

BIG WOOD

Fungi Survey Report

2015

Gyroporus castaneus



BY
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Big Wood Fungi Survey Report

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Contents

iv Executive Summary

1.0 INTRODUCTION & HISTORICAL CONTEXT.....	1
Current Status.....	1
2.0 Fungal Modes & Habitat.....	1-2
3.0 Method.....	2
4.0 Areas of particular note & future potential.....	3
5.0 Results and Species of particular note.....	3
5.1 <i>Biscogniauxia anceps</i>.....	4
5.2 <i>Hymenochaete corrugata</i>.....	5
5.3 <i>Steccherinum ochraceum</i>.....	6
5.4 <i>Ramariopsis aff. subtilis</i>.....	7
5.5 <i>Stereum rugosum</i>.....	8
5.6 <i>Gyroporus castaneus</i>.....	9
5.7 <i>Tremella foliacea</i>.....	10
5.8 <i>Cortinarius sp. (Telemonia)</i>.....	11
5.9 <i>Tricholoma album</i>.....	12
6.0 Recommendations.....	12
7.0 Conclusion.....	13-14

FIGURES

Figure 1 Compartment Map.....	3
Figure 2 <i>Biscogniauxia anceps</i>	4
Figure 3, 4 & 5 <i>Hymenochaete corrugata</i>	5

Figure 6 <i>Steccherinum ochraceum</i>	6
Figure 7 <i>Ramariopsis aff. subtilis</i>	7
Figure 8 <i>Stereum rugosum</i>	8
Figure 7 <i>Gyroporus castaneus</i>	9
Figure 8 <i>Tremella foliacea</i>	10
Figure 9 <i>Cortinarius sp.</i>	11
Figure 10 <i>Tricholoma album</i>	12

APPENDICES

Appendix 1: Species lists and notes for each visit in order of date

Appendix 2: Previous Records 2015

Appendix 3: Bibliography

Glossary

BAP – Biodiversity Action Plan

FRDBI – Fungal Records Database of Britain & Ireland

Executive Summary

This report was commissioned by the Management Group of Big Wood to give an appraisal of the importance of Big Wood in terms of its species richness and the relative scarcity and status of the species of larger fungi recorded therein.

This very first, formal fungi survey of the wood was carried out over two agreed visits, one of which took place during April and the other during November. In addition to these two main visits, many short visits also took place throughout the year and these are reflected in the spreadsheet and report. Identifications were carried out in the field and where necessary collections were made for identification by microscope. Specimens of rare and unusual species were collected, dried, written up and deposited as voucher specimens at the Fungal Herbarium, Royal Botanic Gardens, Kew.

A total of 54 species were identified from 80 records. Most species were what you would expect from ancient woodland habitat such as Big Wood and the complex of habitats therein. However, the survey revealed rare and new species to Middlesex, such as *Biscogniauxia anceps*, on old or dead hazel limbs and *Ramariopsis subtilis* a nationally rare club fungus found on bare soil. These and other rare species found are discussed and pictured (in part) and recommendations are given to encourage a future presence.

Management of dog use and thinning of some Holly, is highlighted and discussed as a recommendation to encourage the presence of larger fungi in certain areas of the wood, as is the promotion of dead wood, the removal or management of any thriving invasive plant species, and removal of rubbish along the woodland borders with housing and roads.

The report concludes that, Big Wood holds a fair range of fungal species represented by genera of the major groups of larger fungi, which are to be expected from the complex of habitats therein. However, two species, new to Middlesex were recorded the management of which is discussed in results and recommendations.

REPORT ON THE FUNGI OF BIG WOOD SURVEY CARRIED OUT FROM MAY TO NOVEMBER 2015.

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1. Introduction & Historical context

The 7.3 hectares that comprise Big Wood-TQ 255 887 are situated in the centre of the Hampstead Garden Suburbs and are surrounded by Oakwood Road, Northway and Temple Fortune Hill. The wood lies on a north-facing slope.

As Big Wood is known to have had woodland cover dating back at least 1000 years, most likely dating to c704 AD it is therefore regarded as ancient woodland. An 8th century Saxon Boundary is situated at the western end of the wood, with Temple Fortune Hill. As part of 112 acres leased from the Ecclesiastical Commissioners in 1911, for the extension of the suburb, Dame Henrietta Barnett preserved Big Wood as woodland. The wood was managed as coppice-with-standards until the 19 century, after which it was planted with an Oak timber crop, which remains today. In 1933 the freehold was transferred to the Finchley Urban District Council, which in 1964 became part of the London Borough of Barnet and has since been managed for recreational use with the construction of metalled paths that crisscross the wood, with dog bins, signs and interpretation boards.

Current Status

Big Wood is a site of Borough Importance grade 1 and was given the statutory designation of Local Nature Reserve by Natural England in 1999.

2.0 The Fungal Modes & The Habitat

In order to obtain nutrients larger fungi are Mycorrhizal, Saprobic or Parasitic in nature, the latter two modes are combined with some species.

Mushrooms and toadstools can either be called fruitbodies or sporocarps; the main part of the fungus is within the given substrate and is called the mycelium. The mycelium, consisting of cottony, thread-like elements known as hyphae, absorbs nutrients to enable it to produce mushrooms and toadstools. There are three main ways in which fungi obtain nutrients.

Mycorrhizal fungi form a mutual symbiosis via the roots of various trees and shrubs with which they exchange nutrients. These are very important fungi that help maintain healthy trees and woodland. Most of our native trees have this association with fungi; naturalized trees such as Horse Chestnut and Sycamore do not.

Saprobic fungi feed on dead and dying matter, helping to break down matter and release nutrients back into the soil.

Parasitic fungi take and give nothing in return. Some of these fungi can be very destructive, such as *Armillaria mellea* - Honey Fungus or *Meripilus giganteus* the Giant Polypore, the former is parasitic and then saprobic on its host.

Big Wood is predominantly on heavy, impervious, London clay.

Dominant trees are the native English oaks, *Quercus robur* with scattered populations of Sessile Oak, *Quercus petraea* and healthy populations of Wild Service *Sorbus torminali*. Other native canopy trees present in smaller numbers are, Ash, *Fraxinus excelsior* and Hornbeam, *Carpinus betula*. Non-native trees such as the semi-naturalised, sycamore, *Acer pseudoplatanus* and Horse Chestnut, *Aesculus hippocastanum*, are also present in the wood. Understorey shrubs are dominated by hazel, *Corylus avellana* that is believed to have originated from the original root system. Also present are hybrid Midland Hawthorn, *Crataegus laevigata*, field maple, *Acer campestre*, wild cherry, *Prunus avium* and Holly *Ilex aquifolium*. An unusually

large number of True Crab Apple, *Malus sylvestris* also occur in the wood. Ground flora is abundant in areas with ivy, *Hedera helix* and the nationally declining wood anemone, *Anemone nemorosa* among others. Due to the poor regeneration of oak, nine glades have been created for oak saplings, Honey Suckle, wild flowers for insects and butterflies. Much of the hazel in the glades has been coppiced to allow for light to encourage ground flora and invertebrates, however, some old hazel stands have been left to create dappled shade and to retain moisture for the service trees. This also helps create dead wood and space, all of which will encourage fungi.

3.0 Method

The survey was carried out from May until November, therefore providing a snapshot that partly covered the changing, environmental conditions. Two visits were planned. These two visits were split into half days or short visits, so as to optimise the time and conditions presented to me. Other, shorter visits were also made on occasion. In this way I was able to make visits during optimum conditions for various larger fungi.

Allocating certain compartments or areas of the wood for particular visits was the best way to approach the survey; in this way all of the compartments were covered during the entirety of the survey.

When possible, species were named in the field; if not possible, collections were made for identification by microscope. Status and nomenclature criteria used in the accompanying spreadsheet of species recorded, were based upon recent literature listed in the bibliography at the end of the report, in particular the *Checklist of British and Irish Basidiomycota* by Legon and Henrici (2005, published by Kew Gardens). Frequency was given as in the pre-mentioned publication, as frequent, infrequent, occasional, widespread, rarely reported, rare or Red Data Listed. In some instances these entries were modified with qualifiers such as locally common. GPS readings were taken for each rare or endangered species for their exact location. Specimens of the rare and unusual species were collected, dried, written up and deposited as voucher specimens at the Fungal Herbarium, Royal Botanic Gardens, at Kew.

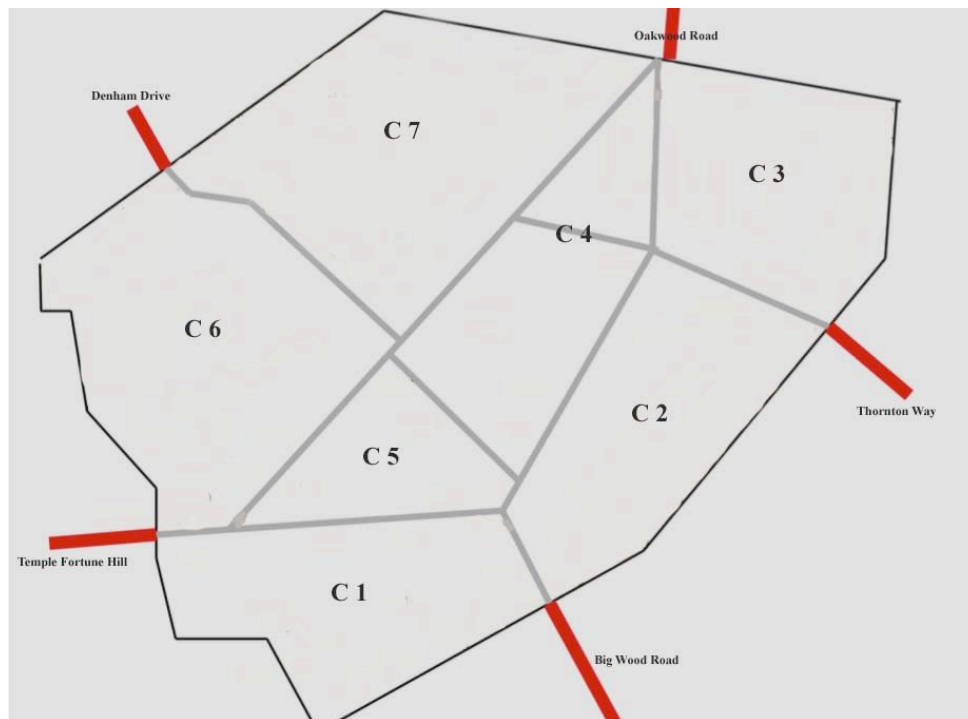


Fig 1. Big Wood - Biological Recording Map

4.0 Areas of particular note & future potential

Records were made from across the entirety of the wood, however, the most important records, such as *Biscogniauxia anceps* and *Hymenochaete corrugata* were recorded specifically on the old, uncoppiced hazel, the latter being new to Middlesex, but not an uncommon species nationally. *Ramariopsis* aff. *subtilis*, a rare club fungus, was found fruiting on bare soil, also close to the Hazel. Although it is necessary to coppice areas of the hazel, which extends from north to south and east to west, to allow for diversity in the wood, it is also necessary to allow areas of the hazel to take their own course. It is precisely because it has been allowed to do so in some areas, that these two species were present.

5.0 Results and species of particular note.

A total of 54 species from 80 records were identified from the wood during two, split visits and a number of short visits that took place during April and November 2015. Most of the genera, spread across many different families, were what you would expect from an area such as Big Wood and the complex of habitats therein.

There was a distinct lack of species among particular mycorrhizal genera, such as *Russula*, *Lactarius* and *Boletus*. There were no large species of *Boletus* from the family *Boletaceae* or from the smaller species of the genus, *Xerocomellus*, with just *Gyroporus castaneus* representing the Boletes. There was only one *Russula* species recorded and no *Lactarius* at all. This may in part be down to footfall, compaction, general use, nitrification of the soil by dog users, and in part by climatic conditions, none of the former were particularly in evidence, so I would point at the latter explanation of climatic influence.

Other mycorrhizal families such as the *Cortinariaceae* were represented by a small number of species, from various genera such as, *Cortinarius*, *Inocybe* and *Hebeloma*. The *Cortinarius* species were from the sub genus *Telemonia*, a notoriously difficult section with regards to the identification of species. I have therefore deposited a collection from this section, with a *Cortinarius* specialist from Sweden, currently in position at Kew Gardens, for the purpose of determining the *Cortinarius* species present in the UK. I should hear in time, the outcome of the species deposited from Big Wood. In the meantime it will appear as sp. on the accompanying spreadsheet of records and the species lists from each visit in the addendum. Updates will be forthcoming as I receive any relevant news from Kew.

Dead wood across the site is excellent and some good records were made from some of the woodpiles, standing and fallen dead trees, mainly consisting of oak, hazel and service tree. Species such as *Mycena adscendens* on the bark of service, and during spring, the rare and new to Middlesex, *Biscogniauxia anceps* was recorded from hazel bark, as was the Glue Fungus, *Hymenochaete corrugata*.

A fair amount of rubbish is dumped in spots where the wood borders housing, much of this is organic but not all and leaching from this material, into the soil, can be detrimental to larger fungi and needs to be monitored and cleared. By and large this is achieved.

Heavy footfall by visitors will compact the soil and dog mess left behind will lead to nitrification of the soil leading to a detrimental impact upon the fungi present in the park. However, this seems to be well managed well. Dog bins are found throughout the wood and they are used to a great extent.

Most of the species recorded during the survey are frequent, common & widespread across England and what you would expect from urban woodland such as Big Wood. Some very rare, new to the county of Middlesex and nationally important species were recorded from the wood during the survey. Some of these are covered below. There were no species identified that are listed on Schedule 8 of the Wildlife and Countryside act 1981.

5.1 *Biscogniauxia anceps*–TQ 25685 88700–on dead and fallen hazel

New to Middlesex

This may well be an under recorded species, and given the appeal of its appearance, not unlike patches of tar upon wood, it is most probably, also overlooked. Currently there are only fifteen records of this species across the country dating from 2000, therefore a recent addition to the British Mycota. This record is the first for Middlesex. It is known for appearing on hazel, *Corylus avellana* but can also occur on hornbeam, *Carpinus betulus* and Oak, *Quercus* sp. It is a species belong to the family *Xylariaceae* and to the class, *Ascomycetes*.



Fig. 2 *Biscogniauxia anceps* - ©Andy Overall

5.2 *Hymenochaete corrugata* - TQ 25534 88737-on dead standing hazel –
New to Middlesex.

Although this is the first official record for Middlesex of this species, it is not an uncommon species nationally, with over 1400 records on the FRDBI. It is most probably overlooked. A unique fungus, in its strategy of holding dead branches from falling to the woodland floor, to be devoured by other fungi, by producing a black mycelial plate that sticks small branches and twigs to each other and to the trunk.



Fig 3. *Hymenochaete corrugata*-mycelial plate



Fig 4. *Hymenochaete corrugata*-fruitbody



Fig 5. *Hymenochaete corrugata*-dark reaction to KOH @ Andy Overall

5.1 *Steccherinum ochraceum* – on fallen oak lower path of Compartment 1.

An occasional yet widespread species with 323 records presently held on the FRDBI. This is the second only record for Middlesex, the first record being made in 1992 from Gillespie Park, North London. It fruits, as a saprotroph, on dead limbs of broadleaved trees such as oak and beech. Here it was on a fallen oak branch lying by the side of a path in early January.



Fig. 6 *Steccherinum ochraceum*-Big Wood © Andy Overall

5.3 *Ramariopsis aff. subtilis* - TQ 25649 88701 – bare soil with moss

Following further examination of this collection at Kew by Alick Henrici it was assigned as being related to or to have an affinity with *Ramariopsis subtilis* but it is not actually that species, the reason for the aff. between the genus and species name. The genus *Ramariopsis* is currently undergoing revision and our species will, we hope be among the revised species. *Ramariopsis subtilis* itself is nationally rare, with only one record for Middlesex, from Buckingham Palace Gardens in 1997. Currently there are 149 records on the FRDBI.



Fig. 7 *Ramariopsis aff. subtilis*-Big Wood © Andy Overall

5.4 *Stereum rugosum* – on hazel throughout the wood

A very common species nationally with well over 5400 records on the FRDBI, however only 7 of those are from Middlesex, most likely an overlooked species. Commonly known as one of the 'Bleeding Crusts' it has a liking for old standing, hazel, as opposed the other well-known Bleeding Crust, *S. gausapatum* which prefers oak and which also occurs in the wood.



Fig. 8 *Stereum rugosum* - Big Wood on Hazel © Andy Overall

5.6 *Gyroporus castaneus* – Compartment 4

One of the few species of Bolete recorded from the wood. *Gyroporus castaneus* is the most common species within the small subgenera, *Gyroporus*, which contains only two species in the UK. Commonly known as the Chestnut Bolete it is most often associated with oak. There are only 20 records of this species on the FRDBI from Middlesex, 411 nationwide.



Fig. 9 *Gyroporus castaneus* ©Andy Overall

5.7 *Tremella foliacea* – Compartment 4

Not a particularly uncommon species with over 1700 records on the FRDBI but still a nice record from urban woodland such as Big Wood. This species is parasitic on the mycelium of various species of *Stereum* most likely *S. rugosum* here, on hazel. There are 19 records for Middlesex on the FRDBI.



Fig. 10 *Tremella foliacea* ©Andy Overall

5.8 *Cortinarius* sp. (*Telemonia*)-Compartment 3 & 4

Awaiting determination and confirmation. *Cortinarius* is a mycorrhizal genus that is currently known to hold most species worldwide. These were scattered about the wood with both the hazel and the oak.



Fig. 11 *Cortinarius* sp.-Big Wood ©Andy Overall

5.8 *Tricholoma album*-Oak-Compartment 4

Not a common species in Middlesex with only three records on the FRDBI out of 750 records nationally. It has possibly been misidentified and confused with the very similar *Tricholoma stiparophyllum*, which differs in having an unpleasant gas-like odour, as opposed to the more fragrant smell of *T. album*. The flesh of *T. stiparophyllum* quite readily bruises brown on ageing and handling, not so with *T. album*. *Tricholoma album* is mycorrhizal and most often associates with oak or beech. Records with Birch have to be compared to *T. stiparophyllum*.



Fig. 11 *Tricholoma album*-Big Wood ©Andy Overall

6.0 Recommendations

Monitoring for rubbish, along the boundaries needs to be vigilant and if left, any dog mess will contribute to nitrification of the soil and this will affect the fungi present in the wood. Footfall has caused a certain amount of soil compaction, which will be detrimental to both mycorrhizal and saprophytic fungi, as the water content held in the mycelium is lost, causing it die. It is otherwise an interesting wood, in total, and has much potential for various larger fungi. Some areas are rather overgrown and may need a little thinning of holly, laurel, and sycamore, however a balance has to be reached so as to also accommodate a vibrant, breeding and transient bird population. Ivy in some areas is abundant but I think this befits the character of the wood and I don't see it as such a huge problem for fungi, as there are plenty of areas without the Ivy for the fungi to fruit, but may need a little thinning in some areas. Continuation of the management of the glades to help with oak regeneration and growth of ground flora is to be encouraged. Coppicing and leaving areas of hazel to 'self coppice' will result in fungi being able to utilise the space created and to make use of the dead, fallen or standing hazel. The yearly, 'machine scooping' of the main ditches, should ideally be carried out by hand with the use of spades as fungi often fruit and thrive in such areas, the rare *Ramariopsis* aff. *subtilis* was recorded from one such area. To inhibit some of the dog use and compaction, some dead hedging would be most beneficial alongside the long paths, the edges of which meet directly with the woodland floor. The newly created glades would also benefit from dead hedging to inhibit dog walkers. This would encourage and help protect fungi, also birds, insect and mammals.

7.0 Conclusion

In conclusion, Big Wood appears to be fairly well represented by most genera of the major groups of fungi to be expected from this woodland and its complex habitats therein with 54 species identified from 80 records. There was a distinct lack of species among particular mycorrhizal genera, such *Russula*, *Lactarius* and *Boletus*. There were no large species of *Boletus* from the family *Boletaceae* or from the smaller species of the genus, *Xerocomellus*, with just *Gyroporus castaneus* representing the Boletes. There was only one *Russula* species recorded and no *Lactarius* at all. This may in part be down to footfall, compaction, general use, nitrification of the soil by dog users, and in part by climatic conditions, none of the former were particularly in evidence, so I would point at the latter explanation of climatic influence.

Many of the larger *Boletus* and some of the *Russula* species are thermophilic; they prefer warm and wet periods. 2015 did not provide warm enough temperatures for long enough to result in conditions suitable for these species to fruit, let alone in reasonable numbers. Combine this lack of warmth with lack of rain and the mycelium of many of the ectomycorrhizal fungi simply did not produce fruitbodies during long periods of October. However, preceding wet weather and unseasonably warm temperatures, would have promoted new mycelial growth, therefore it cannot be presumed that these species are not present in the wood as they may have been in previous more favourable years and may well be in years to come. This would also be applicable to other ectomycorrhizal genera.

Other mycorrhizal families such as the *Cortinariaceae* were represented by a small number of species, from various genera such as, *Cortinarius*, *Inocybe* and *Hebeloma*. The *Cortinarius* species were from the sub genus *Telemonia*, a notoriously difficult section with regards to the identification of species. I have therefore deposited a collection from this section, with a *Cortinarius* specialist from Sweden, currently in position at Kew Gardens, for the purpose of determining the *Cortinarius* species present in the UK. I should hear in time, the outcome of the species deposited from Big Wood. In the meantime it will appear as sp. on the accompanying spreadsheet of records and the species lists from each visit in the addendum. Updates will be forthcoming as I receive any relevant news from Kew.

There were small areas of the wood where more species were found than others but I wouldn't go as far as to call them hot spots as such, as the majority of the records were scattered throughout the wood.

The outstanding feature of this ancient woodland however, is the number of service trees, old oak trees, both sessile and pendunculate and the wonderful hazel throughout the wood. These trees in combination with a slight sloping topography and other trees such as hornbeam, make this a very viable habitat for larger fungi.

Standout species recorded from hazel are *Biscogniauxia anceps* and *Hymenochaete corrugata* both on old Hazel stands and both new to Middlesex. On bare soil close to hazel, the second only record from Middlesex of *Ramariopsis aff. subtilis* was made, the first record was from Buckingham Palace Gardens in 1997.

Dog walkers use the wood extensively and dog mess can be a bit of a problem, which can lead to nitrification of the soil in some areas but this seems to be handled very well in the main.

The thinning out of holly, sycamore, ivy and bramble is making good progress throughout the wood with consideration for breeding and transient birds, closely following the management plan and recommendations made by other appropriate surveys.

The clearing, coppicing and removal of shrubs and trees is apparent throughout the wood and will have a direct, beneficial, bearing on all larger fungi present in the wood. Rubbish along where the wood borders private houses, needs to be monitored and cleared. Despite all of this pressure, the fungi are doing remarkably well.

Coppiced areas will also provide new habitat for species on the chipped wood and for species associating with the regeneration of surrounding trees.

Standing and fallen deadwood provided some good records such as *Biscogniauxia anceps*, *Hymenochaete corrugata* both on *Corylus*.

Most of the species recorded during the survey are frequent, common & widespread across England and what you would expect from urban woodland such as Big Wood. Some very rare species, new to the county of Middlesex and nationally important species were recorded from the wood during the survey. There were no species identified that are listed on Schedule 8 of the Wildlife and Countryside act 1981.

APPENDIX 1**Species lists and notes for each visit in order of date
Big Wood-fungi survey species list
Jan 7th 2015**

<i>Ascocoryne sarcoides</i>
<i>Auricularia auricula-judae</i>
<i>Phellinus ferreus</i>
<i>Steccherinum ochraceum</i>
<i>Tremella foliacea</i>
<i>Bjerkandera adusta</i>
<i>Schizopora paradoxa</i>
<i>Stereum rugosum</i>
<i>Mycena adscendens</i>
<i>Infundibulicybe geotropa</i>
<i>Daedalea quercina</i>
<i>Mycena galericulata</i>
<i>Dacrymyces stillatus</i>

Some good records made during this visit, *Steccherinum ochraceum* and *Tremella foliacea* in particular, highlighting the dead wood habitat of Big Wood.

Andy Overall

Big Wood-fungi survey species list
April 30th, 7th 19th May, 2015

<i>Hymenochaete rubiginosa</i>
<i>Auricularia auricula-judae</i>
<i>Radulomyces molaris</i>
<i>Trametes pubescens</i>
<i>Nemania serpens</i>
<i>Rosellinia corticium</i>
<i>Daldinia concentrica</i>
<i>Exidia glandulosa</i>
<i>Phellinus ferreus</i>
<i>Biscogniauxia anceps</i>
<i>Hymenochaete corrugata</i>

The standout record from this visit were the Glue Fungus, *Hymenochaete corrugata* and *Biscogniauxia anceps* both new records for Middlesex with the latter being nationally rare. Andy Overall

Big Wood-fungi survey species list**Sept 25th 2015**

<i>Cortinarius sp</i> (<i>Telemonia</i>)
<i>Agaricus impudicus</i>
<i>Mycena vietus</i>
<i>Mycena archangeliana</i>
<i>Mycena adscendens</i>
<i>Gyroporus castanea</i>
<i>Tricholoma album</i>
<i>Gymnopus erythropus</i>
<i>Gymnopus fusipes</i>
<i>Hebeloma sacchariolens</i>
<i>Hebeloma leucosarx</i>
<i>Clitocybe nebularis</i>
<i>Infundibuliformis</i> <i>geotropa</i>
<i>Lepista flaccida</i>

Some nice mycorrhizal species were in evidence during this visit, *Cortinarius* sp. To be determined, *Gyroporus castaneus* one of the few Boletes recorded during the survey, a few *Hebeloma* species and the most uncommon, *Tricholoma album*. Andy Overall

**Big Wood-fungi survey species list
Oct 28th 2015**

<i>Clitocybe nebularis</i>
<i>Mycena inclinata</i>
<i>Trametes versicolor</i>
<i>Mycena galericulata</i>
<i>Russula ionochlora</i>
<i>Xylaria hypoxylon</i>
<i>Marasmius ramealis</i>
<i>Mycena archangeliana</i>
<i>Mycena galopus</i>
<i>Infundibulicybe geotropa</i>
<i>Laccaria laccata</i>
<i>Auricularia auricula- judae</i>
<i>Helvella crispa</i>
<i>Daedaleopsis confragosa</i>
<i>Scleroderma citrinum</i>
<i>Ramariopsis aff. subtilis</i>
<i>Lepista flaccida</i>
<i>Exidia nucleata</i>
<i>Daedalea quercina</i>
<i>Mycena adscendens</i>
<i>Mycena hiemalis</i>
<i>Mycena filopes</i>
<i>Lepista nuda</i>

***Ramariopsis aff. subtilis* was a surprise find, last recorded in 1997 from Buckingham Palace Gardens. Andy Overall**

Big Wood-fungi survey species list

Nov 2nd & 11th 2015

<i>Daedalea quercina</i>
<i>Mycena adscendens</i>
<i>Mycena inclinata</i>
<i>Mycena heimalis</i>
<i>Marasmius ramealis</i>
<i>Crepidotus applanatus</i>
<i>Clavilina rugosa</i>

Appendix 3

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