ENTOMOLOGICAL SURVEYS OF VERTICAL RIVER FLOOD DEFENCE WALLS IN URBAN LONDON—BROWNFIELD CORRIDORS: PROBLEMS, PRACTICALITIES AND SOME PROMISING RESULTS

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Abstract. Entomological studies of Deptford Creek and River Wandle, two tributaries of the River Thames in urban London, have highlighted some of the logistical difficulties faced by entomologists undertaking survey work, especially on derelict sites in built-up localities. The two sites are essentially vertical river flood defence walls, crumbling industrial wharfs and decaying timber frontages. The available habitat was limited to small pockets of crumbling wood, some nooks and crannies in old concrete, sprouting vegetation and a few small pockets of derelict land immediately behind the tops of the walls. Access was difficult and dangerous, invertebrates few and far between and normal collecting methods were inadequate. This paper reflects on some of the problems encountered, solutions devised and creatures discovered. A selective systematic list of uncommon, unusual and interesting species illustrates the power of colonization of insects in these ruderal sites and includes a nationally rare (red data book) species and 11 nationally scarce (notable) species.

INTRODUCTION

There are many practical books on field entomology, handbooks dealing with the basic skills of just how and where to find insects. In many of them great store is placed on seeking out the right habitat for the right quarry. It is a common feature of many of these handbooks to suggest that by exploring prime natural habitats for the more unusual or specialist species, the commonplace ones will also be found along the way. And so it is that much valuable research is done on the distribution, ecology and biology of insects.

But entomologists who carry out survey work on behalf of some organization, be it local authority, national organization or wildlife group, have the hunting equation reversed. Rather than seeking out suitable specific habitats for certain particular insect species, the habitats are already chosen and the task is to find out what occurs in them.

For many such surveys, however, this is not a problem and the standard techniques of sweeping, chasing, visual searching, grubbing, digging, trapping and all those other methods second nature to the naturalist, are perfectly adequate. For example, faced with any natural or semi-natural habitat like woodland, grassland, heathland, pond or marsh, the location of at least some insects is relatively easy. Even more extreme biotopes such as saltmarsh, moor or quarry are more or less accessible to these normal entomological techniques.

However, urban sites, derelict, ruderal, waste or however one might choose to describe them, are distinctly less easy to study: vegetation is sparse; soil is often littered with rubble, tangled steel and rubbish; the ground is uneven and treacherous underfoot; access is often difficult, either because of dangerous physical obstruction or the sensitivities of owners and developers.

Studying insects on derelict industrial sites is fraught with enough difficulties, but even several years of "brownfield" entomological work had not prepared me for

Deptford Creek and the River Wandle, two tributaries of the River Thames. The previous unusual and problematic demands of working on desolate habitats paled into insignificance beside the peculiar problems of surveying these decaying wharfs.

The problems of vertical river walls

When I was first asked, by the south-east London Boroughs of Lewisham and Greenwich, to survey the invertebrates of Deptford Creek, my heart sank. What was there to survey? Looking over the Creek Road lifting bridge in September 1997, all I could see were a few straggling bits of buddleia hanging down into the gloomy grey water, and a few tufts of stinging nettle sprouting from the tops of half-decayed timber piles. What sort of habitat was that?

For one thing, there was hardly any habitat anyway. The vegetation sprouting from rotten piles was Spartan in the extreme—a small clump of greenery every few yards and some stunted overhanging bushes. A few tiny ledges had accumulated a thin layer of wind-blown soil with moss and lichen. Some nooks and crannies in the broken brickwork and concrete appeared to be curtained with cobwebs. Near the high tide mark some of the wharf timbers were decayed and crumbling.

The habitat was also inaccessible. Vegetation was growing out at about the mean high water mark, 3 to 7 metres above the thick silt mud at low tide and well out of reach from the tops of the wharfs. Likewise the crumbling timber and brickwork was at the point of greatest weathering from wind and water, at the high tide mark. Many of the wharf tops were crumbling and unsafe, ancient access ladders were rusted through or now barely attached to the walls by tenuous strands of precarious looking metal. The mud below was littered with jagged bits of metal rubbish. It presented, to say the least, a thoroughly unsavoury appearance.

After discussion with members of the Creekside Renewal Project, who were commissioning the survey, it became clear that, apart from brief forays across the thick silt mud at low tide, the only really sensible way to approach the task was to visit the walls by boat at high tide. This raised another sheaf of difficulties over the safety of the exercise and the logistical nightmare of co-ordinating weather, tide, boat hire and on-board help. Luckily a local boatman was found who was enthusiastic about the project and knowledgeable about the local boating conditions in the creek.

Just after this I was asked to do a similar survey of the lower reaches of the River Wandle where it enters the Thames at Wandsworth. The tidal stretch of the river was similar to Deptford Creek, but shorter and narrower and with more vegetation and above two weirs was a narrow canalized non-tidal section with slow-flowing freshwater. But it was equally inaccessible and only marginally less dreary looking. Similar boating tactics were proposed for the Wandle survey. Figure 1 shows a sketch map of London's Thames with the River Wandle and Deptford Creek.

In the course of a year's work on Deptford Creek and River Wandle, I spent very many hours bobbing about in a boat, and became quite adept at not falling in whilst leaning out precariously to tube a small fly or poot up a spider. During that time I had to adapt my equipment and methods to the odd situation I found myself in. At the end of it all I was unprepared for the unusual and exciting results.

Equipment

In addition to the usual array of entomological and photographic paraphernalia ordinarily carried by naturalists, the following items were found useful or necessary for the survey.

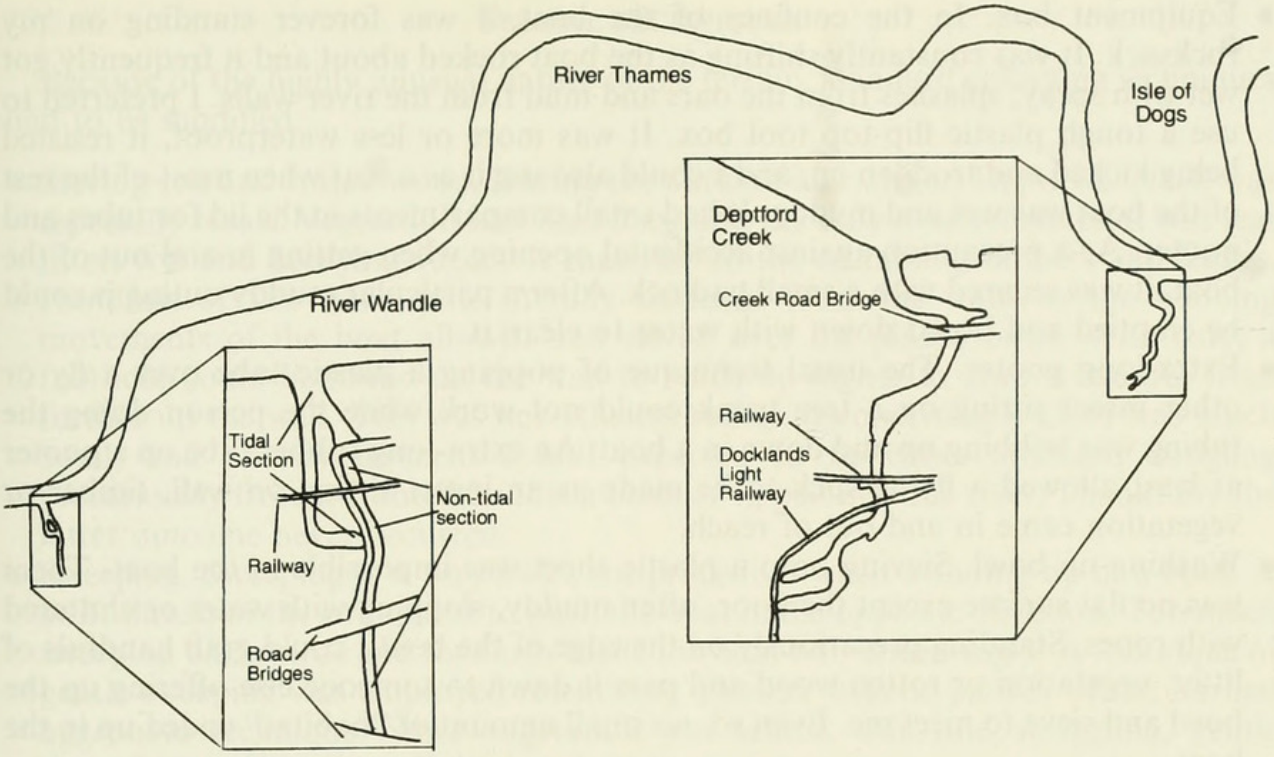

Fig. 1. Sketch map of the River Thames showing its tributaries the River Wandle (TQ 2575, VC 17) and Deptford Creek (TQ 3777, VC 16). Not to scale.

- Boat. My transport in Deptford Creek and tidal section of the River Wandle was an especially buoyant one, a small (4 metres) steel jolly boat with outboard motor, from a small commercial ship; it had sealed enclosed voids to ensure flotation even if deluged or upturned. This was particularly important when reaching up to vegetation on the walls, standing on the edge of the boat and making it list perilously. Had we turned over, I was assured that there were handrails on its underside to cling to and to assist in righting the vessel. We always carried oars, and if intending to go out into the Thames also carried a spare outboard motor and extra fuel. For the canal section of the Wandle, we used a sturdy inflatable craft with wooden floor and reinforcing. We had to manhandle it over an 8-foot gate, but luckily it could be deflated and dismantled into manageable pieces. This boat had the advantage of being remarkably stable on the slow-flowing water and had a very small draught (the part of the boat beneath the water) so managing to avoid catching on the upturned supermarket trolleys and other rubbish dumped into the shallow water.
- Lifejacket. I was not sitting carefully in the boat like any sensible passenger should; I was standing up, moving about, leaning out over the edge, grabbing onto overhanging vegetation and wharf timbers and generally acting in what would ordinarily be a thoroughly irresponsible manner. Even on the stillest day in the calmest stretch of Deptford Creek I would have been foolhardy not to wear some sort of flotation jacket. A true lifejacket was rather bulky and cumbersome, so I opted for a buoyancy jacket, a safety garment designed to counter my weight in the water rather than support me completely. I could wear it under my normal coat or jacket and so still make full use of my pockets for lens, tubes etc. It also kept me warm, something I had not appreciated I would be thankful for; on even warm days, the wind and spray were exceptionally cooling in our exposed situation.

- Equipment box. In the confines of the boat, I was forever standing on my rucksack. It was constantly shifting as the boat rocked about and it frequently got wet with spray, splashes from the oars and mud from the river walls. I preferred to use a tough plastic flip-top tool box. It was more or less waterproof, it resisted being kicked and trodden on, and I could also use it as a seat when most of the rest of the boat was wet and muddy. It had small compartments in the lid for tubes and pooter. As a precaution against accidental opening when getting in and out of the boat, it was secured with a small padlock. After a particular muddy outing it could be emptied and hosed down with water to clean it.
- Extra-long pooter. The usual technique of popping a plastic tube over a fly or other insect sitting on a tree trunk could not work while the person doing the tubing was bobbing up and down in a boat. An extra-long rubber tube on a pooter at least allowed a flying suck to be made as an insect sitting on wall, timber or vegetation came in and out of reach.
- Washing-up bowl. Sieving onto a plastic sheet was impossible in the boat. There was no flat surface except the floor, often muddy, slopping with water or cluttered with ropes. Standing precariously on the edge of the boat I could grab handfuls of litter, vegetation or rotten wood and pass it down to someone else offering up the bowl and sieve to meet me. Even so, no small amount of "habitat" ended up in the boat.
- Torch. Holes and crevices in the walls were often occupied by spider webs. A small torch was useful when examining these nooks.
- Boat hook. To keep the boat steady against swell and tide, a long-pole boat hook jammed into a hole in the wall or hooked over an old wharf fixing was the most effective stabilizing device. It could also be used to pull down high branches for beating or holding a long stalk steady for a photograph.
- Rope. Apart from its obvious use in mooring the boat while the occupants had a cup of tea and a sandwich, rope tied to a fastening up-water could be gently let out allowing the boat to drift down slowly on the flow or tide as the passing walls were scanned for invertebrate life. It was much easier to control the movement of the boat in this way rather than to keep stopping and starting the engine or fiddling with oars against the slow but remorseless flow of the water.
- Broom handle. For low-tide visits to Deptford Creek, a long wooden pole was very important for testing our footing. At low tide, the centre of the creek had a trickle of running water and the ground was more or less firm and pebbly underfoot because the silt was washed away. In most places it was a few inches deep but there were deep pockets many feet deep. The pole was used to test the river bed as we waded through the water. Stretching out on either side of the central channel were mud banks of deep silt. In some places the mud was many feet thick, but submerged stones and other rubbish under the surface allowed approach to the river walls in places. The pole was very important for testing depth and stickiness of the silt banks.
- Ladder. For the low-tide visits, a light two-stage aluminium ladder was used to climb up the walls to the line of vegetation sprouting around the mean high water mark several metres above.
- Mobile phone. Not just a luxury for idle chat, it was felt very important to have at least one telephone on board should any accident occur or the boat get into difficulties. Wrapped and waterproofed in a sealed plastic bag, it could be used even after complete submersion. Such communication was also important for low-tide visits should anyone become trapped in the thick silt or get caught short by the incoming tide. Luckily I was never called upon to make emergency use of this item.

Special techniques

Because of the highly unusual nature of the terrain, standard collecting techniques had to be modified.

- Sieving soil and rotten wood. During the autumn and winter. Deptford Creek was especially bleak. Vegetation had died back and the only available habitat was leaf litter, soil and decaying vegetable material on the crumbling timbers and ledges. Handfuls of this were quite literally snatched from the walls as the bobbing movements of the boat allowed and sieved over the plastic bowl. With care, a foothold could be found on the wall to reach up higher to grab a handful from further up the wall. This was nevertheless rather disconcerting if there was much swell, and at any moment I half expected to be either stranded dangling precariously from a stunted buddleia bush or tipped into the river. Thankfully the latter outcome never occurred.
- Sweeping. Sweeping is a very awkward procedure when standing up in a boat. A swift thrash of the net tended to push the boat in the opposite direction. Too much sweeping backwards and forwards made the boat bob unnervingly. A technique of gentle sweeping was employed resembling a rather balletic parody of the normal aggressive technique. Since vegetation was scarce, thin and straggling, gentle sweeping was usually sufficient to dislodge insects.
- Beating. Larger overhanging bushes and small trees were beaten, either over a sweep net or a plastic bowl. A pale umbrella, upturned to make a large but collapsible beating tray was found to be too unwieldy, particularly on blustery days when the boat was very exposed. Unfortunately this meant that when working under a large bush, the boat tended to accumulate falling leaves, twigs and debris and not a few invertebrates. On more than one occasion an insect was found scuttling round the gunwales as we puttered back to base. It was sometimes impossible to be certain from which particular site it had come.
- Dissecting rotten timber. Unlike a terrestrial habitat where a log might be casually turned over for easy inspection, any examination of rotten wharf timber had to be made while leaning out of the boat, or sections had to be examined in the boat. This was all very well for small flakes of friable wood crumbling from a rotten wooden plank which could be sieved over the plastic bowl. However, the decayed nature of the Deptford Wharfs meant that in many places whole timber piles were in danger of collapse. On several occasions very large pieces of wood suddenly broke loose and a lightning decision had to be made whether to try and manhandle them onto the boat for examination or push them away to fall harmlessly into the water.
- Visual searching. On sunny days in spring and summer, the vertical river walls of the creek acted as sun traps, and basking insects were visible on the timber, walls and herbage. Large umbels of garden angelica were a prominent feature of the creek and attracted many insects including bees and hoverflies. It was often necessary to stand up in the boat to examine these flowers closely, or they had to be gently pulled down by hand or boat hook.
- Direct pooting. Leaning out from the boat as we manoeuvred at high tide, it was possible to suck up insects directly from the herbage using a pooter. Lying down on the bow of the boat as we slowly drifted on the flow and tide, no tall human silhouette was visible and close approach to dipterons and hymenopterons was possible where under other circumstances it would have been very difficult. This was a most useful technique for capturing the small flies which seemed to spend all their time on the algal coating to the vertical walls, just above the lapping waves of

the incoming or outgoing tide, and the spiders which rested inside their funnel and sheet webs in the crumbling walls.

- Close-up photography. My usual technique for close-up photography requires that my hand rests on the plant, log, ground or trunk on which the insect was resting. The lens of the camera resting on top of my hand is thus steadied and I could image the insect more or less easily in a very shallow field of focus. But with my hand resting on the river wall or timber pile to steady the lens, the remainder of my body was being forced to bob up and down on the swell of the water. I had to move my body up and down with equal and opposite motion to the swell to counter the movement of the boat. This was very tiring to the neck and back muscles, but it could be done for a few moments. In fact, doing anything in a boat, other than sitting calmly, meant a constant working of the head, arms and legs to counteract the vessel's bobbing movement. This was surprisingly tiring, even on a still day.

Safety

It is hard to imagine that "safety" might be considered an important issue when pursuing the gentle art of collecting insects. But the dangerous nature of the crumbling wharfs, the hazardous metal rubbish dumped in the water, the treacherous nature of the thick and sticky silt and the difficulties of manoeuvring a small boat in a tidal waterway all compounded to lift these surveys out of the ordinary.

It was a prerequisite of the commissioning bodies for both surveys that no activity should be construed as dangerous or unsafe. As stated above we always carried life jackets, mobile phone and spare motor. I always made sure I had a small first aid kit. When in the boat, I was always accompanied by a knowledgeable boatman, and often by another person who could hold the boat steady whilst I leant perilously out. We always consulted tide tables and kept a wary eye on the movement of the water. If the tide left quicker than we anticipated and we suddenly found that we could not get back up river to our base, we had already planned to tie up the boat against an alternative wharf and return for it at next high water.

Because of the derelict nature of parts of the Creek, there was always a danger from hidden obstructions under the water—mainly dumped supermarket trolleys and car bodywork parts, spilled building materials from a neighbouring merchant warehouse and dropped steelwork from the Docklands Light Railway bridges being constructed over the Creek whilst the survey was progressing. Reconnaissance at low water revealed where particular hazards were, so that we could avoid them when they were covered by the tide.

Low-tide visits were also only made when I could be accompanied, and working in pairs we constantly tested the water through which we were wading and the mud over which we ventured, with a long wooden pole. We had to be particularly careful when walking under the newly built railway bridges because of the danger of snagging our waders on the pieces of sharp metalwork which fell from the scaffold, gantries and welding work all too frequently. We also had to be careful of sudden deep water where vortices had created hidden and treacherous pools.

Results

Having established an approach to surveying the unusual terrain of these decaying wharfs, the learning process of finding invertebrates took several visits. The Deptford Creek survey began in September 1997. The start was very slow. On some visits, during the first few months, I was lucky to finish a day with more than 10

invertebrate finds, most of which would be immature spiders and virtually impossible for me to name anyway. By the end of the preliminary survey, in December 1997, after 3 months of very poor insect-hunting weather, the 92 species recorded seemed a not unsatisfactory list (Jones, 1997). Given the incredibly small areas of habitat, the lateness of the season and the severe harshness of the environment, this was about 90 species more than I had expected.

At the end of a full year's worth of fairly intensive recording, with about 30 site visits, the list increased to 287 species (Jones, 1998a), and included one nationally rare (red data book) species and nine nationally scarce (notable) species. I was suitably impressed. At the finish, I was at least able to answer my own rhetorical question. What sort of habitat was it? It was an astounding habitat. Its capacity to astound was based on two conflicting powers: the power of the human mind to dismiss it as ugly and unproductive, and the power of nature to carve a foothold on even the bleakest strand of earth. As can be seen from Figs 2 and 3, some areas of the creek had plants growing out of every available cranny, notably buddleia overhanging from above and garden angelica sprouting up from the mean high water mark.

The Wandsworth River Wandle survey was less intensive, but at the end of one season, 5 day visits had produced 153 species (Jones, 1998b); they included the same nationally rare (red data book) species as found at Deptford, one of the same and two further nationally scarce (notable) species. There was generally a great deal of

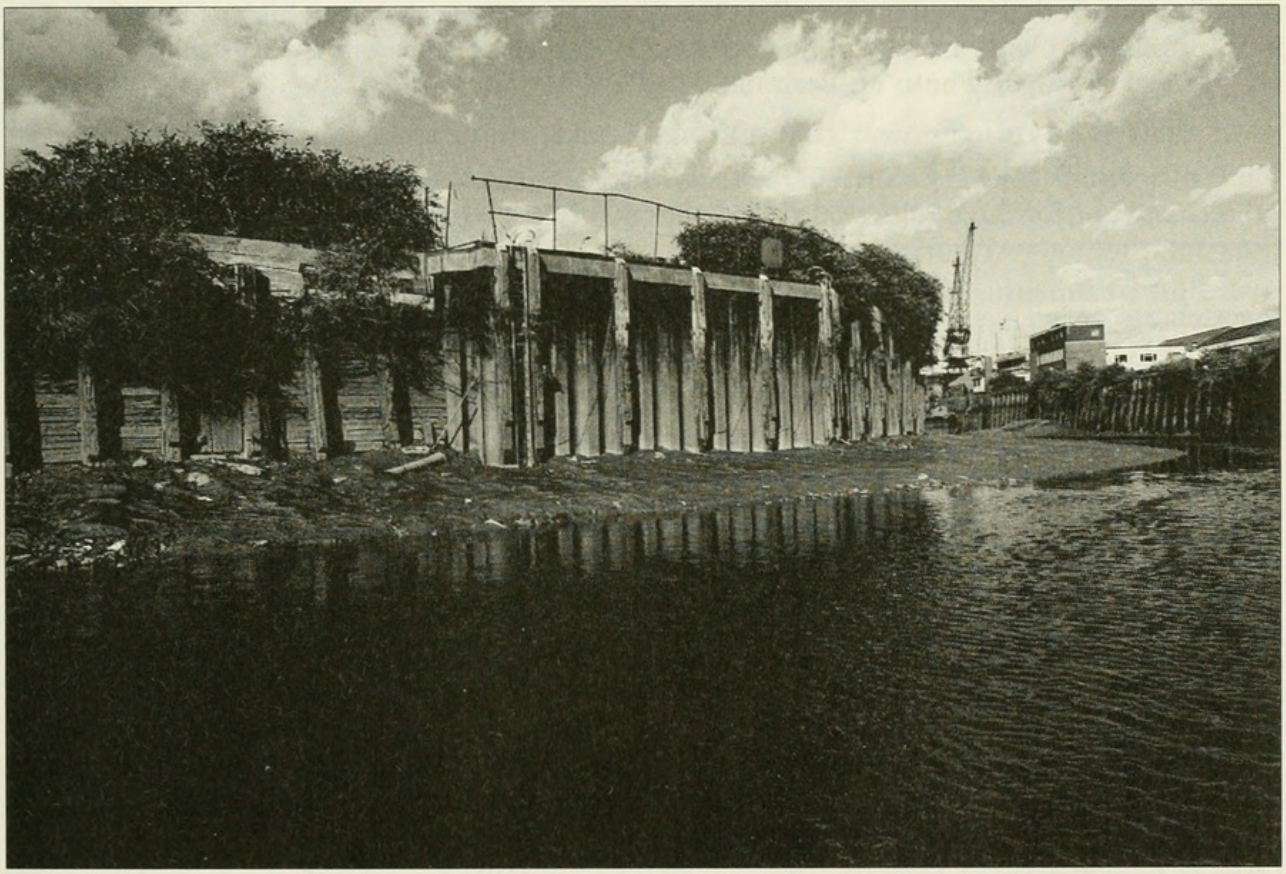

Fig. 2. General view of the central reach of Deptford Creek, looking north. The tide is about half out, and the silt mudbanks are beginning to be exposed. At low tide, the water is confined to a small flowing channel in the centre of the creek, about 3 metres wide and 30 cm deep. Buddleia grows out from the tops of the wharfs, there is some sprouting vegetation from the old timber frontages (left and far distance), but virtually none from the sterile sheet metal piling (centre). Photo N. Bertrand.

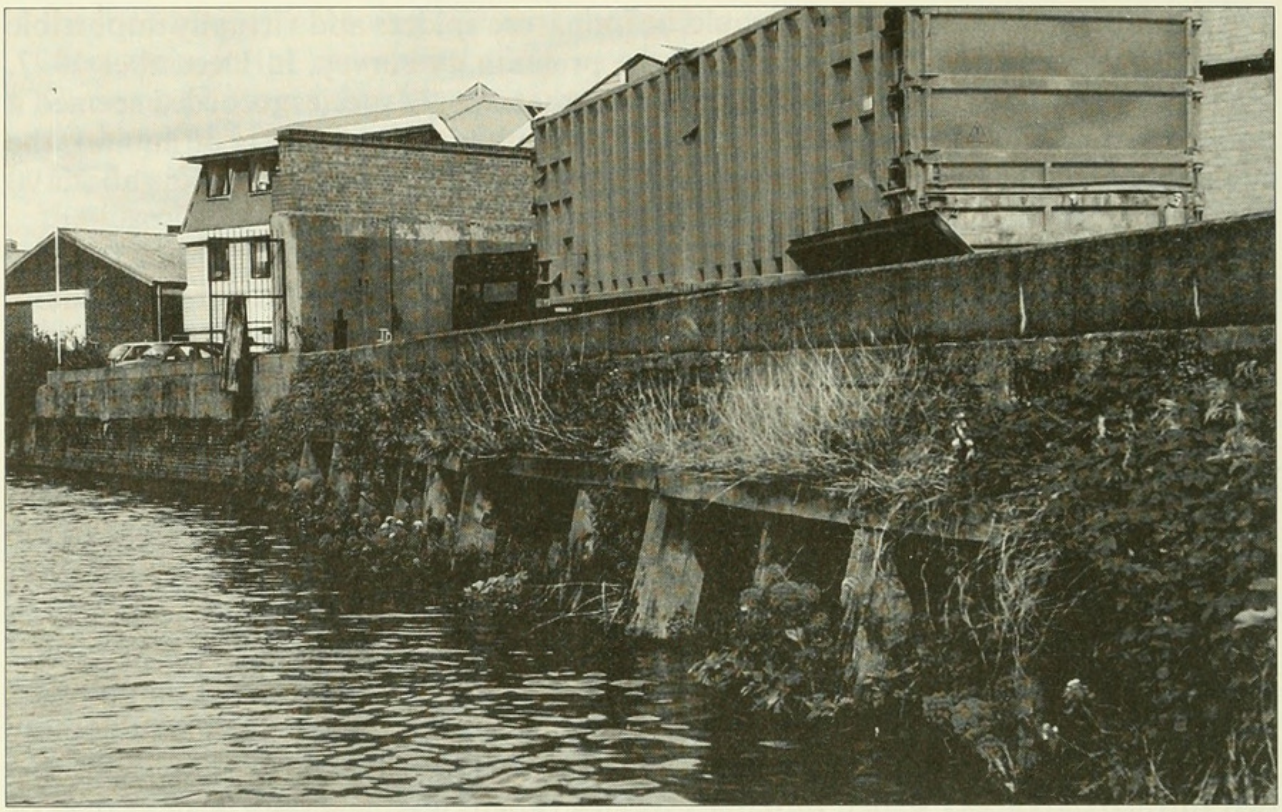

Fig. 3. Herbage growing out of a ledge just below one of the Deptford wharf tops, and sprouting out from decayed timber piles. The tide is virtually at the mean high water mark. The most prominent plants are cascading hops (right), garden angelica umbels half submerged and ivy (far end of ledge). Photo N. Bertrand.

Table of species. The Deptford survey shows two columns, one for the total species at the end of 1998 and one for the species recorded by the end of the preliminary survey to December 1997.

Invertebrate order	Deptford Creek Total	(1997)	River Wandle	Species in common
Collembola (springtails)	2	(2)	0	—
Coleoptera (beetles)	63	(22)	53	23
Dermaptera (earwigs)	1	(1)	1	1
Diptera (flies)	78	(10)	27	13
Hemiptera (bugs, hoppers, aphids etc)	39	(17)	31	12
Hymenoptera (bees, wasps, ants etc)	44	(6)	11	8
Lepidoptera (butterflies and moths)	19	(5)	9	4
Neuroptera (lacewings)	2	(2)	5	2
Odonata (dragonflies)	1	(0)	3	0
Orthoptera (grasshoppers)	1	(0)	0	—
Thysanura (bristletails)	2	(1)	0	—
Aranaea (spiders)	15	(10)	6	3
Opiliones (harvestmen)	1	(0)	1	1
Acari (mites)	1	(0)	0	—
Isopoda (woodlice)	10	(10)	5	3
Chilopoda (centipedes)	1	(0)	0	—
Myriapoda (millipedes)	2	(2)	0	—
Amphipoda (sandhoppers)	2	(2)	0	—
Mollusca (slugs, snails and shells)	3	(2)	1	0
Total	287	(92)	153	70

overlap (70 species in common) between the two surveys reflecting the similar nature of the habitats, but because of the greater flow of freshwater down the Wandle, and its less tidal estuarine character, a greater proportion of what might be termed more characteristically "riverine" species occurred. But in both cases, a remarkable diversity of species demonstrated the powerful colonization abilities of invertebrates to discover available niches and to eke out a living in the relatively harsh and exposed conditions of the decaying man-made habitats.

Many of the species from both tributaries were very common and widespread and were what might be termed ubiquitous garden species, occurring throughout the area of urban and suburban London on almost any patch of disused, ruderal or disturbed ground. There were some straightforward characteristic species of estuaries, rivers and exposed marine habitats, but there were also unusual finds which came as a real surprise. Rather than repeat the complete systematic lists which contained all these commonplace creatures, a table of species and a selective systematic list is included here with comments on a few noteworthy and interesting species.

Selective systematic list

Collembola

At least two unidentified springtail species were found in leaf litter on ledges or beaten from overhanging vegetation in Deptford Creek.

Coleoptera

Anobiidae. *Anobium punctatum* (Deg.) and *Ptilinus pectinicornis* (L.) were both found in decaying timber piles on the Wandle. Burrows and larvae of an *Anobium* species were also found in a driftwood log which had become caught up in a large fig tree growing out from one of the crumbling Deptford wharfs. *Stegobium paniceum* (L.) was beaten from overhanging vegetation at Deptford; it is unusual to find it in the open. On the River Wandle, this species was common in pigeon nests on deep ledges underneath a broad road bridge over the river and was presumably feeding on grass seeds from nesting material and other spilled food brought back by the birds to their young.

Apionidae. *Kalcapion semivittatum* (Gyll.), by sweeping annual mercury sprouting above one of the Deptford wharfs, 6.ix.1997; notable A (Hyman & Parsons, 1992), but fairly frequent in the London area. *Taenapion urticarium* (Herbst), by sweeping and beating overhanging nettles and other vegetation at Deptford, 1 & 8.vi.1998; generally a very local species despite its common foodplant, although provisionally listed as notable B by Hyman (1986), this was not confirmed by Hyman & Parsons (1992).

Biphyllidae. *Biphyllus lunatus* (Fab.), several were found in crampball fungus, *Daldinia concentrica*, 1.iv.1998, on a small log apparently dumped on a site on the Thames just near the mouth of Deptford Creek. An ancient woodland "indicator" species, this beetle is highly unlikely to have got to the site naturally, and on the same day, a few feet away I found the wood-boring sawfly *Xiphydria camelus* an equally odd find.

Carabidae. Various common species were found under planks, stones and rubble above the wharfs. The most frequent carabid in both surveys was *Bembidion harpaloides* Serville which occurred in the rotten timber piles, in the splash zone near the mean high water mark upwards. According to Luff (1998) this is mainly a species of woodland, but it is obviously very tolerant of the saline conditions.

Chrysomelidae. Chrysomelids were very few and far between. On the Wandle a medium-sized willow growing from one of the banks was covered with many hundreds of *Plagiodera versicolora* (Laicharting); although provisionally given notable B status by Hyman (1985), this was not confirmed by Hyman & Parsons (1992), and it is fairly frequent on willows even in suburban London.

Coccinellidae. *Adonia variegata* (Goeze) occurred at both Deptford (two specimens, 20.v and 23.vi.1998) and Wandsworth (many seen on 15.vi, 24.vi, 5.viii. & 22.ix.1998); notable B (Hyman & Parsons, 1992). According to Majerus *et al.* (1997) this ladybird has numbers and populations which fluctuate, boosted by regular migrations from the Continent, and is fairly widely distributed in the Thames Estuary. *Halyzia sedecimguttata* (L.) was beaten from overhanging vegetation at Deptford, possibly associated with the several small stunted sycamores growing out from the wharf tops. Although provisionally given notable A status by Hyman (1986), this species has been found to be quite widespread and this status was not confirmed by Hyman & Parsons (1992). *Stethorus punctillum* Weise, several by beating overhanging vegetation, on both sides of Deptford Creek. Provisionally given notable B status by Hyman (1985), this was not confirmed by Hyman & Parsons (1992). *Coccinella septempunctata* L. was astonishingly common at both Deptford and Wandsworth, with hundreds of larvae, pupae and adults often crowded together on the stunted buddleia bushes which carried a very heavy aphid load.

Curculionidae. *Euophryum confine* (Broun) was dug out of rotten timber piles on some of the Deptford Wharfs, but I was slightly surprised not to find *Pselactus spadix* (Herbst). *Notaris scirpi* (Fab.), one beaten from small garden angelica plant growing out from brick wall on Deptford Creek, 23.vi.1998; notable B (Hyman & Parsons, 1992), and associated with lesser pond sedge *Carex acutiformis* and reedmace *Typha latifolia*. Neither plant occurs in the Deptford area, however, reedmace does occur further up the Ravensbourne River system in Lewisham (Burton, 1983) and it therefore seems likely that the weevil may have been washed down the river from above.

Haliplidae. *Haliplus confinis* Stephens occurred in small numbers in the non-tidal part of the River Wandle above the weirs. This was the only true water beetle found in the surveys.

Lucanidae. *Lucanus cervus* (L.), the stag beetle, a large male found crawling up the brick wall of Mumford's Mill, Deptford, 23.vi.1998, inches above the incoming tide; notable B (Hyman & Parsons, 1992), but fairly common in south-east London. There is no suitable habitat anywhere in Deptford Creek for this beetle which is essentially a garden species in the London area. The tall warehouse buildings of the mill produce strong down-draughts when the wind is from the south-west and it is likely that the flying beetle was caught in the draughts and blown into the water from where it crawled up to safety.

Nitidulidae. *Meligethes rotundicollis* Brisout, swept from ruderal vegetation growing at the confluence of the Wandle and the Thames, 24.vi.1998; notable (Hyman & Parsons, 1994) associated with various crucifers including charlock *Sinapis arvensis* which was present on the site.

Oedemeridae. *Nacerdes melanura* (L.), the wharf borer, a few adults were seen crawling on the vertical timbers and metal sheet piles of both Deptford Creek and the River Wandle. At Deptford, larvae (Fig. 4) were dug out at around mean high water level from timbers throughout the more tidal reaches of the creek. It is a fairly common species in the London area and Thames Estuary.

Phalacridae. *Olibrus flavicornis* (Sturm), several were beaten from overhanging vegetation in various areas of Deptford Creek and many were swept from rough

ground on either side of the Wandle where it empties into the Thames. Although not listed by Shirt (1987) this beetle was allocated status RDB-K, insufficiently known, by Hyman & Parsons (1992). It is thought to be associated with smooth hawkbit *Leontodon autumnalis* and ox-tongues *Picris* species, and is obviously well established in the London area. *Olibrus affinis* (Sturm) was also beaten from overhanging vegetation at Deptford. Although provisionally given notable B status by Hyman (1986), this was not confirmed by Hyman & Parsons (1992).

Diptera

Bombyliidae. *Bombylius major* L. was seen on the wing above one of the Deptford wharfs. Although usually associated with woodland rides and edges, it occurs in urban London along railway tracks and occasionally in gardens.

Dolichopodidae. Several species of *Syntormon*, characteristic of riverside and brackish vegetation, were among the commonest insects in both surveys, resting in clouds on the vegetation as it sprouted at the mean high water mark, and running on the algal covering of the vertical river walls inches above the outgoing or incoming tide.

Empidae. *Hydrodromia stagnalis* Haliday, a species of river and stream edges, occurred at Deptford.

Ephydridae. *Scatella stagnalis* (Fallén) was the commonest fly in Deptford Creek, running in untold thousands on the algal covering of the vertical river walls inches above the outgoing or incoming tide. It was also common in some areas of the Wandle, in similar situations.

Lauxaniidae. *Homoneura tesquae* Becker, one by sweeping sprouting vegetation above one of the Deptford wharfs, 8.vi.1998; notable (Falk, 1991a), a secretive species which breeds in leaf litter and other decaying vegetable matter.

Sciomyzidae. *Pherbellia cinerella* (Fallén) occurred in both surveys; the larvae attack a variety of snail species in dry and wet habitats. *Sepedon sphegea* (Fab.) was found at Deptford; this widespread but local species is associated with marshes and streams where the aquatic larvae are predators of freshwater snails. Its presence here, in the tidal reach of the creek, suggests that it had been breeding further up river.

Stratiomyidae. *Chorisops nagatomii* Rozkošný, one by sweeping rough behind one of the Deptford wharfs; listed as notable by Falk (1991a), but fairly widespread in the London area.

Syrphidae. Many very common species occurred on flowers of garden angelica and other plants growing out from the mean high water mark or growing above the wharfs. *Chrysotoxum festivum* (L.) was seen at Wandsworth. *Eupeodes* (formerly *Metasyrphus*) *latilunulatus* (Collin), was found on flowers above one Deptford wharf, 6.viii.1998; notable (Falk, 1991a), its habitat preferences are uncertain: this site was a heat trap with the sun reflected off of sheltered brick walls. *Xanthogramma pedissequum* (Harris) occurred in both surveys and is generally quite common in the London area.

Tephritidae. *Oxyna parietina* (L.), sweeping above wharfs; although not included by Falk (1991a), this species is suggested to be notable B by Clemons (1996). It is fairly widespread in the London area on mugwort *Artemisia vulgaris*.

Hemiptera

Aphididae. At Deptford, *Aphis fabae* Scopoli completely encrusted some of the heads of garden angelica making them appear to be black-flowered. These plants

commonly sprouted out from the rotten timbers at the mean high water mark. The stunted buddleia bushes which overhung the creeks also suffered a very heavy aphid load, possibly also this common species, and were often dripping with honeydew.

Cicadellidae. *Idiocerus decimusquartus* (Schrank) and *I. stigmaticalis* Lewis were beaten from overhanging poplars and willows respectively on the Wandle.

Coccidae. *Pulvinaria vitis* (L.), females with their fluffy white egg masses were often seen at Deptford on alders growing out from the wharf tops.

Cimididae. Several common species of *Anthocoris* and *Orius* were found beating overhanging vegetation. *Lyctocoris campestris* (Fab.) was very frequent in pigeon nests on ledges under a road bridge where it crossed the Wandle.

Corixidae. Several specimens of *Sigara dorsalis* Leach were caught by water netting in the non-tidal upper reaches of the Wandle, above the weirs. This was the only truly aquatic bug found during the surveys.

Hydrometridae. One specimen of *Hydrometra stagnorum* (L.) was found walking in matted vegetation on a ledge just above the water line in the non-tidal part of the Wandle.

Lygaeidae. *Metapoplax ditomoides* (Costa), one specimen sweeping rough ground at the confluence of Wandle and Thames, 24.vi.1998. First discovered in Britain in Middlesex in the 1950s, since 1992 it has started to turn up again, apparently sometimes in numbers. *Nysius senecionis* (Schilling), at Deptford several were swept above the wharfs and at Wandsworth it was found in countless hundreds of thousands on rough ground near the confluence with the Thames (Jones, 1999a); although only discovered new to Britain in the early 1990s (Hodge & Porter, 1995), it is now seemingly fairly common.

Miridae. *Deraeocoris flavilinea* Costa, many swept and beaten from overhanging vegetation at Deptford on several occasions. First discovered in Britain in Essex in 1995 (Miller, in prep.), and until a few years ago confined in western Europe to Italy; it has spread across France and Germany and its arrival in Britain was accurately predicted. It is associated with sycamores and there are many small saplings growing out from the decaying wharfs.

Pentatomidae. *Aelia acuminata* (L.) occurred in both surveys on small plots of derelict ground adjoining the wharfs; this species is on the increase and is now common and widespread in the London area on bits of rough ground, ruderal sites, parks and gardens.

Reduviidae. *Empicoris culiciformis* (De Geer), several beaten from overhanging vegetation and in small pockets of leaf litter in even very exposed parts of Deptford Creek.

Hymenoptera

Apidae. The honeybee *Apis mellifera* (L.) and 4 common bumblebees, *Bombus* species, occurred, mainly visiting the flowers of garden angelica growing out from the rotten timbers at the mean high water mark.

Bethylidae. *Bethylus boops* Thomson, sweeping, above one of the Deptford wharfs, 25.viii.1998. Very little is known about this species which was only recently recognized as new to Britain (Burn, 1997). Although this appears to be only the tenth British specimen, the fifth, sixth, seventh and eighth specimens were recorded from my old Nunhead garden in the last 6 years and the ninth was found recently in Morden Cemetery, indicating that this creature is well established in south London (Jones, 1999b).

Chrysididae. *Omalus auratus* (L.) occurred in both surveys and one specimen of *Chrysis ignita* (L.) was seen flying round a grey drainpipe (mistaken for a tree trunk?!), above one of the Deptford wharfs where walls acted as a sun trap.

Colletidae. *Hylaeus signatus* (Panzer) was swept on rough ground at the confluence of Wandle and Thames, 24.vi.1998; notable B (Falk, 1991b), it is associated with weld and mignonette, *Reseda* species, and these were present on the site.

Eumenidae. *Microdynerus exilis* (Herrich-Schaeffer), found twice on flowers growing above the Deptford wharfs; notable B (Falk, 1991b). First discovered in Britain in the 1930s and possibly a recent arrival and still spreading, it has turned up elsewhere in urban south London.

Formicidae. *Lasius niger* (L.) was found throughout both survey areas in almost any situation above the mean high water mark including right at the mouth of Deptford Creek at the junction with the Thames, on exposed concrete surfaces even within the splash zone.

Pompilidae. *Auplopus carbonarius* (Scopoli), one found running on the ground above one of the Deptford wharfs; notable B (Falk, 1991b), supposedly a woodland species and seemingly out of place on the creek, but the area was a bit of a sun trap.

Sphecidae. Several common species were found including stem-nesting and wood-nesting species. Several of the crumbling dry rotten timbers about 1 metre above mean high water mark had extensive borings thought to have been made by the *Ectemnius* and *Pemphredon* species found as adults on leaves and flowers elsewhere above the wharfs.

Xyphydriidae. *Xyphydria camelus* (L.), crawling in the grass above one of the wharfs at Deptford and thought to have emerged from a small log apparently dumped there. This log, probably ash, had cramp balls, *Daldinia concentrica*, growing on it and the small fungus beetle *Biphyllus lunatus* feeding inside them. Both species seem very out of place and are unlikely to have arrived by natural means.

Lepidoptera

Lycaenidae. *Celastrina argiolus* (L.), the holly blue, seen flying above the Deptford wharfs and a common species of urban south-east London. *Polyommatus icarus* Rottemburg, the common blue, was found at Wandsworth.

Lymantridae. *Orgyia antiqua* (L.), the vapourer, a caterpillar was found on herbage above the walls of the River Wandle.

Noctuidae. Several common species were found including a fully grown caterpillar of the old lady, *Mormo maura* L., found in leaf litter on a very narrow ledge on one of the most exposed sections of Deptford Creek, near the junction with the Thames. At this time, the area above the wall was being developed and had been a busy building site for at least 18 months with heavy machinery moving about all the time and precious little vegetation. Plants sprouting from wall timbers were also very sparse and it is a mystery what the caterpillar had been feeding on.

Nymphalidae. The usual common species including: *Aglais urticae* (L.), the small tortoiseshell, several adults seen on the wing and a chrysalis found attached to some sheet metal piling at Deptford just inches above the mean high water mark. *Vanessa atalanta* (L.), the red admiral and *Cynthia cardui* (L.), the painted lady, several seen visiting flowers above the wharfs and resting on the wooden timber piles in the sunshine. *Polygonia c-album* (L.), the comma, one adult seen at Deptford and several caterpillars beaten from hop plants overhanging the walls of the creek. The decline of the comma during the end of the 19th century, linked to the decline of the hop

industry, and its recovery during the middle part of the 20th century, when it appeared to switch to nettles, is well known. How ironic, then, that in Deptford Creek it is breeding on the hop plants which overhang the flood defence walls and which cascade down into the water where once barge-loads of dried hops from the fields of Kent were shipped to the breweries of London.

Neuroptera

Sisyridae. *Sisyra fuscata* (Fab.), was beaten from vegetation overhanging the River Wandle. This common species has aquatic larvae which breed inside freshwater sponges.

Odonata

Aeshnidae. Unidentified blue/green *Aeshna* species were seen hawking up and down the river walls at both Wandsworth and Deptford; they could easily have been breeding in the freshwater section of the Wandle, but the Deptford specimen must have flown some distance from its breeding site.

Calopterygidae. *Calopteryx splendens* (Harris), a female was seen fluttering around the freshwater part of the Wandle and was more than likely breeding there.

Coenagriidae. *Enallagma cyathigerum* (Charpentier), the common blue damselfly, was seen on several occasions on the Wandle and was no doubt breeding there.

Orthoptera

Acrididae. *Chorthippus parallelus* (Zett.), the meadow grasshopper, was found above one of the wharfs at Deptford, seemingly very out of place and far from any meadow, although it is generally recorded from a variety of rough grassy habitats.

Thysanura

Lepismatidae. *Lepisma saccharina* L., the common household silverfish, one beaten from overhanging vegetation at Deptford; it is unusual to find it out of doors, but there were many buildings nearby.

Machilidae. A *Petrobius* species, probably *P. maritimus* Leach or *P. brevistylis* Carpenter seen running about in cavities and crawling on the river wall of Deptford Creek near the junction with the Thames, just above the mean high water mark, its typical habitat.

Aranaea

Araneidae. Although the common garden spider *Araneus diadematus* Clerck was found on both surveys, the most obvious orb-web spider on both the Wandle and Deptford Creek was *Larinioides sclopetarius* (Clerck), a very distinctively marked species (Fig. 5). It occurred along all banks of both tributaries, sheltering in dry crevices and beaten from overhanging vegetation or sitting in its orb webs spun across emergent vegetation, decaying timbers, metalwork and crumbling brickwork. Although a fairly local species, it is often associated with buildings, bridges, fences and walls near water, especially those lining rivers and canals.

Gnaphosidae. *Micaria pulicaria* (Sundevall), a warmth-loving species, was found once at Deptford, running on bare ground behind a derelict wharf.

Salticidae. *Salticus scenicus* (Clerck), the common zebra spider, occurred on the vertical walls of both surveys, even out into the bare and exposed steel and concrete of the Thames, inches above the water.

Segestridae. *Segestria florentina* (Rossi) was found only on the River Wandle. Here it had colonized a short sheltered stretch of non-tidal river, on both banks, where a concrete topping overhung the walls creating a sheltered series of nooks and crevices. The characteristic spoke-and-hub webs lined this section of the river, many shed skins were found in the leaf litter on a small shelf below and one large female was discovered in her burrow behind a small piece of wood prised off from the concrete. Despite exhaustive searching along seemingly similar habitat at Deptford, none could be found there. This very local but fairly widespread species is associated with old walls, especially in ports, and is thought to have been originally introduced from the Mediterranean in shipping.

Tetragnathidae. Several immatures of a *Tetragnatha* species were found in the buddleia bushes overhanging a sheltered dock inlet at Deptford; they could not be identified. There are several species in the genus, often found near water.

Isopoda

Armadillidiidae. The common *Armadillidium vulgare* (Latreille) was frequent at Deptford, but on rough ground above the mouth of the Wandle the very local *Armadillidium nasatum* Budde-Lund was the only species to be found, in large numbers under rough concrete rubble.

Cylisticidae. *Cylisticus convexus* (De Geer) was found in a decaying timber pile at Deptford. It is primarily a coastal species of rocky or stony areas above the tidemark, but it has also colonized quarries, walls and waste ground.

Ligiidae. *Ligia oceanica* (L.), the sea slater, was very common on the tidal walls of Deptford Creek, occurring in rotten timber and under stones on the foreshore exposed at low tide. One was also found crawling up a wall in the tidal part of the Wandle. Although completed some time ago, the atlas of woodlouse distributions in Britain (Harding & Sutton, 1985) shows *Ligia* to be a truly marine animal, occurring only on the coast. According to that study *Ligia* was unknown from the Thames in London. Wandsworth is by far the furthest inland that this creature has been found, but this is not totally unexpected.

Trichoniscidae. *Androniscus dentiger* Verhoeff was dug from timber piles at Deptford. A widespread and moderately common species, it is associated with old walls, coastal cliffs and other exposed habitats.

Sphaeromatidae. Three common species were found at Deptford Creek, under stones on the foreshore exposed at low tide: *Sphaeroma hookeri* Leach, *S. monodi* Bocquet *et al.* and *S. rugicauda* Leach.

Myriapoda

Polyxenidae. *Polyxenus lagurus* (L.), one of Britain's smallest and most curious millipedes, was found in very large numbers at Deptford, in soil and leaf litter, crawling on bare walls and sheltering in nooks and crannies in even the most exposed parts of the creek. A widespread, but rather local species, it has two distinctly different habitat types. Inland it is found beneath the bark of old dead trees, but also on the ground beneath stones and leaf litter. It also occurs on old walls and in exposed coastal habitats beneath spare halophile (salt-tolerating) vegetation, down

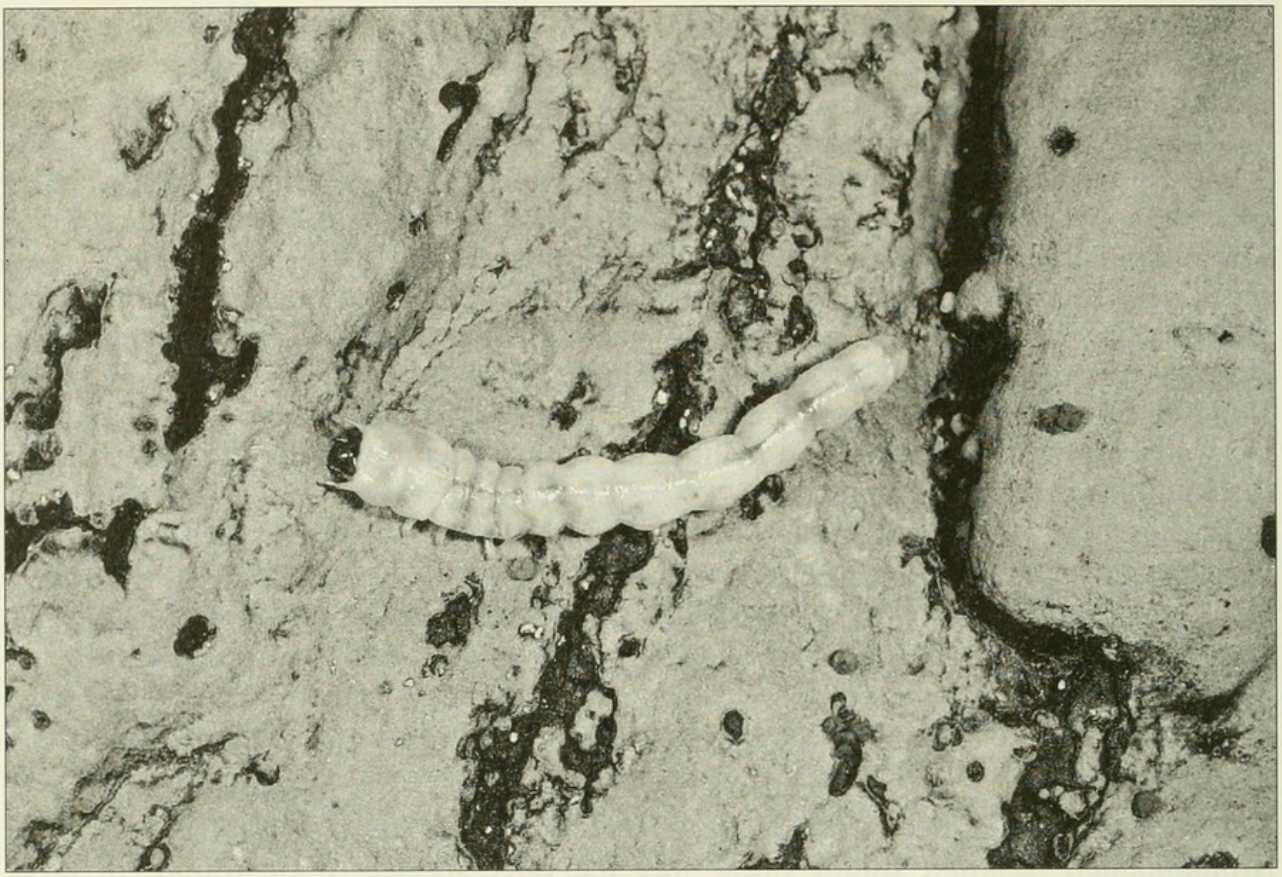

Fig. 4. Larva of *Nacerdes melanura*, the "wharf borer", dug out from timbers at and even below the mean high water mark. Photo R. A. Jones.

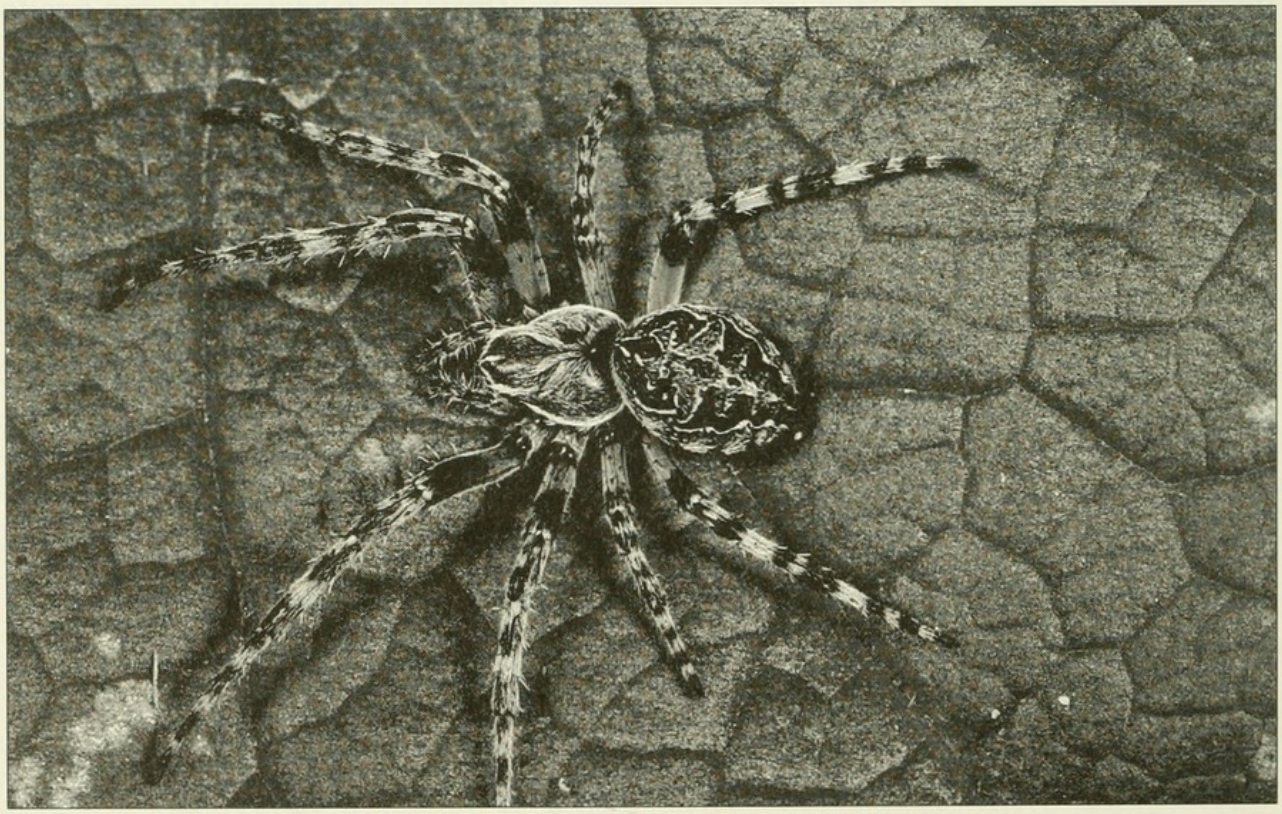

Fig. 5. The characteristic orb-web spider *Larinioides sclopetarius*, a regular inhabitant of the riverside, and often found sitting in its webs spun across emergent vegetation, timber piles, ironwork and concrete. Photo R. A. Jones.

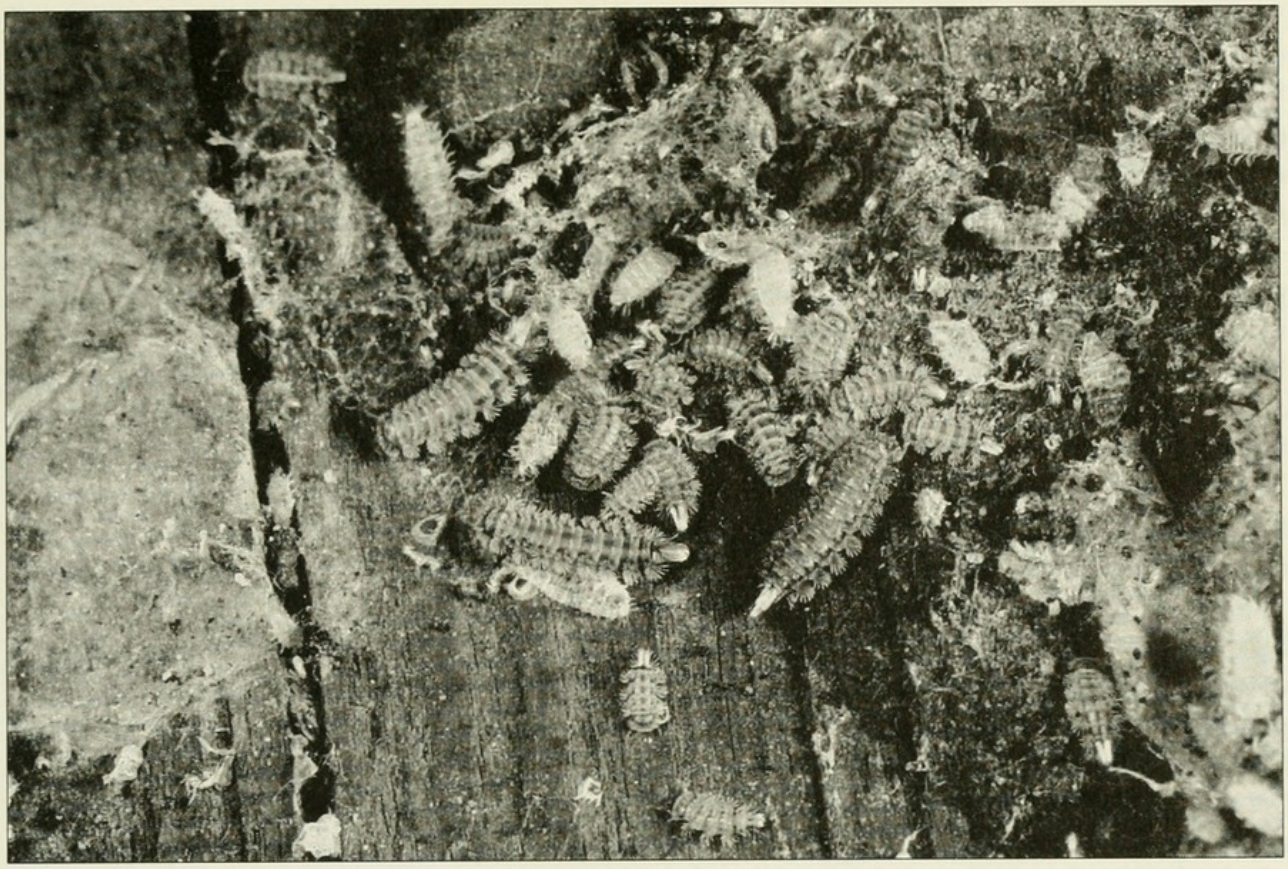

Fig. 6. The minute millipede *Polyxenus lagurus*, often found living gregariously in a mess of shed skins on exposed vertical timbers. Photo R. A. Jones.

to the shore. It lives in small colonies, amidst a mess of shed skins (Fig. 6), and feeds on decayed plant matter.

Amphipoda

Gammaridae. Very many unidentified *Gammarus*? species were found at Deptford, under stones on the foreshore exposed at low tide.

Talitridae. *Orchestia gammarella* (Pallas) was dug out from a timber pile at Deptford.

Mollusca

Helicellidae. Several specimens of *Hygromia cinctella* (Draparnaud) were found on narrow ledges along part of the non-tidal Wandle. For many years this species was confined to a small area of South Devon, but in the last 40 years it has started to spread and is now quite widespread in southern England. This was exactly the same stretch of the river where the large Mediterranean spider *Segestria florentina* occurred, so it may have been very sheltered.

Limacidae. A very large specimen of *Limax flavus* (L.) was seen crawling along one of the old brick river walls of Deptford Creek. Although local, it is a widespread species usually found near human habitations.

DISCUSSION—"BROWNFIELD CORRIDORS"

The natural history of both Deptford Creek and the River Wandle today, exemplified by the insects and other invertebrates occurring there, is clearly an ecology based on invasion, recolonization and adaptation to decaying man-made structures.

There is little doubt that new things will continue to turn up at both sites. It is probably no surprise that the nationally scarce Adonis ladybird, *Adonia variegata*, noted for its migrations, appeared first on that exposed and scruffy foreshore of Dreadnought Wharf, at the very north end of Deptford Creek, and on a tiny derelict corner near the mouth of the Wandle, for running past both is perhaps the largest wildlife corridor in England—the Thames. True, the river banks in this part of London are not what one might describe as prime natural habitats, but they are littered and lined with half derelict and overgrown sites along their entire length right out into the "proper" countryside of the Thames Estuary in Essex and Kent.

These derelict plots, formerly described rather disparagingly as "waste" places, have long been an overlooked resource for nature conservation. Even today they are often dismissed under the heading "brownfield" sites, implying that they are not green and therefore ripe for development at no loss to the natural world. Naturalists and ecologists tend towards the other direction and prefer to describe sites as "ruderal" in an attempt to avoid these negative associations. Study of these sites often shows that, just like Deptford Creek and the River Wandle, they may not be as aesthetically pleasing as verdant forests, rolling hills, purple moors or green valleys, but they do have a valid and varied natural history interest.

The invertebrate interest of urban derelict sites has generally received scant attention. Ironically, London's contribution to this study began long ago, with the surveys of the City's bombed sites after the last war by members of the London Natural History Society (Le Gros, 1949; Owen, 1951; Parmenter, 1953; Jones, 1954, etc). At that time, interest in the sites was limited to an academic study of colonization and establishment, and there was no suggestion of preserving the broken-down buildings and rubble-strewn areas for their natural history value. Attitudes have changed subtly since then. The idea that invertebrates on brownfield sites might have some conservation value was explored briefly by Lonsdale (1991) and has recently achieved greater status in various reports. Gibson (1998) makes the observation that of the nationally rare and scarce species listed by Kirby (1995) in a review of habitat preference, an estimated 12–15% of them are recorded from artificial (i.e. ruderal) habitats.

In particular, ruderal sites offer in abundance a habitat which is fast disappearing from the countryside at large—bare ground with sparse vegetation. This is important for insects because the soil in such a microhabitat is usually warmed by the sun much more than a turf of long grass and dense herbage. Changes in grazing practice and other land management techniques have meant that what were once much more open areas of downland, grassland and heathland are now threatened by scrub invasion. Ruderal sites are fast taking over as important habitats in their own right because they are home to many warmth-loving invertebrates, perhaps on the northern edge of their distribution in Europe. Indeed, an unexpected feature of both tributaries was only revealed on warm sunny days when certain south-facing buildings and walls reflected the sun's heat and created many blisteringly hot sun-traps.

This is not to say that the entire fauna of the rivers exists because it needs such a microhabitat, but it adds another layer to the habitat complexity which makes up the lines of crumbling wharfs, adding to their ability to act as wildlife corridors through

London. It is becoming clear from reports of other surveys in the Thames Estuary out into Essex (C. W. Plant, *pers. comm.*), that the chain of these ruderal sites is already acting as a corridor, with the discovery of many unusual, uncommon and new invertebrates being found right along their length into the heart of the East End. The appearance of the "new" bugs *Nysius senecionis* and *Deraeocoris flavilinea* in several localities can only support the notion that these small London rivers are acting as natural highways, allowing movement of invertebrates along them.

The vertical flood defence walls and the meagre strips of earth behind are a sorely underestimated habitat for wildlife. It has become patently clear that the dowdy appearance of these two creeks to the unguided eye should not be allowed to overshadow the fact that there is teeming life, diverse biology and important ecology.

This fact has been ably demonstrated to the Creekside Renewal Programme (Steele *et al.*, 1999), the commissioning body for surveys on Deptford Creek which included not only terrestrial invertebrates but also marine invertebrates, plants, birds, fish and other animals. Such was the interest generated by these surveys that the idea of "conserving" the derelict nature of the crumbling walls has emerged. Unfortunately, repair of a river flood defence is a major civil engineering project and will necessitate complete destruction of certain parts of the walls. But this will be done in a piecemeal manner so as not to scour the whole creek clean in one sweep. The new walls will include various design features, including wooden uprights and horizontal ledges around the mean high water mark to deliberately accumulate silt, in the knowledge that these will shortly be colonized by plants, then invertebrates, mimicking the decay and colonization which has occurred through neglect during the last 50 years. Some of the sound walls, comprising steel sheet piling and engineering brick and not in need of repair or renewal, will have timber cladding placed on them to encourage this marginal growth specifically as an important and interesting wildlife habitat and to maintain the integrity of the "brownfield corridor".

The value of ruderal sites for plants, invertebrates and other animals has been recognized for many years, but there are few examples, in London at least, of major redevelopment projects taking this sort of initiative to allow wildlife to continue having its natural colonizing effect on the environment.

Conclusion

The study of natural history has long been a pursuit of natural wonder. Historically it was spurred by a reverence to the creator subtly revealing his designs to the enquiring disciples of natural philosophy. More recently it has been driven by the professional engine of biological and ecological science. But wonder is still to be had out there: at each visit to Deptford Creek, where most signs of life have been buried and shored-up under sheet-pile, concrete and engineering brick, I still wonder at the audacity of nature to claw back what was once her own.

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SHORT COMMUNICATION

Scarce wood-decay beetles in a river floodplain farmed landscape in the Upper Thames Valley—The National Trust's Coleshill and Buscot Estate near Faringdon in the far west of VC22 (Berkshire—but currently within the administrative county of Oxfordshire) comprises a very large acreage of intensively managed farmland, probably no better or worse than the average farmland of the area. However, a recent biological survey revealed a surprisingly interesting range of deadwood-breeding beetles, including some generally regarded as collectively indicative of relict old forest conditions (Harding & Rose, 1986). In this respect the key feature of the estate is that it coincides with low-lying ground along the Thames and its minor tributary the River Cole. The two rivers include networks of field drains and hedgerows lined by mature and overmature trees, including old pollards as well as standards, and with crack willow, ash, oak and native black poplar. Only a few hundred years ago this would have been grazing marsh country and effectively an open pasture-woodland system—Buckland & Dinnin (1993) have pointed out that many localities with relatively rich saproxylic faunas have a core of old wetland, the wetness of the ground conditions having protected the tree cover from intensive exploitation for timber or small wood products. Thus today's fauna is a survival from an earlier landscape. Similarly interesting faunas have been noted also very close by to Buscot and Coleshill, along the Thames (M.F.V. Corley, in Peachey, 1982) and in other river floodplains, e.g. in the Severn Vale of Gloucestershire (Atty, 1983), the River Teme in Worcestershire (Whitehead, 1996), along the River Cam in Cambridgeshire (Kirby & Lambert, 1992) and the Darent in Kent (Williams, 1990).

Six nationally scarce (Hyman, 1992) beetles were found within the farmland:

Agrilus pannonicus (Pill. & Mitt.) (Buprestidae)—Nationally Scarce Category A—Kilmester Farm, SU251965, extensive borings and exit holes in bark of dead hedgerow oak, 9.viii.1995.

Agrilus sinuatus (Olivier)—Nationally Scarce Category A—Step Farm, SU275951, characteristic D-shaped exit holes in dead hawthorns in old pasture, 7.viii.1995; Furzehill, Colleymore Farm, SU259940, two adults beaten from old hawthorn in old pasture, 8.viii.1995.

Ctesias serra (Fab.) (Dermestidae)—Nationally Scarce Category B—Step Farm, old hedgerow pollard, SU278957; and Manor Farm, old willow pollards, SU264992.

Anisoxya fuscula (Illiger) (Melandryidae)—Nationally Scarce Category A—Furzehill, Colleymore Farm, SU259940, three beaten from dead hawthorn in old pasture, 8.viii.1995; Kilmester Farm, SU245974, one beaten from a dead young willow, 9.viii.1995; Snowswick Copse, SU229958, one beaten from a dead hawthorn at woodland edge, 17.viii.1995.

Conopalpus testaceus (Olivier) (Melandryidae)—Nationally Scarce Category B—Colleymore Farm, one beaten from old oak, SU255924.

Cossonus parallelepipedus (Herbst) (Curculionidae)—Nationally Scarce Category B—Dead adults abundant plus a few live in trunk of large fallen poplar along drain