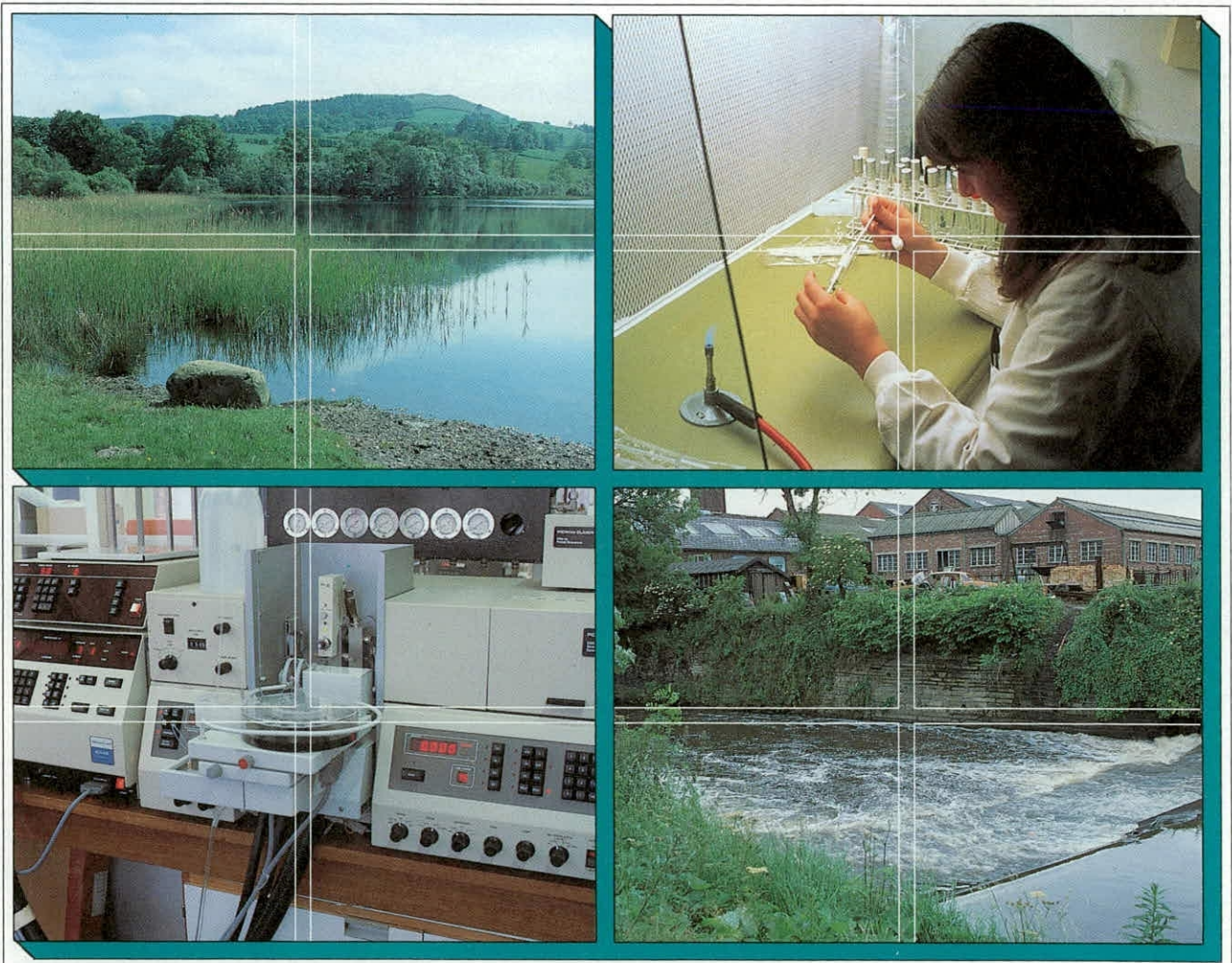


MACROINVERTEBRATE SPECIES IDENTIFICATION - COLNE CATCHMENT SAMPLES (1993)

Principal investigators:

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J H Blackburn BSc

Report to The Environment Agency (Thames Region) - September 1997



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1. INTRODUCTION

The aim of this project was to identify, to species level (if possible), the macroinvertebrates present in vials containing representative individuals of families taken from 36 sorted samples. These samples were collected from various rivers within the Colne catchment during the summer and autumn of 1993 (Table 1.). In addition, to the compilation of validated taxon lists, there was a remit to highlight taxa of known conservation interest.

Table 1. Summary of samples collected from rivers within the Colne catchment .

River	Number of sample sites	Number of samples
Chess	1	1
Colne	13	14
Colne Brook	6	8
Colne/Grand Union Canal	2	2
Country Ditch	1	1
Frays	2	2
Grand Union Canal	4	4
Poyle Channel	1	1
Wraysbury	3	3

2. METHODS

2.1. Macroinvertebrate identification

The macroinvertebrates were identified to the level requested in the invitation to tender which was generally to species level or the level required for RIVPACS analysis, using the most recently available keys (see list of taxonomic keys). However, specimens which were either too small or in a poor state of preservation for reliable species level identification were identified to the level appropriate to their size and condition, usually to genus but sometimes to family. If, there were some specimens of a particular taxon mature enough to identify to species level in the same sample as specimens which were not readily identifiable but believed to be the same, then

these latter specimens were assigned to the named species. Specific identifications were also provided for some taxa which are normally identified only to genus level for RIVPACS (e.g. *Corophium* sp.) but only when specimens were sufficiently mature to allow quick identification.

Difficult and contentious specimens, species with national conservation status (Red Data Book or Nationally Notable) and taxa which occur in less than 5% of the reference sites used in the RIVPACS III data base were examined by two experienced IFE staff members. Taxa of known conservation value as well as a number that may be of potential interest (e.g. for keeping in reference collections) were retained in separate labelled vials in order for further examination by Environment Agency biologists. Chironomidae, Oligochaeta and Sphaeriidae groups were not identified further. The Sphaeriidae were retained in separate vials for possible genus or species level identification at a later date. The nomenclature follows that laid down in the latest revision of the 'Maitland' coded checklist, a copy of which is held by the Environment Agency (Thames Region).

2.2. Threatened and rare taxa

Accompanying the validated taxon list for each sample are notes indicating whether or not there were any threatened or rare taxa present as defined by the following Red Data Book (RDB) and Nationally Notable categories respectively:

RDB 1 Endangered: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating.

RDB 2 Vulnerable: Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating.

RDB 3 Rare: Taxa with small populations that are not presently Endangered or Vulnerable, but are at risk.

Nationally Notable: Taxa known to occur in fewer than 100 10 km squares of the National Grid.

In addition, records of those taxa which occur in less than 5% of the RIVPACS III data base are also highlighted to indicate those species which are infrequent members of the macroinvertebrate fauna within the wide range of running waters included in the selected 614 reference sites. It should be stressed that species with a low frequency of occurrence in the RIVPACS III data set do not necessarily merit RDB or Nationally Notable status as many of these taxa, though rare in rivers, are common in standing waters or other types of water body.

3. RESULTS

The results for each of the 36 samples are listed in the following pages in alphabetical order according to the river sampled. For every individual sample there is a validated taxon list with notes highlighting rare taxa. A summary list of the RDB and Nationally Notable species found during the study are given in Table 2.

Table 2. Red Data Book and Nationally Notable species recorded in study.

TAXA	CONSERVATION STATUS	No. OF SAMPLES FOUND IN	No. OF SITES FOUND IN
COLEOPTERA <i>Haliphus laminatus</i> Schaller	Notable	Five	Five
<i>Oulimnius major</i> (Rey)	Notable	Five	Four
<i>Hydroglyphus pusillus</i> (Fabricius)	Notable	One	One

For the purposes of this report each list of identified taxa is arranged according to the BMWP scoring system (rather than to taxonomic group) in order to make comparisons with the already available family level information somewhat easier to digest.

Macroinvertebrate taxon list for River Chess, above Colne/Grand Union Canal - 23/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the caddis *Oecetis lacustris*, *Cyrnus flavidus* and *Neureclipsis bimaculata*, the River Snail *Viviparus viviparus*, the red-eyed damselfly *Erythromma najas*, the corixid *Cymatia coleoptrata* and the Statiomyid fly *Odontomyia viridula*.

Taxa

Ephemerella ignita (Poda)
Ephemera danica Müller
Athripsodes aterrimus (Stephens)
Ceraclea dissimilis (Stephens)
Mystacides nigra (L.)
Oecetis lacustris (Pictet)
Lepidostoma hirtum (Fabricius)
Caenis luctuosa group
Caenis horaria (L.)
Cyrnus flavidus McLachan
Cyrnus trimaculatus (Curtis)
Neureclipsis bimaculata (L.)
Polycentropus flavomaculatus (Pictet)
Limnephilus lunatus Curtis
Viviparus viviparus (L.)
Gammarus pulex (L.)
Crangonyx pseudogracilis Bousfield
Erythromma najas (Hansemann)
Ischnura elegans (Van der Linden)
Gerris sp.
Cymatia coleoptrata (Fabricius)
Haliphus fluviatilis Aubé
Simulium (*Simulium*) *ornatum* group
Simulium (*Nevermannia*) *angusitarse* group
Polycelis nigra group
Centroptilum luteolum (Müller)
Centroptilum pennulatum Eaton
Sphaeriidae
Helobdella stagnalis (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Odontomyia viridula (Fabricius)*

*Specimen retained in separate vial

Macroinvertebrate taxon list for River Colne, Stanwell Moor - 21/6/93

The Notable riffle beetle *Oulimnius major* was found in sample. None of the other recorded taxa occur in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Ceraclea dissimilis (Stephens)
Mystacides azurea (L.)
Tinodes waeneri (L.)
Caenis luctuosa group
Rhyacophila dorsalis (Curtis)
Polycentropus flavomaculatus (Pictet)
Limnephilus lunatus Curtis
Hydroptila sp.
Gammarus pulex (L.)
Corixidae
Gyrinus sp.
Hydrophilidae
Oulimnius major (Rey)*
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (*Wilhelmia*) sp.
Baetis rhodani (Pictet)
Baetis vernus Curtis
Valvata piscinalis (Müller)
Physa fontinalis (L.)
Anisus vortex (L.)
Armiger crista (L.)
Gyraulus albus (Müller)
Planorbis carinatus Müller
Sphaeriidae
Helobdella stagnalis (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Limnophora sp.
Eurycercus lamellatus (Müller)

* Specimen retained in separate vial

Macroinvertebrate taxon list for River Colne below Munden House - 28/6/93

No Red Data Book or Notable species were found in sample. None of the recorded taxa occur in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)

Athripsodes cinereus (Curtis)

Mystacides azurea (L.)

Caenis luctuosa group

Hydroptila sp.

Ischnura elegans (Van der Linden)

Hydropsyche angustipennis (Curtis)

Hydropsyche pellucidula (Curtis).

Baetis scambus group

Baetis vernus Curtis

Potamopyrgus jenkinsi (Smith)

Macroinvertebrate taxon list for River Colne below Hamper Hill - 9/6/93

The Notable water beetle *Haliphus laminatus* was found in sample. Of the other recorded taxa the following occur in <5% of the RIVPACS III reference sites; the corixid *Cymatia coleoptrata* and the water beetle *Laccophilus hyalinus*.

Taxa

Molanna angustata Curtis
Athripsodes aterrimus (Stephens)
Acroloxus lacustris (L.)
Gammarus pulex (L.)
Crangonyx pseudogracilis Bousfield
Ischnura elegans (Van der Linden)
Veliidae
Gerris sp.
Corixidae
Cymatia coleoptrata (Fabricius)
Haliphus fluviatilis Aubé
Haliphus laminatus Schaller*
Dytiscidae
Laccophilus hyalinus (Degeer)
Helophorus brevipalpis Bedel
Simulium (Boophthora) erythrocephalum (de Geer)
Baetis sp.
Anisus vortex (L.)
Gyraulus albus (Müller)
Sphaeriidae
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ceratopogonidae
Simocephalus sp.

*Specimen retained in separate vial

Macroinvertebrate taxon list for River Colne at Halfway House - 8/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the caddis *Cyrnus flavidus* and the dipteran *Erioptera* sp.

Taxa

Ephemera danica Müller
Aphelocheirus aestivalis (Fabricius)
Caenis horaria (L.)
Caenis luctuosa group
Cyrnus flavidus McLachlan
Polycentropus flavomaculatus (Pictet)
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Haliplus sp.
Dytiscidae
Hydropsyche angustipennis (Curtis)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Dicranota sp.
Erioptera sp.*
Baetis scambus group
Baetis rhodani (Pictet)
Centroptilum luteolum (Müller)
Valvata piscinalis (Müller)
Lymnaea peregra (Müller)
Anisus vortex (L.)
Gyraulus albus (Müller)
Planorbis carinatus Müller
Sphaeriidae
Helobdella stagnalis (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

*Specimen retained in separate vial

Macroinvertebrate taxon list for River Colne upstream Blackbirds STW - 2/6/93

No Red Data Book or Notable species were found in sample. None of the recorded taxa occur in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Athripsodes cinereus (Curtis)
Goeridae
Tinodes waeneri (L.)
Caenis luctuosa group
Limnephilus lunatus Curtis
Hydroptila sp.
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Brychius elevatus (Panzer)
Elmis aenea (Müller)
Hydropsyche angustipennis (Curtis)
Hydropsyche pellucidula (Curtis)
Simulium (Nevermannia) angustitarse group
Simulium (Boophthora) erythrocephalum (de Geer)
Simulium (Wilhelmia) sp.
Baetis scambus group
Baetis rhodani (Pictet)
Baetis vernus Curtis
Valvata piscinalis (Müller)
Potamopyrgus jenkinsi (Smith)
Anisus vortex (L.)
Sphaeriidae
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ceratopogonidae

Macroinvertebrate taxon list for River Colne upstream Blackbirds STW - 22/9/93

No Red Data Book or Notable species were found in sample. None of the recorded taxa occur in <5% of the RIVPACS III reference sites.

Taxa

Athripsodes cinereus (Curtis)
Goera pilosa (Fabricius)
Tinodes waeneri (L.)
Caenis luctuosa group
Hydroptila sp.
Gammarus pulex (L.)
Ischnura sp.
Haliphus sp.
Dytiscidae
Elmis aenea (Müller)
Hydropsyche angustipennis (Curtis)
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (Nevermannia) angustitarse group
Simulium (Eusimulium) aureum group
Simulium (Boophthora) erythrocephalum (de Geer)
Simulium (Simulium) ornatum group
Simulium (Wilhelmia) sp.
Baetis scambus group
Baetis rhodani (Pictet)
Baetis vernus Curtis
Centroptilum luteolum (Müller)
Valvata piscinalis (Müller)
Anisus vortex (L.)
Planorbis carinatus Müller
Sphaeriidae
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ceratopogonidae

Macroinvertebrate taxon list for River Colne at A30 - 30/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the caddis *Neureclipsis bimaculata*, the water beetle *Laccophilus hyalinus* and the Ear Snail *Lymnaea auricularia*.

Taxa

Mystacides azurea (L.)
Tinodes waeneri (L.)
Caenis luctuosa group
Neureclipsis bimaculata (L.)
Polycentropus flavomaculatus (Pictet)
Ancylus fluviatilis Müller
Hydroptila sp.
Gammarus pulex (L.)
Laccophilus hyalinus (Degeer)
Elmis aenea (Müller)
Hydropsyche angustipennis (Curtis)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Simulium (*Nevermannia*) *angustitarse* group
Simulium (*Boophthora*) *erythrocephalum* (de Geer)
Baetis scambus group
Baetis vernus Curtis
Sialis lutaria (L.)
Piscicola geometra (L.)
Bithynia leachii (Sheppard)
Bithynia tentaculata (L.)
Lymnaea auricularia (L.)
Physa fontinalis (L.)
Gyraulus albus (Müller)
Glossiphonia complanata (L.)
Erpobdella octoculata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

Macroinvertebrate taxon list for River Colne at Moorfield Road - 9/6/93

No Red Data Book or Notable species were found in sample. None of the recorded taxa occur in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Aphelocheirus aestivalis (Fabricius)
Calopteryx splendens (Harris)
Dytiscidae
Simulium (Simulium) ornatum group
Simulium (Wilhelmia) sp.
Polycelis nigra group
Baetis rhodani (Pictet)
Baetis vernus Curtis
Physa fontinalis (L.)
Gyraulus albus (Müller)
Sphaeriidae
Glossiphonia complanata (L.)
Helobdella stagnalis (L.)
Erpobdella octoculata (L.)
Chironomidae
Oligochaeta
Ceratopogonidae

Macroinvertebrate taxon list for River Colne at Tolpitts Lane - 29/5/93

The Notable water beetle *Haliplus laminatus* was found in sample. Of the other recorded taxa the following occur in <5% of the RIVPACS III reference sites; the water beetles *Haliplus immaculatus* and *Laccophilus hyalinus* as well as the leech *Glossiphonia heteroclita*.

Taxa

Caenis luctuosa group

Crangonyx pseudogracilis Bousfield

Ischnura elegans (Van der Linden)

Gerris sp.

Haliplus immaculatus Gerhardt*

Haliplus laminatus Schaller*

Dytiscidae

Laccophilus hyalinus (Degeer)

Cloeon dipterum (L.)

Sialis lutaria (L.)

Potamopyrgus jenkinsi (Smith)

Bithynia tentaculata (L.)

Lymnaea stagnalis (L.)

Physa fontinalis (L.)

Anisus vortex (L.)

Planorbis carinatus Müller

Sphaeriidae

Glossiphonia complanata (L.)

Glossiphonia heteroclita (L.)

Asellus aquaticus (L.)

Chironomidae

Oligochaeta

*Specimen in separate vial

Macroinvertebrate taxon list for River Colne at Packet Boat Lane - 29/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa only the Great Ramshorn Snail *Planorbium corneum* occurs in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Molanna angustata Curtis
Mystacides azurea (L.)
Caenis luctuosa group
Polycentropus flavomaculatus (Pictet)
Hydroptila sp.
Gammarus pulex (L.)
Gerris sp.
Sigara falleni (Fieber)
Corixidae
Haliphus sp.
Potamonectes depressus (Fabricius)
Dytiscidae
Hydropsyche angustipennis (Curtis)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Baetis scambus group
Sialis lutaria (L.)
Valvata piscinalis (Müller)
Potamopyrgus jenkinsi (Smith)
Bithynia tentaculata (L.)
Lymnaea peregra (Müller)
Physa fontinalis (L.)
Planorbium corneum (L.)
Sphaeriidae
Glossiphonia complanata (L.)
Erpobdella octoculata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

Macroinvertebrate taxon list for River Colne at Long Bridge, Uxbridge - 21/6/93

No Red Data Book or Notable species were found in sample. None of the recorded taxa occur in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Mystacides azurea (L.)
Calopteryx splendens (Harris)
Tinodes waeneri (L.)
Caenis luctuosa group
Rhyacophila dorsalis (Curtis)
Polycentropus flavomaculatus (Pictet)
Ancylus fluviatilis Müller
Hydroptila sp.
Gammarus pulex (L.)
Crangonyx pseudogracilis Bousfield
Ischnura elegans (Van der Linden)
Hydrophilidae
Elmis aenea (Müller)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (Wilhelmia) sp.
Baetis rhodani (Pictet)
Baetis scambus group
Baetis vernus Curtis
Valvata piscinalis (Müller)
Lymnaea peregra (Müller)
Lymnaea stagnalis (L.)
Anisus vortex (L.)
Gyraulus albus (Müller)
Planorbis carinatus Müller
Sphaeriidae
Glossiphonia complanata (L.)
Helobdella stagnalis (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ceratopogonidae
Ostracoda

Macroinvertebrate taxon list for River Colne above Frays - 15/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the dragonfly *Aeshna* sp., the caddis *Neureclipsis bimaculata* and the Ear Snail *Lymnaea auricularia*.

Taxa

<i>Ephemerella ignita</i> (Poda)	Chironomidae
<i>Athripsodes cinereus</i> (Curtis)	Oligochaeta
<i>Ceraclea dissimilis</i> (Stephens)	Ostracoda
<i>Mystacides azurea</i> (L.)	<i>Clinocera</i> group
<i>Aeshna</i> sp.	
<i>Caenis luctuosa</i> group	
<i>Rhyacophila dorsalis</i> (Curtis)	
<i>Neureclipsis bimaculata</i> (L.)	
<i>Polycentropus flavomaculatus</i> (Pictet)	
<i>Limnephilus lunatus</i> Curtis	
<i>Hydroptila</i> sp.	
<i>Gammarus pulex</i> (L.)	
<i>Crangonyx pseudogracilis</i> Bousfield	
<i>Sigara dorsalis</i> group	
Corixidae	
<i>Haliplus</i> sp.	
<i>Potamonectes depressus</i> (Fabricius)	
Dytiscidae	
<i>Hydropsyche contubernalis</i> McLachlan	
<i>Hydropsyche pellucidula</i> (Curtis)	
<i>Hydropsyche siltalai</i> Döhler	
<i>Simulium</i> (<i>Boophthora</i>) <i>erythrocephalum</i> (de Geer)	
<i>Simulium</i> (<i>Wilhelmia</i>) sp.	
<i>Baetis rhodani</i> (Pictet)	
<i>Baetis scambus</i> group	
<i>Baetis vernus</i> Curtis	
<i>Sialis lutaria</i> (L.)	
<i>Valvata piscinalis</i> (Müller)	
<i>Lymnaea peregra</i> (Müller)	
<i>Lymnaea auricularia</i> (L.)	
<i>Physa</i> sp.	
<i>Anisus vortex</i> (L.)	
<i>Armiger crista</i> (L.)	
<i>Gyraulus albus</i> (Müller)	
Sphaeriidae	
<i>Glossiphonia complanata</i> (L.)	
<i>Helobdella stagnalis</i> (L.)	
<i>Asellus aquaticus</i> (L.)	

Macroinvertebrate taxon list for River Colne at Bushey Mill Lane - 2/6/93

The Notable water beetle *Haliphus laminatus* was found in sample. Of the recorded taxa, the water beetle *Helophorus rufipes* was not recorded in any of the RIVPACS III reference sites. It is listed in Maitland's coded checklist despite being described as a 'terrestrial' species in Friday's water beetle key.

Taxa

Ephemerella ignita (Poda)
Athripsodes cinereus (Curtis)
Mystacides azurea (L.)
Calopteryx splendens (Harris)
Tinodes waeneri (L.)
Caenis luctuosa group
Hydroptila sp.
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Gerris sp.
Sigara dorsalis group
Haliphus fluviatilis Aubé
Haliphus laminatus Schaller*
Haliphus sp.
Dytiscidae
Helophorus rufipes (Bosc D'antic)*
Elmis aenea (Müller)
Hydropsyche angustipennis (Curtis)
Hydropsyche pellucidula (Curtis)
Tipula montium group
Simulium (*Eusimulium*) *aureum* group
Simulium (*Boophthora*) *erythrocephalum*
(de Geer)
Simulium (*Wilhelmia*) sp.
Baetis rhodani (Pictet)
Baetis vernus Curtis
Cloeon dipterum (L.)
Sialis lutaria (L.)
Lymnaea sp.
Anisus vortex (L.)
Sphaeriidae
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ostracoda
Ceratopogonidae
Limnophora sp.
Eurycercus lamellatus (Müller)

*Specimen retained in separate vial

Macroinvertebrate taxon list for River Colne upstream Thames - 18/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the caddis *Neureclipsis bimaculata* and the Common Blue Damselfly *Enallagma cyathigerum*.

Taxa

Ephemerella ignita (Poda)
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Ceraclea dissimilis (Stephens)
Mystacides azurea (L.)
Caenis luctuosa group
Rhyacophila dorsalis (Curtis)
Neureclipsis bimaculata (L.)
Polycentropus flavomaculatus (Pictet)
Limnephilus lunatus Curtis
Hydroptila sp.
Gammarus pulex (L.)
Crangonyx pseudogracilis Bousfield
Enallagma cyathigerum (Charpentier)
Ischnura elegans (Van der Linden)
Elmis aenea (Müller)
Limnius volckmari (Panzer)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (Wilhelmia) sp.
Dugesia polychroa group
Physa fontinalis (L.)
Anisus vortex (L.)
Gyraulus albus (Müller)
Planorbis carinatus Müller
Sphaeriidae
Glossiphonia complanata (L.)
Helobdella stagnalis (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ostracoda
Ceratopogonidae

Macroinvertebrate taxon list for Colne Brook at Colnbrook - 21/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the bivalve mollusc *Anodonta* group and the Ear Snail *Lymnaea auricularia*.

Taxa

Ephemerella ignita (Poda)
Ephemera danica Müller
Athripsodes cinereus (Curtis)
Calopteryx splendens (Harris)
Caenis luctuosa group
Rhyacophila dorsalis (Curtis)
Anodonta group (shells only)
Gammarus pulex (L.)
Orectochilus villosus (Müller)
Elmis aenea (Müller)
Hydropsyche angustipennis (Curtis)
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Baetis rhodani (Pictet)
Baetis scambus group
Baetis vernus Curtis
Bithynia leachii (Sheppard)
Bithynia tentaculata (L.)
Lymnaea auricularia (L.) (shells only)
Lymnaea peregra (Müller)
Sphaeriidae (shells only)
Erpobdella octoculata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

Macroinvertebrate taxon list for Colne Brook above Iver Lane STW - 15/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa only the water beetle *Hydrobius fuscipes* occurs in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Ephemera danica Müller
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Mystacides azurea (L.)
Caenis luctuosa group
Rhyacophila dorsalis (Curtis)
Polycentropus flavomaculatus (Pictet)
Limnephilus lunatus Curtis
Anyclus fluviatilis Müller
Hydroptila sp.
Hydrobius fuscipes (L.)*
Limnius volckmari (Panzer)
Hydropsyche angustipennis (Curtis)
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (*Nevermannia*) *angustitarse* group
Simulium (*Simulium*) *ornatum* group
Simulium (*Wilhelmia*) sp.
Baetis rhodani (Pictet)
Baetis scambus group
Physa fontinalis (L.)
Anisus vortex (L.)
Gyraulus albus (Müller)
Sphaeriidae
Glossiphonia complanata (L.)
Chironomidae
Oligochaeta
Ostracoda
Oxycera pulchella/pardalina
Limnophora sp.

*Specimen retained in separate vial

Macroinvertebrate taxon list for the Colne Brook at Wraysbury - 18/6/93

The Notable riffle beetle *Oulimnius major* was found in sample. Of the other recorded taxa only the caddis *Neureclipsis bimaculata* occurs in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Ephemera danica Müller
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Ceraclea dissimilis (Stephens)
Mystacides azurea (L.)
Tinodes waeneri (L.)
Caenis luctuosa group
Neureclipsis bimaculata (L.)
Polycentropus flavomaculatus (Pictet)
Anyclus fluviatilis Müller
Hydroptila sp.
Gammarus pulex (L.)
Corixidae
Dytiscidae
Oulimnius major (Rey)*
Hydropsyche angustipennis (Curtis)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (*Nevermannia*) *angustitarse* group
Polycelis nigra group
Dugesia tigrina (Girard)
Baetis scambus group
Baetis vernus Curtis
Centroptilum luteolum (Müller)
Physa fontinalis (L.)
Armiger crista (L.)
Gyraulus albus (Müller)
Sphaeriidae
Glossiphonia complanata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ceratopogonidae

*Specimen retained in separate vial

Macroinvertebrate taxon list for Colne Brook at Wraysbury - 20/9/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the caddis *Oecetis testacea* and the Flat Ramshorn snail *Hippeutis complanatus*.

Taxa

Ephemera danica Müller
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Mystacides azurea (L.)
Mystacides nigra (L.)
Oecetis testacea (Curtis)*
Tinodes waeneri (L.)
Caenis horaria (L.)
Caenis luctuosa group
Polycentropus flavomaculatus (Pictet)
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Gerris sp.
Haliplus fluviatilis Aubé
Potamonectes depressus (Fabricius)
Orectochilus villosus (Müller)
Elmis aenea (Müller)
Oulimnius sp.
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Baetis scambus group
Centroptilum luteolum (Müller)
Physa fontinalis (L.)
Gyraulus albus (Müller)
Hippeutis complanatus (L.)
Sphaeriidae
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ceratopogonidae
Nematoda
Chrysops sp.

Macroinvertebrate taxa list for Colne Brook below Colne A4007 - 21/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa only the Ear Snail *Lymnaea auricularia* occurs in <5% of the RIVPACS III reference sites.

Taxa

Molanna angustata Curtis
Mystacides azurea (L.)
Caenis luctuosa group
Crangonyx pseudogracilis Bousfield
Corixidae
Dytiscidae
Elmis aenea (Müller)
Oulimnius sp.
Centroptilum pennulatum Eaton
Cloeon dipterum (L.)
Sialis lutaria (L.)
Bithynia tentaculata (L.)
Lymnaea auricularia (L.)
Lymnaea peregra (Müller)
Gyraulus albus (Müller)
Sphaeriidae
Helobdella stagnalis (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

Macroinvertebrate taxon list for Colne Brook above Thames - 18/6/93

The Notable riffle beetle *Oulimnius major* was found in sample. Of the other recorded taxa only the bivalve mollusc *Anodonta* group occurs in <5% of the RIVPACS III reference sites

Taxa

Ephmerella ignita (Poda)
Ephemera danica Müller
Aphelocheirus aestivalis (Fabricius)
Phryganea sp.
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Ceraclea dissimilis (Stephens)
Mystacides azurea (L.)
Mystacides nigra (L.)
Lype sp.
Caenis luctuosa group
Polycentropus flavomaculatus (Pictet)
Halesus sp.
Limnephilus lunatus Curtis
Hydroptila sp.
Anodonta group
Elmis aenea (Müller)
Oulimnius major (Rey)*
Hydropsyche angustipennis (Curtis)
Hydropsyche contubernalis McLachlan
Hydropsyche siltalai Döhler
Baetis scambus group
Baetis vernus Curtis
Chironomidae

*Specimen retained in separate vial

Macroinvertebrate taxa list for Colne Brook above Thames - 20/9/93

The Notable riffle beetle *Oulimnius major* was found in sample. Of the other recorded taxa the following occur in <5% of the RIVPACS III reference sites; the water measurer *Hydrometra stagnorum* and the greater water boatman *Notonecta glauca*. The greater water boatman *Notonecta viridis* was not recorded at any of the RIVPACS III reference sites.

Taxa

Ephemera danica Müller
Aphelocheirus aestivalis (Fabricius)
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Mystacides azurea (L.)
Mystacides nigra (L.)
Tinodes waeneri (L.)
Caenis luctuosa group
Polycentropus flavomaculatus (Pictet)
Anyclus fluviatilis Müller
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Hydrometra stagnorum (L.)
Gerris sp.
Notonecta glauca L.
Notonecta viridis Delcourt*
Haliphus fluviatilis Aubé
Haliphus lineatocollis (Marsham)
Orectochilus villosus (Müller)
Elmis aenea (Müller)
Oulimnius major (Rey)*
Oulimnius sp.
Hydropsyche angustipennis (Curtis)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Centroptilum luteolum (Müller)
Physa fontinalis (L.)
Anisus vortex (L.)
Gyraulus albus (Müller)
Sphaeriidae
Erpobdella octoculata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ceratopogonidae
Limnophora sp.

*Specimen retained in separate vial

Macroinvertebrate taxa list for Colne Brook below Iver North STW - 15/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa only the caddis *Neureclipsis bimaculata* occurs in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Athripsodes cinereus (Curtis)
Mystacides azurea (L.)
Tinodes waeneri (L.)
Caenis luctuosa group
Rhyacophila dorsalis (Curtis)
Neureclipsis bimaculata (L.)
Polycentropus flavomaculatus (Pictet)
Limnephilus lunatus Curtis
Hydroptila sp.
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Sigara dorsalis group
Corixidae
Haliphus lineatocollis (Marsham)
Dytiscidae
Elmis aenea (Müller)
Hydropsyche angustipennis (Curtis)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (Boophthora) erythrocephalum (de Geer)
Simulium (Wilhelmia) sp.
Baetis rhodani (Pictet)
Baetis scambus group
Valvata piscinalis (Müller)
Physa fontinalis (L.)
Anisus vortex (L.)
Sphaeriidae
Glossiphonia complanata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

**Macroinvertebrate taxon list for River Colne/Grand Union Canal above Maple Lodge STW
- 23/6/93**

The Notable water beetle *Hydroglyphus pusillus* was found in sample. Of the other recorded taxa the following occur in <5% of the RIVPACS III reference sites; the greater water boatman *Notonecta glauca* and the water beetle *Laccophilus hyalinus*. *Hydroglyphus pusillus* was not recorded in any of the RIVPACS III reference sites.

Taxa

Caenis luctuosa group
Polycentropus flavomaculatus (Pictet)
Hydroptila sp.
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Notonecta glauca L.
Notonectidae
Sigara dorsalis group
Sigara falleni (Fieber)
Corixidae
Haliplus fluviatilis Aubé
Hydroglyphus pusillus (Fabricius)*
Laccophilus hyalinus (Degeer)
Sphaeriidae
Helobdella stagnalis (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ostracoda
Ceratopogonidae
Hydracarina
Dixa nebulosa Meigen
Argulus foliaceus L.
Sida crystallina (Müller)

*Specimen retained in separate vial

Macroinvertebrate taxon list for River Colne/Grand Union Canal at Coppermill Lane - 23/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the snail *Physa acuta* group and the leech *Glossiphonia heteroclita*.

Taxa

Hydroptila sp.

Crangonyx pseudogracilis Bousfield

Ischnura elegans (Van der Linden)

Simulium (*Nevermannia*) *angustitarse* group

Simulium (*Boophthora*) *erythrocephalum* (de Geer)

Simulium (*Wilhelmia*) sp.

Baetis vernus Curtis

Physa acuta group

Gyraulus albus (Müller)

Glossiphonia heteroclita (L.)

Helobdella stagnalis (L.)

Asellus aquaticus (L.)

Chironomidae

Oligochaeta

Macroinvertebrate taxon list for Country Ditch above Thames -18/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa only the neuropteran *Sisyra* sp. occurs in <5% of the RIVPACS III reference sites.

Taxa

Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Limnephilus lunatus Curtis
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Velia sp.
Hydropsyche angustipennis (Curtis)
Hydropsyche sp.
Simulium (*Nevermannia*) *angustitarse* group
Simulium (*Eusimulium*) *aureum* group
Simulium (*Boophthora*) *erythrocephalum* (de Geer)
Simulium (*Simulium*) *ornatum* group
Potamopyrgus jenkinsi (Harris)
Gyraulus albus (Müller)
Sphaeriidae
Glossiphonia complanata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ostracoda
Sisyra sp.*

*Specimen retained in separate vial

Macroinvertebrate taxon for Frays River at Packet Boat Lane - 15/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the dragonfly *Aeshna* sp. And the bivalve mollusc *Anodonta* group.

Taxa

Ephemerella ignita (Poda)
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Mystacides azurea (L.)
Aeshna sp.
Tinodes waeneri (L.)
Caenis luctuosa group
Cyrnus trimaculatus (Curtis)
Polycentropus flavomaculatus (Pictet)
Hydroptila sp.
Anodonta group
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Dytiscidae
Hydropsyche angustipennis (Curtis)
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (Boophthora) erythrocephalum (de Geer)
Simulium (Wilhelmia) sp.
Baetis rhodani (Pictet)
Baetis scambus group
Baetis vernus Curtis
Physa fontinalis (L.)
Anisus vortex (L.)
Gyraulus albus (Müller)
Sphaeriidae
Glossiphonia complanata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ostracoda
Ceratopogonidae

Macroinvertebrate taxon list for Frays River below A40 - 15/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa only the caddis *Neureclipsis bimaculata* occurs in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Tinodes waeneri (L.)
Caenis luctuosa group
Neureclipsis bimaculata (L.)
Polycentropus flavomaculatus (Pictet)
Halesus sp.
Limnephilus lunatus Curtis
Hydroptila sp.
Gammarus pulex (L.)
Crangonyx pseudogracilis Bousfield
Ischnura elegans (Van der Linden)
Hydropsyche angustipennis (Curtis)
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (Boophthora) erythrocephalum (de Geer)
Simulium (Simulium) ornatum group
Simulium (Wilhelmia) sp.
Dugesia polychroa group
Baetis rhodani (Pictet)
Baetis scambus group
Baetis vernus Curtis
Physa fontinalis (L.)
Anisus vortex (L.)
Gyraulus albus (Müller)
Sphaeriidae
Glossiphonia complanata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ceratopogonidae

Macroinvertebrate taxon list for Grand Union Canal above A40 - 23/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the River Snail *Viviparus viviparus*, the caddis *Agraylea multipunctata*, the crustacean *Corophium curvispinum* and the snail *Physa acuta* group.

Taxa

Ephemera sp.

Mystacides azurea (L.)

Caenis luctuosa group

Viviparus viviparus (L.)

Agraylea multipunctata Curtis

Corophium curvispinum Sars

Gammarus pulex (L.)

Elmis aenea (Müller)

Sialis lutaria (L.)

Bithynia tentaculata (L.)

Lymnaea peregra (Müller)

Physa acuta group

Sphaeriidae

Helobdella stagnalis (L.)

Asellus aquaticus (L.)

Chironomidae

Oligochaeta

Macroinvertebrate taxon list for Grand Union Canal below Gade - 28/6/93

No Red Data Book or Notable species were found in sample. None of the recorded taxa occur in <5% of the RIVPACS III reference sites.

Taxa

Sigara falleni (Fieber)

Sialis lutaria (L.)

Piscicola geometra (L.)

Sphaeriidae

Chironomidae

Oligochaeta

Macroinvertebrate taxon list for Grand Union Canal below Denham Stream - 23/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa only the crustacean *Corophium curvispinum* occurs in <5% of the RIVPACS III reference sites.

Taxa

Molanna angustata Curtis

Caenis luctuosa group

Hydroptila sp.

Corophium curvispinum Sars

Gammarus pulex (L)

Sialis lutaria (L.)

Chironomidae

Oligochaeta

Coleoptera (indeterminate terrestrial sp.)

Macroinvertebrate taxon list for Grand Union Canal at SouthHarefield - 23/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa the following occur in <5% of the RIVPACS III reference sites; the caddis *Agraylea multipunctata*, the Ear Snail *Lymnaea auricularia* and the snail *Physa acuta* group.

Taxa

Cyrnus trimaculatus (Curtis)
Agraylea multipunctata Curtis
Crangonyx pseudogracilis Bousfield
Ischnura elegans (Van der Linden)
Notonectidae
Corixidae
Helophorus brevipalpis Bedel
Sialis lutaria (L.)
Piscicola geometra (L.)
Bithynia tentaculata (L.)
Lymnaea auricularia (L.)
Lymnaea peregra (Müller)
Physa acuta group
Sphaeriidae
Glossiphonia complanata (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

Macroinvertebrate taxon list for Poyle Channel at Poyle - 21/6/93

No Red Data Book or Notable species were found in sample. Of the recorded taxa only the Ear Snail *Lymnaea auricularia* occurs in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Athripsodes cinereus (Curtis)
Calopteryx splendens (Harris)
Tinodes waeneri (L.)
Caenis luctuosa group
Rhyacophila dorsalis (Curtis)
Polycentropus flavomaculatus (Pictet)
Ancylus fluviatilis Müller
Hydroptila sp.
Gammarus pulex (L.)
Elmis aenea (Müller)
Hydropsyche angustipennis (Curtis)
Hydropsyche contubernalis McLachlan
Hydropsyche pellucidula (Curtis)
Hydropsyche siltalai Döhler
Simulium (Boophthora) erythrocephalum (de Geer)
Simulium (Wilhelmia) sp.
Baetis rhodani (Pictet)
Baetis vernus Curtis
Sialis lutaria (L.)
Bithynia leachii (Sheppard)
Bithynia tentaculata (L.)
Lymnaea auricularia (L.)
Lymnaea peregra (Müller)
Sphaeriidae
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

Macroinvertebrate taxon list for Wraybury River below Poyle - 30/6/93

The Notable water beetle *Haliplus laminatus* was found in sample. Of the other recorded taxa only the snail *Physa acuta* group occurs in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Tinodes waeneri (L.)
Caenis luctuosa group
Hydroptila sp.
Gammarus pulex (L.)
Sigara dorsalis group
Corixidae
Haliplus fluviatilis Aubé
- *Haliplus laminatus* Schaller*
Simulium (Boophthora) erythrocephalum (de Geer)
Simulium (Simulium) ornatum group
Simulium (Wilhelmia) sp.
Baetis scambus group
Baetis vernus Curtis
Valvata piscinalis (Müller)
Physa acuta group
Gyraulus albus (Müller)
Planorbis carinatus Müller
Glossiphonia complanata (L.)
Helobdella stagnalis (L.)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta
Ostracoda
Simocephalus sp.
Clinocera group

*Specimen retained in separate vial

Macroinvertebrate taxon list for Wraysbury River at Longford Moor - 30/6/93

The Notable riffle beetle *Oulimnius major* was found in sample. Of the other recorded taxa the following occur in <5% of the RIVPACS III reference sites; the water measurer *Hydrometra stagnorum*, the water beetles *Haliplus flavicollis*, *Laccophilus hyalinus* and *Helophorus minutus* as well as the snail *Physa acuta* group.

Taxa

<i>Ephemerella ignita</i> (Poda)	Ceratopogonidae
<i>Molanna angustata</i> Curtis	<i>Simocephalus</i> sp.
<i>Mystacides azurea</i> (L.)	
<i>Tinodes waeneri</i> (L.)	
<i>Caenis luctuosa</i> group	
<i>Hydroptila</i> sp.	
<i>Gammarus pulex</i> (L.)	
<i>Crangonyx pseudogracilis</i> Bousfield	
<i>Ischnura elegans</i> (Van der Linden)	
<i>Hydrometra stagnorum</i> (L.)	
<i>Gerris</i> sp.	
<i>Sigara dorsalis</i> group	
<i>Sigara falleni</i> (Fieber)	
Corixidae	
<i>Haliplus fluviatilis</i> Aubé	
<i>Haliplus flavicollis</i> Sturm*	
<i>Haliplus</i> sp.	
<i>Laccophilus hyalinus</i> (Degeer)	
Dytiscidae	
<i>Helophorus brevivalpis</i> Bedel	
<i>Helophorus minutus</i> Fabricius*	
<i>Laccobius</i> sp.	
<i>Oulimnius major</i> (Rey)*	
<i>Baetis scambus</i> group	
<i>Baetis vernus</i> Curtis	
<i>Sialis lutaria</i> (L.)	
<i>Piscicola geometra</i> (L.)	
<i>Valvata piscinalis</i> (Müller)	
<i>Physa acuta</i> group	
<i>Physa fontinalis</i> (L.)	
<i>Gyraulus albus</i> (Müller)	
<i>Planorbis carinatus</i> Müller	
Sphaeriidae	
<i>Glossiphonia complanata</i> (L.)	
<i>Asellus aquaticus</i> (L.)	
Chironomidae	
Oligochaeta	
Ostracoda	*Specimen retained in separate vial

Macroinvertebrate taxon list for Wraysbury River at Staines Moor - 30/6/93

The Notable water beetle *Haliplus laminatus* was found in sample. Of the other recorded taxa only the caddis *Agraylea multipunctata* occurs in <5% of the RIVPACS III reference sites.

Taxa

Ephemerella ignita (Poda)
Molanna angustata Curtis
Athripsodes cinereus (Curtis)
Mystacides azurea (L.)
Tinodes waeneri (L.)
Caenis luctuosa group
Limnephilus lunatus Curtis
Agraylea multipunctata Curtis
Hydroptila sp.
Gammarus pulex (L.)
Ischnura elegans (Van der Linden)
Gerris sp.
Sigara dorsalis group
Corixidae
Haliplus laminatus Schaller*
Dytiscidae
Hydropsyche angustipennis (Curtis)
Simulium (Boophthora) erythrocephalum (de Geer)
Baetis scambus group
Baetis vernus Curtis
Centroptilum luteolum (Müller)
Sialis lutaria (L.)
Valvata piscinalis (Müller)
Glossiphonia complanata (L.)
Hemiclepsis marginata (Müller)
Asellus aquaticus (L.)
Chironomidae
Oligochaeta

*Specimen retained in separate vial

4. LIST OF TAXONOMIC KEYS USED IN TAXA IDENTIFICATION

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