"East
14/06/2008 Image: WC83_238KG80

81 ***Mycena subgalericulata***

Specimen ID: 3644
Growing on fallen, decorticated jarrah log in jarrah-marri-sheoak forest.
Latitude: 32° 18' 37.2"South Longitude: 116° 11' 16.6"East
14/06/2008 Image: WC83_238KG81

83 ***Mycena*** **sp.**

Specimen ID: 3645
Growing in loamy-gravel in jarrah-marri-sheoak forest.
Latitude: 32° 18' 37.2"South Longitude: 116° 11' 16.6"East
14/06/2008 Image: WC83_238KG83

86 ***Mycena*** **sp.**

Specimen ID: 3646
Growing on dead marri nut in jarrah-marri-sheoak forest.
Latitude: 32° 18' 37.2"South Longitude: 116° 11' 16.6"East
14/06/2008 Image: WC83_238KG86

87 ***Cortinarius*** **sp. subgp.** ***phlegmacium***

Specimen ID: 3647
Under jarrah in loamy-gravel in jarrah-marri-sheoak forest.
Latitude: 32° 18' 37"South Longitude: 116° 11' 16.6"East
14/06/2008 Image: WC83_238KG87

89 ***Hygrocybe*** **sp.**

Specimen ID: 3648
Growing in loamy-gravel jarrah-marri-sheoak forest.
Latitude: 32° 18' 37.1"South Longitude: 116° 11' 16.1"East
14/06/2008 Image: WC83_238KG89

92 ***Lactarius eucalypti***

Specimen ID: 3649
In loamy-gravel in jarrah-marri-sheoak forest.
Latitude: 32° 18' 36.6"South Longitude: 116° 11' 16.2"East
14/06/2008 Image: WC83_238KG92
Vouchered WA Herbarium: **E9115**

93 ***Henningsomyces candidus*** **Miniature Chimney Pots**

Specimen ID: 3650
Growing on fallen *Banksia grandis* branch in jarrah-marri-sheoak forest.
Latitude: 32° 18' 36.4"South Longitude: 116° 11' 15.8"East
14/06/2008 Image: WC83_238KG93

94 ***Schizopora* sp.**

Specimen ID: 3651
Growing on dead wood in jarrah-marri-sheoak forest.
Latitude: 32° 18' 36.4"South Longitude: 116° 11' 15.8"East
14/06/2008 Image: WC83_238KG94

95 ***Russula* sp.**

Specimen ID: 3652
Growing under dead wood amongst litter in jarrah-marri forest.
Latitude: 32° 18' 36"South Longitude: 116° 11' 16.4"East
14/06/2008 Image: WC83_238KG95

97 ***Russula delica* group**

Specimen ID: 3653
Growing in loamy-gravel in open jarrah-marri-bull banksia forest.
Latitude: 32° 18' 34.9"South Longitude: 116° 11' 16.4"East
14/06/2008 Image: WC83_238KG97

99 ***Ceratiomyxa fruticulosa*** **Slime Mould**

Specimen ID: 3654
Growing on large, dead log in open jarrah-marri-bull banksia forest.
Latitude: 32° 18' 35.2"South Longitude: 116° 11' 16.4"East
14/06/2008 **Fungimap Target** Image: WC83_238KG99

100 ***Fistulina hepatica*** **Beefsteak Fungus**

Specimen ID: 3655
In loamy-gravel in open jarrah-marri-bull banksia forest.
Latitude: 32° 18' 35.2"South Longitude: 116° 11' 16.4"East
14/06/2008 **Fungimap Target** Image: WC83_238KG100

102 ***Phellodon niger***

Specimen ID: 3656
In loamy-gravel amongst litter in open jarrah-marri-banksia forest.
Latitude: 32° 18' 35.2"South Longitude: 116° 11' 16.4"East
14/06/2008 Image: WC83_238KG102

103 ***Russula*** **sp.**

Specimen ID: 3657
In loamy-gravel amongst litter in open jarrah-marri-banksia forest.
Latitude: 32° 18' 35.2"South Longitude: 116° 11' 16.5"East
14/06/2008 Image: WC83_238KG103

104 ***Ramaria*** **sp.**

Specimen ID: 3658
Growing in gravel under litter in jarrah forest.
Latitude: 32° 18' 35.1"South Longitude: 116° 11' 16.4"East
14/06/2008 Image: WC83_238KG104

105 ***Mycena carmeliana*** **Orange Footed Pixie Cap**

Specimen ID: 3659
Growing on dead *Banksia grandis* in jarrah forest.
Latitude: 32° 18' 35.1"South Longitude: 116° 11' 16.4"East
14/06/2008 Image: WC83_238KG105
Vouchered WA Herbarium: **E9120**

106 ***Dacryopinax spathularia***

Specimen ID: 3660
On living banksia cone in jarrah forest.
Latitude: 32° 18' 35.8"South Longitude: 116° 11' 16.4"East
14/06/2008 Image: WC83_238KG106

108 ***Banksiamyces*** **sp.**

Specimen ID: 3661
On dead banksia cone in jarrah forest.
Latitude: 32° 18' 35.8"South Longitude: 116° 11' 16.4"East
14/06/2008 Image: WC83_238KG108

109 ***Russula clelandii***

Specimen ID: 3663
Growing amongst litter in jarrah forest.
Latitude: 32° 18' 34.5"South Longitude: 116° 11' 16.4"East
14/06/2008 Image: WC83_238KG109

110 ***Russula clelandii***

Specimen ID: 3664
Growing in gravel amongst litter in jarrah forest.
Latitude: 32° 18' 34.5"South Longitude: 116° 11' 16.3"East
14/06/2008 Image: WC83_238KG110

111 ***Poria* sp.**

Specimen ID: 3665
Growing on dead wood in jarrah forest.
Latitude: 32° 18' 34.5"South Longitude: 116° 11' 16.3"East
14/06/2008 Image: WC83_238KG111

112 ***Coltriciella dependens***

Specimen ID: 3666
Growing on dead wood in jarrah forest.
Latitude: 32° 18' 34.5"South Longitude: 116° 11' 16.3"East
14/06/2008 Image: WC83_238KG112

113 ***Cortinarius sinapicolor*** **Slimy Yellow Cortinar**

Specimen ID: 3667
Growing in gravel in jarrah forest.
Latitude: 32° 18' 34.1"South Longitude: 116° 11' 16.8"East
14/06/2008 Image: WC83_238KG113

Vouchered WA Herbarium: **E9129**

114 ***Grandinia* sp.**

Specimen ID: 3668
Growing on dead wood in jarrah forest.
Latitude: 32° 18' 33.8"South Longitude: 116° 11' 17"East
14/06/2008 Image: WC83_238KG114

115 ***Crepidotus nephrodes***

Specimen ID: 3669
Growing on dead wood in jarrah forest.
Latitude: 32° 18' 34.1"South Longitude: 116° 11' 17.8"East
14/06/2008 Image: WC83_238KG115