

## **Big Wood**

### **Report on a preliminary survey of spiders and suggestions for management of the wood for the benefit of spiders and other invertebrates**

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**Recorder of spiders for London**

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## 1. Introduction

Big Wood is unusual among the fragments of ancient woodland in north London. The trees are mostly English oak (*Quercus robur*), hazel (*Corylus avellana*), wild service (*Sorbus torminalis*) and wild cherry (*Prunus avium*) with understory holly (*Ilex aquifolium*), and crabapple (*Malus sylvestris*) but very little hornbeam (*Carpinus betulus*) which is abundant in other north London woods such as Queen's Wood and Coldfall Wood. As a result of neglect in past decades the canopy has closed in over much of the wood although it is encouraging to see that six small glades have been opened in recent years, allowing the ground flora to recover. Outside the glades there are areas of continuous ground cover mainly of ivy suppressing other vegetation.

It is thought that early in the nineteenth century the wood may have been clear-felled, breaking a continuous period of woodland cover, and this should be borne in mind when considering the invertebrate fauna. It appears that some ancient woodland species once lost are unlikely to return, and the fauna of secondary woodland is rather different to that of genuinely ancient – i.e. continuously standing – woodland. There are several spiders which are characteristic of ancient woodland in the London area but which have not been found at all in woods that are not ancient.

The spider fauna of Big Wood was partly known before this survey as some collecting and trapping had been done by the writer in the 1990s. Altogether 23 species were recorded from the wood before the current survey began in September 2017.

## 2. Materials and methods

Nine visits to the wood were made between mid-June to early November, using the following techniques.

### 1. Sweepnetting.

This is suitable for dislodging spiders from vegetation such as ivy, the lower branches of trees, holly bushes and taller ground flora etc. As the survey only began in mid-summer the catches have been somewhat disappointing as mainly late-season species were found, and others were mainly juveniles whose identity is not possible to confirm. Sweepnetting earlier in the season would be advisable. The main species in sweepnet samples were the bird-dropping spider (*Cyclosa conica*) and the small orb-web spider (*Metellina segmentata*). I have marked these species as A on the list of species.

### 2. Leaf-litter sorting.

Handfuls of leaf-litter are transferred to a garden sieve over a plastic sheet. When the sieve is shaken spiders and other small creatures fall through onto the sheet and can then be captured. This is a good technique for small ground-living spiders like many of the tiny money spiders (Linyphiidae) such as *Diplocephalus latifrons* and *Walckenaeria acuminata*. I have marked these species as B on the list of species.

### 3. Brushing.

This involves using a household sweeping brush to dislodge spiders from hollows in the bark of the larger trees. The sweep net is positioned below the area to be brushed so that small creatures can be collected. This technique is useful for finding those species like another money spider *Lepthyphantes minutus*, which spins its web in grooves at the base of the trunks of large trees. I have marked these as C on the list of species.

### 4. Searching under bark of dead logs, and underneath such logs.

A number of spiders live under dead bark, and others under logs rotting on the ground. Several of these are some of the larger spiders in the wood, and they feed on beetles and woodlice. Typical species are a larger relative of the common house spider called *Tegenaria gigantea*, and a mouse spider *Clubiona terrestris*. A number of common spiders in this category such as the large blue-web spider *Amaurobius ferox* and the woodlouse spider *Dysdera crocata* are almost certainly present in the wood but have yet to be seen. I have marked these as D on the list of species.

### 5. Pitfall-trapping (not used in this survey)

This involves setting plastic cups in the ground containing a preserving fluid and wetting agent. Unfortunately this kills all the spiders and insects which it catches so it was not

employed in this survey. Some pitfall trapping was done by the writer for a brief period in 1991. Obviously most species trapped in pitfalls would be from group B but sometimes wandering males from the other groups are taken.

All spiders found have been carefully examined, but as late summer and autumn are seasons when mainly juvenile spiders are found, the identifiable catch has inevitably been limited. (Immature spiders of most species cannot be identified to the species). One or two specimens have yet to be identified and have been sent to expert colleagues.

While this survey has concentrated on spiders, a few beetles have been collected; some have been identified but others await identification. A list of those so far identified is included on page 14.

### 3. Results

During the survey period a 41 spider species were encountered, in addition to which the larva of one parasitic wasp was recorded on a mature tangle-web spider (*Platnickina tincta*). The parasite was identified (by Dr Mark Shaw, Scottish National Museum, Edinburgh) as *Zatypota percontatoria*. There were also a number of juveniles which could not be identified, but which be found as adults at other times of year. Indeed the previous records include a further 10 species, making a total of 51. This is certainly an underestimate of possibly 50% or more, reflecting the limited period (and methods) of the current survey. Totals for adjacent woods such as Queen's, Highgate and Coldfall are all over 100 but these lists have been built up over several years, using extended pitfall- trapping. There are several common woodland spiders such as *Dysdera crocata* (the woodlouse spider) and *Amaurobius ferox* (a large blue-web spider) which are certain to live in Big Wood but have yet to be recorded.

One Nationally Notable species *Philodromus praedatus* was recorded, swept from low branches. This is an elongated crab spider which may be under-recorded as it lives at all levels in woodland foliage, probably out of reach of sweepnets most of the time. Other less common species found include *Meioneta innotabilis* also swept from low vegetation (though more usually found on the bark of large trees), the tuberculate *Gibberanea gibbosa*, and *Zilla diodia* another Nationally Notable species which occurs frequently in the London area. Perhaps the most interesting find was a single female of the green crab spider *Diaea dorsata* which appears to be spreading in north London and has recently been found at Sandy Heath – the first record of the species in any part of Hampstead Heath/Kenwood House estate since 1736! This is a spider which lives in tree foliage (possibly as high as the canopy) and is found by sweepnetting, but its population is probably under-recorded.

Of the 51 species recorded so far the majority (27) were collected by sweepnetting the foliage, ground vegetation and dense bushes. Two bark-living species were found and 3 species from under logs or under bark. The leaf litter has so far only produced 19 species, far fewer than the same habitat at Coldfall and Queen's Woods, where extended pitfall trapping has been done. The leaf litter fauna may be more limited due to the excess nutrient levels, but would certainly repay more extensive collecting by one means or another.

Just 10 species of beetle have so far been identified, but surveying beetles in a wood like Big Wood is a long term project.

#### **4. Discussion of findings and implications for management**

The secret of successful management of any public open space such as Big Wood so as to maximise biodiversity is to allow its development to gradually approximate, as far as possible the natural habitat it most resembles – in this case old-growth native woodland. Since virtually all woodland in the British Isles has been managed by humans for several millennia even apparently old-growth native woodland may be only a few centuries old.

In view of its history Big Wood should probably be regarded as (long-established) secondary woodland. It is not known how long the clear-felled state persisted but it will certainly have caused at least the temporary disappearance of most animal species associated with woodland. It may also explain the unusual occurrence of so many crab-apple trees – possibly because they were planted – and possibly the frequency of both wild service and wild cherry, both of which produce many suckers. Many other plants are relatively immune to deforestation as their seeds may survive in the subterranean seed-bank for a very long time, as has been shown when new glades are cut and these plants appear, in some cases for the first time in decades. Woodland animals are less fortunate; clear-felling destroys their habitat, removes their food plants and disperses their prey. Ancient woodland, even when it has been traditionally managed for a very long time does exhibit a fauna that is probably similar to old-growth habitat which has never been managed. Old grassland too is a richer habitat than that of more recent origin, both in number of species present and their specificity. In Britain, as elsewhere most of the rarest species occur in those habitats which have remained undisturbed for the longest time.

Superficially the appearance of Big Wood today suggests it is ancient, and many of the trees are decades, some possibly centuries old. However there are some differences from what genuinely ancient woodland would look like; each of these offers the possibility of restoration management in the shorter or longer term.

##### **1. Dead wood.**

The most obvious difference between Big Wood and ancient woodland is the number of dead trees and the amount of rotting timber, especially large-girth logs. It has been estimated that in the best (I e ancient) woodland 80% of beetles are associated with dead wood, without a much wider range of dead wood habitat many of these (highly mobile) species are unlikely to be found. Today there are a few fallen trees, mainly oak, and one or two standing dead trees, and it is difficult to see what can be done about this problem except wait for more trees to die or be blown down. One action that could be taken is to move any dead logs that are currently situated in deep shade into better lit sites where they may rapidly become covered with ground vegetation. This increases what is termed the ‘structural diversity’ of the habitat, to the benefit of many small animals from voles and mice, to invertebrates such as cobweb and blue-web spiders as well as those beetles whose larvae depend on dead wood.

## 2. The closed canopy.

Through much of the wood the tree canopy has closed over so there are large areas where little light reaches the ground during the summer months and the ground flora is very limited. This is somewhat unnatural in native mixed woodland and suggests a long period of neglect. The situation is not as bad as in most parts of Coldfall Wood with its dense canopy of hornbeam but it is still a problem in parts of Big Wood.

In recent times several small glades have been cut, some hazels coppiced, and dead hedges created. This is very beneficial; as these glades mature their floral diversity will grow and offer microhabitats for a wide range of invertebrates including spiders, especially orb-web spinners.

## 3. Elevated nutrient levels.

Some banks of nettles along the main paths and in the glades indicate artificially high nutrient levels in the soil, notably nitrogen and phosphorus compounds in excess of the carbon. This is typical of urban woodlands as has been pointed out by David Bevan (Bevan & Gilbert British Wildlife Magazine Vol 8: 213-218). From my observations dog-owners visiting the wood pick up virtually all dog faeces today, but it is unlikely that this was the case in the past, and even today the many dogs visiting the wood certainly urinate while they are there. Strips of habitat along paths are characterised by the growth of nettles, enchanter's nightshade and other nutrient-demanding plants. In woodland the spread of bramble may be due in part to elevated nutrient levels. The effect on the invertebrate fauna will be to favour more vigorous species such as common ground beetles. The effect on the spider fauna is almost certainly to reduce the diversity and encourage the more aggressive species.

Ways in which this problem may be ameliorated is to reduce the number of paths and by this means restrict dog-fouling to the borders of the main paths. Fallen trees or even branches may be used to obstruct some existing paths, and the development of thickets other than bramble patches would create undisturbed places of general benefit to the fauna. The dead hedges constructed around the coppiced areas and along some paths are very good, and provide habitat and hiding places for small mammals and a range of invertebrates including spiders. At CREOS woodchips have been used for paths and small dead logs placed end to end along the path sides, keeping dogs and people to more restricted zone. I recommend this.

## Spiders in the wood.

Spiders are perhaps less directly affected by the three issues discussed above. They do not depend on single food plants as do many herbivorous insects. They are not thought to depend

on particular prey species, although very little is known about prey preferences in spiders, even large orb-web spinning species. Some species are thought to spend much of their lives in the woodland canopy although very little is known about this except that some species like *Clubiona comta* migrate up towards the canopy in spring and return down to the woodland floor in the autumn.

Most woodland spiders live at ground level in the leaf litter or among ground flora. How far these are affected by changed nutrient levels isn't known but restricting the places where this effect is greatest can only benefit the spider fauna in the whole wood. It is like mowing in public parks: if all the grass is mown, dogs have easy access everywhere and nutrient levels rise accordingly. If desire-lines only are mown, nutrient levels can be reduced to the strips bordering paths. The litter layer may be richer in terms of biodiversity in the areas furthest from paths (and dogs).

The spiders found so far suggest that the above ground habitats may be healthy and normal but the spiders of the litter layer found so far are disappointing – restricted to a group of the commonest woodland floor species. Further sweepnetting in the early summer should produce other species of both spiders and beetles, while pitfall-trapping and regular litter sorting would produce a much better sample of more elusive ground-living species, and could reveal a greater diversity than appears from the present survey. I have made an annotated list of species found and figures to show their frequency in both the old county of London, and Middlesex with brief details of their habits and occurrence.

A list of beetles so far identified is also appended but this very short list does not give any indication of the actual beetle fauna of the wood, which will take much longer to assess.

Edward Milner 28/11/2017

## 5. Annotated list of spider species

L = no of recorded localities in (old) London county

M = no of recorded localities in Middlesex

### MIMETIDAE

**B *Ero cambridgei*** (L5, M14)

This is a fairly common spider-eating species, recorded by sweepnetting in 1990 but not seen since.

### Theridiidae (Tangle Web Spiders)

**A/B *Episinus angulatus*** (L7, M16)

Unusual, fairly common spider with a triangular abdomen spinning a web near the ground.

**C *Achaearanea lunata*** (L5, M9)

Fairly scarce woodland spider spinning its web near the base of large trees.

**A *Theridion pictum*** (L3, M16)

Uncommon spider (in London woodlands) but probably under-recorded as it is very small.

**A *Theridion varians*** (L18, M29)

This is a common woodland spider often swept from ivy and holly.

**A *Theridion mystaceum*** (L12, M13)

Another common woodland spider on bushes and foliage.

**A *Platnickina tincta*** (L20, M15)

Very common woodland spider; similar habit to the previous three species.

**A *Paidiscura pallens*** (L22, M23)

Very common tiny woodland spider recorded in 1990 and in 2017

**A *Enoplognatha ovata*** (L33, M58)

Almost ubiquitous spider which is commonly found in disturbed, usually unshaded habitats.

**A *Enoplognatha latimana*** (L7, M19)

Closely related to *E. ovata* but less common.

### Linyphiidae (Money spiders)

**B *Walckenaeria acuminata*** (L30, M40)

A very common spider often found in woodland but in most other habitats too; tending to occur more frequently in winter months.

**C *Moebelia penicillata*** (L1,M3)

Scarce spider found running on the bark of oak trees in early summer. Recorded in 1990 but not seen in this survey.

**B *Gongylidium rufipes*** (L25,M35)

Common woodland spider, usually found in leaf litter

**B *Dismodicus bifrons*** (L13, M27)

A fairly common spider of a variety of habitats, often in damp places. Recorded in 1990 but not seen during the present survey.

**B *Maso sundevalli*** (L21,M37)

Common woodland spider, usually found in leaf litter or among shaded grass.

**B *Monocephalus fuscipes*** (L25,M39)

Common woodland spider usually found in leaf litter

**B *Micrargus herbigradus*** (L34, M46)

Common woodland spider usually found in leaf litter

**B *Diplocephalus latifrons*** (L27,M29)

Common spider among woodland leaf litter.

**B *Diplocephalus picinus*** (L31,M37)

Common spider of woodland leaf litter

**B *Erigone atra*** (L52, M61)

Ubiquitous pioneer species, typically found at ground level in disturbed habitats.

**A/C *Meioneta innotabilis*** (L 0, M3)

A scarce woodland spider living on the bark of large trees such as oak. No records for London county. Swept from low vegetation in one of the glades.

**B *Microneta viaria*** (L36, M53)

Very common spider of woodland leaf litter

**B *Centromerus sylvaticus*** (L15, M30)

Common spider of woodland leaf litter and woodland glades

**B *Macrargus rufus*** (L21, M20)

Common winter-active spider of woodland leaf litter

**B *Bathyphantes gracilis*** (L48, M70)

Very common spider found in most habitats, both woodland and grassland.

**B/C *Labulla thoracica*** (L9, M5)

A scarce woodland spider, web-spinning so usually found above ground in vegetation.

**C *Lepthyphantes minutus*** (L21, M24)

Common woodland spider usually found near the base of large trees, its web in grooves in the bark.

**B *Tenuiphantes tenuis*** (L60, M82)

One of the commonest British spiders; found in most habitats.

**B *Tenuiphantes zimmermanni*** (L38, M52)

Very common woodland spider; in northern Britain it is commoner in grassland or heathland.

**B *Tenuiphantes flavipes*** (L42, M57)

Very common spider of woodland leaf-litter.

**B *Palliduphantes pallidus*** (L26, M23)

Fairly common spider of woodland leaf-litter

**A *Linyphia triangularis*** (L29, M36)

A very common spider of woodland edges, its sheet webs being easily seen on bushes and in other dense vegetation such as brambles, gorse etc.

**A *Linyphia hortensis*** (L20, M27)

Less common than the previous species, but commoner inside woodland.

**A/C *Nereine montana*** (L6, M20)

Scarcer than the two previous species, but with a similar habit.

**A *Neriene peltata*** (L15, M35)

A very common spider of bushes and the foliage of woodland trees such as hazel, holly etc. Not found in the leaf litter.

TETRAGNATHIDAE (Elongated orb-web spinners)

**A *Tetragnatha montana*** (L18, M48)

A common spider often swept from tall herbs, nettles etc or  
pondside vegetation.

**A *Metellina segmentata*** (L15, M30)

A very common small orb-web spider of woodland.

ARANEIDAE (Orb Web spiders)

**A *Gibbaranea gibbosa*** (L4, M10)

Quite scarce spider of woodland; usually swept from vegetation in  
woodland glades

**D *Nuctenea umbratica*** (L13, M23)

Fairly common orb-web spider, almost always found on the branches  
of dead trees.

**A *Agalenatea redii*** (L5, M14)

Fairly common orb-web spider usually found in long grass or tall  
herbs (nettles etc).

**A *Araniella cucurbitina*** (L18, M37)

Common spider of bushes (privet hedges) and foliage in woodland  
and woodland glades

**A *Zilla diodia*** (L7, M11)

Fairly scarce orb-web spinner of woodland glades and woodland  
edges.

**A *Cyclosa conica*** (L5, M11)

Fairly scarce, known as the 'bird-dropping spider' due to its  
appearance when curled up in an irregular lump.

AGELENIDAE (house spiders and relatives)

**D *Tegenaria gigantea*** (L26, M29)

The largest of our 'cobweb' spiders, frequently found under bark  
of dead trees, under logs etc.

DICTYNIDAE (Blue Web spiders)

**A *Dictyna uncinata*** (L27, M54)

Common spider of tall herbs in woodland glades etc.

CLUBIONIDAE (Mouse spiders)

**B/D *Clubiona terrestris*** (L42, M49)

Common woodland spider, found under logs or in leaf litter

**A *Clubiona comta*** (L16, M28)

Common woodland spider, thought to spend summer months in the woodland canopy, migrating back down to the woodland floor in autumn.

PHILODROMIDAE (Elongate crab spiders)

**A *Philodromus praedatus*** (L8, M10)

Scarce, Nationally Notable woodland spider, probably living mainly in the woodland canopy

**A *Philodromus dispar*** (L25, M28)

THOMISIDAE (Crab spiders)

**A *Diaea dorsata*** (L3, M8)

Nationally widespread species which has recently been newly recorded from several London sites

**B *Ozyptila praticola*** (L10, M22)

Fairly common crab spider in woodland leaf litter, recorded in 1990 but not seen during the present survey.

## 6. List of beetles recorded

	Carabidae	Ground Beetles	
	Dromius quadrimaculatus		09/07/17 020620
	Loricera pilicornis		28/07/17 020637
	Notiophilus biguttatus		28/07/17 020637
	Pterostichus madidus		28/07/17 020637
	Nitidulidae		
	Brachypterus glaber		11/06/17 020601
	Elateridae	Click Beetles	
Nb	Athous campyloides		28/07/17 020637
	Cantharidae		
	Malthinus seriepunctatus		11/06/17 020601
	Anobiidae		
	Anobium fulvicornis		11/06/17 020601
	Ochina ptinoides		11/06/17 020601
	Curculionidae	Weevils	
	Barypeithes pellucidus		11/06/17 020601