

Fungi Royale from Kensington Gardens and Hyde Park

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It had been 15 years since I carried out the first larger fungi survey of Kensington Gardens, so it was an honour to be asked again in 2024, this time with the addition of Hyde Park.

It is tempting to compare the outcome of the two Kensington Garden surveys. Regarding fungi, however, this would be rather foolhardy because various elements, such as weather conditions and atmospheric pollution, influence the fruiting occurrence of many fungal species.

Kensington Gardens and Hyde Park are the most popular of the Royal Parks. A 2015 Ipsos MORI survey revealed that Kensington Gardens had 10.3 million visitors that year. This can only have risen over the period to 2024. As a result, this will have impacted habitats and fungal populations, especially through soil compaction, which was noted during the 2024 survey.

Kensington Gardens

The 98 hectares that constitute Kensington Gardens are home to 3,650 trees, dominated by *Quercus* (oak), *Castanea sativa* (Sweet Chestnut) and *Tilia* (lime) with a smattering of *Fagus sylvatica* (Beech), *Carpinus betulus* (Hornbeam), *Taxus baccata* (Yew), *Quercus ilex* (Holm Oak), *Populus* (poplar), *Betula pendula* (Silver Birch), *Salix* (willow) and *Alnus cordata* (Italian Alder) as well as *Alnus glutinosa* (Alder). There are also a number of *Platanus × hispanica* (London Plane), *Acer pseudoplatanus* (Sycamore) and *Aesculus hippocastanum* (Horse Chestnut) trees present. Dead wood is well represented.

Grassland accounts for 87 hectares, which includes acid grassland remnants among the dominant amenity grassland sward.

Soils are generally free draining, mildly acidic brown earths of a sandy loam texture, overlying river terrace gravels. Two water features—the Round Pond and the Long Water—provide additional habitat diversity on the site. The banks of the Long Water provided some good records.

Hyde Park

The 140 hectares that comprise Hyde Park contains 70 hectares of amenity grassland, circa

28 hectares of neutral grassland and small pockets of acid grassland. There are approximately 3,970 trees. 37% of the tree cover in Hyde Park is *Platanus × hispanica* (London Plane), which is non-ectomycorrhizal, accompanied by smaller numbers of *Tilia × europaea* and *T. cordata* (Common and Small-leaved Lime), *Aesculus hippocastanum* (Horse Chestnut) and *Castanea sativa* (Sweet Chestnut), and *Quercus robur* (English Oak). These six species account for over two thirds of the trees in the park. The soils, unsurprisingly, are the same as those in the adjacent Kensington Gardens. There are also small numbers of *Fagus sylvatica* (Beech), *Betula pendula* (Silver Birch), *Carpinus betulus* (Hornbeam), *Quercus cerris* (Turkey Oak), *Populus* (poplar) and *Corylus avellana* (Hazel) throughout the park. Dead wood is well represented.

The Long Water of Kensington Gardens connects with The Serpentine in Hyde Park and, although differently named, they are in fact the same water body. The banks of The Serpentine are

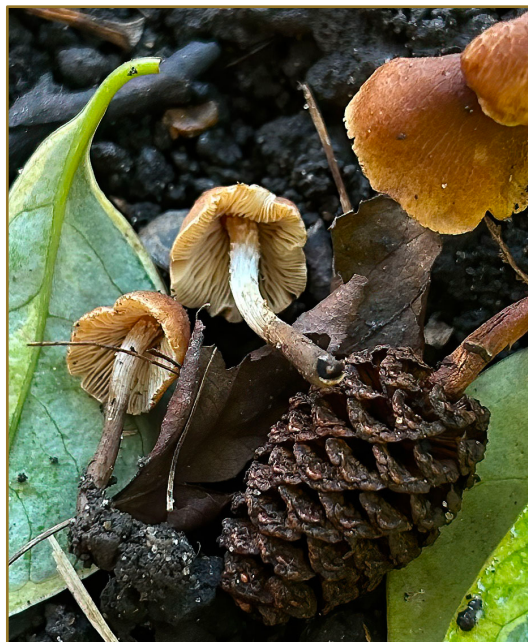


Fig 1. *Alnicola salabertii* in Kensington Gardens - New to Britain. Photograph © Andy Overall.

less tree-lined than those of the Long Water, and therefore fewer fungi were found upon its banks.

Some important fungi found during the survey

Alnicola salabertii P.-A. Moreau & Guy Garcia (2005) [2004]. Kensington Gardens (Fig. 1).

A rather nondescript species, appearing very much like other *Alnicola*/*Naucoria* species associating with *Alnus*. However, this species is so far only known to occur with *Alnus cordata* (Italian Alder), with which it was occurring on the banks of the Long Water in Kensington Gardens. Its name was validly published in 2005 from natural stands in Corsica and plantations in continental France. The ITS barcode sequence derived from the first British collection was over 99% similar to several GenBank sequences labelled as *A. salabertii*, including two sequences from collections made by P.-A. Moreau and published in Moreau *et al.* (2005). A distinguishing feature, apart from associating with *Alnus cordata*, is the relatively small, non-dextrinoid spores.

Description of the illustrated collection

Collected on 26 November 2024.

Habitat: parkland, in soil, on riverbank with *Alnus cordata* (Italian Alder). **Cap** 10–70 mm, ochre-brown, hygrophanous, slowly drying and becoming beige, conic-convex, when young with white velar remnants at the margin, less so at the centre. Margin incurved when young. **Gills** adnate to notched, whitish, pale brown, becoming brownish grey in maturity, edge white, serrulate. **Stem** 30–33 × 3–15 mm, cylindrical, with coarse white fibrils in upper third, then darkening, blackening toward the base. **Flesh** cream, dark brown in stem. **Smell** raphanoid-herbaceous. **Taste** not sampled but otherwise described as bitter after 2–3 seconds. **Spores** $6.91 \times 3.98 \mu\text{m}$ average from 29 measured spores, with distinct yet irregular spines, non-dextrinoid to very weakly dextrinoid, some with single guttule, amygdaliform. **Cheilocystidia** 25–50 × 5–10 μm , bulbous base with thin worm-like, lanceolate neck always with a rounded apex. **Pleurocystidia** absent.

Kew accession number K-M001445223. Sequence data is accessioned on GenBank: PV577429.

Bjerkandera fumosa (Pers.) P. Karst. Kensington Gardens (Fig. 2).

This is a species that I have been looking out for, for many years in London and elsewhere, without



Fig 2. *Bjerkandera fumosa* in Kensington Gardens. Photograph © Andy Overall.

success until now. Not surprising since *Bjerkandera fumosa* is far less common than its ubiquitous cousin, *Bjerkandera adusta*. The latter is easily identified in the field by its grey pores. The FRDBI holds 443 records of *B. fumosa* across Britain & Ireland. These records run from 1886 to 2024, 139 years, making this an uncommon to rare species. In comparison, over 7000 records of *B. adusta* have been recorded since 1799 making this a common and widespread species.

Since 1958 only 13 records of *B. fumosa* have previously come from Middlesex, the last being in 1998.

There are many matching sequences with >99% similarity labelled as *B. fumosa* in GenBank and UNITE including one from material collected in Surrey (AJ006673).

Description of the illustrated collection

Collected on 26 November 2024.

Habitat: this collection was found on the remains of a young, standing, dead *Ulmus procera* (English Elm) tree on the banks of the Long Water.

Fruitbody sessile, 50–80 mm, light brown, latte, very weakly zoned, upper surface finely velutinous, becoming glabrous, uneven, slightly lumpy. **Pores** cream-white, 2–4 per mm, bruising light brown where rubbed. **Flesh** cream, darkening slightly when cut and with a thin brown line between flesh and tubes, visible when cut in section. **Smell** disagreeable, weak; an odour of

anise is mentioned in other collections. **Taste** not sampled. **Spores** $4.70 \times 2.95 \mu\text{m}$ an average from 24 measured spores, ellipsoid, smooth. **Hyphae** monomitic with numerous clamp connections.

Kew accession number K-M001445342. Sequence data is accessioned on GenBank: PV595900.



Fig 3. *Cortinarius megacystidiosus*. Photograph © Andy Overall.

Cortinarius megacystidiosus Reumaux. Kensington Gardens and Hyde Park (Fig. 3).

During research by Kuyper *et al.* for Vol 8, Flora Agaricina Neerlandica, *Cortinarius*, 2024, they were unable to find any consistent morphological differences between accessed barcoded collections of *C. megacystidiosus* and *C. flexibilifolius* and chose to combine them, with the unambiguous and earlier name, *C. flexibilifolius* having priority. Furthermore, the study revealed that the long, septate cystidia that inspired the epithet of *megacystidiosus*, were also found in accessed barcoded collections of *C. flexibilifolius*. Both holotypes are however, included in the phylogenetic tree on p.435 of the monograph (Kuyper *et al.*, 2024).

The tree used in FAN Vol. 8 *Cortinarius* has been adopted from Liimatainen *et al.* (2002) and shows that the two taxa cluster distinctly and separately.

As *C. megacystidiosus* was only added to the Checklist of the British & Irish Basidiomycota (CBIB) in 2020 and could be easily confused with similar-looking species, its distribution in Britain is not yet fully understood. Three collections are held at the Kew Fungarium as *C. megacystidiosus*, the first from 2018 is a collection by me from NW London, the 2nd and 3rd collections, 2018 & 2021 respectively, are from Kent. The 2018 collection from Kent was sequenced and matched to the

holotype sequence by Kare Liimatainen at Kew in 2020. *Cortinarius flexibilifolius* was then added to the checklist by Kare in 2021 from collections made in 2002 (Surrey) and 2007 (Radnorshire).

Currently there are no records of *C. megacystidiosus* held on the FRDBI, despite the three collections held at Kew, most probably due to the ambiguity surrounding the correct name. There is however, one uncertain record of *C. flexibilifolius* from Oxfordshire in 2023.

Interestingly, this was recorded from both Hyde Park and Kensington Gardens during the survey, with 99.8% (Kensington) and 100% (Hyde Park) DNA matches being made with the type specimen of *C. megacystidiosus*.

Following considerable debate, I have decided to stay with the name *C. megacystidiosus* despite the difference of opinion surrounding it.

Description of the illustrated collection

Collected on 23 October 2024 (Fig. 3) in parkland with *Quercus robur* (English Oak) and *Tilia × europaea* (Common Lime) on London clays with gravels.

Cap 15–30 mm, conic-convex, smooth, dark brown, hygrophanous, becoming light brown from the margin inwards. Veil white-cream, visible at margin when young. **Gills** emarginate, subdistant, cinnamon to rust brown, edge creamy white to concolorous, entire. **Stem** 35–55 × 2–3 mm, brown with white velar covering and annular zone, darkening with age, cylindrical. **Flesh** ochraceous brown in cap, yellowish brown in upper stem, dark brown toward the base. **Smell** absent. **Taste** not sampled. **Spores** $9.60 \times 5.17 \mu\text{m}$, an average from 35 measured spores. Ellipsoid, amygdaliform, strongly dextrinoid in Melzer's reagent.

Kew Accession Number K-M001445438. Sequence data is accessioned on GenBank: PV577443.

Inocybe grammatoides Esteve-Rav., Pancorbo & E. Rubio. Hyde Park (Fig. 4 & 5).

This is a rare species with only two British records, both of which are from Middlesex and from Royal Parks, the first was from my Bushy Park survey in 2021 (Overall, 2022).

The Hyde Park collection was of course DNA sequenced, as was the first British collection, and both were found to be a 100% match to the holotype.



Fig 4 (above). *Inocybe grammatoides* in Hyde Park. Photograph © Andy Overall.



Fig 5 (right). *Inocybe grammatoides* in Hyde Park. Photograph © Andy Overall.

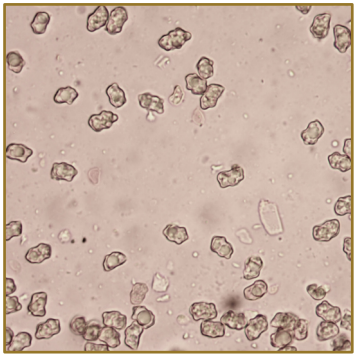


Fig 6. *Inocybe grammatoides* spores. Micrograph © Andy Overall.

Both collections were found beneath *Quercus robur* on shingly, neutral, clay soils.

This species is very similar to *Inocybe grammata* hence the given epithet which means, “like *I. grammata*”. The two species have most probably been confused before now. The persistent white veil covering the cap and differently shaped spores help separate *I. grammatoides* from *I. grammata*.

Description of the illustrated collection

Collected on 30 October 2024.

Cap 25–30 mm, conic-convex, pinkish grey to pale brown covered with a persistent, dense white veil, therefore appearing white, margin incurved. **Gills** not particularly crowded, whitish becoming pinkish buff, smooth to finely crenulate, uneven, edge white. **Stem** 44–50 × 5–6 mm, white, pink, fibrous, cylindric with swollen base, pruinose. **Flesh** white–cream. **Smell** weakly spermatic; reported aromatic element not detected. **Taste** not sampled. **Spores** 8.20 × 5.20 µm (7.0–9.8 × 4.4–5.9 µm) 33 spores measured. Heterodiametric, polygonal-sub-rectangular with 4–5 low knobs. Somewhat *Entoloma* like (Fig. 6). **Cystidia** cheilocystidia, pleurocystidia and caulocystidia from apex to the base of the stem, all metuloid and with thick walls. 52.3–64.8 × 16.7–17.9 µm. Walls 1.6–3.9 µm thick.

Kew Accession Number K-M001445302. Sequence data is accessioned on GenBank PQ645076.

Additionally, an *Otidea* species was collected from Kensington Gardens on 16 October 2024, the sequence of which matches the holotype of *O. cupulata*. Research into this collection is ongoing (Parslow & Overall in prep.).

Acknowledgements

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