

THE BEETLES OF  
BINSTED

BY

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Names of beetles around title page

1. *Sitona lineatus* = Pea leaf weevil
2. *Cartodere nodifer*
3. *Trechus quadristriatus*
4. *Omalium rivulare*
5. *Phyllotreta ochripes*
6. *Meligethes aeneus* = Pollen beetle
7. *Cypha longicornis*
8. *Cryptophagus dentatus* group
9. *Tytthaspis sedecimpunctata* = 16spot ladybird
10. *Subcoccinella 24-punctata* = 24 spot ladybird
11. *Barypeithes araneiformis*
12. *Corticaria elongate*
13. *Aderus oculatus*
14. *Melasis buprestoides*
15. *Harpalus rufipes*= Strawberry seed beetle
16. *Loricera pilicornis*
17. *Notiophilus biguttatus*
18. *Xantholinus linearis*
19. *Litargus connexus*
20. *Psylliodes chrysocephala*
21. *Catops fuliginosus*
22. *Xyleborinus saxeseni* = an ambrosia bark beetle
23. *Aleochara sparsa*
24. *Trachodes hispidus*
25. *Epuraea unicolor*
26. *Sericoderus lateralis*
27. *Kyklioacalles roboris*

## CONTENTS

<b>SUMMARY</b> .....	<b>4</b>
<b>INTRODUCTION</b> .....	<b>6</b>
1.1 INTRODUCTION .....	6
1.2 METHODS.....	7
<b>2 RESULTS</b> .....	<b>8</b>
2.1 HEDGEROW 1 .....	8
2.2 HEDGEROW 2 .....	13
2.3 LAKE COPSE.....	17
<b>3 DISCUSSION</b> .....	<b>25</b>
3.1 THE SAPROXYLIC QUALITY INDEX.....	25
3.2 A CHANGING FAUNA .....	25
3.3 IN CONCLUSION.....	26
<b>APPENDIX – SPECIES LIST</b> .....	<b>27</b>

## SUMMARY

- During the summer of 2016 I carried out a beetle survey in the beautiful and peaceful countryside around Binsted. I was asked to do this for MAVES (Mid Arun Valley Environmental Survey).
- Three areas were sampled; two hedgerows (OS grid references SU 98452 06347 and SU 98967 05519) and an arm of wet woodland, Lake Copse (SU 98960 05712), extending south from the Binsted Wood Complex.
- Surveys were completed from May to October employing a number of collecting / trapping techniques such as sweeping vegetation, pitfall traps, trunk traps and aerial vane traps placed in the canopy.
- This gave a grand total of 1920 individuals from 234 species, which includes 1 Red Data Book species and 11 Nationally Scarce species. Moreover, each location also produced a beetle not previously recorded in Sussex.
- Hedgerow 1 had the greatest numbers of beetles collected with 564 individuals from 86 species. Each of the three pitfalls sites had a different and distinctive community of beetles. Hedgerow 1 was characterised by large predatory black ground beetles. Leaf beetles and weevils were caught by sweeping and while the rape seed was flowering huge numbers of pollen beetles were found. The hawthorn flowers and the umbellifers attracted some saproxylic species.
- A total of 119 species were found in Hedgerow 2. The commonest species found in the pitfall traps were the black clock and a related black species, but there were also several colourful species. The commonest rove was a little red and black ant-eating beetle. Early sweeping along the edge of the field yielded very large numbers of ladybirds from several species and later sweepings yielded, among other species, tortoise beetles and weevils.
- A total of 99 species were recorded from Lake Copse with a different assemblage of ground beetles at the wetter and the drier ends. Trunk traps were placed on an ash, an oak and a field maple, all of which had dead wood habitat. Thirty saproxylic species were collected, with the ash yielding the most.
- The Saproxylic Quality Index rates the importance of the dead wood habitat. This is a habitat that is becoming rarer as rotten branches on trees are removed for safety reasons. Despite the small area covered by this survey, many species found were uncommon or even rare, and they produced a high score on the SQI.
- Fifty-two saproxylics were identified, giving an SQI of 434. This places Binsted about halfway down the list of sites recorded in Southern England. At the top with a rating of about 850 are places like the New Forest and Windsor Forest, while Petworth Park is only just above Binsted. Most of these sites are much bigger and have been studied for much

longer. Binsted also scores much higher than Binsted Wood, which came in four fifths from the bottom.

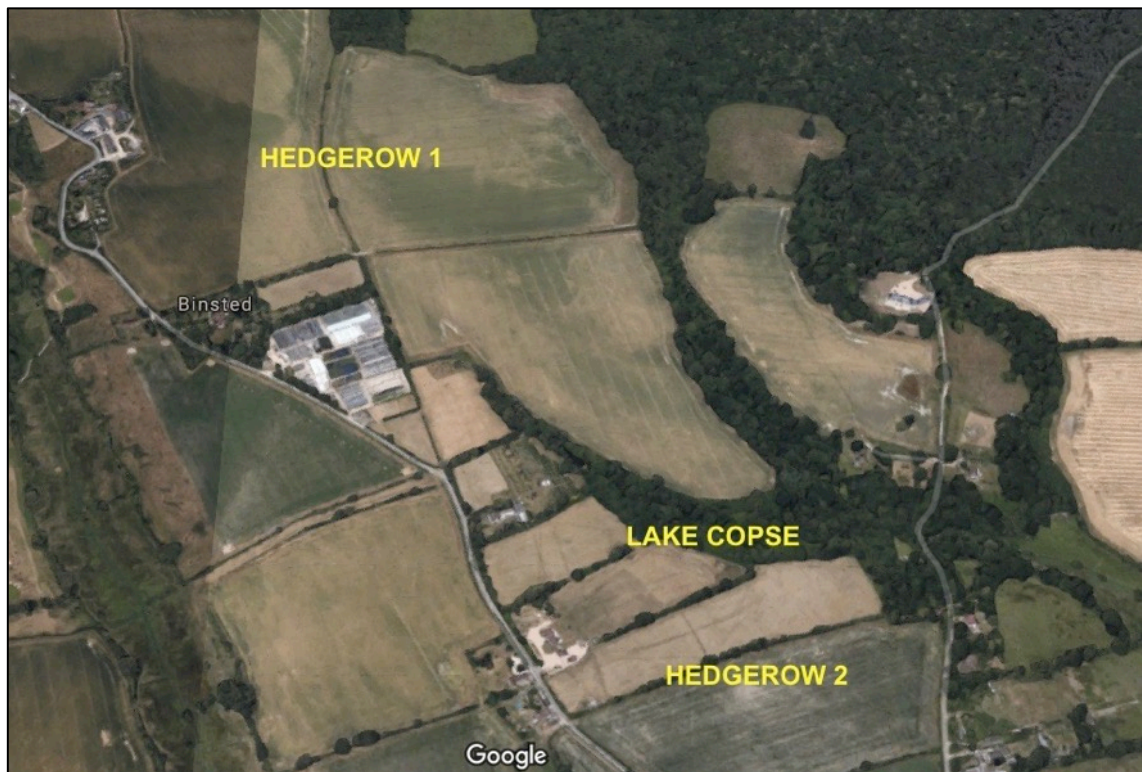
- The coleopteran fauna is changing all the time. Four of the beetles on the list arrived relatively recently into this country, three of which are associated with wood and imported with timber. The most recent arrival is the harlequin ladybird, which was first seen in 2004. Not only is it extremely invasive but there are worries that our native ladybirds are at risk because of the competition and because it eats their larvae.
- In total about 400 species were collected from the Binsted Wood Complex compared to 234 from this survey. But the woodland survey was carried out over a longer period, one year in the first instance, with other species added later especially from the wood edge. The area studied was much larger with more varied habitats. What is amazing is that this survey, restricted in time and size should yield so much.

# INTRODUCTION

## 1.1 Introduction

During the summer of 2016 I carried out a beetle survey in the beautiful and peaceful countryside around Binsted. I was asked to do this for MAVES (Mid Arun Valley Environmental Survey). Three areas were sampled; these locations are marked on the Google map (Figure 1) and labelled Hedgerow 1, Hedgerow 2, and Lake Copse. The hedgerow sites were chosen because of the possibility that the new Arundel by-pass will be routed through them. Lake Copse, although not directly threatened by the road, is a delightful, secluded privately owned area of woodland. At the beginning of the survey both hedgerow sites had adjacent beetle banks as seen on the Google map. These are strips of uncultivated land about 3m wide at the edge of the fields. This provides a sheltered habitat for beetles and other animals, which can venture out to feed on crop pests.

**Figure 1:** Aerial photograph showing survey locations



Ten years ago, and for the same reason, I undertook a Beetle Survey in Binsted Woods to the north of this area. I used pitfall traps, sweeping, beating trees, observing insects visiting flowers and extracting beetles from dead wood, leaf litter and fungi but I always felt I had missed out on the beetles living in the trees. Although I tried, I was not successful in making suitable traps to fully investigate this habitat. This time, as there is much more information available on the

internet, I was able to make some and caught a number of interesting and rare beetles that feed on dead wood on standing trees.

## 1.2 Methods

The traps were very simple. Half a 2l plastic bottle was attached to the bottom of a piece of clear plastic to make a trough. This was filled with vinegar and the whole thing hung on the tree trunk about 2m from the ground. Vane traps, which hang higher in the tree, are made by fixing two pieces of plastic sheet at right angles, attaching a funnel beneath and placing a bottle with vinegar under that. These were in addition to the pitfall traps I had set as before to catch ground living beetles. These consist of a beaker sunk into the ground so that the top of the soil is level with the top of the beaker. A lid is placed over it to keep out rain and chicken wire around the sides to keep out dead leaves and small rodents. The vegetation was also swept with a net to find those insects living on plants. Some fungi were also examined for beetles. See Photographs 6 and 9 or 11 for a better picture of a trunk trap.

From May to halfway through October specimens were collected fortnightly from all traps and sweeping was carried out when possible, that is, when the vegetation was dry. In total 1877 individual beetles were collected in the traps and a further 42 species added by sweeping, with one more found in a fungus. This gave a grand total of 1920 individuals from 234 species. (See appendix for the full list). The different sites yielded quite different assemblages of beetles but surprisingly all pitfall sites yielded over 60 different species, many unique to that site, and the two areas with tree traps over 50. The only beetles not identified to genus were the aleocharines. These are a group of about 200 tiny rove beetles. The English key is not very helpful and to be certain of correct identification often the aedeagus (male genitalia) needs to be dissected. This is not easy on an insect which may be only 2mm long and less than millimetre wide. I did not even try and separate them into different types as I had done with the aleocharines in Binsted Wood. However there were certainly not nearly as many different kinds here and three of the most distinctive ones were named. I collected so many and such a variety of specimens that I had difficulty finishing examining one collection before the next one was due. Where possible I have used common names but, many of them do not have them, so I am forced to use their Latin ones. I have illustrated a selection of beetles from each site and those that are shown are marked in the text by a prefix indicating the plate number (P). More beetles can be found on the title page, which are listed on the next page. In the text they are marked by a T followed by their number on the list.

## 2 RESULTS

### 2.1 Hedgerow 1

The position of Hedgerow 1 is shown on the map (Figure 1). It is near an oak tree and the hedgerow plants consist of spindle, hawthorn, and blackthorn with bramble and rose nearby. The hedge faced North-east and is about 250m away from the wood. When I started my survey this field and the one behind it had a crop of oil seed rape and the vegetation in the beetle bank had not grown up. By my third visit I had great difficulty locating my traps under the lush vegetation. This edge strip was not very rich in plant species being mainly grass, nettles, hedge woundwort and cow parsley, followed later in the season by hogweed near the hedge and clover in the shorter grass near the crop. When the crop was harvested in July the edge strip was mown and later it was ploughed in with the rest of the field.

I sunk four traps in the ground along the edge of the boundary and a further one under a hawthorn bush in the hedge. (See Photographs 1 and 2). The first examination of these pitfall traps yielded 112 European Gazelle<sup>P1</sup> ground beetles, and 29 other species. In June I found bank voles in almost all of these traps, despite the use of chicken wire, and I decided to cut trap numbers down to three keeping the one under the hawthorn. This seemed to make little difference to the numbers of species collected but very few more voles were caught. Although the huge numbers of European Gazelles were not repeated, this site had the greatest numbers of beetles collected with 564 individuals from 86 species. Each of the three pitfalls sites had a different and distinctive community of beetles. Hedgerow 1 was characterised by large predatory black ground beetles, dominated at first by the European Gazelle beetle and later by black clock (*Pterostichus madidus*) and the small brown *Trechus quadristriatus*<sup>T3</sup>. The other main group of predatory ground living coleoptera are the rove beetles. The commonest here was *Omalium rivulare*<sup>T4</sup>, a small beetle that lives in decaying matter. Towards the end of the survey the main predatory species was the large rove beetle called Devil's Coach Horse<sup>P3</sup> and this was true at all sites.

More specimens were gathered by sweeping (Photograph 2). Leaf beetles and weevils were found feeding on the hedgerow plants and while the rape seed was flowering huge numbers of pollen beetles<sup>T6</sup> were found on it and on the plants adjacent to it. The hawthorn flowers and the umbel attracted some saproxylic beetles (these are species whose larva live in dead wood) but the adults often feed on pollen. The green and red malachite beetle<sup>P1</sup> was collected on hawthorn and the hogweed was host to the quaintly named swollen thighed flower beetle<sup>P1</sup> and soldier beetles<sup>P1</sup>. Several species of soldier beetles were collected by sweeping both here and at the next site. I am sure that more species could have been collected by this method were it not for the fact that in the early part of the survey when the vegetation is lushest and beetles feeding on them more plentiful, the weather was often wet and therefore not suitable for sweeping. Photographs 2 and 3 show the site and Plate 1 illustrates a selection of the beetles found.



**Photograph 1:** Hedgerow 1 in May showing pitfall traps



**Photograph 2:** Sweeping at Hedgerow 1 in July

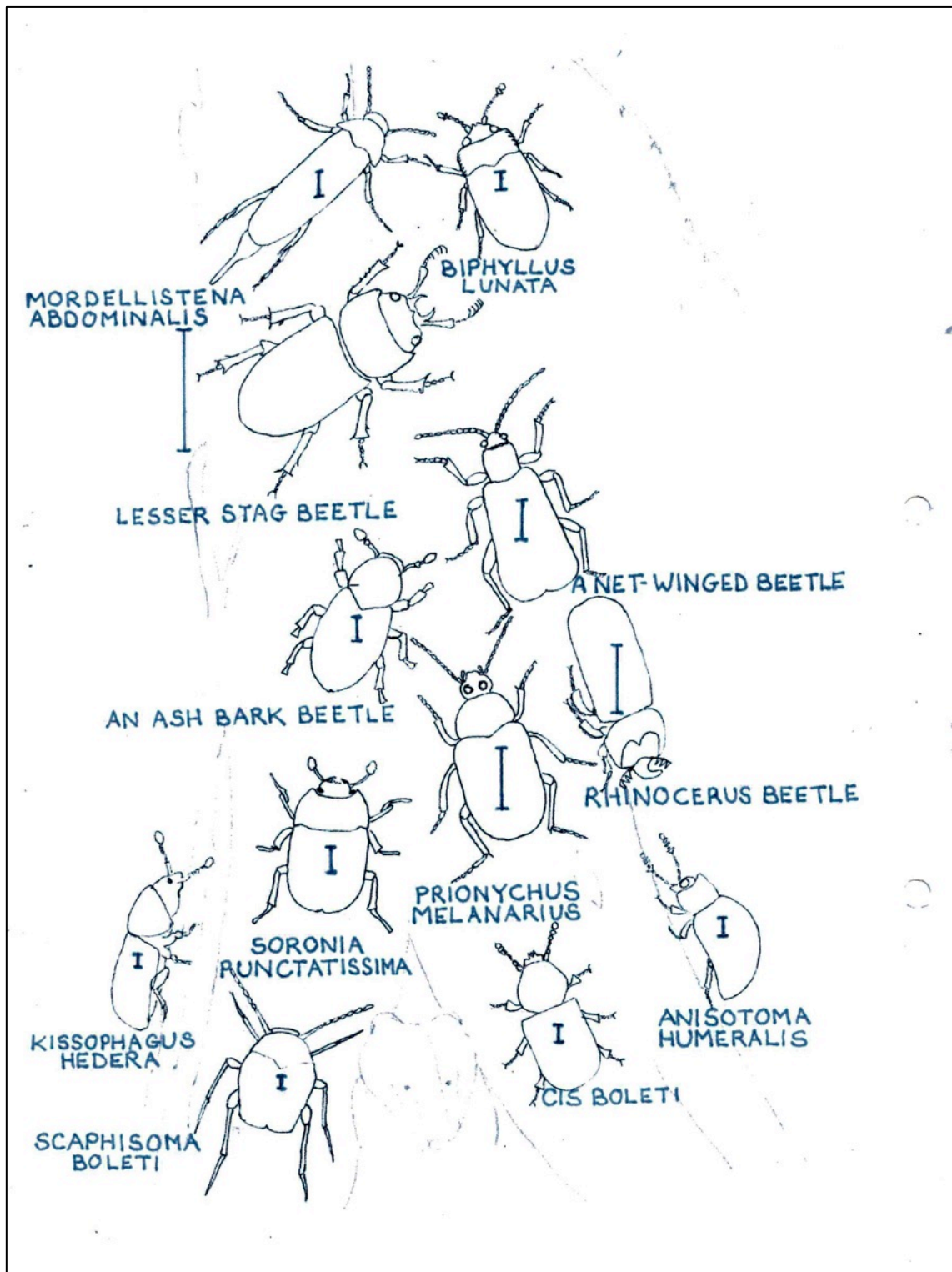


**Photograph 3:** Hedgerow 1





Plate 1a: The names and sizes of the beetles on plate 1



## 2.2 Hedgerow 2

The next location was along a footpath next to a hedge with a number of oak trees in it. It faces south west. See map (Figure 1) for position and Photographs 4 - 6. Photograph 6 also shows the oak tree featured in Plate 2. This site also had a beetle bank at the side. There is a ditch in front of the hedge and three pitfall traps were placed on the bank between the ditch and the field. The crop in the field was wheat and, as above, there was not a great variety of flowers in the edge strip, the main ones being dock, bramble and creeping thistle.

The commonest beetle found in the pitfall traps was the black clock and a related black species, *Pterostichus melanarius*, but there were also several colourful species. The main one being the coppery coloured ground beetle *Pterostichus cupreus*<sup>P2</sup>, a smaller greener beetle called *P. versicolor* and a small green and yellow beetle called *Agonum dorsalis*<sup>P2</sup>. The commonest rove was a little red and black ant-eating beetle called *Drusilla canaliculata*<sup>P2</sup>.

Early sweeping along the edge of the field yielded very large numbers of ladybirds. The most abundant species was the buff coloured 16 spot <sup>T9</sup>, followed by the red 24 spot <sup>T10</sup>. These are found in grass where the 16 spot feeds on mildews while the 24 spot eats the vegetation. Not all ladybirds eat aphids. Later sweepings yielded, among other species, tortoise beetles<sup>P2</sup> on the thistles, a little red weevil *Apion frumentarium*<sup>P2</sup> on the dock and a turquoise weevil, *Phyllobius robetarius*<sup>P2</sup> in the hedge. These and more are illustrated on Plate 2 together with species found on the oak tree shown in Photograph 6 and Plate 2.

**Photographs 4 and 5:** showing sweeping along Hedgerow 2 and trunk and aerial traps on an old oak

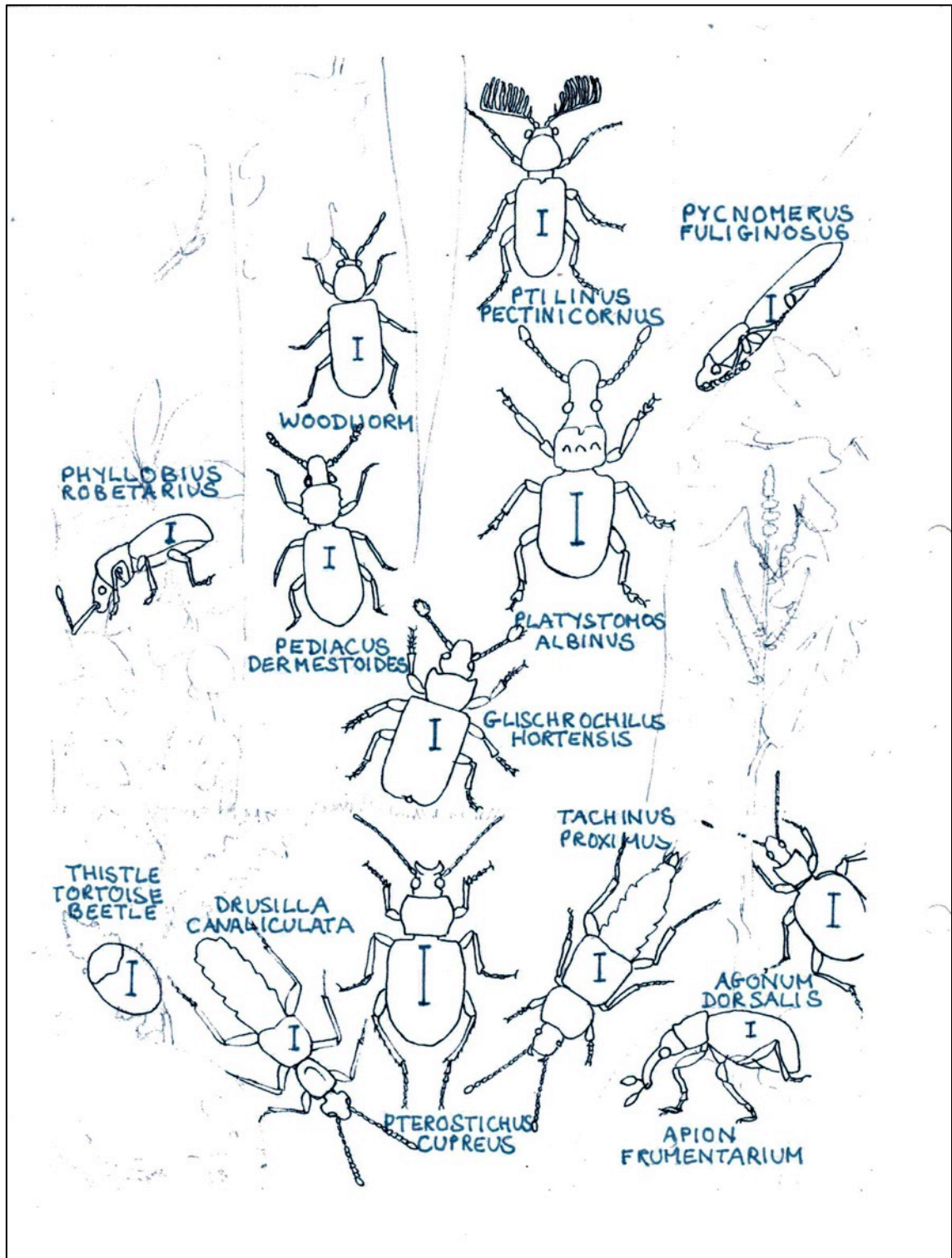


**Photograph 6:** Showing the trunk trap on the old oak featured in Plate 2





Plate 2a: The names and approximate sizes of the beetles on Plate 2





### 2.3 Lake Copse

Lake Copse is a thin ribbon of woodland beside a stream, originally it was part of the Binsted Woods complex, which is Ancient Woodland. The trees are mainly ash and un-coppiced hazel with a few oak trees. The trees are tall and in the spring primroses, bluebells and other spring flowers bloom, after that the covering tree canopy discourages the growth of most herbaceous plants, so there is little undergrowth. The only maintenance is keeping paths clear and removing dead trees, although branches have been left for wildlife. Within this spinney a transect of 4 traps was set up in a clearing. See Photograph 7. This went from wet ground at the base of the slope near the stream to dry ground at the top. At the wetter end of this the ground beetles *Elaphrus cupreus*<sup>P3</sup>, with its sculptured elytra, *Agonum moestum* and *Pterostichus nigrita* (both black) were found. At the upper end typical beetles associated with woodland occurred. These are *Loricera pilicornis*<sup>T16</sup> and the big eyed bronze beetle<sup>T17</sup> which eat springtails. These in turn feed on the leaf litter helping to break it down. Larger ground beetles such as *Abax parallelepipedus*<sup>P3</sup> and the ubiquitous black clock feed on larger invertebrates. I was pleased to find an example of a violet ground beetle<sup>P3</sup>, which includes snails and earthworms in its diet. The commonest rove beetle in the wood was the very shiny *Philonthus decorus*<sup>P3</sup> but in the later collections this was superseded by the Devil's Coach Horse<sup>P3</sup>.

**Photograph 7:** Clearing in Lake Copse



There was not much vegetation in the wood to sweep and the branches on most of the trees were too high to beat. However by sweeping the hazel trees I found a variety of other beetles including click beetles eg *Athous haemorrhoidalis*<sup>P3</sup> and a related species that tucks in its legs and looks like a grain of rice (*Trixagus carinifrons*). The larvae of these live on roots in the ground but adults are often found on trees. Another beetle found on hazel was the hazel leaf roller<sup>P3</sup>, this weevil fashions a cradle out of a leaf for its young. A selection of these are illustrated on Plate 3.

Within the hedge near the site of the second pitfall traps was an old oak with many dead branches. This was where I placed a vane trap and trunk trap (see Photographs 4 and 5). I was amazed at the variety of beetles that were caught in these Heath Robinson devices. Seventeen of them were feeders on dead wood (saproxylic). A selection of them can be seen on Plate 2 with the beetles found at that site on the ground or on vegetation.

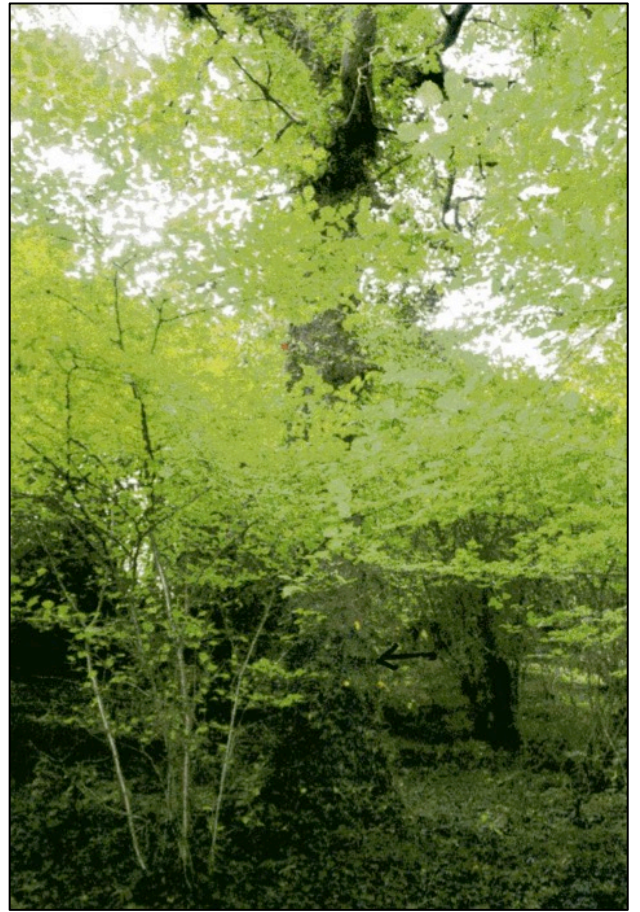
I placed a vane trap in the Copse, high up in an ash tree (Photograph 8). Access was possible because Steve Browning, the owner of the wood, had a ladder and a platform in the tree, which he used as a badger watching station.

**Photograph 8:** A vane trap in an old ash tree



In addition, trunk traps were placed on four trees at different times. The first tree was a healthy young ash and I found little on it but then I discovered a large old ash rotting from the inside. See Photograph 11. This proved to be a wonderful source of beetles. So I then placed traps on two other old trees, namely an oak and a maple, (see Photographs 9 and 10) but nothing was as good as the ash.

**Photographs 9 and 10:** A maple with a trunk trap and an oak with a trunk trap



**Photograph 11:** A dying ash at Lake Copse



From these tree traps I collected 30 saproxylic species, of those six had also been found on the oak in the hedgerow. Some of these are illustrated on Plate 2. The total number of saproxylic species collected was 52 with 41 being caught in the tree traps. The interesting thing about them is that, the beetles found on the hedgerow oak and the woodland ash, indicate different decay-causing fungi in the two trees. Wood is composed of lignin and cellulose and beetles cannot break these down. They rely on fungi and microorganisms to convert these substances into a digestible form. There are two main groups of fungi that break down wood and they form white rot or brown rot. White rot fungi, which includes the notorious honey fungus, decompose the lignin in timber leaving a spongy white mass whereas brown rot acts on the cellulose, making the wood shrink and break into cubical pieces. So-called “dry rot” is an example of this.

In the Copse the ash tree provides a good example of white rot. The insides are crumbling away and falling out through fissures in the bark. The lesser stag<sup>P4</sup>, the rhinoceros<sup>P4</sup> and the red net-winged<sup>P4</sup> beetles, found here in numbers, are typical of species attracted to this type of decay.

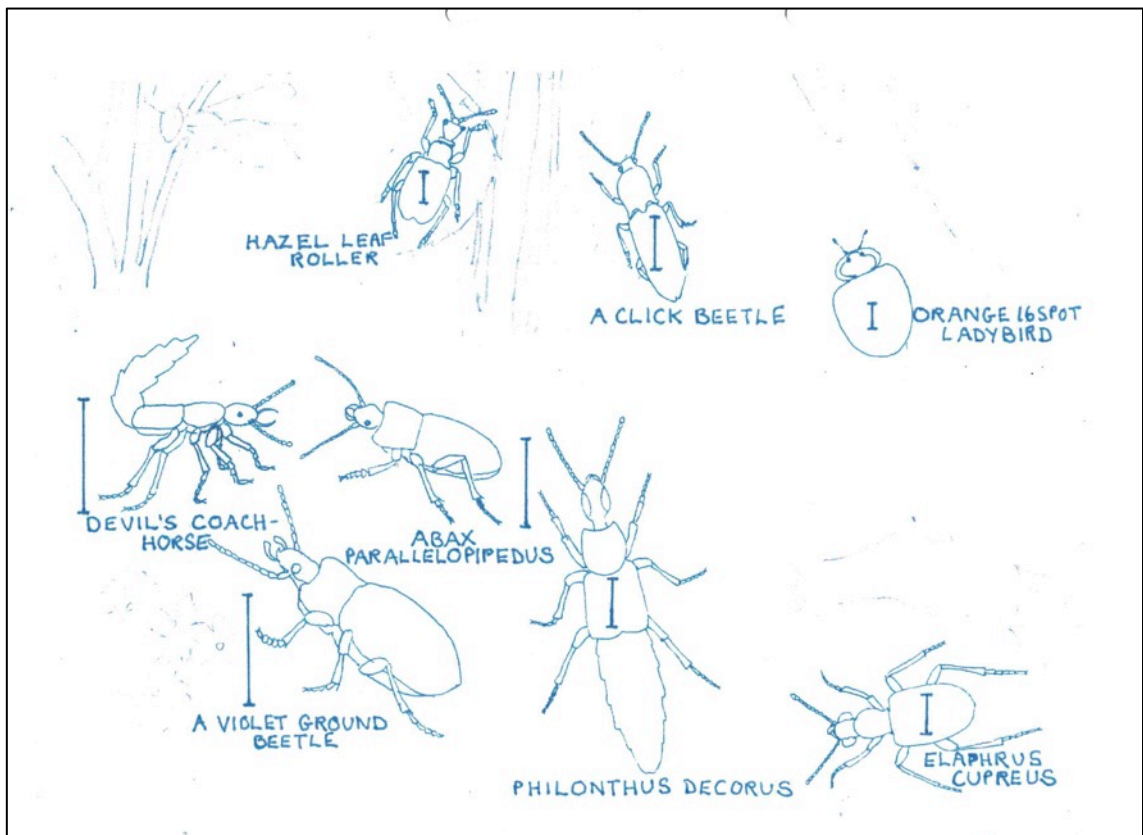
Whereas the decay on the oak tree in the hedge is more characteristic of brown rot exemplified by *Ptilinus pectinicornis*<sup>P2</sup>. The male has amazing branched antennae with which it sniffs out females. Brown rot also provides food for the rare beetle *Aderus oculatus*<sup>T13</sup>. The fruiting bodies of all tree-feeding fungi provide food for more beetles including *Biphylus lunatus*<sup>P4</sup> and *Litargus connexus*<sup>T19</sup>. Under loose bark, the available nutrients may be enriched by excreta from other animals, making a suitable habitat for the rare *Prionychus melanarius*<sup>P4</sup>. All these species were found. See Plates 2 and 4.

Three bark beetles were found on the ash. *Hylesinus crenatus*<sup>P4</sup> feeds on fungi under the bark and makes galleries in the outer layer of the wood inadvertently spreading spores which stick on its back. Whereas *Xyloborinus saxeseni*<sup>T22</sup> the pinhole fruit borer is an ambrosia bark beetle. This species farms the ambrosia fungus by carrying it from tree to tree. It then bores into the wood, deposits the fungus and lays its eggs. Thus the larvae have a source of food. Both of these species are forestry pests as they spread fungi from one tree to another thereby initiating decay. *Kissophagus hederæ*<sup>P4</sup> another bark beetle lives in the dead ivy still clinging to the ash.

**Plate 3:** Lake Copse with a selection of beetles



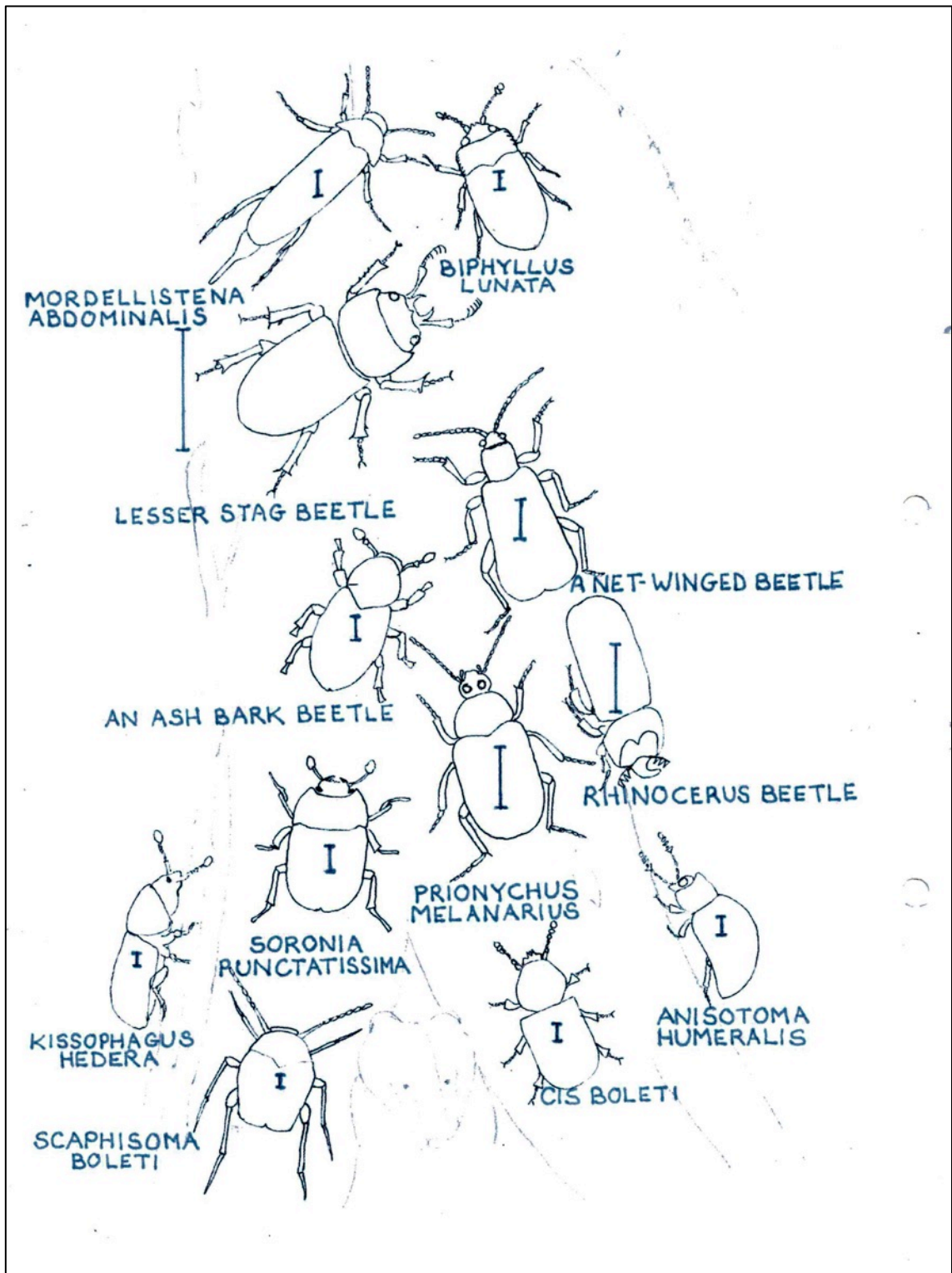
**Plate 3a:** The names of the beetles in Plate 3



**Plate 4:** Dying Ash in Lake Copse with a selection of beetles



Plate 4a: The names and approximate sizes of the beetles in Plate 4





### 3 DISCUSSION

#### 3.1 The Saproxylic Quality Index

The Saproxylic Quality Index rates the importance of the dead wood habitat. This is a habitat which is becoming rarer as rotten branches on trees are removed for safety reasons. Despite the small area covered by this survey, many of those found were uncommon or even rare, and they produced a high score on the SQI. The rating given to each qualifying saproxylic is shown in the total list of species found in Appendix 1. Fifty-two saproxylics were identified, scoring 230 points. To get the SQI figure the first number is divided by the second and multiplied by 100. This gives an SQI of 434. This places Binsted about halfway down the list of sites recorded in Southern England. At the top with a rating of about 850 are places like the New Forest and Windsor Forest while Petworth Park is only just above Binsted. Most of these sites are much bigger and have been studied for much longer. Binsted also scores much higher than Binsted Wood, which came in four fifths from the bottom. Despite the fact that 57 eligible species were found there, they were commoner ones, so they only scored 198 points making an SQI score of 347.4. I think the two scores might have evened themselves out somewhat if I had used trunk traps in the wood and had found suitable umbels to examine near the Copse. Lacking from Binsted was the large number of longhorn beetles and other saproxylics I had found on umbels, in or near the wood. Many of the adult saproxylic beetles move away from the wood and feed on the pollen of umbels and other plants, but I did not find many suitable plants here to examine.

Nearly all the beetles on the Red Data Book index, 12 out of 14, are dead wood beetles and on the SQI. The exceptions are the rare puff ball living *Lycoperdina bovistae* and *Longitarsus parvulus*, a flea beetle. The latter is a leaf eater it is now quite common due to the cultivation of linseed on which it can feed and its NA status is no longer justified. Each location also produced a beetle not previously recorded in Sussex. There was a round fungus beetle (*Ptomaphagus varicornis*) from Hedgerow 1, a sap beetle (*Carpophilus hemipterus*) from Hedgerow 2 and a relative of woodworm (*Dorcatoma serra*) from the Copse.

#### 3.2 A changing fauna

The coleopteran fauna is changing all the time. Four of the beetles on the list arrived relatively recently into this country. The first three are all associated with wood and imported with timber. *Cis bilamellatus* was first seen in 1884, it originates in Australia, in 1937 *Euophyrum confine* arrived from New Zealand. It is now found in the wild and in houses where it attacks floor boards. The next to arrive was *Pycnomerus fuliginosus*<sup>P2</sup>, another Australian import, first found on a beach in Devon in 1964. It has spread along the south coast. I found it in 2003 in Brandy Hole Copse, a small nature reserve to the north of Chichester, but not in Binsted Woods. However, my survey there was ten years ago, I may have missed it or it may not have been there then. The most recent arrival is the harlequin ladybird, which was first seen in 2004. It comes from Japan and other countries of East Asia. It was deliberately introduced into North America

and Europe to eat aphids but like some other biological controls has proved to be a mixed blessing. It spread here accidentally. Not only is it extremely invasive but there are worries that our native ladybirds are at risk because of the competition and because it eats their larvae.

### **3.3 In conclusion**

In total I collected about 400 species from the Binsted Wood Complex compared to 234 from here. But that survey was carried out over a longer period, one year in the first instance, with other species added later especially from the wood edge. The area studied was much larger with more varied habitats. What is amazing is that this survey, restricted in time and size should yield so much.

This is a beautiful area of countryside with thriving populations of beetles including many unusual and colourful ones, which were a pleasure to discover. It would be disastrous if a road was driven through it disturbing their habitats, especially as the old trees are providing such a rare and important home for saproxylic beetles.

## APPENDIX – SPECIES LIST

Species name	Where	Number	Dates	Comments	Status	SQL
<b>1 CARABIDAE – Ground beetles</b>						
<i>Carabus problematicus</i> Hbst.	Lake Copse	1	03-Jul	Violet ground beetle		
<i>Leistus fulvibarbis</i> Dej.	Lake Copse	1	23-May			
<i>Leistus ferrugineus</i> (L.)	Hedgerow 1	.2-5	23-May			
<i>Leistus spinibarbis</i> (F.)	Hedgerow 1	1	03-Jul			
<i>Nebria brevicollis</i> (F.)	Hedgerow 1, Lake Copse	Over 100	11/5;3/7-5/8	European gazelle beetle		
<i>Notiophilus biguttatus</i> (F.)	All sites	21-100	11/5-31/8	Big eyed bronze beetle		
<i>Elaphrus cupreus</i> Duft.	Lake Copse	.6-20	03-Jul			
<i>Loricera pilicornis</i> (F.)	All sites	.6-20				
<i>Trechus quadristriatus</i> (Schr)	Hedgerow 1	21-100	3/7-14/9			
<i>Asaphidion curtum</i> (Hey.)	Hedgerow 1	.6-20	17/8-28/9			
<i>Bembidion lampros</i> (Hbst.)	Hedgerows	.6-20	11/5; 17/8-28/9			
<i>Bembidion guttula</i> (F.)	Lake Copse	1	23-May			
<i>Bembidion biguttatum</i> (F.)	Lake Copse	1	23-May			
<i>Harpalus rufipes</i> Deg.	Hedgerows	.6-20	11/5-5/8	Strawberry seed beetle		
<i>Harpalus latus</i> (L.)	Hedgerows	.6-20	23/5-20/7			
<i>Ophonus rufibarbis</i> (Fab.)	Hedgerow 1	.2-5	14-Sep			
<i>Acupalpus dubius</i> Schil.	Hedgerow 2	1	11-May			
<i>Ocys harpaloides</i> Stephens	Hedgerow 1	1	12-Oct			
<i>Poecilus cupreus</i> (L.)	Hedgerow 2	21-100	11/5-5/8			
<i>Poecilus versicolor</i> (Strm)	Hedgerow 2	.6-20	17/8-28/9			
<i>Pterostichus strenuus</i> (Panz.)	Lake Copse	.6-20	22/6-3/7			
<i>Pterostichus nigrata</i> Payk.	Lake Copse	.6-20	11/5-31/8			
<i>Pterostichus madidus</i> (F.)	All sites	Over 100		Black clock, commonest beetle in Pitfall traps		
<i>Pterostichus melanarius</i> (Ill.)	Hedgerow 2	21-100	11/5- 5/8			
<i>Pterostichus vernalis</i> (Panz.)	Hedgerow 2	1	11-May			
<i>Abax parallelepipedus</i> Pill. & Mitt.	Lake Copse	21-100	23/5-28/9	Can make a squeaking sound		
<i>Calathus rotundicollis</i> Dejean	Hedgerow 1	.6-20	23/5-14/9			
<i>Synuchus vivalis</i> (Panz.)	Hedgerow 1	.2-5	3/7, 17/8			
<i>Anchomenus dorsale</i> (Pont.)	Hedgerow 2	1	11-May			
<i>Agonum emarginatum</i> (Duft)	Lake Copse	.6-20	11/5-8/6			
<i>Amara similata</i> (Gyll.)	Hedgerow 2, Lake Copse	.2-5	23-May			
<i>Amara ovata</i> (F.)	Hedgerow 2	1	11-May			
<i>Amara aenea</i> (Deg.)	Hedgerow 2	.2-5	23/5-8/6	Common sun beetle		
<i>Amara plebija</i> (Gyll.)	Hedgerow 2	.2-5	11-May			
<i>Demetrias atricapillus</i> (L.)	Lake Copse	1	20-Jul			
<i>Syntomus obscuroguttatus</i> (Duft.)	Hedgerow 2	.6-20	11/5,17/8,28/9			
<i>Dromius quadrimaculatus</i> (L)	Hedgerow 2	1	11-May			
<i>Syntomus foveatus</i> (Four.)	Hedgerow 2	1	22-Jun			
<b>8 HYDROPHILIDAE</b>						
<i>Cercyon lugubris</i> (Ol.)	Hedgerow 2	.2-5	22-Jun			

Species name	Where	Number	Dates	Comments	Status	SQI
<i>Anacaena globulus</i> (Payk.)	Lake Copse	1	08-Jun			
<b>10 HISTERIDAE</b>						
<i>Abraeus globosus</i> Leach	Hedgerow 2	1	20-Jul			4
<i>Paromalus flavicornis</i> (Herb.)	Lake Copse	1	17-Aug	Rotten ash		2
<b>12 PTILIIDAE – Feather winged beetles</b>						
<i>Nossidium pilosellum</i> (Mars.)	Lake Copse	2-5	29-Jul	In hard fungi by rotten ash		8
<i>Acrotrichis sp</i>	Lake Copse	2-5	03-Jul			
<i>Acrotrichis intermedia</i> (Gill.)	Hedgerow 2	1	20-Jul	On hedgerow oak		
<b>14 LEIODIDAE – Round fungus beetles</b>						
<i>Leiodes calcarata</i> (Erich.)	Lake Copse	1	31-Aug			
<i>Anisotoma humeralis</i> (F.)	Lake Copse	1	20-Jul	On rotten ash		2
<i>Agathidium varians</i> Strm.	Lake Copse	1	30-Aug	On old maple		2
<i>Ptomaphagus varicornis</i> (Rosen.)	Hedgerow 1	1	05-Aug	New to Sussex records		
<i>Ptomaphagus subvillosus</i> (Goez.)	Hedgerows	6-20	3/7-17/8			
<i>Nargus velox</i> (Spnc.)	Hedgerows	6-20	12-Oct			
<i>Sciodrepoides watsoni</i> (Spnc.)	Hedgerow 1	6-20	8/6-17/8			
<i>Sciodrepoides fumata</i> (Spnc.)	Lake Copse	1	14-Sep			
<i>Catops fuliginosus</i> Er.	Hedgerow 1, Lake Copse	2-5	23/5,22/6			
<i>Catops nigricans</i> (Spnc.)	All sites	2-5	23/5,22/6,3/7			
<i>Colon brunneum</i> (Lat)	Hedgerow 2	1				
<b>15 SIPHIDAE – Carrion beetles</b>						
<i>Silpha atrata</i> L.	Lake Copse	1	05-Aug	Black snail beetle		
<b>17 SCAPHIDIIDAE</b>						
<i>Scaphisoma boleti</i> (Panz.)	Lake Copse	1	14-Sep	On rotten ash	N B	8
<b>18 STAPHYLINIDAE – Rove beetles</b>						
<i>Megarathrus affinis</i> (Mill)	Lake Copse	1	03-Jul			
<i>Hapalareaa pygmaea</i> (Payk.)	Lake Copse	2-5	22-Jun	On rotten ash		2
<i>Omalius rivulare</i> (Payk.)	Hedgerow 1	6-20	8/6-20/7			
<i>Phloeonomus punctipennis</i> Thom.	Hedgerow 2	1				2
<i>Phloeostiba plana</i> (Payk.)	Lake Copse	2-5	08-Jun			2
<i>Xylodromus concinnus</i> (Marsh.)	Hedgerow 2	1	28-Sep			
<i>Siagonium quadricorne</i> Kirby	Lake Copse	2-5	28-Sep			2
<i>Syntomium aeneum</i> (Müll.)	Hedgerow 2	1	14-Sep	On hedgerow oak		
<i>Anotylus rugosus</i> (F.)	Lake Copse	1	03-Jul			
<i>Anotylus sculpturatus</i> (Grav.)	Hedgerow 1	2-5	11/5-3/7			
<i>Anotylus tetracaratus</i> (Block)	Hedgerow 2	2-5	11/5,3/7	In ATs		
<i>Stenus binotatus</i> Ljungh	Lake Copse	1	03-Jul			
<i>Paederus littoralis</i> Grav.	Hedgerows	2-5	11-May			
<i>Xantholinus linearis</i> (Ol.)	Lake Copse, Hedgerow 1	6-20	22-Jun			
<i>Xantholinus longiventris</i> Heer	Lake Copse	1	11-May			
<i>Othius punctulatus</i> (Goez.)	Lake Copse	2-5	23/5-22/6			
<i>Philonthus decorus</i> (Grav.)	Lake Copse	Over 100	11/5-14/9			
<i>Philonthus splendens</i> (F.)	Hedgerow 1	1	17-Aug			
<i>Ocyopus aeneocephalus</i> Deg.	Hedgerow 2	2-5	11/5-23/5			
<i>Tasgius olens</i> Müll.	All sites	21-100	20/7-28/9	Devil's coach horse		
<i>Tasgius morsitans</i> (Rossi)	Hedgerow 1	1	11-May			

Species name	Where	Number	Dates	Comments	Status	SQI
<i>Ocypus compressus</i> Marsh.	All sites	6-20	22/6-14/9			
<i>Quedius cruentus</i> (Ol.)	Hedgerow 1, Lake Copse	.2-5	11/5-23/5			
<i>Quedius maurorufus</i> (Grav.)	Lake Copse	1	08-Jun			
<i>Quedius tristis</i> (Grav.)	Hedgerow 2	1	05-Aug			
<i>Quedius mesomelinus</i> (Marsh.)	Lake Copse	6-20	20-Jul	On rotten ash		
<i>Quedius picipes</i> (Mann.)	Lake Copse	1	20-Jul			
<i>Quedius fuliginosus</i> (Steph.)	Hedgerows	2-5	11/5-17/8			
<i>Quedius boops</i> (Grav.)	Lake Copse	1	28-Sep			
<i>Ischnosoma splendidum</i>	Hedgerows	2-5	11-May			
<i>Sepedophilus marshami</i> (Steph.)	Hedgerow 2	1	11-May			
<i>Sepedophilus immaculatus</i> (Steph.)	Hedgerow 1	1	11-May			
<i>Tachyporus hypnorum</i> (F.)	Hedgerows	6-20	11/5-14/9			
<i>Tachyporus chrysomelinus</i> (L.)	Lake Copse	1	20-Jul			
<i>Tachinus proximus</i> Kr.	All sites	21-100	11/5-17/8			
<i>Tachinus subterraneus</i> (L.)	Hedgerow 2	1	05-Aug			
<i>Cypha longicornis</i> (Payk.)	Hedgerows	6-20	11/5-17/8			
<i>Drusilla canaliculata</i> (F.)	Hedgerow 2	21-100	11/5-28/9	Eats ants		
<i>Aleochara sparsa</i> Heer	All sites	21-100	05-Aug			
Aleocharinae	All sites	Over 100				
<b>20 LUCANIDAE</b>						
<i>Dorcus parallelipipedus</i> (L)	Lake Copse	6-20	20/7-28/9	Lesser stag beetle. On rotten ash		2
<i>Sinodendron cylindricum</i> (L.)	Lake Copse, Hedgerow 2	2-5	08-Jun	Rhinoceros beetle on rotten trees		2
<b>23 SCARABAEIDAE</b>						
<i>Serica brunnea</i> (L)	Lake Copse	1	17-Aug	A chafer beetle		
<b>25 CLAMBIDAE</b>						
<i>Clambus armadillo</i> (Deg.)	Hedgerow 1	1	17-Aug			
<i>Calyptomerus dubius</i> (Mars.)	All sites	6-20	23/5-5/8			
<b>27 SCIRTIDAE</b>						
<i>Microcara testacea</i>	Hedgerow 1	1	11-May			
<i>Cyphon coarctatus</i> Payk.	Lake Copse	1	29-Jul			
<i>Cyphon ochraceus</i> Steph.	Hedgerow 2	2-5	11/5-22/6			
<b>35 ELATERIDAE Click beetles</b>						
<i>Stenagostus villosus</i>	Lake Copse	1	14-Sep	On rotten ash		
<i>Adrastus pallens</i> (F.)	Hedgerow 2	1	08-Jun			
<i>Agriotes pallidulus</i> (Ill.)	Hedgerow 2, Lake Copse	2-5	08-Jun			
<i>Athous haemorrhoidalis</i> (F.)	Hedgerow 2	2-5	08-Jun			
<b>36 THROSCIDAE</b>						
<i>Trixagus carinifrons</i> s.lat (Bonv.)	Lake Copse, Hedgerow 2	2-5	03-Jul			
<b>37 EUCNEMIDAE – false click beetles</b>						
<i>Melasis buprestoides</i> (L.)	Lake Copse, Hedgerow 2	6-20	8/6-20/7	On rotten trees	NB	4
<b>39 CANTHARIDAE – Soldier beetles</b>						
<i>Cantharis fusca</i> L.	Hedgerows	2-5	3/7-20/7			
<i>Cantharis decipiens</i> Baud	Hedgerow 2	2-5	3/7-20/7			
<i>Cantharis pallida</i> Goeze	Hedgerow 1	1				

Species name	Where	Number	Dates	Comments	Status	SQI
<i>Cantharis rustica</i>	Hedgerows	21-100	03-Jul			
<i>Cantharis nigra</i> (Deg.)	Hedgerows	21-100	3/7-20/7			
<i>Rhagonycha fulva</i> (Scop.)	Hedgerow 1	Over 100	22-Jun	“Blood sucker”		
<i>Rhagonycha lignosa</i> (Müll.)	Hedgerow 2	21-100	22-Jun			
<i>Rhagonycha femoralis</i> (Brul.)	Hedgerows	2-5	22/5-22/6			
<i>Malthinus seriepunctatus</i> Kies.	Hedgerow 1	1	22-Jun			2
<b>41 LYCIDAE – Net-winged beetles</b>						
<i>Platycis minutus</i> (Fab)	Lake Copse	6-20	17/8-28/9	On rotten ash		8
<b>43 ANOBIIDAE</b>						
<i>Ernobius mollis</i> (L.)	Lake Copse	1	20-Jul	On rotten ash		2
<i>Anobium punctatum</i> (Deg.)	Lake Copse, Hedgerow 2	6-20	20/7-5/8	On trees, woodworm beetle		1
<i>Ptilinus pectinicornis</i> (L.)	Hedgerow 2	.2-5	8/6,3/7	On hedgerow oak		1
<i>Dorcatoma serra</i> Panz.	Lake Copse	1	20-Jul	New to Sussex records	NA	16
<b>51 MELYRIDAE</b>						
<i>Malachius bipustulatus</i> (L.)	Hedgerow 1	2-5	23-May	Malachite beetle		1
<b>53 NITIDULIDAE – sap beetles</b>						
<i>Brachypterus urticae</i> (F.)	Hedgerow 1	21-100	26-Jul	On nettles		
<i>Brachypterus glaber</i> (Steph.)	Hedgerow 1	2-5	23-May	On nettles		
<i>Carpophilus hemipterus</i> (L.)	Hedgerow 2	1	08-Jun	New to Sussex records		
<i>Carpophilus marginellus</i> Mots	Hedgerow 2	1	20-Jul			
<i>Meligethes atratus</i> (Ol.)	Hedgerow 2	1	03-Jul	Pollen beetles		
<i>Meligethes aeneus</i> (F.)	Hedgerows	Over 100	11/5-23/5	Pollen beetles		
<i>Meligethes rotundicollis</i> Bris.	Hedgerow 2	1	08-Jun	Pollen beetles		
<i>Meligethes ovatus</i> Strm.	Hedgerow 2	1	11-May	Pollen beetles		
<i>Epuraea aestiva</i> (L.)	Hedgerow 1, Lake Copse	2-5	22/6, 3/7			
<i>Epuraea melanocephala</i> (Mars.)	Hedgerow 2	.2-5	23-May	On hedgerow oak		
<i>Epuraea unicolor</i> (Ol.)	Hedgerows	Over 100	11/5-22/6			2
<i>Soronia grisea</i> (L.)	Lake Copse	1	17-Aug			
<i>Soronia punctatissima</i> (Ill.)	Lake Copse, Hedgerow 2	6-20	23/7-14/9,			2
<i>Cryptarcha strigata</i> (F.)	Lake Copse	2-5	8/6-5/8	On rotten ash	NB	8
<i>Glischrochilus hortensis</i> (Four)	Hedgerow 2	2-5	23/5-8/6	On hedgerow oak		
<i>Glischrochilus quadriguttatus</i> (F.)	Lake Copse	1	11-May			2
<b>54 RHIZOPHAGIDAE</b>						
<i>Rhizophagus bipustulatus</i> (F.)	Hedgerow 2	1	23-May	On hedgerow oak		1
<b>57 CUCUJIDAE</b>						
<i>Pediacus dermestoides</i> (F.)	Lake Copse, Hedgerow 2	2-5	23/5-22/6	On hedgerow oak		4
<b>59 CRYPTOPHAGIDAE</b>						
<i>Antherophagus pallens</i> (L.)	Hedgerow 2	2-5	22/6-3/7			
<i>Cryptophagus dentatus</i> group	All sites	21-100	11/5-28/9			1
<i>Caenoscelus subdeplanata</i> Bris	Hedgerow 2	1	22-Jun			
<i>Atomaria atricapilla</i> Steph.	Hedgerow 1	1	11-May			

Species name	Where	Number	Dates	Comments	Status	SQI
<i>Atomaria ruficornis</i>	Lake Copse	1	28-Sep			
<i>Atomaria</i> spp.	All sites	6-20				
<i>Ephistemus globulus</i> (Payk.)	Hedgerows	2-5	23/5-8/6			
<b>60 BIPHYLLIDAE - false skin beetles</b>						
<i>Biphyllus lunata</i> (F.)	Lake Copse	2-5	11/5-31/8			4
<b>63 PHALACRIDAE - shining flower beetles</b>						
<i>Olibrus aeneus</i> (F.)	Hedgerow 1	1	03-Aug			
<b>64 CERYLONIDAE</b>						
<i>Cerylon ferrugineum</i> Steph.	Lake Copse	1	27-Jul			2
<b>65 CORYLOPHIDAE</b>						
<i>Sericoderus lateralis</i> (Gyll.)	All sites	6-20	3/7,5/8,14/9-28/9			
<i>Orthoperus mundus</i> Matt.	Hedgerow 1	1	05-Aug			4
<b>66 COCCINELLIDAE - ladybirds</b>						
<i>Rhizobius litura</i> (F.)	Hedgerow 2	2-5	11/5,22/6			
<i>Tytthaspis sedecimpunctata</i> (L.)	Hedgerow 2	21-100	23-May	Sixteen spot, found on grass		
<i>Adalia 10-punctata</i> (L.)	Hedgerow 1	1	23-May	Ten spot, found on trees		
<i>Subcoccinella 24-punctata</i> (L.)	Hedgerow 2	21-100	23-May	Twentyfour spot, found on grass		
<i>Coccinella septempunctata</i> L.	Hedgerow 2	1	22-Jun	Seven spot		
<i>Propylea 14-punctata</i> (L.)	Hedgerow 2	1	22-Jun	Fourteen spot, found on grass		
<i>Halyzia sedecimguttata</i> (L.)	Lake Copse	1	12-Oct	Orange 16 spot, found on trees		
<i>Harmonia axyridis</i> (Pallas)	Hedgerow 2	1	11-May	Harlequin ladybird, introduced 2004		
<b>67 ENDOMYCHIDAE</b>						
<i>Lycoperdina bovistae</i> (F.)	Lake Copse	1	05-Aug	Lives in puff balls	RDB 3	
<b>69 LATHRIDIIDAE – Mould beetles</b>						
<i>Cartodere bifasciatus</i> (Reitt.)	Hedgerows	2-5	31/8-12/9			
<i>Cartodere nodifer</i> (West.)	Hedgerow 1, Lake Copse	2-5	11/5-22/6			
<i>Dienerella vincenti</i> (Curt.)	Hedgerow 2	6-20	8/6-20/7			
<i>Enicmus transversus</i> (Ol.)	Hedgerow 2	1	31-Aug	On hedgerow oak		
<i>Enicmus histrio</i> Joy & Tomlin	Hedgerow 2	2-5	8/6-3/7			
<i>Corticaria gibbosa</i> (Hbst.)	Hedgerows	6-20	22/6-31/8			
<i>Corticaria elongata</i> (Gyll.)	Hedgerow 2	1	20-Jul			
<i>Corticarina minuta</i> (Gyll.)	Hedgerow 2	6-20	31/8-22/10			
<b>70 CISIDAE – minute tree fungus beetles</b>						
<i>Cis setiger</i> Mell.	Lake Copse	1	31-Aug	On old maple		2
<i>Cis bilamellatus</i> Wood	Lake Copse	1	14-Sep	On rotten ash, recent introduction		
<i>Cis boleti</i> (Scop)	Lake Copse, Hedgerow 2	21-100	20/7-12/10	On hedgerow oak,		1
<i>Cis pygmaeus</i> (Mars.)	Lake Copse	1	20-Jul			2
<i>Cis bidentatus</i> (Ol.)	Hedgerow 2	1	22-Jun			2
<i>Ennearthron cornutum</i> (Gyll.)	Hedgerow 2, Lake Copse	2-5	8/6,12/10	On hedgerow oak		2
<b>71 MYCETOPHAGIDAE – hairy fungus beetles</b>						

Species name	Where	Number	Dates	Comments	Status	SQI
<i>Litargus connexus</i> (Four.)	Lake Copse	6-20	17/8-31/8			2
<b>72 COLYDIIDAE</b>						
<i>Pycnomerus fuliginosus</i> Erich.	Hedgerow 2, Lake Copse	6-20	23/5-8/6	Iron clad beetle, On rotten trees		
<b>73 TENEBRIONIDAE – Darkling beetles</b>						
<i>Prionychus melanarius</i> (Germ.)	Lake Copse	1	20-Jul	On rotten ash	NS	32
<b>78 PYROCHROIDAE</b>						
<i>Pyrochroa coccinea</i> (L.)	Hedgerow 1	1	23-May	Found on path, cardinal beetle	NB	4
<b>79 MELANDRYIDAE – false darkling beetles</b>						
<i>Conopalpus testaceus</i> (Oliv.)	Hedgerow 2	1	20-Jul	On hedgerow oak	NB	8
<b>81 MORDELLIDAE- tumbling flower beetles</b>						
<i>Mordellistena neuwaldeggiana</i> (Panz)	Hedgerow 2	1	29-Jul	On hedgerow oak		16
<i>Mordellochroa abdominalis</i> (Fab.)	Lake Copse	2-5	08-Jun	On rotten ash		4
<i>Anaspis frontalis</i> (L.)	Hedgerows	2-5	23/5-8/6			1
<i>Anaspis maculata</i> Fourc.	Hedgerow 1	21-100	23/5-8/6	On hawthorn blossom		
<i>Anaspis garneysi</i> Fowler	Lake Copse, Hedgerow 2	1	8/6-5/8			
<i>Anaspis fasciata</i> Forster	Hedgerow 2	1	08-Jun			2
<b>83 OEDEMERIDAE – false blister beetles</b>						
<i>Oedemera nobilis</i> (Scop.)	Hedgerows	21-100	08-Jun	On hogweed, swollen thighed flower beetle		
<i>Oedemera lurida</i> (Marsh.)	Hedgerow 2	2-5	08-Jun			
<b>86 ADERIDAE</b>						
<i>Aderus oculatus</i>	Hedgerow 2	1	17-Aug	Hedgerow oak		8
<b>87 CERAMBYCIDAE – Longhorn beetles</b>						
<i>Grammoptera ruficornis</i> (F.)	Hedgerow 2	2-5	08-Jun	On hedgerow oak, the oak longhorn		1
<b>88 BRUCHIDAE</b>						
<i>Bruchus rufimanus</i> Boh.	Hedgerow 2	1	23-May	Bean weevil		
<b>89 CHRYSOMELIDAE – leaf beetles</b>						
<i>Chrysolina polita</i> (Grav)	Hedgerow 1	1	22-Jun			
<i>Phaedon tumidulus</i> (Germ.)	Hedgerow 1	2-5		On cow parsley		
<i>Galerucella sagittariae</i> (Gyll.)	Hedgerow 1	1	23-May	On hawthorn		
<i>Phyllotreta atra</i> (F.)	Lake Copse	1	23-May			
<i>Phyllotreta nemorum</i> (L.)	Lake Copse	1				
<i>Phyllotreta ochripes</i> (Curt.)	Hedgerow 1	2-5	11/5,31/8			
<i>Aphthona euphorbiae</i> (Schr.)	Hedgerow 2	1	23-May	Large flax flea beetle		
<i>Longitarsus gracilis</i> Kuts	Hedgerow 1	1	14-Sep			
<i>Longitarsus flavicornis</i> (Steph.)	Hedgerow 2	1	14-Sep	Ragwort flea beetle		
<i>Longitarsus parvulus</i> (Payk.)	Lake Copse	1	30-Aug	Now quite common due to the flax crop	NA	



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<i>Psylliodes chrysocephala</i> (L.)	Hedgerow 1, Lake Copse	2-5	26-May			
<i>Psylliodes cuprea</i> (Koch.)	Hedgerow 1	1	03-Aug			
<i>Cassida rubiginosa</i> Mull.	Hedgerow 2	2-5	17-Aug	Thistle tortoise beetle		
<b>91 ANTHRIBIDAE</b>						
<i>Platystomos albinus</i> (L.)	Hedgerow 2	1	28-Sep	On hedgerow oak		8
<b>RHYNCHITIDAE</b>						
<i>Involvulus caeruleus</i> (Deg.)	Hedgerow 1	1	28-Sep			
<b>92 ATTELABINAE</b>						
<i>Apoderus coryli</i> (L.)	Lake Copse	1	29-Jul	Hazel leaf roller beetle		
<b>93 APIONINAE</b>						
<i>Apion frumentarium</i> (Payk.)	Hedgerow 2	2-5	23/5,17/8			
<i>Perapion violaceum</i> Kirby	Hedgerow 2	1	29-Jul			
<i>Perapioncurtirostre</i> Germ.	Hedgerow 2	1	28-Sep			
<i>Protapion dichroum</i> Bed.	Hedgerow 1	1	03-Aug			
<i>Protapion apricans</i> Hbst.	Hedgerows	6-20	23-May			
<b>94 CURCULIONIDAE - Weevils</b>						
<i>Phyllobius roboretanus</i> (Laich.)	Hedgerows	2-5	23/5-8/6			
<i>Phyllobius pyri</i> (L.)	Hedgerow 2	1	08-Jun			
<i>Barypeithes araneiformis</i> (Schr.)	Hedgerows	6-20	11/5-8/6			
<i>Barypeithes pellucidus</i> (Bohe.)	Hedgerow 2, Lake Copse	6-20	11/5-3/7	Hairy spider beetle		
<i>Sitona lineatus</i> (L.)	Hedgerow 1	2-5	11/5,14/9	Pea leaf weevil		
<i>Euophyrum confine</i> (Broun)	Hedgerow 1	2-5	11-May	Recent introduction		
<i>Trachodes hispidus</i> (L.)	Lake Copse	1	28-Sep	On rotten ash	NB	8
<i>Hypera rumicis</i> (L.)	Hedgerow 1	1	08-Jun			
<i>Kykliaocalles roboris</i> (Curt.)	Lake Copse	1	20-Jul	On old maple	NB	8
<i>Acalles misellus</i> Boheman	Hedgerow 1	1				2
<i>Ceutorhynchus floralis</i> (Payk.)	Lake Copse	1	20-Jul			
<i>Cidnorhinus quadrimaculatus</i> (L.)	Lake Copse, Hedgerow 1	2-5	8/6-20/7	On nettles		
<b>SCOLYTIDAE – Bark and Ambrosia beetles</b>						
<i>Hylesinus crenatus</i> Fab.	Lake Copse	1	20-Jul	On rotten ash		2
<i>Kissophagus hederæ</i> (Schim.)	Lake Copse	1	20-Jul	On dead ivy	NB	8
<i>Xyleborinus saxeseni</i> (Ratz.)	Lake Copse	1	29-Jul	On rotten ash		4