

**A BRIEF REPORT OF A SURVEY OF THE
INVERTEBRATES OF LYE VALLEY SSSI NORTH FEN**

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This report was produced for Friends of Lye Valley

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CONTENTS

SUMMARY	1
INTRODUCTION	1
METHODS	1
Pitfall Trapping.....	1
Sweep Netting	2
Identification.....	3
RESULTS	3
DISCUSSION	4
Invertebrates characteristic of short fen.....	4
Invertebrates characteristic of taller wetland vegetation	5
Invertebrates characteristic of scrub edge	5
Comparison of North Fen with South Fen	5
CONCLUSION	6
REFERENCES	6
APPENDIX I: Images of some invertebrates recorded from Lye Valley SSSI North Fen	i
APPENDIX II: List of invertebrate species recorded from Lye Valley SSSI North Fen from 30th May - 7th July 2018	ii

SUMMARY

- Lye Valley SSSI North Fen (Unit 1) was sampled for invertebrates in June 2018.
- Methods used were pitfall traps (to target ground dwelling spiders and beetles) and sweep netting and hand searching (general sampling).
- Of the 118 invertebrate species identified, 78 are considered ‘Common’ and 37 ‘Local’. None are designated Nationally Scarce, and the remaining few are of unknown status.
- The importance of Lye Valley North Fen for specialist wetland invertebrates, including spiders, beetles and soldierflies, is highlighted.
- The majority of less common invertebrate species recorded are typical of short-turf fen vegetation, but a number of other species of conservation importance favour tall fen vegetation.
- The results of this survey indicate that the recorded invertebrate fauna of the Lye Valley SSSI North Fen shares just 28% of its species with those recorded from the Lye Valley SSSI South Fen (Unit 2) in 2016.
- Thus, the invertebrate faunas of both sites are important in their own right, and complement each other, and should be seen as part of a much larger mosaic of habitats stretching along the length of the Boundary Brook.

INTRODUCTION

Lye Valley SSSI North Fen (Unit 1) (hereafter called North Fen) is an example of rare calcareous alkaline fen lying on peat mixed with tufa. Although a small site of just over 1.8ha (<https://designatedsites.naturalengland.org.uk>) it supports a high plant diversity with many locally rare and scarce wetland species of calcareous, alkaline fen. Vegetation on the eastern side of the brook includes patches of short-turf fen within a matrix of taller fen vegetation on fairly level ground. On the western side of the brook the vegetation is dominated by reeds *Phragmites* on a distinct slope, with isolated patches of more typical fen vegetation occur around flushed areas. The Diptera (true flies) inhabiting the site are relatively well known and include a number of scarce and rare specialist wetland species (Judy Webb, pers. comm.). This biological interest has been maintained by scrub removal, willow pollarding and annual cutting and removal of reed (*Phragmites*) with the objective that the site can be returned to favourable short fen condition in the near future. However, other invertebrate groups, such as spiders, beetles and snails, which also include wetland specialists, are poorly known. This current survey was commissioned by Friends of Lye Valley to help fill this knowledge gap for the North Fen. Permission to undertake the survey was given by relevant landowners and Natural England.

Lye Valley SSSI South Fen (Unit 2), some 0.6 km away, was sampled for invertebrates using pitfall traps, sweep netting and hand searching in June 2016 (Gregory, 2018).

METHODS

Invertebrates were sampled using hand and sweep nets and by pit fall trapping.

Pitfall Trapping

Pitfall traps were used to sample surface active invertebrates associated with open fen habitats. These were 9 cm diameter plastic vending cups buried in the ground (with the rim flush with soil

surface), filled to about one third with 70% ethanol as a preservative. The principle taxa targeted included spiders (Araneae), and ground beetles and rove beetles (Coleoptera; Carabidae & Staphylinidae).

In total nine pairs of pitfall traps were used, all located adjacent to areas of short turf fen. Six pairs were set on the eastern side of the brook (east pitfalls). Three pairs were set on the reed dominated slope on the western side (west pitfalls). See Fig. 1.

The traps were set up on 30th May 2018 and removed on 6th July (which corresponds to the early summer peak in spider species diversity).

Sweep Netting

Sweep netting was used to sample invertebrates inhabiting wetland vegetation, including spiders, plant bugs (Heteroptera) and beetles (Coleoptera). Samples from short fen and tall fen (east of the brook) and reedbed (slopes west of brook) were kept separate. This survey was undertaken on 20th June 2018.

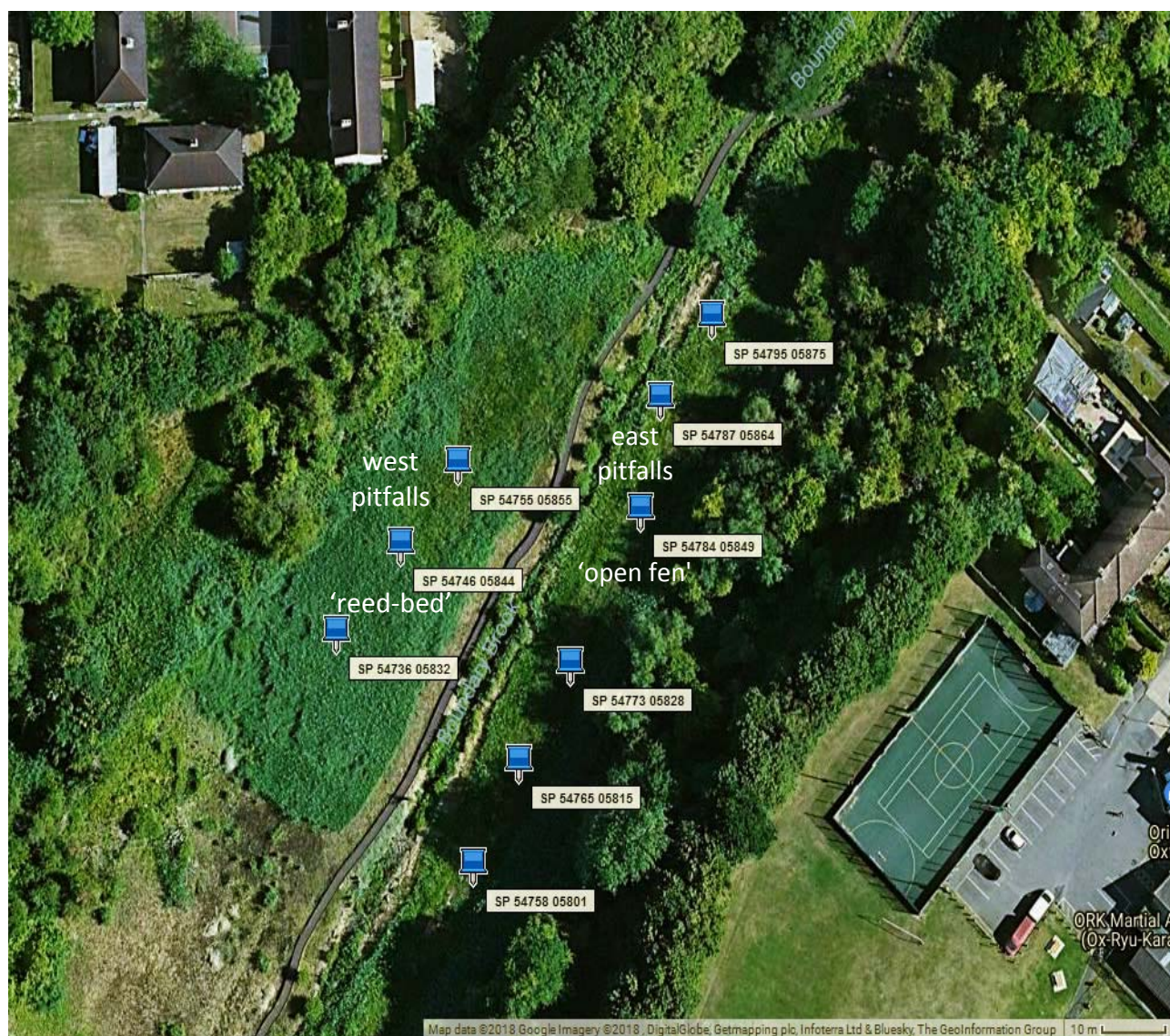


Figure 1: Aerial view of Lye Valley SSSI North Fen Unit 1 indicating the location of the nine pairs of pitfall traps

Identification

The majority of netted specimens were collected using a pooter and transferred to tubes of 70% alcohol for microscopic examination to ensure accurate identification. However, where practical, invertebrates recorded during sweep netting and hand searches were identified in the field. All pitfall trap samples were preserved in 70% alcohol and identified using a low power binocular microscope. The author undertook identification of all taxa.

RESULTS

A total of 118 species of invertebrate were recorded (see Appendix I); 77 species in pitfall traps and 50 species swept/netted. This includes 31 species (26%) of spider and 25 species (21%) of beetle; the two principle target taxa (Table 1). In terms of British rarity status*, 78 are designated as Common, 37 as Local. None are considered Nationally Scarce. However, several true flies and beetles recorded in this survey have been recently downgraded from Scarce to Local, which are highlighted under the heading '*Discussion*' below.

***Common:** Taxa that are widespread in Britain, occurring in more than 500 hectads (10km squares) (there are about 3,000 hectads covering Britain).

Local: Taxa that are localised in Britain, occurring between 101 and 500 hectads.

Nationally Scarce: Species that occur, or thought to occur, in between 16 to 100 hectads in Britain, which although uncommon, do not qualify as Nationally Rare.

95 species (81% of the total) were recorded from the fen on the eastern margin of the brook. Of the species recorded here just over half (54%, 51 species) were only recorded from ('endemic to') this side of the brook (Fig. 2). In comparison 69 species were recorded from the reedbed on the western slopes, of which just 25 species (36%) were only found there.

Details of the species records have been entered into an excel spreadsheet for submission to the local biological records centre (TVERC).

Table 1: Number of species recorded from the North Fen within each invertebrate group

Class	Order	Common Name	No. species	% of Total
Arachnida	Araneae & Opiliones	Spiders and allies	32	27.1 %
Gastropoda	Pulmonata	Slugs & Snails	8	6.8 %
Diplopoda	Julida & Polydesmida	Millipedes	8	6.8 %
Malacostraca	Isopoda	Woodlice	8	6.8 %
Insecta	Coleoptera	Beetles	25	21.2 %
Insecta	Diptera	True Flies	17	14.4 %
Insecta	Hemiptera	True Bugs	11	9.3 %
Insecta	Miscellaneous taxa	Various Insects	9	7.6 %
Total number species recorded:			118 spp.	100%

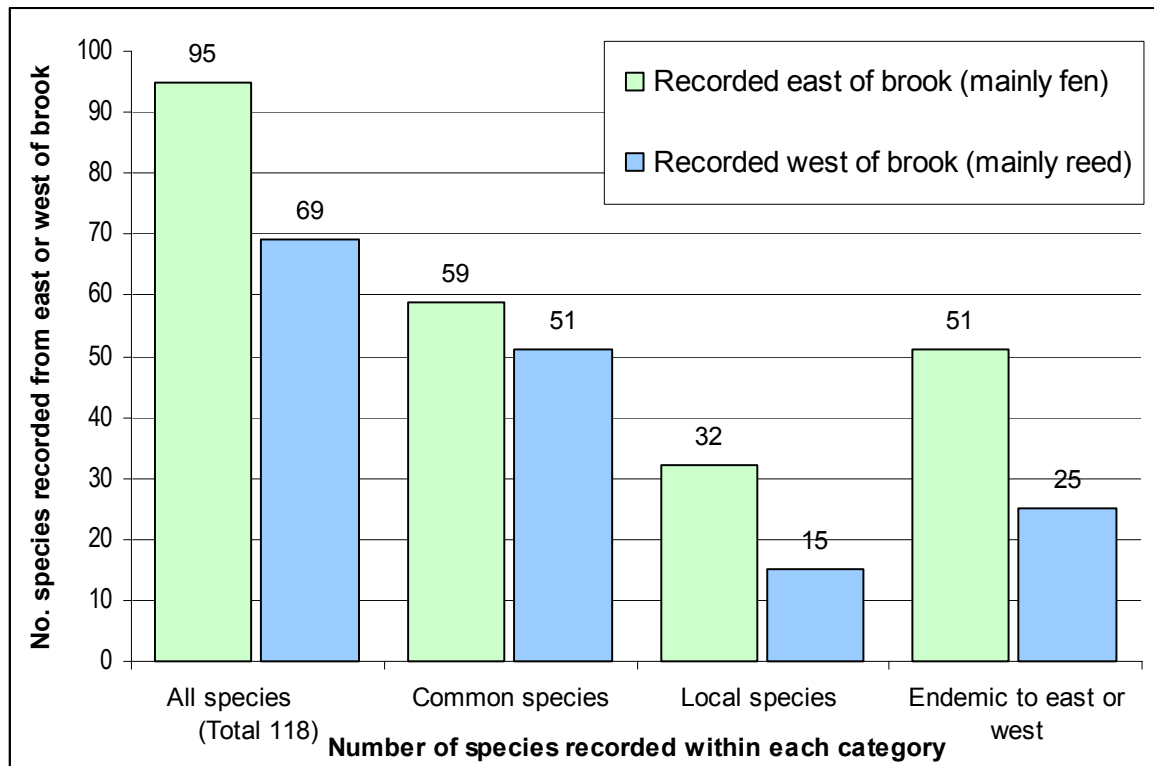


Figure 2: Of the 118 species recorded, the number found east of the brook (mainly short fen and tall fen) and west of the brook (mainly reedbed) is indicated. Totals are broken down by National Status (Common, Local) and for species recorded only from (endemic to) west or east of the brook.

DISCUSSION

Some of the key species of conservation interest recorded by this survey are briefly mentioned below. It is perhaps worth noting that five characteristic wetland species were previously listed as Nationally Scarce (Nb), but have been downgraded recently to ‘Local’ (Least Concern). These are the soldierflies (Stratiomyidae) *Oxycera morissii*, *Vanoyia tenuicornis* and *Stratiomys potamida* (by Drake, 2017); the soldier beetle *Silis ruficollis* (by Alexander, 2015); and the ground beetle *Chlaenius nigricornis* (by Telfer, 2016). This is primarily because additional survey effort has shown that they are more widespread than previously thought or have shown a recent expansion in range (e.g. *S. potamida*).

Invertebrates characteristic of short fen

A characteristic suite of invertebrates associated with low vegetation growing on water-logged peaty soils was recorded. Five species of Local soldierfly with larvae typically associated with calcareous (tufa depositing) flushes and fens in Oxfordshire (Stubbs & Drake, 2014; Porter, 1992) were recorded either as adults or larvae. These are: *Oxycera rara*, *O. morissii*, *O. trilineata* (see image Appendix I), *Stratiomys potamida** and *Vanoyia tenuicornis*.

* This species is recorded from larvae in pitfall traps. Although it is not possible to separate larvae of the Local *S. potamida* from those of the Endangered *S. chamaeleon* adults of *S. potamida* have been recorded recently from Lye Valley SSSI South Fen (Judy Webb, pers. comm.) whereas *S. chamaeleon*, which is historically known to have occurred at Lye Valley, has not been recorded for many decades.

Other characteristic invertebrates of open wetland include the ground dwelling wolf spiders *Pirata latitans* and *Arctosa leopardus*. However, other characteristic open wetland spiders recorded from the South Fen in 2016 (Gregory, 2018), such as the Nationally Scarce wolf spider *Trochosa spinipalpis*, were not recorded from the North Fen. There is no obvious reason why this latter species should not have been present. It is possible that specimens simply evaded the pitfall traps or it may be that this locally rare species has been lost from the North Fen.

Invertebrates characteristic of taller wetland vegetation

A number of other invertebrates recorded favour the structural diversity provided by taller vegetation growing on waterlogged soils. Some live upon vegetation; such as the Local crab spider *Xysticus ulmi* and the Local soldier beetle *Silis ruficollis* (see image Appendix I), which require taller wetland vegetation for hunting. Others, such as the Local ground beetles *Agonum emarginatum*, *Chlaenius nigricornis* (see image Appendix I) and *Pterostichus minor* are active predators of the ground surface beneath taller vegetation (Luff, 1998). The larvae of the Marsh Click Beetle *Actenicerus sjaelandicus* (see image Appendix I) develop underground in soil and feed on the roots of a variety of plants with the adults inhabiting vegetation (<http://elateridae.co.uk/species-accounts/>). Conservation of these species will require the maintenance of a less intensively managed mosaic of patchy reed and taller fen vegetation among or adjacent to the managed short fen areas.

Invertebrates characteristic of scrub edge

Few of the species recorded are considered typical of scrub or woodland edge and of these the majority are common species. This is not surprising considering the open, sunny, nature of the wetland surveyed, with scrub just occurring peripherally. An exception is the Local woodlouse *Ligidium hypnorum*, which along the mid-vale ridge of Oxfordshire is typically associated with ancient carr woodland (Gregory, 2001). At Lye Valley North Fen specimens were widely caught in pitfall traps, but are probably strays from adjacent, more shaded, parts of the Lye Valley. Also of note is the Local spider *Philodromus albidus*, swept from of overhanging branches, and a single larva of the Local Glow-worm *Lampyrus noctiluca* taken in a pitfall trap.

Comparison of North Fen with South Fen

Comparable methods (pitfall traps, sweep netting and hand searching) and seasonality (surveys undertaken in June) were used at both the South Fen (Gregory, 2018) and the North Fen (this report). Thus it is possible to make some comparisons of the data. It is apparent that a large proportion (72%) of the total number of invertebrate species (all taxa considered) recorded in 2016 and 2018 were recorded from either the South Fen or from the North Fen (but not at both sites). Thus, just 28% of species were collected from *both* the South Fen *and* the North Fen (Table 2). In the case of taxa with large numbers of species that include many habitat specialists, such as beetles, true flies and true bugs, the proportion of species that were recorded from both sites is much lower (15.8%, 9.1% and 6.7% respectively). This suggests that there are some differences in the invertebrate fauna associated with each site, possibly reflected differences in past management. In contrast, woodlice and millipedes, which include a large proportion of generalist (eurytopic) species, a substantial 77.8 % of species recorded were found at both sites.

However, it must be remembered that these surveys are just snap-shots of the invertebrates inhabiting either the North Fen or the South Fen. The vast array of invertebrate species that could potentially occupy either site (despite their small size) means that repeat surveys in subsequent years may well record additional species and fail to record others that have been previously noted.

Table 2: Number of invertebrate species recorded: Number of species from South Fen only (June 2016); number species from North Fen only (June 2018); combined total from South Fen and/or North Fen; number (and percentage of total) of species recorded from both sites.

Species Group	No. species: South Fen only (2016)	No. species: North Fen only (2018)	No. species: South and/or North Fen	No. species found at BOTH sites	% of species found at BOTH sites
Spiders, etc	38	32	53	17	32.1 %
Snails & Slugs	8	8	11	5	45.5 %
Millipedes	8	8	9	7	77.8 %
Woodlice	8	8	9	7	77.8 %
Beetles	20	25	39	6	15.8 %
True Flies	7	17	22	2	9.1 %
True Bugs	5	11	15	1	6.7 %
Misc. Insects	4	9	11	2	18.2 %
Total no. species:	98	118	169	47	28%

CONCLUSION

It is clear that Lye Valley SSSI North Fen (Unit 1) supports an important refuge for populations of scarce and declining invertebrates associated with both short fen and tall fen vegetation. Although some of these were also recorded from the South Fen (Unit 2) in 2016, the majority, to date, have been recorded from either the North Fen or the South Fen. Thus, the invertebrate faunas of both sites are important in their own right, and complement each other, and form part of a much larger mosaic of habitats stretching along the length of the Boundary Brook.

ACKNOWLEDGEMENTS

Samples from the pitfall traps were collected and sorted prior to identification by Judy Webb.

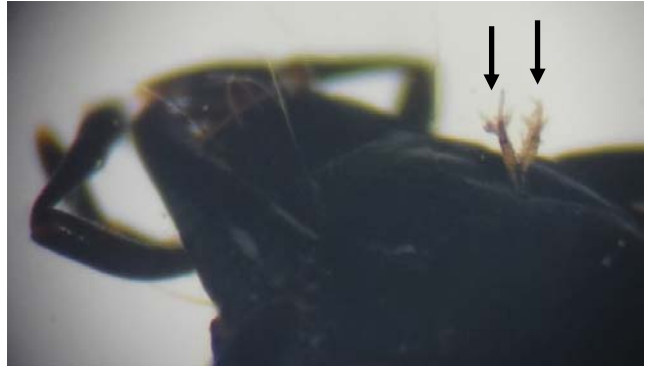
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APPENDIX I: Some invertebrates recorded from Lye Valley SSSI North Fen



Wolf Spider *Trochosa terricola*; female epigyne



Laboulbenia ?flagellata on *Agonum viduum*



Ground Beetle *Chlaenius nigricornis*



Pterostichus nigrita & *P. rhaeticus*
~ female 8th sternite



Marsh Click Beetle *Actenicerus sjaelandicus*



Soldier Beetle *Silis ruficollis*



Soldierfly Larvae *Oxycera trilineata* from pitfall trap

APPENDIX II: List of invertebrate species recorded from Lye Valley SSSI North Fen from 30th May - 7th July 2018.

East = short and tall fen to east of brook; West = reed dominated slope to west of brook. AD = adult; LV = larva; IM = immature

Order	Family	Taxon	Vernacular	National Status	Net/Sweep/Search		Pitfall Trap	
					East	West	East	West
Arachnida ~ Spiders and allies								
Araneae	Gnaphosidae	<i>Drassyllus pusillus</i>	a ground spider	Local			AD	
Araneae	Hahniidae	<i>Antistea elegans</i>	a cobweb spider	Local				AD
Araneae	Linyphiidae	<i>Bathyphantes gracilis</i>	a money spider	Common				AD
Araneae	Linyphiidae	<i>Diplostyla concolor</i>	a money spider	Common			AD	
Araneae	Linyphiidae	<i>Erigone atra</i>	a money spider	Common	AD	AD		
Araneae	Linyphiidae	<i>Gnathonarium dentatum</i>	a money spider	Common	AD			AD
Araneae	Linyphiidae	<i>Oedothorax apicatus</i>	a money spider	Local				AD
Araneae	Linyphiidae	<i>Oedothorax fuscus</i>	a money spider	Common				AD
Araneae	Linyphiidae	<i>Oedothorax gibbosus</i>	a money spider	Common			AD	AD
Araneae	Linyphiidae	<i>Oedothorax retusus</i>	a money spider	Common				AD
Araneae	Linyphiidae	<i>Saaristoa abnormis</i>	a money spider	Common				AD
Araneae	Linyphiidae	<i>Tenuiphantes tenuis</i>	a money spider	Common			AD	AD
Araneae	Linyphiidae	<i>Walckenaeria atrotibialis</i>	a money spider	Local			AD	AD
Araneae	Linyphiidae	<i>Walckenaeria vigilax</i>	a money spider	Local			AD	
Araneae	Lycosidae	<i>Arctosa leopardus</i>	a wolf spider	Local			AD	AD
Araneae	Lycosidae	<i>Pardosa amentata</i>	a wolf spider	Common			AD	AD
Araneae	Lycosidae	<i>Pardosa prativaga</i>	a wolf spider	Common			AD	AD
Araneae	Lycosidae	<i>Pardosa saltans</i>	a wolf spider	Common			AD	AD
Araneae	Lycosidae	<i>Pirata hygrophilus</i>	a wolf spider	Common			AD	AD
Araneae	Lycosidae	<i>Pirata latitans</i>	a wolf spider	Local			AD	AD
Araneae	Lycosidae	<i>Trochosa ruricola</i>	a wolf spider	Common				AD
Araneae	Lycosidae	<i>Trochosa terricola</i> ¹	a wolf spider	Common			F	
Araneae	Philodromidae	<i>Philodromus albidus</i>	a running crab spider	Local	AD			
Araneae	Philodromidae	<i>Tibellus oblongus</i>	a running crab spider	Common	AD			

Araneae	Tetragnathidae	<i>Pachygnatha clercki</i>	a long-jawed spider	Common			AD	AD
Araneae	Theridiidae	<i>Anelosimus vittatus</i>	a comb-foot spider	Common		AD		
Araneae	Theridiidae	<i>Enoplognatha ovata s.str.</i>	a comb-foot spider	Common		AD		
Araneae	Thomisidae	<i>Misumena vatia</i>	a crab spider	Common		AD		
Araneae	Thomisidae	<i>Ozyptila brevipes</i>	a crab spider	Local			AD	
Araneae	Thomisidae	<i>Ozyptila trux</i>	a crab spider	Common			AD	
Araneae	Thomisidae	<i>Xysticus ulmi</i>	a crab spider	Local			AD	AD
Opiliones	Phalangiidae	<i>Lacinius ephippiatus</i>	a harvest spider	Common			IM	IM
Diplopoda ~ Millipedes								
Julida	Blaniulidae	<i>Blaniulus guttulatus</i>	Red Spotted Millipede	Common	AD			
Julida	Julidae	<i>Tachypodoiulus niger</i>	White Legged Millipede	Common	AD		AD	AD
Julida	Julidae	<i>Cylindroiulus britannicus</i>	a snake millipede	Common			AD	AD
Julida	Julidae	<i>Cylindroiulus punctatus</i>	Club-tailed Millipede	Common	AD			
Julida	Julidae	<i>Cylindroiulus caeruleocinctus</i>	a snake millipede	Local			AD	
Julida	Julidae	<i>Ophiulus pilosus</i>	a snake millipede	Common			AD	
Polydesmida	Polydesmidae	<i>Polydesmus angustus</i>	Common Flat-back Millipede	Common				AD
Polydesmida	Polydesmidae	<i>Polydesmus coriaceus</i>	Western Flat-back Millipede	Common	AD		AD	
Crustaceans ~ Woodlice								
Isopoda	Armadillidiidae	<i>Armadillidium vulgare</i>	Common Pill Woodlouse	Common			AD	AD
Isopoda	Ligidiidae	<i>Ligidium hypnorum</i>	Carr Slater	Local			AD	AD
Isopoda	Oniscidae	<i>Oniscus asellus</i>	Shiny Woodlouse	Common	AD	AD	AD	AD
Isopoda	Philosciidae	<i>Philoscia muscorum s.str.</i>	Striped Woodlouse	Common	AD	AD	AD	AD
Isopoda	Porcellionidae	<i>Porcellio scaber</i>	Rough Woodlouse	Common	AD		AD	AD
Isopoda	Trichoniscidae	<i>Androniscus dentiger</i>	Rosy Woodlouse	Common				AD
Isopoda	Trichoniscidae	<i>Haplophthalmus danicus</i>	Spurred Ridgeback	Local	AD			
Isopoda	Trichoniscidae	<i>Trichoniscus pusillus s.lato</i>	Common Pygmy Woodlouse	Common	AD	AD		
Mollusca ~ Snails and Slugs								
Pulmonata	Cochlicopidae	<i>Cochlicopa lubrica</i>	Slippery Moss Snail	Common			AD	AD
Pulmonata	Euconulidae	<i>Euconulus cf alderi</i>	Tawny Glass Snail	Local			AD	AD
Pulmonata	Helicidae	<i>Cornu aspersum</i>	Garden Snail	Common		AD		

Pulmonata	Hygromiidae	<i>Monacha cantiana</i>	Kentish Snail	Common		AD		
Pulmonata	Hygromiidae	<i>Trochulus hispidus</i>	Hairy Snail	Common			AD	AD
Pulmonata	Hygromiidae	<i>Trochulus striolatus</i>	Strawberry Snail	Common			AD	
Pulmonata	Oxychilidae	<i>Aegopinella nitidula</i>	Smooth Glass Snail	Common			AD	
Pulmonata	Succineidae	<i>Oxyloma elegans</i>	Pfeiffer's Amber Snail	Common				AD
Insects ~ Beetles								
Coleoptera	Cantharidae	<i>Cantharis pallida</i>	a soldier beetle	Local	AD			
Coleoptera	Cantharidae	<i>Silis ruficollis</i>	a soldier beetle	Local	AD			
Coleoptera	Carabidae	<i>Acupalpus dubius</i>	a ground beetle	Local			AD	
Coleoptera	Carabidae	<i>Agonum viduum</i>	a ground beetle	Common				AD
Ascomycetes	Laboulbeniaceae	<i>Laboulbenia flagellata</i> ²	Ectoparasite on <i>A. viduum</i>	Unknown				thalli
Coleoptera	Carabidae	<i>Chlaenius nigricornis</i>	a ground beetle	Local			AD	AD
Coleoptera	Carabidae	<i>Harpalus rufipes</i>	a ground beetle	Common				AD
Coleoptera	Carabidae	<i>Pterostichus minor</i>	a ground beetle	Local				AD
Coleoptera	Carabidae	<i>Pterostichus nigrita</i>	a ground beetle	Common			AD	AD
Ascomycetes	Laboulbeniaceae	<i>Laboulbenia pseudomasci</i> ²	Ectoparasite on <i>Pt. nigrita</i>	Unknown			thalli	thalli
Coleoptera	Carabidae	<i>Pterostichus rhaeticus</i>	a ground beetle	Common			AD	
Coleoptera	Carabidae	<i>Pterostichus strenuus</i>	a ground beetle	Common			AD	
Coleoptera	Cerambycidae	<i>Rutpela maculata</i>	a longhorn beetle	Common	AD	AD		
Coleoptera	Chrysomelidae	<i>Galerucella californiensis</i>	a leaf beetle	Local	AD			
Coleoptera	Chrysomelidae	<i>Neocrepidodera transversa</i>	a leaf beetle	Common	AD			
Coleoptera	Curculionidae	<i>Euophryum confine</i>	a weevil	Naturalised			AD	
Coleoptera	Dryopidae	<i>Dryops ernesti</i>	a beetle	Local			AD	
Coleoptera	Elateridae	<i>Actenicerus sjaelandicus</i>	a click beetle	Local			AD	
Coleoptera	Lampyridae	<i>Lampyris noctiluca</i>	Glow Worm	Local			LV	
Coleoptera	Oedemeridae	<i>Oedemera nobilis</i>	Swollen-thigh Beetle	Common	AD	AD		
Coleoptera	Silphidae	<i>Silpha atrata</i>	a carrion beetle	Common			AD	
Coleoptera	Silphidae	<i>Silpha tristis</i>	a carrion beetle	Local			AD	
Coleoptera	Staphylinidae	<i>Tachinus rufipes</i>	a rove beetle	Common			AD	AD
Coleoptera	Staphylinidae	<i>Staphylinus dimidiaticornis</i>	a rove beetle	Local			AD	AD

Coleoptera	Staphylinidae	<i>Stenus flavipes</i>	a rove beetle	Common	AD			
Coleoptera	Staphylinidae	<i>Bolitobius cingulatus</i>	a rove beetle	Local			AD	
Coleoptera	Staphylinidae	<i>Quedius fuliginosus</i>	a rove beetle	Common			AD	
Insects ~ True Flies								
Diptera	Rhagionidae	<i>Chrysopilus asiliformis</i>	a snipe fly	Common	AD	AD		
Diptera	Rhagionidae	<i>Chrysopilus cristatus</i>	a snipe fly	Common	AD	AD		
Diptera	Sciomyzidae	<i>Ilione albisetata</i>	a snail-killing fly	Common		AD		
Diptera	Stratiomyidae	<i>Beris vallata</i>	a soldierfly	Common	AD			AD
Diptera	Stratiomyidae	<i>Chloromyia formosa</i>	a soldierfly	Common	AD	AD		
Diptera	Stratiomyidae	<i>Oplodontha viridula</i>	a soldierfly	Local		AD		
Diptera	Stratiomyidae	<i>Oxycera morrisii</i>	a soldierfly	Local	AD			
Diptera	Stratiomyidae	<i>Oxycera nigricornis</i>	a soldierfly	Local	AD		LV	
Diptera	Stratiomyidae	<i>Oxycera rara</i>	a soldierfly	Local			LV	
Diptera	Stratiomyidae	<i>Oxycera trilineata</i>	a soldierfly	Local				LV
Diptera	Stratiomyidae	<i>Stratiomys potamida</i> ³	a soldierfly	Local			LV	LV
Diptera	Stratiomyidae	<i>Vanoyia tenuicornis</i>	a soldierfly	Local	AD			
Diptera	Syrphidae	<i>Heliophilus pendulus</i>	a hoverfly	Common		AD		
Diptera	Syrphidae	<i>Neoascia tenur</i>	a hoverfly	Local	AD			
Diptera	Syrphidae	<i>Sphaerophoria scripta</i>	a hoverfly	Common		AD		
Diptera	Tabanidae	<i>Haematopota pluvialis</i>	a horsefly	Common	AD	AD		
Diptera	Ulidiidae	<i>Herina frondescentiae</i>	a picture-wing fly	Local	AD	AD	AD	
Insects ~ True Bugs								
Hemiptera	Aphrophoridae	<i>Philaenus spumarius</i>	Cuckoo Spit Insect	Common			AD	
Hemiptera	Delphacidae	<i>Delphax pulchellus</i>	a leaf hopper	Common	AD	AD		
Hemiptera	Lygaeidae	<i>Cymus melanocephalus</i>	a ground bug	Common	AD	AD		
Hemiptera	Lygaeidae	<i>Cymus glandicolor</i>	a ground bug	Common	AD			
Hemiptera	Lygaeidae	<i>Scolopostethus affinis</i>	a ground bug	Common	AD			
Hemiptera	Miridae	<i>Leptopterna dolabrata</i>	a plant bug	Common	AD	AD		
Hemiptera	Miridae	<i>Notostira elongata</i>	a plant bug	Common	AD			
Hemiptera	Miridae	<i>Pithanus maerkelii</i>	a plant bug	Common	AD			

Hemiptera	Miridae	<i>Plagiognathus arbustorum</i>	a plant bug	Common	AD				
Hemiptera	Pentatomidae	<i>Pentatoma rufipes</i>	a shield bug	Common	IM				
Hemiptera	Pentatomidae	<i>Podops inuncta</i>	a shield bug	Common			AD		
Insects ~ Miscellaneous									
Collembola	Entomobryidae	<i>Orchesella villosa</i>	a springtail	Common			AD		
Dermoptera	Forficulidae	<i>Forficula auricularia</i>	Common Earwig	Common			AD		
Hymenoptera	Apidae	<i>Hylaeus confusus</i>	a solitary bee	Local	AD				
Hymenoptera	Formicidae	<i>Lasius niger sensu lato</i>	an ant	Common				AD	
Hymenoptera	Formicidae	<i>Myrmica rubra</i>	an ant	Common			AD	AD	
Hymenoptera	Formicidae	<i>Myrmica scabrinodis</i>	an ant	Common			AD		
Hymenoptera	Ichneumonidae	<i>Gelis sp.</i> female	a parasitic wasp	Unknown			AD	AD	
Orthoptera	Conocephalidae	<i>Conocephalus sp.</i>	a conehead	Unknown	IM				
Orthoptera	Tetrigidae	<i>Tetrix subulata</i>	Slender Ground Hopper	Local			AD		
TOTAL 118 invertebrate species (+ 2 ectoparasitic fungi)				No. species per site/method:		41	23	61	48
From east bank (fen) ~ 95 invertebrate species; from west bank (reedbed) ~ 61 invertebrate species						50 species netted	77 sp. pit-failed		

- ¹ The female specimen of this difficult *terricola/spinipalpis* species pair was confirmed by Simeon Indzhoz (Sofia University, Bulgaria) as *T. terricola* (and not *T. spinipalpis*) from a microscopic image of its epigyne (see image Appendix I) posted on UK Spiders Facebook page.
- ² Assumed identification based presence of thalli on invertebrate host (using Weir, A. (1996) A preliminary host-parasite list of British Laboulbeniales (Fungi, Ascomycotina) *The Entomologist* **115(1)**: 50-58). (see image Appendix I)
- ³ Although it is not possible to separate larvae of the Local *S. potamida* from those of the Endangered *S. chamaeleon* adults of *S. potamida* have been recorded recently from Lye Valley Fen (Judy Webb, pers. comm.).