

**Botanical and Invertebrate Surveys on Louie
Memorial Fields,**

Supplementary Report, 2011

**A Report to North Hinksey Parish Council
January 2011**

Dr. Judith A Webb
2 Dorchester Court
Blenheim Road
Kidlington
Oxon OX5 2JT

Contents

1.0 Introduction.....	3
1.1 Aims.....	3
2.0 Methods.....	4
3.0 Results.....	4
3.1 General comments on some invertebrates found in 2010.....	4
3.1.1 Bees.....	4
3.1.2 Butterflies and Moths.....	5
3.2 Descriptions and discussions of findings by area.....	6
3.2.1 Southernmost main fen area.....	6
3.2.2 Lower wetland and tufa area to North of site.....	7
3.2.3 Pond.....	7
3.2.4 Woodland (the Copse).....	8
3.2.5 Deadwood in woodland and margins of wetland.....	9
3.2.6 Relic Limestone grassland.....	10
4.0 Comments on the species of conservation importance in 2010.....	11
4.1 The species re-found.....	11
4.2 Additional insect species of Conservation Importance found in 2010.....	11
4.2.1 Black-fringed Moss-Snipefly, <i>Ptiolina obscura</i>	11
4.2.2 Liverwort Snipefly, <i>Spania nigra</i>	12
4.2.3 Pygmy Soldierfly, <i>Oxycera pygmaea</i>	12
4.2.4 Delicate Soldierfly, <i>Oxycera nigricornis</i>	12
4.2.5 <i>Thaumastoptera calceata</i>	13
4.2.6 <i>Goniomyia recta</i>	13
4.2.7 <i>Chalcosyrphus nemorum</i>	13
4.2.8 <i>Brachyopa</i> sp cf. <i>pilosa</i>	13
4.2.9 Scarlet Tiger Moth, <i>Callimorpha dominula</i>	13
4.2.10 Buff Footman Moth, <i>Eilema depressa</i>	14
5.0 Summary on Important Invertebrates found on site so far.....	14
6.0 Management Implications and Recommendations	15
7.0 Summary and Conclusions.....	16
8.0 Acknowledgements.....	16
9.0 Glossary.....	16
10.0 References.....	17
Appendix – Tables of species recorded in 2010.....	18-24

1.0 Introduction

This report is a supplement to my report of November 2009 and contains results of surveys from spring to early summer at Louie Memorial Fields during 2010. These were the times of year which were unavoidably missed out of my previous report due to the later start date of that contract in June 2009. Readers are referred to my earlier report for the background to this study. This report summarises the additional information achieved.

The results presented here, combined with those in my first report, thus represent a full year of botanical and invertebrate recording from June 2009 - July 2010. Some invertebrates only emerge as adults for very short times, perhaps for only a three week time window and visits have to coincide with this emergence for them to be recorded at all. So it should be clear that frequent visits throughout the year are necessary for invertebrate recording.

As regards plants, this report, in conjunction with earlier reports, will have discovered all the plants which are on this site (with the exception of those which might still be only in the seed bank in the fen) therefore it may be regarded as full record of the plants. However for invertebrates the situation is very different. It is important to understand that even a full year's survey by my methods of sweep-netting, hand searching and rearing from portions of moss mat and fungi (whilst resulting in a large increase in species found) must still be regarded as only a preliminary survey. The true invertebrate diversity in this site with woodland, grassland, scrub and fen will be vast and only detectable by the expenditure of a great deal more time, effort and money.

1.1 Aims

These remain as in my first report: I was asked to carry out a biological survey to detect any species of conservation importance, mainly in relation to the wetland areas. This report focus is on the species which emerge in the early part of the year, which were missed in the previous survey which started in June 2009. The two groups most likely to contain such important species in fens and calcareous grassland are plants (including mosses and liverworts) and invertebrates, therefore these are the main focus of this work. This information will better inform the site management, so that the whole wildlife assemblage, including species of conservation concern, will continue to have the most appropriate management for the health of their populations.

2.0 Methods

One of the most important invertebrate groups that are found in calcareous fens is the **True Flies** (Diptera) although important beetles and molluscs may also be present. Within the flies, species in the **soldierfly** family (Stratiomyidae) and the **cranefly** families (Tipulidae and Limoniidae) are most likely to contain important species using this site for breeding. Thus searching and identification has concentrated on these groups, although identifications in other insect families (e.g. butterflies and moths, damselflies and dragonflies, bees, crickets, bugs and beetles) have been carried out as much as possible. Where necessary I have sought the assistance of other experts to confirm my identifications.

Visits to the site were for one-two hours on each of the following 7 occasions in 2010:

4th April, 13th May, 22nd May, 4th June, 13th June, 23rd June, 1st July. Thus 12-14 hours total were spent in fieldwork on site. For every session spent on site collecting, a further 3 hours of mounting invertebrate specimens and identification with a microscope was necessary. A considerable number of new invertebrate species were identified, including some important records.

The warm, sunny and dry weather of spring and early summer of 2010 enabled good collecting conditions, although the dry soil later on meant that fly emergence from puparia in the soil was inhibited, meaning very poor catches in some groups such as hoverflies in June and July. Wetter conditions prevailed after mid July, rather curtailing insect collections, but the rain in August did produce a useful flush of fungi in the autumn months of September and October, enabling a few more useful fungal records to be achieved.

For invertebrates, the methods used remained the same as last year i.e. examining flowers, examining deadwood for evidence of larval borings, examining leaves for evidence of larvae and sweep-netting in suitable warm sunny conditions. Additionally this year, portions of water-logged moss mat and rotting wood with moss were temporarily removed from the fen for rearing insects from larvae present in the material. This activity can only be done in the spring, before natural emergence of the adult stage.

As before, the method is qualitative and is designed to find the maximum number of species of actual or potential conservation concern in the limited time available.

3.0 Results

Additional plant records have been made along with more casual observations of butterflies and other animals. Numerous additional records of certain groups of invertebrates and fungi have been made. All the species recorded in this 2010 survey are presented in the tables in the Appendix. **Common species previously identified in 2009 are not included**, as these are presented in my previous survey. However repeat capture of important rare or uncommon invertebrates are included as this demonstrates the continuity of the populations on site. Some invertebrates remain still to be identified, but sufficient identifications have been achieved within the chosen fly groups to give an even better picture of the importance of the habitats on site.

3.1 General comments on some invertebrates found in 2010

3.1.1 Bees

Spring surveys completed the picture of the site in that common, expected, species of spring ground-nesting solitary bees such as the foxy-red furred **Tawny Mining Bee**, *Andrena fulva* were seen. This species is also known as the 'lawn bee' and is an annual species which nests in holes in bare patches in grassy areas. The short mown field area is thus its preferred habitat. No attempt was made to do a complete bee survey but it is interesting that one queen of the **Tree Bumble Bee**, *Bombus hypnorum* was discovered in a rotting log in the fen. This is a species that has

colonised the UK in recent years and is spreading widely. It normally nests in hollow trees, but has been found increasingly to nest in bird boxes and house roof spaces. Later on in summer, **Red Mason Bees**, *Osmia rufa*, were seen collecting mud for nest building from the pond margins.



Tree bumble bee, *Bombus hypnorum*

3.1.2 Butterflies and Moths (Lepidoptera)

No rare butterflies were found in these surveys, but these are the insects most likely to be noticed and appreciated by the general public. It is thus of interest to note that the spring and early summer survey presented here recorded a good range of the common species such as **Orange-tip**, **Peacock**, **Speckled Wood**, **Large Skipper**, **Green-veined white**, **Small White**, **Ringlet** and **Meadow Brown** with one **Brimstone** noted in early April. With the creation of a longer grassy and flowery margin to the field next year, it is expected that more butterflies of a greater variety will be able to use the site for breeding and feeding.

Only few moths were recorded as most are not detectable in the daytime. The most spectacular of these day flying moths found was, however, the **Scarlet Tiger Moth** (*Callimorpha dominula*) photographed in the fen and which has a caterpillar which feeds on comfrey – a few plants of which were also found in the fen. This moth has ‘local’ status and is confined to the area of such wet sites where its host food plant grows.



scarlet tiger moth

Spectacular spotted caterpillars of the **Mullein Moth** (*Cucullia verbasci*) were noted feeding on the leaves of water figwort in the fen. The **Buff Footman Moth** (*Eilema depressa*) captured by Curt Lamberth on site in July is a species with local status which has a caterpillar that feeds on lichens and algae on trees in mixed woodland, scrub and fen.

3.2 Descriptions and discussion of findings by area

3.2.1 Southernmost Main Fen area

Due to the late start of surveying last year, some fen plants were missed as the vegetation had become very tall. Thus, apart from all the plants mentioned in my previous report, additional plant species observed this year include a few plants of **Greater Bird's-foot Trefoil**, *Lotus pedunculatus*, three of **Marsh Marigold**, *Caltha palustris*, patches of **Flag Iris**, *Iris pseudacorus*, and one plant of **Greater Reedmace** (bulrush), *Typha latifolia*. The presences of a few plants of **Comfrey**, *Symphytum officinale*, are presumably what attracted the scarlet tiger moth. If more of this plant could be encouraged in the fen, the breeding success of this attractive moth could be increased. The most abundant sedge in the fen was found to be **Lesser Pond-sedge**, *Carex acutiformis*, which forms monoculture stands in some areas, excluding other plants and thus reducing diversity. The cutting and raking of half of the fen area by the OCV (Oxford Conservation Volunteers) in 2010 may result in increased plant diversity by reducing the vigour of dominants. It may have the added benefit of stimulating the germination of further plant species from buried seed and it will be interesting to see the results in the coming years. This year, **Common Blue Damselflies**, *Enallagma cyathigerum* and **Large Red Damselflies**, *Pyrrosoma niphula* were noted hawking over the fen. They will not be breeding here as they need open water, but it represents a useful hunting area.

Sweep netting and rearing from moss-mat revealed new records of further fen-specific fly species, for example, numerous examples of the tiny yellow and black **Delicate Soldierfly**, *Oxycera nigricornis*, which is 'local' in Oxon were reared and one specimen of the Notable **Pygmy Soldierfly**, *Oxycera pygmaea*, was swept. The Notable **Long-horned Soldierfly**, *Vanoyia tenuicornis* was re-found, thus there are now three soldierfly species recorded in this fen, all of them confined to such sites. The Notable small black **Liverwort Snipefly**, *Spania nigra* was an expected find, considering the good quantities of *Pellia* liverwort in the fen. The very fragile, small yellow Notable cranefly *Thaumastoptera calceata* was discovered. As expected, further snail-killing flies were found typical of such wet situations where their host marsh snails live. Good numbers of the snail-killing fly *Renocera pallida* were recorded in the fen for the first time and some in the genus *Tetanocera* were found this year - specific identification within this genus is difficult and I will have to consult further with experts on the examples found. The **Nationally Scarce** fly *Cnemacantha muscaria* was swept from this fen, previously only found in the grassland at Louie Memorial Fields. This may be breeding here or merely visiting the flowers, unfortunately its life cycle is not yet known.

With the successful diversion of the stream in order to re-wet a dried out area of original fen, the newly wetted area was seen in the autumn to have numerous seedlings of **Pendulous Sedge**, *Carex pendula*, germinating alongside seedlings of

Brooklime, *Veronica beccabunga*. Thus this bare area is already re-vegetating with fen species. When the willow pollarding adjacent to this area is completed, the increased light will encourage the development of moss and further vegetation in this re-wetted area, making it again suitable for the breeding of insects such as the soldierflies already mentioned.

A large alien shrub species, the **Shrubby Honeysuckle, *Lonicera nitida***, was removed from the West margin of the fen area by volunteers of the OCV under my direction in September 2010. This, combined with the cutting back of willow sprouts from trees marginal to the fen and the cutting and raking of half of the fen vegetation, should increase the light getting to the surface and improve flowering conditions for the shorter plants next spring.

3.2.2 Lower wetland and tufa area to the North of the site

Slightly further downhill to the North from the main fen, extensive seepage areas with chalky tufa formation exist under tall vegetation, trees and scrub. One female **Black-fringed Moss-snipefly, *Ptiolina obscura*** (Notable) was caught sitting on the vegetation here. This breeds under moss on wet logs, so it is important to keep the large logs in damp shade here. This area was also where the maximum number of **Southern Yellow Splinter** craneflies (*Lipsothrix nervosa*) were caught. This important species was discovered last year and breeds in small deadwood branches lying in water-logged conditions. Enough trees need to be left in this area to provide a continued supply of suitable deadwood for both species although some scrub removal may be desirable.

3.2.3 Pond

No new plant species were recorded in the newly excavated pond area this year, but it was noted that the open water created was immediately attractive to **diving water beetles, water boatmen** and **Ruddy Darter dragonflies, *Sympetrum striolatum***, which were seen hawking over the open water and egg-laying. The new water control structure should ensure that enough water remains in the pond throughout the year so that frog tadpoles can complete their development. Prior to the pond excavation, the shallow water in the silted pond dried up before frog tadpole development could be completed. **Red Mason Bees, *Osmia rufa***, were seen collecting damp mud from the pond margins and flying off with it. These small solitary bees nest within broken or cut hollow plant stems (e.g. bramble) and use the mud to make the cells for their larvae. Such solitary bees are very important pollinators of wild and garden plants (in particular they are important for pollination of fruit trees).

Here is the place to record that small portions of the following plant species were transplanted from the fen area on the southern slope to the margins of the newly excavated pond in September 2010 by volunteers from the OCV (under my direction) to enhance the plant biodiversity there:

Fleabane, *Pulicaria dysenterica*
Creeping Jenny, *Lysimachia nummularia*
Silverweed, *Potentilla anserina*
Purple Loosestrife, *Lythrum salicaria*
Flag Iris, *Iris pseudacorus*

Yellow loosestrife, *Lysimachia vulgaris* (Oxon native source, introduced to the site, donation from Milham Ford Nature Park, Oxford)

A few plants of the native aquatic **Water Starwort (*Callitriche* sp.)** were also introduced to the pond water. This will increase and act as an oxygenator and shelter area for the benefit of frog tadpoles when they hatch next spring.

Young native **Holly (*Ilex aquifolium*)** saplings were also transplanted by the OCV in September from areas in the copse down to the vicinity of the pond to shield and screen the new concrete water outlet control structure from public view from the concrete path.

Adjacent to the newly constructed limestone chipping path to the new dipping platform, a good population of yellow archangel exists near a hazel coppice stool. To enhance the diversity here in a publicly viewable site, a few plants of sweet woodruff and violets were transplanted by OCV volunteers to this area from the northern slopes, additionally a few donated plants of **Primroses (*Primula vulgaris*)** grown from native Oxon seed were planted out here.

3.2.4 Woodland (the Copse)

Only a few additional plant species were newly identified this year, but visits in May enabled flowering to be observed. This enabled confirmation that the bluebells on the higher southern slopes are **Spanish bluebells (*Hyacinthoides hispanica*)** and the bluebells in the more northern lower woodland are **English Bluebells (*Hyacinthoides non-scripta*)**. Also flowering enabled the detection of the true distribution of the attractive **Yellow Archangel, *Lamium galeobdolon***. This has leaves that are difficult to distinguish from related species in the non-flowering condition. A substantial patch of this is now known to exist on the northern slope adjacent to the stream near the patch of **Sweet Woodruff, *Galium odoratum***. Thus there is here an important and valuable population of this ancient woodland plant. Along with the sweet woodruff, this attests to the considerable age of the stream/hedge line.



Yellow Archangel, *Lamium galeobdolon*

My original report of 2009 identified the mini-tree like moss *Climacium dendroides* in the woodland on the northern slopes. Collection of new specimens shows that this is incorrect. The moss is the similar mini-tree like moss *Thamnobryum alopecurum* which forms extensive sheets and is typical on the ground in calcareous woodlands such as the limestone found here.

During September 2010, removal of some non-British native woody species by OCV volunteers included **Shrubby Honeysuckle** (*Lonicera nitida*) and **Shrubby St John's Wort**, *Hypericum* sp. and one small **Horse Chestnut** (*Aesculus hippocastanum*). Here is the place to record that very small portions of yellow archangel and sweet woodruff were transplanted in September 2010, by the OCV volunteers from the northern slopes in the copse to the bare areas where alien shrubs were removed adjacent to the public footpath just above the fen. The aim of this is to increase the populations of these species and to enhance the public enjoyment of these attractive woodland plants, as the main populations in the copse are not currently seen at all by walkers who keep to the footpaths.

This year it was noted that there was a small population established in the copse of the cultivated garden variety of the yellow archangel. This is a cultivar with a silvery stripe in the leaves (*Lamium galeobdolon ssp argentatum*). This will have come from dumped garden rubbish and will spread aggressively so it is recommended for removal. Further patches of alien shrub species (e.g. **Cherry Laurel**, *Prunus laurocerasus*, buddleia and garden privet) remain that need to be removed and it is suggested that the removal of silver archangel be added to the list of things to do at the next OCV event on site.

3.2.5 Deadwood in woodland and margins of wetland

The deadwood insect fauna already found is enhanced in this survey by the finding of the following beetles which breed in such material: *Ptinomorphus imperialis*, the blue green *Ischnomera cyanea*, the Red-headed Cardinal beetle *Pyrochroa serraticornis*, the ivy deathwatch beetle *Ochina ptinoides* and the deadwood-breeding click beetle *Denticollis linearis*. Two as yet unidentified Mordellid beetles almost certainly breed in deadwood and all Mordellids are uncommon. Deadwood-breeding flies found in this survey include the red banded hoverfly *Xylota segnis* and the 'local' status hoverfly *Chalcosyrphus nemorum*, which needs dead wood lying on the ground in damp/wet situations. The Notable hoverfly *Brachyopa* cf *pilosa* was found in the woodland by the concrete path and for breeding needs damaged trees exuding sap or decaying sap under the bark of fallen trunks and branches, possibly this is provided by the mature trees at this end of the site. This survey confirms that a good deadwood fauna occurs on site and shows that the continued retention of fallen timber will be very important to maintain the biodiversity.

The fact that such a good deadwood fauna is found in secondary woodland which has developed since the last war was at first surprising. But then it must be remembered that the nearby ancient woodland of Hutchcomb's Copse would have provided a good source of these mobile animals ready to colonise the site as it developed from the original rough grazed grassland and deadwood became available. Also the extensive ancient woodlands at nearby Long Copse, Wytham and Boar's Hill are not very far away for such mobile species as flies.

3.2.6 Relic Limestone grassland

No new plant species were found in this area in 2010, but sweeps of the long marginal grass revealed the small black click beetles *Kibunea (Cidnopus) minuta*, a species typical of dry grassland and not found commonly. Sweep-netting the longer grass again revealed the presence of the **Nationally Scarce** small black fly *Cnemacantha muscaria*.

Common grassland butterflies were recorded here this year and with the wider long grass margin planned for next year, the **Bird's-foot Trefoil**, *Lotus corniculatus*, plants seen in the close mown sward will be allowed to grow taller and flower, meaning they may then be attractive to common blue butterflies, as the caterpillars of this species need this as a food plant for their caterpillars.

In October it was noticed that white spindle-shaped fungi in the 'fairy club' group identified as *Clavaria cf. vermicularis*, and grey brown toadstools identified as *Dermoloma cuneifolium* had fruited in the long grassland. These are uncommon/local species confined to low nutrient calcareous grassland such as this limestone soil. Such low nutrient grassland is becoming increasingly rare. Their presence is an indication that rarer species of fungi may be able to fruit in this area with relaxation of close mowing in a wider zone out into the field. The finding of characteristic low-nutrient fungi of calcareous soil enhances the importance of this grassland area.



Fairy club fungi - white spindles, *Clavaria cf. vermicularis*

Here is the place to record that enhancement of the plant diversity in this long grassland margin was carried out during the autumn, 2010. Donated seed of appropriate, native Oxon source plants of: **Cowslip, Knapweed, Oxeye Daisy, Yellow Rattle, Agrimony, Greater Knapweed, Common Vetch, Meadow Vetchling** and **Field Scabious** were all sprinkled on bare soil areas. The source of all these was wild plants in Milham Ford Nature Park, Oxford. All seeds should germinate next spring after the cold winter months. Most of these will take two years to become big enough to flower, but the **Yellow Rattle** (*Rhinanthus minor*) is an annual which will flower next year. Apart from being attractive to insects, the benefit of adding yellow rattle is that it is a partial parasite which will attach its roots to those

of the strong grasses and remove water and sugars from them, thus reducing their vigour. With the grasses being less vigorous next year, there will be more room and light for the survival of small wildflower seedlings, resulting in greater flower diversity eventually. Hay meadow management with cutting and raking in August will ensure the continuation of the original and introduced native species.

As all species in this area represent low-nutrient limestone grassland flora, it is important that no fertilizers are ever applied and nutrient input from dog faeces and urine be reduced as much as possible. Currently this area is receiving too much input from dog faeces as it seems as though this grass margin is more attractive to dogs for defaecation than the main field. Scrub will continually advance into this grassland area from the woodland and it is important that this is prevented by cutting it back occasionally, to preserve the more important open grassland.

4.0 Comments on Species of Conservation Importance found in 2010 surveys

The site quality for invertebrates is here assessed with reference to the species found which are considered to be of national scarcity in the various 'Reviews of Nationally Scarce Insects' (1) (2). These reviews place all nationally scarce species into categories according to their degree of rarity and their vulnerability to extinction and are accepted as the 'official' Joint Nature Conservation Committee designations. See the **Glossary** for more details on these designations.

As can be seen from inspection of the tables of species in the appendix, surveys in 2010 re-found three of the insect species of conservation importance recorded at this site in 2009, confirming that important populations of these exist on site. Detailed comments and photographs of some of these are presented in my previous report.

4.1 The species re-found

Lipsothrix nervosa, the **Southern Yellow Splinter** –a small yellow crane-fly, Status: **UK BAP Priority Species** (A species listed as a priority for conservation action under the UK Biodiversity Action Plan (3))

Cnemacantha muscaria a small black Lauxaniid fly with smoky wings. **Current Status: RDB3**, but going down to '**Lower Risk, Nationally Scarce**' in a forthcoming publication

Vanoyia tenuicornis, the **Long-horned Soldierfly** Status: **Notable (Nationally Scarce)**

4.2 Additional Insect Species of Conservation Importance recorded in 2010:

4.2.1 Black-fringed Moss-snipefly, *Ptiolina obscura*. A small black fly (status **Notable**)

One female of this species was found sitting on vegetation in the shaded tufa-forming fen. The lava lives under mosses on tree trunks in damp conditions, so management for this species would include the retention of fallen mossy trunks in the shade in the wetland areas.



Black-fringed Moss-snipefly, *Ptiolina obscura*, female

4.2.2 Liverwort Snipefly, *Spania nigra*. A small black fly. (status **Notable**) This species has a larva which mines liverworts of the genus *Pellia*, so presumably it is breeding in the **Endive Pellia** growing in the fen and along the stream. It is therefore important to keep the fen vegetation from getting too tall and rank. The liverworts this fly needs grow abundantly in short fen vegetation and are eliminated by dense shade. The fen needs to remain well wetted to support the liverwort.

4.2.3 Pygmy soldierfly, *Oxycera pygmaea* (status **Notable**) this small yellow and black soldier fly is predominantly found in calcareous fens. The larvae live in tufa-rich areas usually under dense mats of waterlogged mosses and liverworts such as the **Endive Pellia, *Pellia endiviifolia***, found here. Can be common in Oxfordshire because of the numbers of calcareous fens in this county, but nationally uncommon, found only in the south and east of England and South Wales (4). Obviously dependent on the fen remaining wet and with extensive growth of moss and liverwort.



Pygmy Soldierfly *Oxycera pygmaea*, male

4.2.4 Delicate soldierfly, *Oxycera nigricornis* (status **Local**) Another small yellow and black soldierfly that is slightly commoner than *O. pygmaea*, this requires very similar conditions to that species, the larvae living in waterlogged peat, but is perhaps more tolerant of tall herb vegetation than that species and maybe found in marshes as well as fens(4). Also dependent on the fen remaining wet.



Delicate Soldierfly *Oxycera nigricornis*, female

4.2.5 *Thaumastoptera calceata*, a small, fragile, yellow crane fly (status **Notable**)

This species was swept from the fen vegetation. It has a larva that lives in a case in moss and wet leaf litter on the peat in calcareous fens or wet woodland. The maintenance of a high water table is critical, so the fen must remain well wetted.

4.2.6 *Goniomyia recta* is another small, delicate, yellow crane fly (status **Local**) that breeds in calcareous seepages shaded by trees, thus it is typical that it was swept from the wet, shaded tufa-forming area below the main open fen. Needs continued very wet and shaded conditions.



Small yellow crane fly *Goniomyia recta*

4.2.7 *Chalcosyrphus nemorum*, (status **Local**) a dead wood hoverfly, swept from the woodland. This species requires deadwood lying on the ground in wet situations for larval development, so a continued supply of dead logs and trunks should be insured.

4.2.8 *Brachyopa* sp. cf. *pilosa* (status **Notable**) this is a tentative identification of a hoverfly with larvae that live in sap runs or decaying sap under the bark of fallen trees and branches. It is thus going to be dependent on continuity of damaged old trees or fallen dead wood on site.



Brachyopa cf *pilosa*

4.2.9 Scarlet Tiger Moth, *Callimorpha dominula* (status **Local**). This brilliant black and red day-flying moth has a caterpillar which feeds on comfrey. There is very little

of this on the margin of the fen, so the population of the moth could be encouraged by increasing the amount of comfrey.

4.2.10 Buff Footman Moth, *Eilema depressa* (status Local). This moth was found and photographed by Curt Lamberth. It has a caterpillar that feeds on lichens and algae on trees in mixed woodland, scrub and fens, so it could be using any of the habitats on site.



Buff footman moth

5.0 Summary on important invertebrates on site found so far

In the 2010 surveys, five new insect species of Notable (Nationally Scarce) status have been found and a further five of Local importance in Oxfordshire were found. If added to the important species found last year, this brings the total for one complete year of invertebrate recording to: one UKBAP priority species, nine Notable/Nationally Scarce species and six species considered to be of Local Importance status in Oxfordshire County.

The full list of those insects found on this site with national status found from 2009-2010 is as follows (they are all flies):

***Lipsothrix nervosa*, the Southern Yellow Splinter, UK BAP Priority Species**
***Cnemacantha muscaria*, Lower Risk, Nationally Scarce**
***Vanoyia tenuicornis*, Long-horned Soldierfly, Notable**
***Spania nigra*, Liverwort Snipefly, Notable**
***Ptiolina obscura*, Black-fringed Moss-snipefly, Notable**
***Thaumastoptera calceata*, a fen breeding crane-fly, Notable**
***Oxycera pygmaea*, Pygmy Soldierfly, Notable**
***Seri obscuripennis*, a fungus breeding fly, Lower risk, Near Threatened**
***Brachyopa cf. pilosa*, a sap breeding hoverfly, Notable**

It must be remembered that this study has found only a sample of invertebrate organisms and the area will actually hold very many more invertebrate species in total and it is quite probable that more scarce and rare species live here. Use of a wider range of collection methods (like pitfall traps, flight interception traps) and study of different groups, such as beetles or moths, would undoubtedly reveal more species of conservation importance.

6.0 Management Implications and Recommendations

Almost all of my management recommendations mentioned in section 6.0 of my 2009 report are still my recommendations in the light of this recent data and it is therefore not necessary to repeat them here. Everything that I said before will benefit the species found in the current survey. However there are some slight modifications that seem necessary in the light of results reported here and observations of the site over the past year.

Under 6.4 'Fen and general wetland area enhancement' in my previous report I said:

- *'Areas near the lower wetland where there are seepages with tufa formation should be targeted for clearance of scrub and tall vegetation'*

In the light of the finding of the flies *Ptiolina obscura* and *Goniomyia recta*, which seem to prefer such seepages in a semi-shaded state, this should be modified to:

- *Areas near the lower wetland where there are seepages with tufa formation should have part of the area cleared of scrub and tall vegetation, but some should be left lightly shaded by either trees or scrub.*

In addition, in my previous report under section 6.3 'Relic Limestone Grassland', no mention was made of the need to make greater efforts to reduce nutrient enrichment from dog faecal material. Visiting the site for a year has made me realise just what quantity of dog faeces regularly land on the site. Decomposition of dog faeces releases nitrates and phosphates which encourage the growth of coarse, rank grass at the expense of wildflowers. They also cause the elimination of uncommon fungi and this in effect, means that orchids cannot grow in such an enriched area, because orchid seeds need specific fungi for germination and growth. Thus there will be little chance of getting back the orchids that were reputedly present on site in the long grass margin some years ago; if dog fouling is not reduced.

Dog walkers should always pick up after their dogs on this site and not allow fouling of the grassland areas as this destroys their valuable low-nutrient status. Dog fouling was also seen to be a problem on the footpaths down to the fen, another area where the vegetation is dependent on low nitrogen and phosphates for biodiversity. It takes years for the vegetation in any one spot to recover from the effects of enrichment from just one pile of dog faeces. A diverse flowery area is of huge importance to the insects on the site, as they may need to collect nectar and pollen from flowers to complete their life cycles. Thus a final modification of my previous management implications and recommendations is:

- *Greater efforts should be made (signage, dog patrols, application of fines) to enforce the rules on dog fouling of such public land with the aim of reducing the nutrient input to the sensitive areas of the site.*

7.0 Summary and Conclusions

- This further survey has completed the plant survey for the site and presented a much fuller picture of part of the insect fauna
- The finding of more insect species in 2010 with national conservation status has strengthened the statements in my previous report of the value of the fen habitat for insects and demonstrated that the grassland and deadwood on site also contain important invertebrate species.
- The species identified this year will all benefit from the management recommendations in my original report, with very minor modifications as detailed here.

8.0 Acknowledgements

Thanks are due to Alan Stubbs for help with crane fly identifications and discussions on their status. Paul Beuk and Nigel Jones helped with Empid fly identifications, Dave Gibbs with bee identifications and Curt Lamberth supplied the record and photograph of the Buff Footman Moth.

9.0 Glossary

Information on Status Categories of Insects of Conservation Importance found on Site

Status categories from Falk (1) Falk and Chandler (2):

Red Data Book Category 1. RDB1-ENDANGERED

Taxa in danger of extinction if causal factors continue unabated. Includes species occurring as a single colony or only in habitats which are much reduced and highly threatened or which have shown a rapid and continuous decline.

Red Data Book Category 2. RDB2-VULNERABLE

Taxa believed likely to move into the endangered category in the near future if the causal factors continue operating. Includes species of which most or all populations are decreasing and those which are confined to vulnerable habitats.

Red Data Book Category 3. RDB3 - RARE

Taxa with small populations that are not at present endangered or vulnerable, but are at risk; usually localised within restricted geographical areas or habitats or are thinly scattered over a wider range. Includes species estimated to exist in only fifteen or less post 1970 10km squares or, if more, then in vulnerable habitat.

Nationally Scarce Category a (Previously Notable a) NSa or Na

Taxa which do not fall within the RDB categories but which are uncommon in Great Britain and are known to occur in 30 or fewer 10km squares or, in less well recorded groups, within 7 or fewer Vice Counties.

Nationally Scarce Category b (Previously Notable b) NSb or Nb

Taxa which do not fall within the RDB categories but which are uncommon in Great Britain and are known to occur in between 31 and 100 10km squares or, in less well recorded groups, between eight and twenty vice counties.

Lower Risk (Near Threatened) LR (NT)

A newer category in more recent publications. Taxa which are close to qualifying for Vulnerable, RDB3

Local

Taxa which are uncommon enough to be of local importance in the county, but common enough on a national level to have no national conservation status. These are often species that used to have Notable/Nationally Scarce designation, but which have been found more widely in recent years due to increased recording effort.

10.0 References

1. Falk, S. (1991) Research and Survey in Nature Conservation No. 39 *A review of the scarce and threatened flies of Great Britain (part 1)* Joint Nature Conservation Committee, Peterborough.

2. Falk, S.J, and Chandler, P. J., (2005) *A review of the scarce and threatened flies of Great Britain. Part 2: Nematocera and Aschiza not dealt with by Falk (1991)* Species Status 2: 1-189 Joint Nature Conservation Committee, Peterborough.

3. New UK Priority Species and Habitats List:
<http://www.ukbap.org.uk/newprioritylist.aspx>

4. Porter, K (1992) *An Atlas of Oxfordshire Diptera: Stratiomyidae*. Occasional Paper No. 16. Oxfordshire Museums Service.

Appendix – Tables of Species Recorded in 2010

Louie Memorial Fields

Species scientific name	common name	Date	Abundance/Nos.	National Status	comment
Flowering plants, trees, ferns					
<i>Alopecurus pratensis</i>	meadow foxtail	13.05.2010	occasional		grassland on field and near fen
<i>Bromus ramosus</i>	hairy or wood brome	23.06.2010	few plants		edge of fen
<i>Bryonia dioica</i>	black bryony	13.06.2010	1		edge of lower wetland
<i>Buddleja davidii</i>	buddleia	10.04.2010	1		woodland
<i>Caltha palustris</i>	marsh marigold	10.04.2010	3		lower wetland
<i>Caltha palustris</i>	marsh marigold	10.04.2010	3		lower wetland
<i>Cardamine pratensis</i>	cuckoo flower	13.05.2010	rare		lower wetland/fen
<i>Carex acutiformis</i>	lesser pond-sedge	13.05.2010	frequent		dominant in patches in fen
<i>Clematis vitalba</i>	wild clematis	13.05.2010	rare		woodland
<i>Elymus caninus</i>	bearded couch	01.07.2010	numeous		southern woodland by stream
<i>Festuca arundinacea</i>	tall fescue grass	01.07.2010	2		fen
<i>Hyacinthoides hispanica</i>	spanish bluebell	13.05.2010	occasional		some on southern slopes some in northern lower woodland
<i>Hyacinthoides non scripta</i>	bluebell	28.04.2010	few plants		under the hazel coppice stools to the N of the site, possibly planted
<i>Hypericum androsaemum</i>	tutsan	10.04.2010	1		a bush near the stream
<i>Iris pseudacorus</i>	flag iris	10.04.2010	several large clonal clumps		fen
<i>Lamiastrum galeobdolon</i>	yellow archangel	28.04.2010	numerous		patches alongside stream on N slopes, plus S side of lower wetland
<i>Lamiastrum galeobdolon ssp argentatum</i>	yellow archangel, silver leaved	13.05.2010	rare		woodland edge to NW gardem escape
<i>Ligustrum cf ovalifolium</i>	garden privet	10.04.2010	1		woodland, garden plant escaped
<i>Lotus pedunculatus</i>	greater bird's-foot trefoil	01.07.2010	1 clump		fen
<i>Malus cf domestica</i>	cultivated apple	28.04.2010	1		at very top of hill - apple core source?
<i>Metasequoia glyptostroboides</i>	dawn redwood	13.05.2010	1		tree edge of site to NW beyond concrete path, introduced exotic alien
<i>Primula vulgaris</i>	primrose	26.09.2010	8		native source, planted near the new pond
<i>Prunus laurocerasus</i>	cherry laurel	09.09.2010	1 bush		woodland by lower wetland
<i>Sambucus nigra (variegated)</i>	elder, garden cultivar	13.06.2010	2		lower woodland beyond concrete path
<i>Sorbus sp</i>	rowan sapling	23.06.2010	1		in between fen and lower wetland
<i>Symphytum officinale</i>	comfrey	01.07.2010	few plants		margins of fen
<i>Typha latifolia</i>	greater reedmace	13.06.2010	2		fen
<i>Veronica filiformis</i>	slender speedwell	28.04.2010	occasional		in short mown grassy areas
<i>Veronica hederifolia</i>	ivy-leaved speedwell	28.04.2010	extensive patches		by concrete path in lower woodland
<i>Viburnum opulus</i>	wayfaring tree	01.07.2010	1		one young non flowering shrub in shade near path
<i>Viola odorata</i>	sweet violet	10.04.2010	few clumps		lower woodland
<i>Viola reichenbachiana</i>	early dog violet	28.04.2010	6		woodland on slope to S
Bryophyta (Mosses & Liverworts)					
<i>Lophocolea cuspidata</i>	a liverwort	19.10.2010	occasional		on rotting logs in fen
<i>Metzgeria furcata</i>	a liverwort	10.04.2010	occasional		patches on old willow trunks
<i>Thamnobryum alopecurum</i>	a moss	10.04.2010	locally frequent		on steep slopes in woodland to S

Louie Memorial Fields

Fungi					
<i>Armillaria sp</i>	honey fungus	20.09.2010	many		dead wood in woodland
<i>Chlorociboria aeruginosa</i>	green elf cup	09.09.2010			on dead wood on wet soil
<i>Clavaria cf vermicularis</i>	a white fairy club	05.10.2010	5 clumps	uncommon/local	in long grassland margin to field adj copse
<i>Coprinus atramentarius</i>	antabuse toadstool	09.09.2010	numerous caps		at base of old hawthorn
<i>Dermoloma cuneifolium</i>	a small brown toadstool	05.10.2010	3 caps	uncommon/local	in long grassland margin to field adj copse
<i>Kuhneromyces mutabilis</i>	a brown toadstool	09.09.2010	numerous caps		on dead willow stump
<i>Macrolepiota rhacodes</i>	shaggy parasol	20.09.2010	4 caps		soil and litter in woodland
<i>Paxillus sp</i>	brown roll rim	09.09.2010	1 cap		on hollow pollard willow trunk
<i>Phellinus pomaceus</i>	an encrusting fungus	09.09.2010			on fallen dead blackthorn trunk
<i>Polyporus durus (badius)</i>	bay polypore	09.09.2010	6 caps		same log plus platypezid larvae plus fungus gnats
<i>Typhula erythropus</i>		19.10.2010	4 fruitbodies on one leaf		on decaying willow leaf in fen
Diptera (True Flies)					
<i>Chirosia sp</i>	fern gall making fly	13.06.2010	4 galls		on male fern near fen
<i>Anthomyia cf procellaris</i>	anthomyiid fly	04.06.2010	1		woodland
<i>Asteia amoena</i>	asteiid fly	28.04.2010	2		woodland
<i>Beris chalybata</i>	murky-legged black legionnaire	13.05.2010	2f, 1m		woodland
<i>Bibio marci</i>	St Mark's fly	13.05.2010	1m		woodland
<i>Bombylius major</i>	a bee fly	10.04.2010	1		swept from fen
<i>Brachyopa cf pilosa</i>	a hoverfly	13.05.2010	1	Notable	sunning on leaf by concrete path
<i>Callopium simillimum</i>	lauxaniid fly	04.06.2010	3		woodland
<i>Chalcosyrphus nemorum</i>	a hoverfly	13.05.2010	1m	local	woodland
<i>Cheilosia variabilis</i>	a hoverfly	13.05.2010	1m		woodland
<i>Chelifera precatoria</i>	an empid fly	13.06.2010	1m		swept from fen veg
<i>Chloromyia formosa</i>	broad centurion soldierfly	04.06.2010	1m		swept from fen
<i>Chyliza sp</i>	a psilid fly	13.06.2010	1		woodland
<i>Clusiodes albimanus</i>	a clusiid fly	13.06.2010	4		woodland
<i>Cnemacantha muscaria</i>	a lauxaniid fly	04.06.2010	1	RDB3/Nat Scarce	grassland
<i>Cnemacantha muscaria</i>	a lauxaniid fly	13.06.2010	1f	RDB3/Nat Scarce	fen
<i>Cnemacantha muscaria</i>	a lauxaniid fly	23.06.2010	3f	RDB3/Nat Scarce	fen
<i>Cordilura albipes</i>	a scathophagid fly	13.05.2010	2m		swept from fen
<i>Dicranomyia chorea</i>	a crane fly	13.05.2010	1		swept from fen veg
<i>Dicranomyia mitis</i>	a crane fly	13.06.2010	1		swept from fen veg
<i>Dolichocephala sp</i>	an empid fly	13.05.2010	1		swept from fen
<i>Dolichopus popularis</i>	dolichopodid fly	13.06.2010	3m		swept from fen
<i>Eloeophila maculata</i>	a crane fly	03.06.2010	1		swept from fen veg
<i>Eloeophila submarmorata</i>	a crane fly	22.05.2010	1		swept from fen veg
<i>Empis femorata</i>	an empid fly	13.05.2010	2m, 1f		woodland
<i>Empis livida</i>	an empid fly	22.05.2010	1m		woodland
<i>Empis livida</i>	an empid fly	23.06.2010	1m		woodland
<i>Empis tessellata</i>	an empid fly	13.05.2010	1f		woodland
<i>Empis tessellata</i>	an empid fly	22.05.2010	1m		woodland
<i>Empis trigramma</i>	an empid fly	28.04.2010	2m		woodland
<i>Empis trigramma</i>	an empid fly	13.05.2010	1m		woodland

Louie Memorial Fields

<i>Erioptera griseipennis</i>	a cranefly	13.05.2010	1		swept from fen veg
<i>Gonomyia recta</i>	a cranefly	13.06.2010	1	local	swept from fen veg
<i>Gonomyia recta</i>	a cranefly	01.07.2010	2m,3f	local	swept from fen veg
<i>Helius flavus</i>	a cranefly	04.06.2010	1f		swept from fen
<i>Helius flavus</i>	a cranefly	13.06.2010	1		swept from fen veg
<i>Ilisia maculata</i>	a cranefly	13.06.2010	1		swept from fen veg
<i>Ilisiaoccoecata</i>	a cranefly	13.06.2010			swept from fen veg
<i>Ilisiaoccoecata</i>	a cranefly	22.05.2010	1		swept from fen veg
<i>Ilisiaoccoecata</i>	a cranefly	13.06.2010	1		swept from fen veg
<i>Leucophora obtusa</i>	an anthomyiid fly	28.04.2010	1		grassland
<i>Leucophora obtusa</i>	an anthomyiid fly	13.05.2010	2		grassland
<i>Limonia macrostigma</i>	a cranefly	13.06.2010	1		swept from fen veg
<i>Limonia maculipennis</i>	a cranefly	13.05.2010	2		swept from fen veg
<i>Limonia nigropunctata</i>	a cranefly	13.05.2010	1f		swept from fen veg
<i>Limonia nigropunctata</i>	a cranefly	22.05.2010	1		swept from fen veg
<i>Limonia nigropunctata</i>	a cranefly	13.06.2010	1		swept from fen veg
<i>Limonia phragmatidis</i>	a cranefly	13.05.2010	numerous		woodland
<i>Lipsothrix nervosa</i>	a cranefly	03.06.2010	3	UK BAP Priority sp	swept from fen veg
<i>Lipsothrix nervosa</i>	a cranefly	13.06.2010	1m	UK BAP Priority sp	swept from fen veg
<i>Lipsothrix nervosa</i>	a cranefly	01.07.2010	1f	UK BAP Priority sp	swept from fen veg
<i>Lipsothrix nervosa</i>	a cranefly	04.06.2010	2m	UK BAP Priority sp	swept from fen
<i>Lonchaea sp</i>	a lance fly	04.06.2010	1f		woodland
<i>Lonchoptera lutea</i>	a lonchopterid fly	28.04.2010	1		swept from fen veg
<i>Metalimnobia morio</i>	a cranefly	10.04.2010	1		fen
<i>Metalimnobia quadrinotata</i>	a cranefly	13.05.2010	1		swept from fen veg
<i>Microchrysa polita</i>	a soldierfly	04.06.2010			woodland
<i>Molophilus appendiculatus</i>	a cranefly	03.06.2010	1		swept from fen veg
<i>Molophilus appendiculatus</i>	a cranefly	13.06.2010	1		swept from fen veg
<i>Molophilus obscurus</i>	a cranefly	13.05.2010	1		swept from fen veg
<i>Molophilus obscurus</i>	a cranefly	03.06.2010	1		swept from fen veg
<i>Neosciasp</i>	a hoverfly	04.06.2010	1		swept from fen veg
<i>Neolimnomyia adjuncta</i>	a cranefly	13.05.2010	2		swept from fen veg
<i>Neolimnomyia filata</i>	a cranefly	03.06.2010	1		swept from fen veg
<i>Neolimnomyia filata</i>	a cranefly	13.06.2010	4		swept from fen veg
<i>Nephrotoma flavescens</i>	a cranefly	23.06.2010	1f		swept from fen veg
<i>Nephrotoma quadrifaria</i>	a cranefly	23.06.2010	2m,1f		swept from fen veg
<i>Nephrotoma quadrifaria</i>	a cranefly	01.07.2010	1f		swept from fen veg
<i>Nephrotoma quadrifaria</i>	a cranefly	13.06.2010	1		swept from fen veg
<i>Neuroctena analis</i>	a dryomyzid fly	13.06.2010			woodland
<i>Norellisoma lituratum</i>	a scathophagid fly	28.04.2010	1		swept from fen veg
<i>Ormosia lineata</i>	a cranefly	13.05.2010	1		swept from fen veg
<i>Otities guttata</i>	an otitid fly	13.05.2010	3		woodland/fen

Louie Memorial Fields

<i>Oxycera nigricornis</i>	delicate soldier	em 30.05.2010, 24.06.2010	2f	local	reared from saturated moss and liverwort mat in fen
<i>Oxycera nigricornis</i>	delicate soldier	23.06.2010	7m,2f	local	swept from fen veg
<i>Oxycera pygmaea</i>	pygmy soldier	13.06.2010	1m	Notable	swept from fen veg
<i>Parydra sp</i>	an ephyrid fly	13.06.2010	2		swept from fen veg
<i>Pegomya sp</i>	dock miner Anthomyid fly	13.06.2010	2 mined leaves		woodland
<i>Pelidnoptera fuscipennis</i>	a millipede killing fly	13.06.2010	1		woodland
<i>Pelidnoptera fuscipennis</i>	a millipede killing fly	23.06.2010	1		woodland
<i>Phaenion subventa</i>	a muscid fly	13.06.2010	1		woodland
<i>Phyllophila caesio</i>	a tephritid fly	23.06.2010	1		woodland
<i>Pilaria discicollis</i>	a crane fly	13.06.2010	1f,1m		swept from fen veg
<i>Pipiza noctiluca</i>	a hoverfly	22.05.2010	1f, 1m		swept from fen veg
<i>Ptiolina obscura</i>	black-fringed moss snipe fly	13.06.2010	1f	Notable	on low vegetation in tufa area with fallen willows
<i>Ptychoptera lacustris</i>	a fold-wing crane fly	13.06.2010	1		swept from fen veg
<i>Renocera pallida</i>	a snail killing fly	28.04.2010	3		swept from fen veg
<i>Renocera pallida</i>	a snail killing fly	13.05.2010	2m		swept from fen veg
<i>Rhamphomyia crassirostris</i>	an empid fly	13.05.2010	1m		swept from fen veg
<i>Rhaphium caliginosum</i>	a dolichopodid fly	01.07.2010	2		swept from fen veg
<i>Rhipidia maculata</i>	a crane fly	13.05.2010	1		swept from fen veg
<i>Rhipidia maculata</i>	a crane fly	13.06.2010	1		swept from fen veg
<i>Spania nigra</i>	liverwort snipe fly	04.06.2010	1m,1f	Notable	swept from fen
<i>Spania nigra</i>	liverwort snipe fly	22.05.2010	1	Notable	swept from fen veg
<i>Spanochaeta dorsalis</i>	a muscid fly	04.06.2010	1		swept from fen veg
<i>Tetanocera sp</i>	a snail killing fly	23.06.2010	4		swept from fen veg
<i>Thaumastoptera calceata</i>	a crane fly	13.06.2010	1	Notable	swept from fen
<i>Tipula luna</i>	a crane fly	04.06.2010	1m		swept from fen
<i>Tipula luna</i>	a crane fly	13.06.2010	1		swept from fen veg
<i>Tipula pruinosa</i>	a crane fly	13.06.2010	1		swept from fen veg
<i>Tipula varipennis</i>	a crane fly	22.05.2010	1m		woodland
<i>Tipula varipennis</i>	a crane fly	13.05.2010	1		swept from fen veg
<i>Tipula varipennis</i>	a crane fly	22.05.2010	1		swept from fen veg
<i>Tipula vernalis</i>	a crane fly	22.05.2010	1		grassland
<i>Tipula vittata</i>	a crane fly	28.04.2010	1f		fen
<i>Tipula vittata</i>	a crane fly	28.04.2010	1		woodland
<i>Tricyphona immaculata</i>	a crane fly	04.06.2010	3		swept from fen veg
<i>Tricyphona immaculata</i>	a crane fly	13.05.2010	1		swept from fen veg
<i>Vanoyia tenuicornis</i>	long homed soldier fly	13.06.2010	1	Nationally Scarce	swept from fen veg
<i>Vanoyia tenuicornis</i>	long homed soldier fly	01.07.2010	1m	Nationally Scarce	swept from fen veg
<i>Volucella bombylans</i>	a hoverfly	22.05.2010	1		woodland
<i>Volucella bombylans</i>	a hoverfly	04.06.2010	1		woodland
<i>Xylota segnis</i>	a hoverfly	23.06.2010	1f		on leaf in woodland
<i>Xylota segnis</i>	a hoverfly	13.05.2010	1		woodland

Louie Memorial Fields

Hymenoptera (bees)					
<i>Andrena fulva</i>	tawny mining bee	10.04.2010	1f		short grass near car park
<i>Andrena scotica</i>	solitary bee	13.05.2010	1f		long grass on field
<i>Bombus hypnorum</i>	tree bumble bee	23.06.2010	1q		in hollow inside rotting log in fen in shade
<i>Hylaeus communis</i>	solitary bee	11.07.2010	1		long grass on field
<i>Nomada sp</i>	cuckoo bee	28.04.2010	2f		long grass on field
<i>Osmia caerlescens</i>	blue mason bee	04.06.2010	1f		swept from fen
Coleoptera (Beetles)					
<i>Adalia 10-punctata</i>	10 spot ladybird	13.05.2010	2		woodland
<i>Bembidion cf quadrimaculatum</i>	a ground beetle	10.04.2010	1		swept from fen veg
<i>Calvia 14-guttata</i>	cream spot ladybird	13.05.2010	1		woodland
<i>Cantharis rustica</i>	a soldier beetle	22.05.2010	1		grassland
<i>Coccinella 7-punctata</i>	7 spot ladybird	13.05.2010	1		woodland
<i>Denticollis linearis</i>	click beetle	22.05.2010	1		woodland
<i>Denticollis linearis</i>	a click beetle	04.06.2010	3		woodland
<i>Grammoptera ruficornis</i>	common grammoptera longhorn	23.06.2010	1m,1f		woodland
<i>Halyzia 16-guttata</i>	orange ladybird	13.06.2010	1		woodland
<i>Hydrothassa marginella</i>	the buttercup beetle	04.06.2010	1		swept from fen veg
<i>Ischnomera cyanea</i>	oedomerid green beetle	13.05.2010	1		woodland
<i>Kibunea (Cidnopus) minuta</i>	small black click beetle	28.04.2010	1		long grassland
<i>Kibunea (Cidnopus) minuta</i>	small black click beetle	13.05.2010	3		long grassland
<i>Melolontha melolontha</i>	cockchafer	22.05.2010	1f		long grassland
Mordellid beetles	Mordellidae	04.06.2010	2		swept in woodland
<i>Ochina ptinoides</i>	ivy deathwatch beetle	23.06.2010	4		swept from dense ivy on old willow tree
<i>Oedemera lurida</i>	an oedomerid beetle	04.06.2010	1f		long grassland
<i>Oedemera nobilis</i>	thick-kneed flower beetle	23.06.2010	1m,1f		long grassland
<i>Phyllobius pomaceus</i>	nettle weevil	01.07.2010	1		swept from fen
<i>Polydrusus sp</i>	small green weevils	13.05.2010	numerous		swept from marginal long grass
<i>Propylea 14-punctata</i>	14 spot ladybird	13.05.2010	1		woodland
<i>Ptinomorphus imperialis</i>	fan-bearing wood-borer	22.05.2010	1		woodland
<i>Pyrochroa serraticornis</i>	red headed cardinal beetle	22.05.2010	1		woodland
<i>Pyrochroa serraticornis</i>	red headed cardinal beetle	13.06.2010	5		woodland

Louie Memorial Fields

Lepidoptera (Butterflies and moths)					
<i>Anthocaris cardamines</i>	orange tip	13.05.2010	1m		near fen
<i>Aphantopus hyperantus</i>	ringlet	01.07.2010	1		long grassland
<i>Artogeia napi</i>	green veined white	13.05.2010	1m		woodland
<i>Callimorpha dominula</i>	scarlet tiger moth	01.07.2010	1	local	fen
<i>Cucullia verbasci</i>	mullein moth	13.06.2010	1		caterpillar on water figwort
<i>Eilema depressa</i>	buff footman moth	06.07.2010	1f	local	Lower Wetland
<i>Gonepteryx rhamni</i>	brimstone	10.04.2010	2		flying over fen
<i>Herminia nemoralis</i>	small fan foot moth	13.06.2010	1		swept in woodland
<i>Inachis io</i>	peacock	10.04.2010	2		flying over fen
<i>Inachis io</i>	peacock	13.05.2010	1		woodland edge
<i>Ochlodes venatus</i>	large skipper	01.07.2010	1		long grassland
<i>Pieris napi</i>	green veined white	13.06.2010	1		fen
<i>Pleuroptya ruralis</i>	mother of pearl moth	23.06.2010	1		on nettles, lower wetland
<i>Pyrausta aurata</i>	mint moth	09.09.2010	1		fen vegetation, on water mint
<i>Maniola jurtina</i>	meadow brown	01.07.2010	1		long grassland
Hemiptera (Bugs)					
<i>Bryocoris pteridis</i>	fern bug	23.06.2010	2		woodland
<i>Coreus marginatus</i>	squash bug	01.07.2010	1 nymph		in fen
<i>Dryophilacorix flavoquadrimaculatus</i>	oak 4 spotted bug				woodland
<i>Metatropis rufescens</i>	enchanter's nightshade bug	23.06.2010	1		woodland
Odonata & scorpion flies					
<i>Enallagma cyathigerum</i>	common blue damselfly	13.06.2010	1f		swept from fen
<i>Pyrrhosoma nymphula</i>	large red damselfly	13.05.2010	1f		swept from fen
<i>Pyrrhosoma nymphula</i>	large red damselfly	01.07.2010	1m		swept from fen
<i>Sympetrum striolatum</i>	ruddy darter	19.10.2010	1		hawking over newly excavated pond
<i>Panorpa sp</i>	scorpionfly	13.05.2010	1m,1f		woodland
Orthoptera (crickets)					
<i>Velia caprai</i>	water cricket	22.05.2010	8		on water of stream
<i>Leptophyes punctatissima</i>	speckled bush cricket	23.06.2010	3 nymphs		woodland
Mollusca (snails)					
<i>Oxychilus alliarius</i>	garlic snail	10.04.2010	1		near stream
Vertebrata					
<i>Rana temporaria</i>	frog	10.04.2010	3 spawn clumps, hatching		lower wetland
<i>Phylloscopus collybita</i>	chiff chaff	13.05.2010	1		woodland, heard calling
<i>Erithacus rubecula</i>	robin	13.05.2010	1		woodland
<i>Capreolus capreolus</i>	Roe deer	04.06.2010	1m		adjacent to fen, ran off to private woodland
<i>Rattus norvegicus</i>	brown rat	28.02.2010	1		found dead in woodland