

**INVERTEBRATE SURVEY OF**

**KEW OLD DEER PARK,**

**HAHA AREA**

**SURREY,**

**2008**

**Dr. Jonty Denton FRES FLS MIEEM**

**September 2008**

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## **SITE VISITS AND METHODS**

The site was visited on the following dates:-

27<sup>th</sup>, April, 18<sup>th</sup> May, 15<sup>th</sup> June, 16<sup>th</sup> July, 20<sup>th</sup> September 2008.

Standard field techniques were employed to sample the invertebrate fauna across the site.

## **STATUS CATEGORIES FOR UNCOMMON SPECIES**

### **Red Data Book Category 2 (RDB 2) - Vulnerable**

#### **Definition.**

Taxa *believed* likely to move into the endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are decreasing because of *over-exploitation*, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

#### **Criteria.**

Species declining throughout their range.

Species in vulnerable habitats.

### **Red Data Book Category 3 (RDB 3) – Rare**

Taxa with small populations *in Great Britain* that are not at present endangered or vulnerable, but are at risk.

These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

### **Red Data Book Category I (RDB I) – Indeterminate**

#### **Definition.**

Taxa *considered* to be Endangered, Vulnerable or Rare in Great Britain, but where there is not enough information to say which of the three categories (RDB 1 to 3) is appropriate

### **Nationally Notable category A – Notable A**

Species which are uncommon, and occur in 30 or fewer 10km squares of the National Grid.

### **Nationally Notable category B - Nationally Scarce B**

Species which are uncommon in Britain, and are thought to occur between 31 and 100 10km squares of the National Grid.

### **Nationally Scarce - Notable (N)**

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 16 to 100 10 km squares of the National Grid. Species within this category are often too poorly known.

## **RESULTS**

The list of species recorded are shown in attached spreadsheet 1. These are sub divided into the following recording areas;-

### **Woodland,**

Closed woodland including carr areas

### **Grassland/Scrub areas**

The open amenity grassland, and margins of wooded areas, plus the nettle dominated rank areas.

### **Fens/pools**

Areas dominated by emergent wetland vegetation, and open standing water

### **Relief channel,**

The channel east of the Thames and its shorelines

### **Thames Towpath and riverside vegetation**

All habitats west of channel

## **SPECIES RECORDED**

The rare and Notable species are listed below;-

### **Rare, Nationally Notable, and regionally important species**

#### **Mollusca**

##### **Clausilidae**

##### ***Balea biplicata* (Rare – RDB3) Thames Door Snail**

Only dead shells of this celebrated London rarity were found on the edges of the relief channel, but suitable habitat occurs and it is likely to be breeding along the Haha edges.

#### **ARANAEA**

##### **Spiders**

##### **Dictynidae**

##### ***Nigma walckaenaeri* (Nationally Scarce B)**

A green spider found on foliage of bushes and trees. Not uncommon in Home Counties and Essex.

##### **Philodromidae**

##### ***Philodromus albidus* (Nationally Scarce B)**

A false crab spider found mainly on oak trees widespread and common in Surrey and the South-Easts and no longer deserving of Notable status.

### **Salticidae**

*Marpissa muscosa* (Nationally Scarce B)

Our largest jumping spider is not uncommon under bark esp. pine on heaths in the area. It also occurs on fence posts where some bark has been left attached.

### **Aranaeidae**

*Zilla diodia* (Notable B)

An orb weaver which lives in open woodland and glades. Local and restricted to Southern England and Wales.

## **HEMIPTERA (Bugs)**

### **Cicadellidae**

*Iassus scutellaris* (Notable)

A green hopper which lives on elm, local but widespread in the South-East.

*Edwardsiana ishidai* (Notable)

A small pale green hopper found on elms. At the time of the National review (Kirby 1992) this species was poorly known and assigned Notable status. It has since proved to be more widespread and not uncommon.

## **DIPTERA**

### **Stratiomyidae**

*Odontomyia tigrina* (N)

A medium sized black soldier fly found in wetlands. It was extremely abundant in the open wet areas in June and July.

### **Sciomyzidae**

*Psacadina verbeckei* (Notable)

An orange snail killing fly, found in a wide variety of wetland habitats where they attack a wide range of aquatic snails. Widespread in Surrey and in Britain.

## **HYMENOPTERA**

*Lasius brunneus* - The bicolored tree ant (Notable A)

A two coloured ant which lives on trees both living and dead nesting in cavities in the trunks and branches. Surrey has long been a stronghold for this species, which was very frequent across the study areas on a wide variety of trees.

## **COLEOPTERA (BEETLES)**

### **Histeridae**

*Abraeus granulum* (Nationally Scarce B) A small black beetle associated with decaying timber especially beech.

*Aeletes atomarius* (RDB3). A minute hister found in borings of the lesser stag beetle *Dorcus*. This appears to be only the second Surrey Locality (Denton, 2005)

### **Staphylinidae (Rove beetles)**

*Euryusa sinuata* (RDBI) A small reddish rove beetle associated with the nests of *Lasius brunneus* in old hollow trees. V.local and rare. This is the second Surrey record, I also took this species at West End Common, Esher in 2004, new for Surrey.

## **Scymaenidae**

### ***Scydmaenus rufus* (RDB2)**

A small red beetle found under bark, which has increased dramatically in past two decades and is no longer deserving of RDB status which should be revised to Nationally Scarce B.

## **Cantharidae**

### ***Silis ruficollis* (Nationally Scarce B)**

A soldier beetle associated with wetlands especially on tall emergent plants such as *Phragmites* and *Glyceria*

## **Buprestidae (Jewel beetles)**

### ***Agrilus sinuatus* - Hawthorn Jewel Beetle (Nationally Scarce B)**

A metallic purple jewel beetle which develops in hawthorn and pear (Alexander & Denton, *in press*). Formerly included in the Red Data Book, this species has increased in range, and as a result of recorders becoming familiar with the characteristic D-shaped holes left by the emerging adults it is now known to be a widespread species in Southern Britain and no longer deserving of Notable status.

## **Elateridae**

### ***Elater ferrugineus* (RDB1 & BAP combined species statement)**

Britain's largest click beetle is a spectacular red species which develops in hollow trees. This is only the third Surrey locality, the others being Richmond and the Saville Gardens part of Windsor Forest.

## **Dermestidae**

### ***Ctesias serra* The Cobweb beetle (Nationally Scarce B)**

A dermestid beetle which lives under the bark of hardwoods, amongst the old cobwebs of spiders. Local but widespread.

## **Melyridae**

### ***Dasytes plumbeus* (Nationally Scarce B)**

A melyrid beetle which develops in dead wood, widespread but scarce.

## **Cleridae**

### ***Tillus elongatus* (Nationally Scarce B)**

A handsome checkered beetle, which predated woodworms.

## **Lathriidae**

***Enicmus brevicornis* (Nationally Scarce)** A small black mould beetle, which lives under fungoid bark. Local but widespread and increasingly frequently recorded in Southern Counties.

## **Tenebrionidae (Darkling beetles)**

***Prionychus ater* (Nationally Scarce B)** A black beetle which develops in red rotten oak, and other hardwoods.

## **Silvanidae**

***Uleiota planata* (Na)** A flat beetle with elongate antennae, it occurs under bark of various trees including pines. Spreading rapidly and no longer deserving of Na status.

## **Mycetophagidae**

### ***Mycetophagus quadriguttatus* (Notable A)**

A very scarce saproxylic species with the only other modern record for Surrey from Ashtead common in 1998.

## **Mordellidae**

### ***Mordellistena neuwalldeggiana* (RDBK)**

An elongate orange tumbling flower beetle. It breeds in small branches wood of various hardwoods. Although allotted RDBK status by Hyman & Parsons (1992) this species appears to have increased dramatically in recent years and is not uncommon in the south-east of England. Fowles *et al* (1999) downgraded it to Notable A status in the saproxylic checklist, but Nationally Scarce B status would be more appropriate, as I have personally recorded it in more than 15 10km squares of the National grid.

## **Attelabidae**

### ***Platyrhinus resinosus***

The adult taken on the 6<sup>th</sup> May was by two days the third record for Surrey and the second since 1987. It occurs on *Daldinia* (cramp-balls) fungus, a fungus commonest on ash and gorse. At Kew it was on Beech only the second county record from this host tree (Brian Spooner pers.comm). It remains to be seen whether two records so close together after 21 years, are the vanguard of a boom, or mere coincidence

## **MEASURING THE SITES QUALITY**

## **MEASURING THE QUALITY OF THE SAPROXYLIC BEETLE FAUNA**

### **Index of Ecological Continuity (IEC)**

This method of measuring the quality of the saproxylic Coleopteran fauna was developed by Harding & Alexander (1994), using the scores assigned in Harding & Rose (1986). Alexander (2004) used information gathered since the original index was developed to refine the method, and in some cases reassess the species list used to calculate the index. The IEC for the woodlands was 34, which is exceptional given the paucity of veteran native trees.

**Table 2.** Dead wood sites in Surrey Vice County ranked according to the Index of Ecological Continuity (IEC)

Site	No of qualifying species	SQS	SQI	IEC
Richmond Park	253	1760	695	149
Esher Commons all time	<b>258</b>	<b>1426</b>	<b>552.7</b>	<b>101</b>
<b>Esher Commons Post 1950</b>	<b>238</b>	<b>1203</b>	<b>505.5</b>	<b>97</b>
Ashtead Common	221	1292	585	92
Hatchlands Park	176	882	501	74

Bookham Common post 1950	174	929	534	66
Box Hill	226	1193	528	53
Kew Gardens	124	549	443	47
Chiddingfold Woods	171	747	437	46
Thursley Commons	151	703	465	43
Peper Harow Park	130	502	386	39
Farnham Park	118	437	370	37
Sheepleas-Mountain Wood	107	427	399	37
Headley Warren	92	427	464	35
Ash Ranges	124	480	387	32
Pirbright Ranges/Brentmoor Heath	98	366	373.5	27

### Species Quality Index

The Species Quality Score (SQS) and Species Quality Index (SQI) are a different way of comparing sites, which is intended to provide a comparative measure that is not dependent on exhaustive sampling, which is usually required to produce a reliable IEC. Fowles *et al* (1999) assigned quality scores to native saproxylic Coleoptera, ranging from 1 for common species, to 32 for Red Data Book taxa. The SQS is produced by adding together the assigned scores for the species captured: The SQI is then calculated by dividing the SQS by the total number of species and multiplying by 100. A minimum level of recording is required before the scores can be reliably compared this as been set at 40 species, the higher the number of species recorded the more robust the data becomes.

The list of saproxylic beetles is shown in Appendix xxx. In all 60 qualifying species have been recorded across the survey area. This gave a SQS of **290** and an SQI of **483**. Scores of 300 and above are considered to indicate sites of county importance Fowles *et al* (1999). This is an exceptionally good score given that key host tree species such as beech were virtually absent from the area, and the only veteran trees Horse chestnuts.

## ECOLOGICAL ASSESSMENT

### WOODLAND

The woodland is dominated by non native species and supports a very limited ground flora, as

### MATURE TREES

Most of the key species recorded were associated with a handful of large dead or dying trees along the towpath. The hulks of three large horse chestnuts yielded an extremely important assemblage of saproxylic beetle species, including the second county records for *Aeletes atomarius*, *Euryusa sinuata*, and first modern Surrey records for the BAP click beetle *Elater ferrugineus*.

### WETLAND AREAS

The shallow flooded fen areas supported a limited number of nationally Scarce species notably *Odontomyia tigrina* which was very abundant. Plant diversity is very poor, and this is reflected in the lack of Notable phytophagous species.

The relief channel margins are largely devoid of emergent vegetation, but locally sedge beds have developed in more open unshaded sections.

### **SCRUB AND RANK AREAS**

The nettle dominated areas are of low conservation value , but scattered trees and bushes especially elm support a good range of species.

### **HABITAT DEVELOPMENT**

The open amenity grassland areas south of the wooded strip support a very poor fauna and flora. However these could be improved by creating scrapes and pools. The big problem will be the nutrient load in the soil which favours nettle dominated areas with very limited botanical value.

Creating more of the communities present will be easy if mowing is stopped, however deeper permanent / semi permanent pools would be more desirable. However colonisation by wildfowl would be likely and this in turn would reduce diversity if large numbers of ducks and geese used such waters.

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