

Appendix 10.20

**TERRESTRIAL INVERTEBRATE SURVEYS OF SALTMARSHES AT SPIKE ISLAND, WIDNES,
AND WIGG ISLAND, RUNCORN, BY MR DON STENHOUSE**

BASELINE DESCRIPTION AND EVALUATION

Terrestrial Invertebrates of salt marsh at Spike Island, Widnes and Wigg Island, Runcorn



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Introduction

The survey was carried out on behalf of Halton Borough Council, in regard to the proposed Mersey Gateway bridge, on the 12.07.05, 19.07.05 (Spike Island, SJ5184) & 02.08.05, 08.08.05 (Wigg Island, SJ5383). A total of approximately twenty hours was spent at the two sites.

Although the survey area indicated on the maps supplied was that impacted by the bridge, the actual area surveyed was larger.

The main target invertebrates were; Coleoptera, Diptera (particularly Hoverflies), Hemiptera, Lepidoptera & Araneae.

Methodology

The following sampling methods were used:

- Sweep netting - of the grass land, using a standard sweeping technique.

At Spike Island, near to the canal there was a large area of *Epilobium parviflorum* Shreber and *Cirsium*. Dotted about amongst the *Arrhenatherum elatius* (Oat grass), which covers most of the survey area, there were numerous clumps of *Aster tripolium* (Sea aster) and *Matricaria recutita* L (Scented Mayweed) and along the side of a concrete channel *Oenanthe crocata* L (Hemlock Water Dropwort). These were all thoroughly swept.

At Wigg Island, the main area of interest was a large patch of flowering *Sonchus asper* (Prickly Sow Thistle). Most of the Diptera – especially the Syrphidae, came from here.

On the second visit to Wigg Island I was accompanied by Kevin McCabe, who collected all of the micro moths recorded, many of which were taken with a net.

- Hand searching - on the ground, at grass roots etc

Several of the smaller beetles such as *Ochthebius dilatatus* were taken by getting into the creek and crawling along examining the mud, or pulling back grass growing over the creek edges.

- Sieving - of wind blown debris, grass etc

A good method for extracting small Coleoptera from grass litter etc, is to sieve it over a container; this is particularly useful for Staphylinidae and produced several spp listed here.

- Pitfall trapping – placing traps at likely capture sites using a standard technique.

At both sites traps were placed so that they would be easy to find again and likely to produce the greatest range of species.

Spike Island traps - set 12.07.05

Trap 1 't1'	In bare dry mud surrounded by grassland, to intercept species running across
Trap 2 't2'	In dense grassland
Trap 3 't3'	In a creek, at the end – damp and shaded by overhanging grass
Trap 4 't4'	In bare ground near to a shallow salt pan – plenty of <i>Bembidion</i> activity seen

Wigg island traps - set 02.08.05

Trap 1 't1'	At the base of a metal post - for ease of recovery
Trap 2 't2'	At the base of a metal post, near to the river bank
Trap 3 't3'	In the bed of a dried up salt pan

A planned fourth trap was not set due to the arrival of a number of youths.

Results

Spike Island traps

- Trap 1 't1'** Completely filled with *Orchestia* and a spider!
Trap 2 't2' Nothing taken
Trap 3 't3' Several Coleoptera and Araneae. Most of the spiders recorded came from this trap
Trap 4 't4' Removed by a human! The trap disappeared with contents, without a drop of the bright blue anti freeze being spilt – not the trademark of an animal.

Wigg island traps

- Trap 1 't1'** Several Coleoptera species
Trap 2 't2' Several Coleoptera species
Trap 3 't3' Very little

Abbreviations used

t1 = pitfall trap

p = plywood – a large sheet, lying under grass, nettles etc. Numerous small beetles had congregated on the damp wood under the vegetation.

Lott, (2003) has assigned a number of Carabid and Staphylinid beetles to various 'Fidelity classes' according to certain criteria, viz:-

A: Species routinely recorded from wetlands it is likely that they are mainly dependent on wetlands to sustain viable populations.

B: Species routinely recorded from wetlands, but also from semi-natural terrestrial habitats over all or part of their geographical area of distribution.

C: Species frequently recorded in numbers from wetlands, but predominantly terrestrial over all their British area of distribution.

No species in class C have been found, but several in A + B. These have been noted in the list as FA or FB.

Insects have been listed first - in alphabetical, rather than taxonomic order - followed by other invertebrates. Nomenclature for Coleoptera follows Duff (2005), and the Recorder 2002 checklists for most other groups.

LCFC refers to the record cards of the defunct Lancashire and Cheshire Fauna Committee, some of which are temporarily in my possession.

I have merged cells in the results table in places. This is so there are not too many blank areas in the table. On the right hand side I have spread 'comments' out laterally under the column 08.08, but this is not meant to indicate that the species was found on that date. Records and comments are separate.

Species List

Taxon	Spike Island		Wigg Island		Comments
	12.07	19.07	02.08	08.08	
Coleoptera (beetles)					
Apionidae (weevils)					
<i>Perapion hydrolapathi</i> (Marsham)			two identified		common on <i>Rumex</i> spp, almost entirely coastal in Europe, but not in the UK
Cantharidae (Soldier beetles)					
<i>Cantharis nigra</i> (De Geer)	common				fairly common, larvae develop in the ground
<i>Cantharis nigricans</i> (Müller, O.F.)		one identified			fairly common, in various habitats
<i>Rhagonycha fulva</i> (Scopoli)	very common		several seen	numerous	can be very numerous on Umbellifers etc, almost anywhere
Carabidae (ground beetles)					
<i>Agonum fuliginosum</i> (Panzer)				5, t2	on banks of rivers, shore etc – FA for 'marsh, fen', common and widespread
<i>Bembidion aeneum</i> Germar	one	3, t 3		2, t1	local, FB 'riparian, inc estuaries' – primarily coastal
	under grass litter etc				
<i>Bembidion lunatum</i> (Duftschmid)	1 ♂ identified, on bare mud				NbB
<i>Bembidion dentellum</i> (Thunberg)	several identified	3 identified	two identified	10, t1	widespread but local, marshes fens, riverbanks FA 'marsh, litter'
	numerous on bare mud of salt pans				
<i>Bembidion lunatum</i> (Df)		one of each sex identified			probably quite numerous, NbB FA 'riparian, inc estuaries'
<i>Bembidion maritimum</i> S	common			1, t2	probably numerous, very local, FA 'estuaries, sea shore'
<i>Bembidion minimum</i> (F)	numerous on bare ground				abundant in most of Britain's saltmarshes & estuaries' FA 'saltmarsh, also inland'
<i>Clivina collaris</i> (Herbst)	one, in creek				very local FB 'riparian, soft sediments'
<i>Dicheirotichus gustavii</i> Crotch		1 ♂, mud on shore			probably in numbers along the shore, but tending to hide more than <i>Bembidion</i> spp FA 'saltmarsh, sea shore, under stones & veg
<i>Dyschirius</i> sp	one				to be identified
<i>Harpalus rufipes</i> (De Geer)				two seen	in various habitats, eats seeds of thistle etc, very common and widespread

<i>Loricera pilicornis</i> (F)		1, t3, also in creek			very common in most habitats
<i>Pterostichus macer</i> (Marsham)				1, t2	good record – there are very few local records for this species. It can be found under bark in parks etc, but is more often found on the coast and particularly in boulder clay see note below
<i>Pterostichus melanarius</i> (Illiger)		under grass			fairly common locally, in damp habitats
<i>Pterostichus niger</i> (Schaller)		3, t3	one from grassland	3, t2; 1, t3	widespread in a variety of habitats
<i>Pterostichus vernalis</i> (Panzer)		under grass at edge of dried up saltpan & three in t3			in damp meadows with carex and grasses, common
<i>Trechus obtusus</i> Erichson				1 ♀	various habitats, common, but less so than the next sp
<i>Trechus quadristriatus</i> (Schrank)			in grass roots, one identified		various habitats, common
Chrysomelidae					
<i>Altica lythri</i> Aubé				1 ♂ identified	on <i>Epilobium</i> and <i>Circaea lutetiana</i> (Enchanters Nightshade)
<i>Altica</i> sp				several seen	
<i>Cassida rubiginosa</i> Muller				one, thistles	thistles, common and widespread
<i>Neocrepidodera</i> (Crepidodera) sp <i>ferruginea</i> (Scopoli) or <i>transversa</i> (Marsham)		thistle			both common and widely distributed
<i>Phaedon armoraciae</i> (L)	one identified			one identified	on wetland or aquatic Cruciferae,
<i>Phaedon cochleariae</i> (F) 'Mustard Beetle'	three identified				on aquatic crucifers, common & widely distributed
<i>Sphaeroderma testaceum</i> (F)		one identified			thistles, locally common throughout Britain
Coccinellidae (Ladybirds)					
<i>Anisosticta novemdecimpunctata</i> (L) Water Ladybird or 19 Spot	common, five identified	very numerous			aphidophagous, found on fens & marshes, locally common

<i>Coccidula rufa</i> (Herbst)	common		one identified	one identified	widespread & common in reed beds etc in marshy places
<i>Coccinella undecimpunctata</i> L 11-spot Ladybird	common				aphidophagous, locally common, especially on the coast
<i>Coccinella septempunctata</i> L 7-spot Ladybird	several seen		several seen		aphidophagous larvae, very common, most habitats, widespread
<i>Propylea quattuordecimpunctata</i> (L) 14-spot Ladybird	very common		several seen		aphidophagous larvae, very common, most habitats, widespread
<i>Adalia bipunctata</i> (L) 2-spot Ladybird	numerous				aphidophagous, very common, most habitats, widespread
Cryptophagidae (mould beetles)					
<i>Atomaria</i> sp				one, plywood	'difficult' species - to be identified
<i>Corticaria</i> sp				2, t1	
Curculionidae (weevils)					
<i>Hadroplontus litura</i> (F)		one, from thistle			thistles, common & widespread
<i>Tournotaris (Notaris) bimaculatus</i> (F)			one identified		NbB , associated with <i>Typha latifolia</i> , <i>Phalaris arundinacea</i> (Reed Canary Grass), <i>Phragmites australis</i> (Common Reed), and possibly <i>Carex</i> – another species that is probably breeding along the canal bank – widespread but local
Dytiscidae					
<i>Hydroporus palustris</i> (L)	2 ♂, 2 ♀ identified, from creeks				in various waters, very common & widespread
Heteroceridae					
<i>Heterocerus maritimus</i> Guérin-Méneville	common				burrows in soft mud, often numerous, local but widespread
Hydrophilidae					
<i>Helophorus</i> sp			in creeks		to be identified
<i>Megasternum concinnum</i> (Marsham)	numerous in damp creeks		numerous in creeks and under grass	3, t1; 1, t2	decaying plant litter, dung etc, often numerous, very common & widespread
<i>Ochthebius dilatatus</i> S		1, t3	numerous in creeks		in mud, local, probably widespread
Latridiidae (mould beetles)					
<i>Cartodere (Lathridius) nodifer</i> (Westwood)				several, plywood	common in damp litter, compost etc, common & widespread
Leiodidae					
<i>Agathidium laevigatum</i> Erichson			one, probably in grass litter	1 ♂, t1, mounted	moss & litter, local, widespread

<i>Catops morio</i> (F)				2 ♂, 3 ♀, t1	I cannot find any habitat info, but it is probably more of a coastal insect
Nitidulidae					
<i>Brachypterus glaber</i> (S)				several, plywood	very common on Nettles, widespread
<i>Meligethes</i> sp		1 ♀, thistle			
<i>Phalacrus substriatus</i> Gyllenhal		one			associated with rusts & smuts on various <i>Carex</i> spp, local but widespread
Scraptiidae					
<i>Anaspis</i> sp				one female	difficult to determine if not male
Staphylinidae (rove beetles)					
<i>Anotylus rugosus</i> (F)				four, plywood	very common, in litter, dung etc, widespread
<i>Anotylus tetracarınatus</i> (Block)				two	dung, carrion, tussocks etc - one of the commonest British beetles, flies readily
<i>Atheta graminicola</i> (Gravenhorst)				five taken, t1	litter, grass tussocks etc, FA for marsh, most Cheshire records are from marsh, status/distribution unknown
<i>Autalia rivularis</i> (Gravenhorst)			one from animal pellet		in dung and plant material, widespread & common
<i>Mocyta</i> spp			three, grass litter, at least two species	3, t1, probably <i>M.fungi</i>	difficult species group, to be identified
<i>Mycetota laticollis</i> (S)				1 ♂, t1	litter, FB for marsh, status /distribution unknown
<i>Oxypoda</i> sp ? <i>exoleta</i> Erichson			1 ♂		FB riparian, exposed soft sediments, widespread but local NB : this record has to be confirmed
<i>Philonthus quisquiliarius</i> (Gyllenhal)	one ♂	this is an interesting find! I do not know of any records for Cheshire (and only one for North Lancashire) on the LCFC cards. Although as 'riparian, Fidelity A , on exposed sediments' in Lott (2003), it has been found on the coast, see http://www.environmental-entomology.co.uk/tercolsa.html			
<i>Sepedophilus lusitanicus</i> Hammond			present	2 ♀, plywood	in litter etc, probably widespread
<i>Stenus juno</i> (Paykull)	in damp gully			1 ♂	common in wet places, FA for marsh, fen, carr
<i>Stenus ossium</i> S				1, plywood	in litter, moss etc, common throughout most of Britain
<i>Tachinus rufipes</i> (L)				1 ♂, t1	in litter, dung etc, common & widespread

<i>Tachyporus pallidus</i> Sharp (= <i>scutellaris</i> Rye)				one identified	moss, leaf litter, widespread, FA for marsh
<i>Tasgius ater</i> (Gravenhorst)		grass roots at gully edge			previously thought of as a coastal species, but many inland records, widespread
<i>Thinobaena vestita</i> (Gravenhorst)		1 ♂, probably from fine litter			FA 'seashore, estuaries, 'tidal litter,' local & widespread
<i>Megalinus (Xantholinus) glabratus</i> (Gravenhorst)		3, t3			in litter etc, common & widespread
Tenebrionidae					
<i>Lagria hirta</i> (L)		present			locally common in sandy areas, widespread
Diptera (flies)					
Calliphoridae					
<i>Lucilia ampulacea</i> Villeneuve				1 ♀ identified	scarce, usually on carrion, sometimes toads
<i>Lucilia silvarum</i> (Meigen)			1 ♂ identified		not common, widespread – flies in this genus are carrion feeders or internal parasites of toads etc
Dolichopodidae					
<i>Hercostomus gracilis</i> (Stannius)		1 ♀ identified			widespread, develop in soil, predatory on other insects
Empididae					
<i>Empis livida</i> L		1 ♀ identified		1 ♂ identified	one of several predatory flies, distribution etc unknown
Rhinophoridae					
<i>Rhinophora lepida</i> (Meigen)	1 ♀ identified				common in gardens etc and widespread, a parasite of snails, beetles and more especially <i>Porcellio scaber</i> Latreille, the Common Rough woodlouse
Sarcophagidae (Flesh Flies)					
<i>Sarcophaga carnaria</i> (L) Flesh Fly				frequent	widespread, common – can be found in virtually any sunny place, including parks etc
<i>Sarcophaga</i> sp		1 ♂ identified			
<i>Sarcophaga</i> sp				1 ♂ identified	
Scatophagidae					
<i>Scatophaga furcata</i> (Say)				1 ♂ identified	common & widespread, develop in dung
<i>Scatophaga stercoraria</i> (L) Yellow dung Fly				frequent	widespread, common, breeds in dung

Stratiomyidae (soldier flies)					
<i>Chloromyia formosa</i> (Scopoli)	1 ♀ identified	1 ♂, 2 ♀ identified			larvae in rotting veg, leaf litter etc, adults favour umbellifers, widespread & common
<i>Nemotelus uliginosus</i> (L)		1 ♀, 1 ♂ identified			local but can be abundant, reed beds and saltmarshes
Syrphidae (hoverflies)					
<i>Episyrphus balteatus</i> (De Geer)				1 ♀	larvae aphidophagous, common throughout the season in most years
<i>Eristalinus sepulchralis</i> (L)			one, kept	three taken	most common in lowland ponds and coastal marshes – larva feeds in mud rich in organic matter /silage etc
<i>Eristalis arbustorum</i> (L)				1 ♀	common species, occurs throughout the British Isles, familiar in gardens, urban wasteground and other open spaces
<i>Eristalis intricarius</i> (L)				1 ♀, 1 ♂	widespread , usually in low numbers, marshy and woodland habitats preferred
<i>Eristalis tenax</i> (L)				1 ♂	widely distributed, often abundant
<i>Helophilus pendulus</i> (L)			1 ♂	1 ♂	common and very widespread. Larva lives in enriched mud etc, adults may occur around muddy ditches, found away from water in sunny places
<i>Helophilus trivittatus</i> (F)				1 ♂	larvae are aquatic, usually found singly, by grassy ponds in meadows and ditches on coastal flats, scarce species, possibly widespread. Because there is a lack of free water on the marsh, this species is probably breeding in the canal see note below
<i>Parhelophilus frutetorum</i> (F)				1 ♀	a very local species, sometimes frequent. Open pond sides and ditches with <i>Typha</i> are the best places
<i>Platycheirus clypeatus</i> (Meigen)	1 ♂, 2 ♀	one			one of the commonest and widespread hoverflies, occurring throughout the British Isles, often

					abundant in marshes and lush meadows
<i>Platycheirus peltatus</i> (Meigen)			1 ♂		widespread in the British Isles, occurring in both wooded and open habitats.
<i>Platycheirus scutatus</i> (Meigen)			1 ♀, 2 ♂	1 ♀	one of the commonest <i>Platycheirus</i> in southern Britain, especially along woodland margins
<i>Pyrophaena granditarsa</i> (Forster)	3 ♀ identified	three identified			'often common in marshy meadows and lush veg by ditches and lakes throughout much of Britain' (Stubbs)
<i>Sphaerophoria scripta</i> (L)	1 ♂	one identified		3 ♀, 1 ♂	widely distributed & common, grasslands
<i>Syrphus ribesii</i> (L)			1 ♀	2 ♀	one of the commonest Hoverflies throughout Britain, often abundant in gardens, waste ground etc
Tabanidae					
<i>Haematopota pluvialis</i> (L) Notch Horned Cleg		one ♀ identified			this nuisance is common throughout the UK in damp places
Tephritidae					
<i>Paroxyna plantaginis</i> (Haliday) a Picture Winged fly	one ♀ identified				scattered distribution on salt marshes, in capitulum of <i>Aster tripolium</i>
Hemiptera (Bugs)					
Heteroptera ("True Bugs")					
Cimicidae					
<i>Anthocoris nemorum</i> (L) Common Flower Bug			one identified		very common and widespread predates aphids etc, female overwinters
Miridae (Plant Bugs)					
<i>Calocoris norvegicus</i> (Gmelin) Potato Capsid	three identified				widespread, polyphagous in various habitats
<i>Capsus ater</i> (L)		one identified			common & widely distributed, feeds on various grasses
<i>Leptopterna dolabrata</i> (L) Meadow Bug	one identified				widespread throughout Britain on a variety of grasses
<i>Psallus</i> sp	1 ♀				one of several difficult species
<i>Stenodema holsatum</i> (F)		numerous			more of a North Westerly insect, on various grasses in damp places
Pentatomidae (Shield bugs)					
<i>Palomena prasina</i> (L)				one nymph	widely distributed, but very local in places

Tingidae (Lace Bugs)					
<i>Tingus carduii</i> (L)				2, t2	on Spear Thistle, widely distributed throughout British Isles
Homoptera (Leafhoppers etc)					
Cercopidae (Plant Bugs)					
<i>Neophilaenus lineatus</i> (L)		1 ♂ identified			very common on various grasses, widely distributed, very similar to the rarer <i>N.longiceps</i> Puton
Hymenoptera (Bees, Wasps, Ants & Sawflies)					
Aculeata (Bees, Wasps & Ants)					
Apidae (bees)					
<i>Apis mellifera</i> L Honey bee			several		common, wild or domesticated, widespread
<i>Bombus lapidarius</i> (L) Large Red Tailed Bumblebee		present		present	nests under stones etc, one of our commonest bumblebees
<i>Bombus lucorum</i> L / <i>terrestris</i> (L)			one worker	commonest sp/p seen	one of our commonest bumblebees
<i>Bombus pascuorum</i> (Scopoli) Common Carder Bee				two workers identified	nests on the surface, common, widely distributed in Britain
<i>Bombus pratorum</i> (L) Early Bumble Bee				one worker identified	can nest well off the ground, common, widely distributed in Britain

Formicidae (ants)					
<i>Lasius niger</i> (L) Brown garden Ant		1, t3			extremely common in a wide range of habitats
Symphyta (sawflies)					
Tenthredinidae					
<i>Pachynematus kirbyi</i> (Dahlbon)	1 ♀	1 ♂			larva feeds on <i>Carex</i> , status / distribution unknown
Lepidoptera					
Arctiidae					
<i>Tyria jacobaeae</i> (L)				20 larvae	<i>Senecio</i> spp, especially <i>S.jacobaeae</i>
Coleophoridae					
<i>Coleophora alticolella</i> Zeller				3 ♂	most widespread & common Coleophora sp, on Juncus
<i>Coleophora obscenella</i> (Herrich-Schaffer)				1 ♀	on <i>Aster tripolium</i> (Sea Aster), new 10Km record
<i>Coleophora striatipennella</i> Nylander				1 ♂	on Stitchwort (<i>Stellaria</i> spp) & Mouse ear (<i>Cerastium</i> spp), new 10Km record
Gracillariidae					
<i>Phyllonorycter coryli</i> Nicelli 'Nut Leaf Blister Moth'				10 mines on Hazel	mines on Hazel, common,widespread
Lycaenidae					
<i>Lycaena phlaeas</i> L Small Copper				2	<i>Rumex</i> spp, common,widespread
Nepticulidae					
<i>Stigmella plagicolella</i> Stainton				1 mine on Blackthorn	<i>Prunus</i> spp, common,widespread
Noctuidae					
<i>Celaena leucostigma</i> Hubner 'Crescent'				1	<i>Iris pseudoacorus</i> , marshy places, local
<i>Autographa gamma</i> (L) 'Silver Y'				2	low growing plants, migrant
Nymphalidae					
<i>Aglais urticae</i> L Small Tortoiseshell			present	1	<i>Urtica dioica</i> , widespread, common
<i>Inachis io</i> L Peacock			present	2	<i>Urtica dioica</i> , widespread, common
<i>Polygonia c-album</i> L Comma				1	<i>Urtica dioica</i> , widespread in southern Britain

Pieridae (Whites)					
<i>Pieris brassicae</i> L Large White				2	crucifers, common, widespread
<i>Pieris napi</i> L Green Veined White				1	crucifers, common, widespread
<i>Pieris rapae</i> L Small White				5	crucifers, common, widespread
Pyralidae					
<i>Agriphila straminella</i> Denis & Schiffermuller a Grass Moth				25 adults	feeds on <i>Festuca ovina</i> and other grasses, common, widespread
<i>Udea lutealis</i> Hubner				20 adults	feeds on a wide variety of plants, common
Satyridae					
<i>Maniola jurtina</i> L Meadow Brown		~5		20	the most abundant butterfly species in many habitats.
<i>Pararge aegeria</i> L Speckled Wood'				17	frequent, feeds on grasses, widespread
<i>Pyronia tithonus</i> Verity Gatekeeper				40	common, feeds on grasses, widespread
Tortricidae (Tortrix Moths)					
<i>Eucosma hohenwartiana</i> (D&S)				1 adult	on Knapweed, in dry grassy areas
<i>Eucosma tripoliana</i> Barrett				1 ♀	on saltings on <i>Aster trifolium</i> , new 10Km record and first for the Mersey (S.Hind)
Mecoptera					
Panorpidae (Scorpion Flies)					
<i>Panorpa germanica</i> L				one seen	predacious on other insects, in various situations
Odonata					
Aeshnidae (Hawkers)					
<i>Aeshna grandis</i> L 'Brown Hawker'				2	slow moving waters, common
Coenagriidae					
<i>Ischnura elegans</i> Blue Tailed Damselfly	one seen				'widespread in England and Wales'
Libellulidae					
<i>Sympetrum striolatum</i> (Charpentier) Common Darter				4 – two in cop	slow moving waters, widespread, common

Amphipoda (freshwater/brackish water shrimps)					
Talitridae					
<i>Orchestia cavimana</i> Heller	in very large numbers, especially at Spike Island – probably in the millions			under stones etc, common, widespread, introduced species	
Araneae (spiders)					
Araneidae (Orb Web Spiders)					
<i>Larinioides</i> sp	5 juveniles	1 juvenile		one of three likely species	
Linyphiidae (Money Spiders)					
<i>Leptorhoptrum robustum</i> (Westring, 1851)		1 ♀		water meadows, marshes - widespread throughout Britain	
<i>Microlinyphia impigra</i> (O. P.- Cambridge, 1871)		1 ♀ & 1 juvenile		the least common of two similar spp. Low vegetation in marshy habitats – probably widespread but locally distributed	
<i>Erigone dentipalpis</i> (Wider, 1834)		1 ♂, t3		common in a wide variety of habitats - widespread	
Lycosidae (Wolf Spiders)					
<i>Pardosa agrestis</i> (Westring, 1862)		3 ♂; 1 ♀; t3		2 ♀, t1	widespread throughout Britain but mainly coastal, where it is usually locally abundant
<i>Pardosa pullata</i> (Clerck, 1757)		1 ♂, t3		in a wide variety of situations - one of the commonest species of the genus in Britain	
<i>Pardosa</i> sp				2 juveniles	
<i>Pirata piraticus</i> (Clerck, 1757)	1 ♀	1 ♀; 1 juv & 6 ♂, 7 ♀, t3		11 ♀	damp habitats, including marshes - widespread throughout Britain
<i>Trochosa ruricola</i> (DeGeer, 1778)		2 ♀ & 4 ♂, 1 ♀, t3		under stones etc, and in moss, in various, usually damp habitats - widespread and common	
<i>Trochosa</i> sp				2 juveniles	
Tetragnathidae					
<i>Tetragnatha extensa</i> (Linnaeus, 1758)	1 ♀				on grasses and other low vegetation, near water, or in boggy habitats – common and widespread throughout Britain
Theridiidae					
<i>Robertus lividus</i> (Blackwall, 1836)		1 ♂, t3			under stones and detritus, amongst grass etc, various habitats – widespread and common
<i>Theridion impressum</i> L. Koch, 1881	1 ♀			on bushes and other lower vegetation, this and the next sp practice maternal feeding – widespread throughout Britain	

<i>Theridion pictum</i> (Walckenaer, 1802)	1 ♀				on bushes etc in damp habitats – widespread but local
Isopoda (Woodlice)					
Porcellidae					
<i>Porcellio scaber</i> Latreille				one, t2, discarded	very common, tending to favour drier habitats
Mollusca					
Helicidae					
<i>Cepaea hortensis</i> (Muller) Banded Snail			present		Nettle, Ragwort etc, widespread & common throughout Britain
Planorbidae					
<i>Planorbis</i> sp		several in a small pile of plant fragments and 'grit'			

Notes on selected species

***Helophilus trivittatus* (F)** although it is not so obvious from the photograph below, this fine hoverfly can be identified in the field by its large, bright lemon yellow markings, and all yellow face. There are only about a dozen records for this species in Cheshire, all from salt marsh, except two records from Bidston Moss (S.McWilliam, pers comm).



approx 16mm from front of head to abdomen tip,
~ 27mm across wings

NB – markings on tergite 4 not as obvious as in life

***Pterostichus macer* (Marsham)**



This fairly distinctive ground beetle (the pronotum has a very obviously pinched in 'cordate' look) is apparently found in open country, in parks, under bark etc (Lindroth, 1974) and in slumping boulder clay cliffs (Recorder 2002, species account). I have looked in woodland, parkland etc in many parts of Cheshire, and Lancashire, and had never taken this beetle. This specimen was taken metres away from the boulder clay Mersey embankment and is only the third Cheshire record that I know of. There are none on the LCFC cards and only two in the Recorder database, one anonymous and neither backed up with a voucher specimen. It is however widely recorded in England, both inland and on the coast.

~ 12mm long

***Philonthus quisquiliarius* (Gyllenhal)**



Although, to my knowledge, this *Philonthus* is not regarded as rare nationally, I cannot find any *local* records. It is not listed in the Recorder records in my possession, or the LCFC cards. There is an old (1934) record for Silverdale in North Lancashire. It does look similar to several other *Philonthus* and is in a group that is not well studied, but several other well known coleopterists have been active in the area in the past and would undoubtedly have found this insect, so I think it must be very local / rare in the county.

~ 6mm long

Discussion

Approximately 130 species of invertebrate were identified in this survey and of these, the Coleoptera formed the largest group, with 67 species from 16 families – although several species remain unidentified and the total is probably 70+. The Diptera and Lepidoptera are less well represented, with 16 species from 5 families and 22 species from 11 families respectively. Of the rest, the Araneae with 12 (14) species from 5 families is the largest group.

Inside the bare numbers given, there are a few interesting details.

Of the Coleoptera listed, very few species are restricted to salt marsh. Several of the Carabidae and Staphylinidae are usually found in marshy areas, but this does not have to be a coastal marsh – they are not fastidious ‘halobionts’. Only one beetle in the list above is a true saltmarsh species - *Dicheirotrichus gustavii*. This can be found in very large numbers at local *emergent* salt marsh at West Kirby, Heswall etc, and is only found on the muddy shore at Runcorn and Widnes. A few others species, *Bembidion minimum*, *B.aeneum*, *B.maritimum*, *Thinobaena vestita* are often found on the shore, especially the first and last species – but not exclusively so.

The same picture emerges for the Diptera listed. Only larger flies were identified and of these several families are represented in the list by single species only. The Syrphidae are much better represented and were particularly targeted because they were very noticeable, and there are good keys for identification – although generally they are good indicators this was not thought to be as relevant here as it would be for other habitats, a woodland for instance . The species listed fall into two main groups – they either have larvae that are ‘aphidophagus’ – the tribes Syrphini & Bachini (Milesiinae) or larvae that live in decaying vegetation, organically enriched mud, Typha etc – the tribe Eristalini (Syrphinae). Behind the Wigg Island salt marsh runs a defunct canal, which is basically stagnant and certainly has all of the features attractive to the Eristalini. It is very likely that a large number of the Hoverflies seen feeding on flowers on the Wigg Island marsh breed in or near to the canal. However, although there is also a canal behind the Spike Island marsh, most of the hoverflies recorded are aphidophagous – I am not sure why this is. A lot more hoverflies were seen and recorded from the Wigg Island site, but I am sure that there are others that I have not recorded. None of the species is tied to salt marsh.

The situation for the Lepidoptera is slightly different. The ‘macro’ Lepidoptera, such as *Inachis io* can, of course, be seen in a variety of situations well away from coastal marsh. The ‘micro’ Lepidoptera records include species that are linked more to coastal plants, in particular to *Aster tripolium*. Although there are a few new 10Km records, none of the species is scarce.

In the other groups there are no species of note.

Conclusions

Before this survey was commenced, it was anticipated that species diversity would be of a low order and this has been borne out by the results, although further sampling effort would have extended the species list, particularly for Diptera.

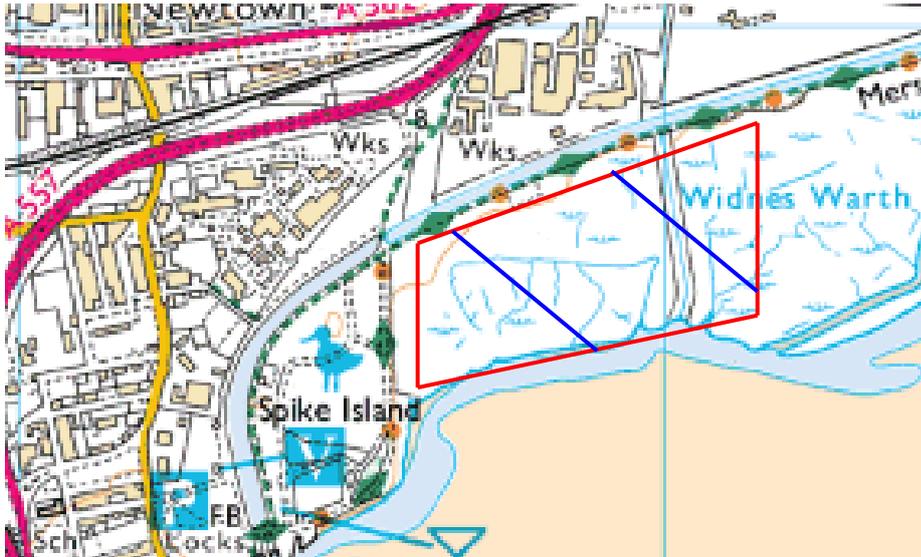
The canals, especially the one adjacent to Wigg Island, are probably important for the development of many hoverfly species.

Most of the invertebrates found are generalists and in no way confined to the salt marsh habitat.

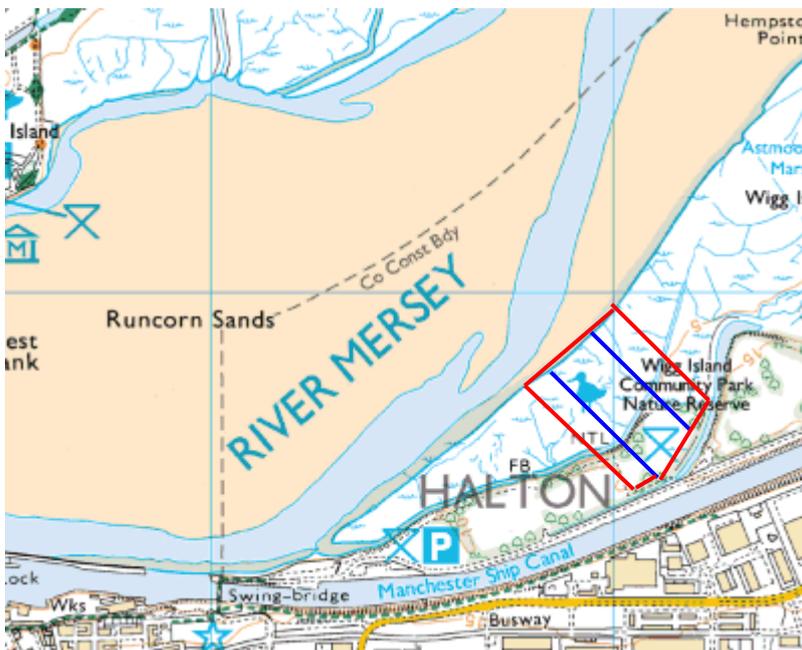
Recommendations

If the Gateway bridge is built across the River Mersey, damage to the salt marsh will be relatively limited, because of the fairly uniform structure of the habitat. Therefore I have no recommendation to make.

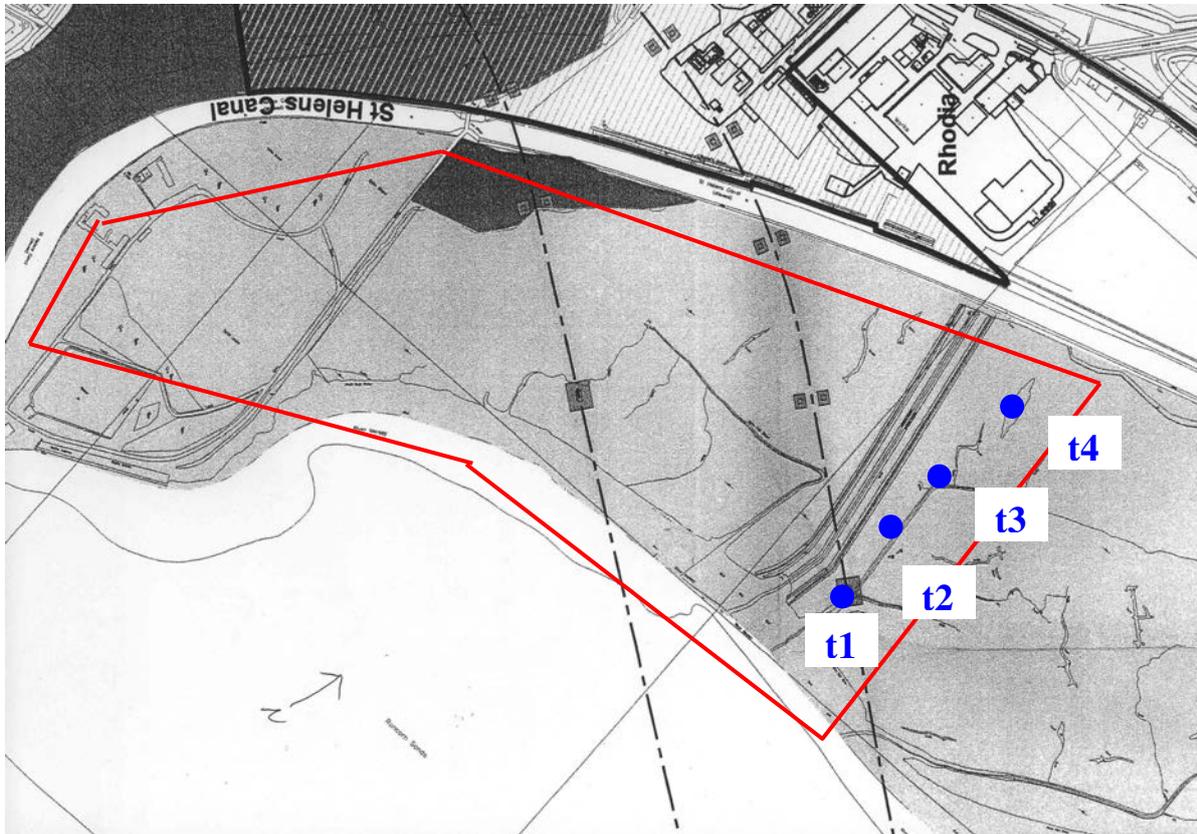
Maps



Spike Island – area surveyed (red), in relation to approximate position of bridge (blue)

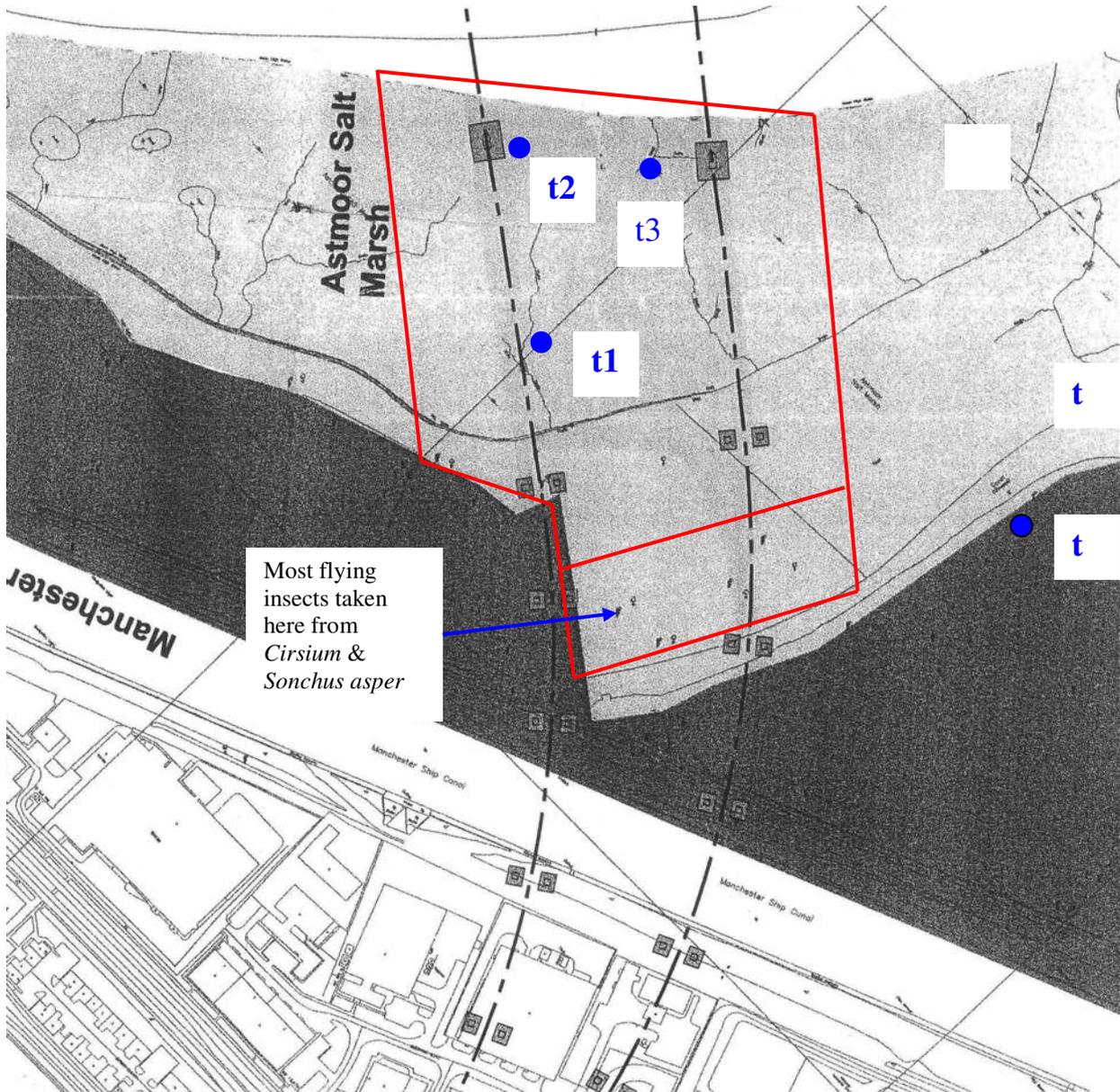


Spike Island – area surveyed (red), in relation to approximate position of bridge (blue)



Spike Island – area surveyed, showing position of pitfall traps (adapted from map supplied by Ray Gemmell)

The traps were set in the area shown, because I noticed more beetle activity on the bare patches of dry ground outside the target area than in similar areas in the bridge footprint.



**Wigg Island – area surveyed, showing position of pitfall traps
(adapted from map supplied by Ray Gemmell)**

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