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Fungi Royale continued: Home Park, Hampton Court

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During my 2009 base line survey of Bushy Park I received queries from the Historic Royal Palaces with regard to carrying out a survey across the road at Home Park, Hampton Court. Three years later a part year survey of the park went ahead from September to December 2012.

As with my previous articles for FM on fungi of the Royal Parks (Overall 2010, 2011a,b), the aim of this article is to highlight some of the more interesting fungi found during the survey. Before doing so, I think it important to give a brief description of Home Park.

Both Home Park and Bushy Park were one big entity before the Hampton Court Road was driven between them and during the 16th century combined to provide a hunting ground for the Palace's most famous resident, King Henry VIII.

Home Park is 188 hectares (466 acres), consisting largely of open areas of unimproved acid grassland, neutral and amenity grassland. There is also wood pasture, scattered trees, dead wood piles, many newly planted trees, and a number of ponds. 300 head of deer graze the grassland, including the amenity grassland, which is unusual in the greater London area. Home Park is one of three main areas of the Hampton Court Palace estate, which in total cover 303 hectares (750 acres). Although the survey concentrated on Home Park, some areas around the Palace and two of the paddocks were also visited. As with the adjacent Bushy Park the soils are gravely, alluvial sands forming free-draining, acidic sandy soils, which again is unusual for grassland within Greater London. Interestingly, Home Park, Bushy and Richmond Park, together contain 46% of the unimproved acid grassland within Greater London.

As with all other parks in Greater London many of the older trees were lost to either Dutch elm disease or to the great storms of 1987 and 1990. A four-year restoration plan has seen thousands of lime trees planted, creating avenues, such as along The Cross Avenue and The Long Water. There are also scattered plantings of beech and hornbeam many of these have attracted various ectomycorrhizal fungi. Large, old hulks of some of the older lime and Horse Chestnut trees can be found in between standing living lime trees of the Kingston Avenue, providing excellent habitat for saprobic, dead-wood specialists.

There are a good variety of deciduous broadleaved trees around the park which are dominated by English Oak (*Quercus robur*), Horse Chestnut (*Aesculus hippocastanum*) and Sweet Chestnut (*Castanea sativa*) as well as lime, mainly *Tilia* x *europaea*. These are complemented by small numbers of hornbeam (*Carpinus betula*), beech (*Fagus sylvatica*), poplar (*Populus* spp.) and ash (*Fraxinus excelsior*). Around the ponds there are willows (*Salix* spp.) and alder (*Alnus glutinosa*).

In the grounds of the palace itself there are wonderful examples of Yew (*Taxus baccata*) and other coniferous trees, as well as some more exotic species such as Himalayan Birch (*Betula jaquemontii*). The grassy lawns of the 20th Century formal gardens and the grassy stretches that border the western end of Home Park both provided some good records.

The Fungi

Hohenbuehelia mastrucata (Figs 1,2)

At a time when, due to extreme weather patterns, there were few fungi on the ground, this was a very welcome find. There are lots of very good, large woodpiles scattered across the park, most of which have provided interesting records. This infrequent species was recorded on the end of a very rotten, large section of an old lime on the Kingston Avenue. Before I had looked at the

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Fig. 1. *Hohenbuehelia mastrucata*. Home Park, Middlesex, Sept. 2012. Photograph © Andy Overall.

microscopic details, in particular the metuloid cystidia, I believed that I had collected the similar looking *Resupinatus trichotis*. This is a rarely recorded, mainly southern species, with currently 35 records in the FRDBI; this is the first for Middlesex.

Fig. 2. Metuloid cystidia of *H. mastrucata* showing the thick walls and encrusted apex. Photo © A. Overall.

Details of the illustrated collection

Cap 12–25 mm across, shell-like when young, then fan-shaped, spathulate or kidney shaped, dark grey, appearing strongly rugose with coarse hirsute tufts concentrated toward or at the margin. Margin incurved. **Gills** fairly distant, grey becoming paler with maturity. **Stipe** absent or rudimentary. **Spores** 6.8–7.4 x 4.5 µm smooth with a fairly thick wall. Metuloids thick-walled, usually with encrusted apex.

Macrolepiota fuliginosa (Fig. 3)

This is a rarely reported species that is a very close relative of the common Field Parasol, *Macrolepiota procera*. The differences between the two are mainly macroscopic. *M. procera* has a distinct ziz-zag pattern on the stem contrasting brown and white and it has unchanging flesh where cut. *M. fuliginosa* has very tight, close together ziz-zag patterns, little or no contrast with a reddish undertone showing and its flesh reddens on the edge of the stem in section and on the edge of the gills. There is an underlying red tone to the surface of both pileus and stipe. *M. fuliginosa* has a pink tone to its spore deposit also whereas in *M. procera* it is a deep cream. It was also described by Peter Orton as *Lepiota rhodosperma*. That name is predated however by *M. fuliginosa* (if one accepts the synonymy). There are only 19 records of this in the FRDBI. A recent molecular study by Barseghyan *et al*. (2012) confirms *M. fuliginosa* as quite distinct from the *M. procera* and *M. excoriata* clades.

Details of the illustrated collection

Cap 140 mm across, parabolic, convex to applanate, with dense grey-brown flattened scales with darker brown, upturned scales at the edge breaking away from a solid middle. The whole surface with a noticeable underlying reddish tone, margin abrupt, shaggy. **Gills** free, creamy white, edge bruising reddish brown, edge entire. **Stem** 240 x 12 mm, base enlarged up to 23 mm and white pruinose. The surface appearing solidly grey-brown with very fine ziz-zag patterns very close together, that then loosen up toward the base to reveal a cream-white ground. **Flesh** fistulose and reddening along the entire length of the outer margin of the stipe. **Spores** 12–20 x 7–10 µm.

Fig. 3. *Macrolepiota fuliginosa* showing pinkish stains on gills and cut flesh. Photograph © Andy Overall.

Melanoleuca strictipes (Fig. 4)

This collection was quite a surprise and for good reason had me scratching my head for a short while. Initial thoughts, based solely upon gross morphology, were that this was *M. excissa* var. *iris*, which looks rather similar but has a strong, and distinctive floral smell associated with it. However, this collection had a rather rancid smell instead. *Melanoleuca strictipes* is an uncommon species, with the FRDBI showing 61 records, dating back to 1959, some of which were recorded under its synonym *M. evenosa*. According to the FRDBI the one previous record for Middlesex was from Buckingham Palace Gardens in 1997. It is widely accepted among field mycologists that the genus *Melanoleuca* is presently very confused and needs a lot more work to create a clear definition of species concepts. As with the entire genus this is a saprobic species that seems to occur in varied habitats, from open grassland to wood pasture, often close to broadleaved trees or conifers. This collection was made in a small wooded enclosure dominated by *Populus* spp. Another collection was made on the edge of grazed acid grassland with newly planted trees close by. This determination was reached, following the modern treatment by Jan Vesterholt in *Funga Nordica* (Vesterholt, 2012).

Details of the illustrated collection

Cap 22–62 mm across, convex, applanate to slightly infundibuliform, white, heavily pruinose

Fig. 4. *Melanoleuca strictipes* is an uncommon, white to pale brown species. Photo © Andy Overall.

appearing as if with a hoary bloom when immature, becoming a very pale brown with a darker inverted centre in maturity, sometimes with a slight umbo. Margin incurved initially, then overhanging the gills a little when expanded. **Gills** whitish cream, emarginate with differering lengths and browning edges. **Stipe** 30–80 mm x 4.5–9 mm, longitudinally striate, browning from base up, cylindrical, base more or less equal. **Flesh** stuffed with a pallid centre and grey brown edges. **Spores** ellipsoid, verrucose with amyloid warts; spores from this collection measured 7.9–8.5 x 5.1–5.7 µm. **Cheilocystidia** lanceolate with crystals at apex.

Cortinarius trivialis (Fig. 5)

This is an occasional, yet apparently widespread species, that in the UK is mycorrhizal with Willow, Poplar, Birch and Oak. It is a member of the subgenus *Myxacium* characterized by a slimy or at least sticky cap and stem. I wasn't surprised to find that this species hadn't been recorded in Middlesex before now, as this is only the second time I have seen and recorded it in England, the previous time being from Surrey. With 159 records in the FRDBI however, it is clearly not too uncommon. Only one specimen was seen and collected on 6th November 2012 associating with either Poplar or Willow.

Details of the Bushy Park collection

Cap 100mm across, shiny and sticky when wet, conic to applanate with prominent, broad umbo. Dark reddish brown when moist, brown when drier, margin a slightly lighter brown. **Stem** 110 x 10–12 mm tapering to 8 mm at the base; fusiform, lower half girdled with light brown velar remnants on a slightly darker ground, upper third, above velar ring-zone, light brown. **Gills** broadly attached, notched; when immature, pale buff with blue/violet tones becoming rust brown with maturity, with eroded, concolorous edge. **Spores** 10.3–11.4 x 5.1–5.7 µm.

As there was only one mature specimen in this collection I have included a picture of the same species taken by Antony Burnham in Scotland, to show the details of the velar bands on the stem and the lavender-tinted gills.

Fig. 5. *Cortinarius trivialis*. This collection, shown for illustrative purposes, was growing with *Salix* in Perthshire, Scotland. Photograph © Antony Burnham.

Leucoagaricus carneifolius (Fig. 6)
This is a rare species only occasionally recorded from wood pasture, from which this was collected. It has been previously recorded in gardens, cool greenhouses and scrub vegetation from only a handful of counties in England and from Jersey in the Channel Islands. Some authors reduce this species to a variety of the more common *L. leucothites* but apart from the darker cap and pinking gills, the spores of this collection were larger than those usually reported for *L. leucothites* in both length and width (see details below) and as such I prefer to regard it as a good species. As there was only one specimen I have included two pictures highlighting different aspects such as gills, the dark underline to the annulus and the pinkish grey cap. There are only 53 records of this in the FRDBI, five of which have come from Middlesex; the last in 1997 from Buckingham Palace Garden.

Fig. 6. *Leucoagaricus carneifolius* is often regarded as a variety of *L. leucothites*. Photograph © Andy Overall.

Details of the illustrated collection
Cap 60 mm across, convex, buff-pink with a little yellow streaking from the centre, surface rather felt-like, browning where bruised, margin over hanging the gills somewhat, appendiculate. **Flesh** white and unchanging. **Gills**, free, white and crowded with differing lengths, slowly becoming pink, edge white, flocculose and entire. **Stem** 140 x 13 mm, broadening at the base to 18 mm; cylindrical, silky looking, white, browning slightly toward the base. **Annulus** superior, persistent, white with a thin brown line on the underside. **Flesh** white, browning a little at the base, fistulose. **Odour** apparent but indistinct. **Spores** 9.5–11.5 x 6.5–7 µm.

I was very impressed with Home Park and its fungi, more so than Bushy Park, which is literally just a stone's throw away, just across the Hampton Court Road. Apart from when the Hampton Court Flower Show is in residence for a week or so during the summer, Home Park has relatively low-density visitor numbers, especially those with dogs, which leads to less compaction from footfall and less nitrification of the soil by dog mess. There are also less vehicles moving through the park.

The 300 hundred head of fallow deer in the park graze all types of grassland across the park, acid, neutral and amenity, leading to less mowing and cutting, resulting in less compaction. The wide variety of habitats and the management strategies in place that help maintain this, have led to a very good habitat for fungi within Greater London, be they mycorrhizal, saprobic or parasitic. I hope that it remains so.

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