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The functional response and resilience in small waterbodies along land-use and environmental gradients

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Supporting information

Table S 1 Full list of taxa found within each of the seven studies included where 1 = National Pond Survey, 2 = Realising Our Potential Award, 3 = Temporary Ponds, 4 = West Yorkshire, 5 = West Midlands, 6 = Leicestershire, 7 = Wales

Taxa	Class	Family	1	2	3	4	5	6	7
Pisidium sp.	Bivalvia	Sphaeriidae	0	0	0	1	0	0	1
Sphaeriidae	Bivalvia	Sphaeriidae	0	0	0	0	1	0	0
Sphaerium sp.	Bivalvia	Sphaeriidae	0	1	0	1	0	0	0
Dryops ernesti	Coleoptera	Dryopidae	1	0	0	0	0	0	0
Dryops luridus	Coleoptera	Dryopidae	1	0	1	0	0	0	0
Dryops similaris	Coleoptera	Dryopidae	1	0	1	0	0	0	0
Dryops striatellus	Coleoptera	Dryopidae	1	0	1	0	0	0	0
Acilius canaliculatus	Coleoptera	Dytiscidae	0	0	1	0	0	0	0
Acilius sulcatus	Coleoptera	Dytiscidae	1	1	1	0	1	0	1
Agabus affinis	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Agabus arcticus	Coleoptera	Dytiscidae	1	0	0	1	0	0	0
Agabus bipustulatus	Coleoptera	Dytiscidae	1	1	1	1	1	1	1
Agabus chalconatus	Coleoptera	Dytiscidae	0	1	1	0	0	0	0
Agabus congener	Coleoptera	Dytiscidae	0	1	1	1	0	0	1
Agabus conspersus	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Agabus didymus	Coleoptera	Dytiscidae	0	0	1	0	0	0	0
Agabus labiatus	Coleoptera	Dytiscidae	1	0	1	0	0	0	0
Agabus melanarius	Coleoptera	Dytiscidae	1	0	1	0	0	0	0
Agabus melanocornis	Coleoptera	Dytiscidae	1	0	0	0	0	0	1
Agabus nebulosus	Coleoptera	Dytiscidae	1	1	1	0	0	1	1
Agabus paludosus	Coleoptera	Dytiscidae	1	1	0	0	0	0	0
Agabus sturmi	Coleoptera	Dytiscidae	1	1	1	0	1	1	1
Agabus uliginosus	Coleoptera	Dytiscidae	0	0	0	0	0	1	0
Colymbetes fuscus	Coleoptera	Dytiscidae	1	1	1	0	1	1	1
Copelatus haemorrhoidalis	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Dytiscus marginalis	Coleoptera	Dytiscidae	1	1	1	0	1	1	1
Dytiscus semisulcatus	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Dytiscus sp.	Coleoptera	Dytiscidae	0	0	0	0	0	0	1
Graptodytes flavipes	Coleoptera	Dytiscidae	1	0	1	0	0	0	0
Graptodytes granularis	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Graptodytes pictus	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Hydaticus seminiger	Coleoptera	Dytiscidae	1	0	1	0	0	0	0
Hydroglyphus geminus	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Hydroglyphus pusillus	Coleoptera	Dytiscidae	0	0	0	0	1	0	0
Hydroporus angustatus	Coleoptera	Dytiscidae	1	1	1	0	1	0	1
Hydroporus discretus	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Hydroporus erythrocephalus	Coleoptera	Dytiscidae	1	1	1	0	0	0	1
Hydroporus glabriusculus	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Hydroporus gyllenhalii	Coleoptera	Dytiscidae	1	1	1	0	0	0	0

Taxa	Class	Family	1	2	3	4	5	6	7
Hydroporus incognitus	Coleoptera	Dytiscidae	1	1	1	0	0	1	0
Hydroporus longicornis	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Hydroporus longulus	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Hydroporus marginatus	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Hydroporus melanarius	Coleoptera	Dytiscidae	1	0	1	0	0	0	0
Hydroporus memnonius	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Hydroporus morio	Coleoptera	Dytiscidae	0	1	0	0	0	0	0
Hydroporus neglectus	Coleoptera	Dytiscidae	1	0	1	0	0	0	0
Hydroporus nigrita	Coleoptera	Dytiscidae	1	1	1	0	0	0	1
Hydroporus obscurus	Coleoptera	Dytiscidae	1	0	1	0	0	0	1
Hydroporus obsoletus	Coleoptera	Dytiscidae	0	0	0	0	0	0	0
Hydroporus palustris	Coleoptera	Dytiscidae	1	1	1	0	1	1	1
Hydroporus planus	Coleoptera	Dytiscidae	1	1	1	0	1	0	0
Hydroporus pubescens	Coleoptera	Dytiscidae	1	1	1	0	1	1	0
Hydroporus rufifrons	Coleoptera	Dytiscidae	0	0	1	0	0	0	0
Hydroporus striola	Coleoptera	Dytiscidae	1	0	1	0	0	1	1
Hydroporus tessellatus	Coleoptera	Dytiscidae	1	1	1	0	0	0	1
Hydroporus tristis	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Hydroporus umbrosus	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Hydrovatus clypealis	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Hygrotus confluens	Coleoptera	Dytiscidae	1	0	1	0	0	1	0
Hygrotus decoratus	Coleoptera	Dytiscidae	1	0	1	0	0	0	0
Hygrotus impressopunctatus	Coleoptera	Dytiscidae	1	1	1	0	1	0	0
Hygrotus inaequalis	Coleoptera	Dytiscidae	1	1	1	0	1	1	0
Hygrotus parallelogrammus	Coleoptera	Dytiscidae	0	0	1	0	0	0	0
Hygrotus versicolor	Coleoptera	Dytiscidae	0	1	0	0	1	1	0
Hyphydrus ovatus	Coleoptera	Dytiscidae	1	1	1	0	1	1	1
Ilybius ater	Coleoptera	Dytiscidae	1	1	1	0	1	0	1
Ilybius fenestratus	Coleoptera	Dytiscidae	1	1	0	1	0	0	0
Ilybius fuliginosus	Coleoptera	Dytiscidae	1	1	1	0	1	0	1
Ilybius guttiger	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Ilybius montanus	Coleoptera	Dytiscidae	0	0	1	0	0	0	0
Ilybius quadriguttatus	Coleoptera	Dytiscidae	1	0	1	0	1	0	0
Ilybius subaeneus	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Laccophilus hyalinus	Coleoptera	Dytiscidae	1	1	0	0	1	0	0
Laccophilus minutus	Coleoptera	Dytiscidae	1	1	1	0	1	1	1
Laccornis oblongus	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Nebrioporus assimilis	Coleoptera	Dytiscidae	0	0	1	0	0	0	0
Nebrioporus depressus	Coleoptera	Dytiscidae	1	1	0	0	0	0	1
Nebrioporus elegans	Coleoptera	Dytiscidae	0	0	0	1	0	0	0
Oreodytes sanmarkii	Coleoptera	Dytiscidae	1	0	0	0	0	0	0
Platambus maculatus	Coleoptera	Dytiscidae	0	1	0	1	0	0	0
Porhydrus lineatus	Coleoptera	Dytiscidae	1	1	0	0	0	0	0
Rhantus exsoletus	Coleoptera	Dytiscidae	1	1	1	0	1	0	0
Rhantus frontalis	Coleoptera	Dytiscidae	0	0	1	0	0	0	0

Taxa	Class	Family	1	2	3	4	5	6	7
Rhantus grapii	Coleoptera	Dytiscidae	1	0	1	0	0	0	0
Rhantus suturalis	Coleoptera	Dytiscidae	1	0	1	0	1	1	0
Rhantus suturellus	Coleoptera	Dytiscidae	1	1	1	0	0	0	0
Stictonectes lepidus	Coleoptera	Dytiscidae	1	0	1	1	0	0	0
Stictotarsus duodecimpustulatus	Coleoptera	Dytiscidae	1	1	0	1	0	0	1
Suphrodytes dorsalis	Coleoptera	Dytiscidae	1	1	1	0	1	0	0
Elmis aenea	Coleoptera	Elmidae	1	1	0	1	0	0	0
Esolus parallelepipedus	Coleoptera	Elmidae	0	0	0	0	0	0	1
Limnius volckmari	Coleoptera	Elmidae	1	0	0	0	0	0	0
Oulimnius tuberculatus	Coleoptera	Elmidae	1	1	1	1	0	0	1
Gyrinidae (larvae)	Coleoptera	Gyrinidae	0	0	0	1	0	0	0
Gyrinus caspius	Coleoptera	Gyrinidae	1	0	1	0	0	0	0
Gyrinus distinctus	Coleoptera	Gyrinidae	0	0	0	0	0	1	0
Gyrinus marinus	Coleoptera	Gyrinidae	1	1	0	0	0	1	0
Gyrinus substriatus	Coleoptera	Gyrinidae	1	1	1	1	1	1	0
Gyrinus urinator	Coleoptera	Gyrinidae	1	0	1	0	0	0	0
Brychius elevatus	Coleoptera	Haliplidae	0	0	0	0	0	0	0
Halipus confinis	Coleoptera	Haliplidae	1	1	1	1	1	1	0
Halipus flavicollis	Coleoptera	Haliplidae	1	1	1	0	0	0	1
Halipus fluviatilis	Coleoptera	Haliplidae	1	1	1	1	0	0	0
Halipus fulvus	Coleoptera	Haliplidae	1	1	0	0	0	0	1
Halipus heydeni	Coleoptera	Haliplidae	1	1	1	0	0	0	0
Halipus immaculatus	Coleoptera	Haliplidae	1	1	1	0	1	0	1
Halipus laminatus	Coleoptera	Haliplidae	1	1	0	0	0	1	0
Halipus lineatocollis	Coleoptera	Haliplidae	1	1	1	1	1	1	1
Halipus lineolatus	Coleoptera	Haliplidae	1	0	0	0	1	0	0
Halipus obliquus	Coleoptera	Haliplidae	1	1	1	1	0	1	0
Halipus ruficollis	Coleoptera	Haliplidae	1	1	1	1	1	0	1
Halipus variegatus	Coleoptera	Haliplidae	0	0	1	0	0	0	0
Halipus wehnckeii	Coleoptera	Haliplidae	1	1	1	1	0	0	1
Peltodytes caesus	Coleoptera	Haliplidae	1	0	1	0	0	0	0
Helophorus aequalis	Coleoptera	Helophoridae	1	1	1	0	1	0	1
Helophorus alternans	Coleoptera	Helophoridae	0	0	1	0	0	0	0
Helophorus avernicus	Coleoptera	Helophoridae	0	0	1	0	0	0	0
Helophorus brevipalpis	Coleoptera	Helophoridae	1	1	1	0	1	0	1
Helophorus dorsalis	Coleoptera	Helophoridae	1	0	0	0	0	0	0
Helophorus flavipes	Coleoptera	Helophoridae	1	1	1	0	0	0	1
Helophorus flavipes/obscurus	Coleoptera	Helophoridae	0	0	0	0	1	0	1
Helophorus fulgidicollis	Coleoptera	Helophoridae	0	0	1	0	0	0	0
Helophorus grandis	Coleoptera	Helophoridae	1	1	1	0	1	0	1
Helophorus granularis	Coleoptera	Helophoridae	1	1	1	0	0	0	0
Helophorus griseus	Coleoptera	Helophoridae	1	1	1	0	0	1	0
Helophorus longitarsis	Coleoptera	Helophoridae	0	0	1	0	0	0	0
Helophorus minutus agg.	Coleoptera	Helophoridae	1	1	1	0	1	1	0
Helophorus nanus	Coleoptera	Helophoridae	1	1	1	0	0	0	0

Taxa	Class	Family	1	2	3	4	5	6	7
Helophorus obscurus agg.	Coleoptera	Helophoridae	1	1	1	0	0	1	0
Helophorus sp.	Coleoptera	Helophoridae	0	0	0	0	1	1	0
Helophorus strigifrons	Coleoptera	Helophoridae	1	1	1	0	0	1	1
Helophorus tuberculatus	Coleoptera	Helophoridae	0	0	1	0	0	0	0
Hydraena britteni	Coleoptera	Hydraenidae	1	0	0	0	0	0	0
Hydraena riparia	Coleoptera	Hydraenidae	1	1	1	0	1	0	0
Hydraena testacea	Coleoptera	Hydraenidae	1	1	1	0	0	0	0
Limnebius nitidus	Coleoptera	Hydraenidae	1	1	0	0	0	0	0
Limnebius papposus	Coleoptera	Hydraenidae	0	1	1	0	0	0	0
Limnebius truncatellus	Coleoptera	Hydraenidae	1	1	1	0	0	0	1
Anacaena bipustulata	Coleoptera	Hydrophilidae	1	1	1	0	0	0	0
Anacaena globulus	Coleoptera	Hydrophilidae	1	1	1	0	1	1	0
Anacaena limbata	Coleoptera	Hydrophilidae	1	1	1	0	1	1	0
Anacaena lutescens	Coleoptera	Hydrophilidae	1	1	1	0	1	0	0
Berosus affinis	Coleoptera	Hydrophilidae	1	0	0	0	0	0	0
Berosus luridus	Coleoptera	Hydrophilidae	1	0	1	0	0	0	0
Berosus signaticollis	Coleoptera	Hydrophilidae	1	0	1	0	0	0	0
Chaetarthria seminulum	Coleoptera	Hydrophilidae	1	0	0	0	0	0	0
Cymbiodyta marginella	Coleoptera	Hydrophilidae	1	1	1	0	0	0	0
Enochrus affinis	Coleoptera	Hydrophilidae	1	1	1	0	0	0	0
Enochrus coarctatus	Coleoptera	Hydrophilidae	1	1	1	0	0	0	0
Enochrus fuscipennis	Coleoptera	Hydrophilidae	1	0	1	0	0	0	1
Enochrus halophilus	Coleoptera	Hydrophilidae	1	0	1	0	0	0	0
Enochrus isotae	Coleoptera	Hydrophilidae	1	1	0	0	0	0	0
Enochrus melanocephalus	Coleoptera	Hydrophilidae	1	0	1	0	0	0	0
Enochrus nigritus	Coleoptera	Hydrophilidae	0	0	1	0	0	0	0
Enochrus ochropterus	Coleoptera	Hydrophilidae	1	0	1	0	0	0	1
Enochrus testaceus	Coleoptera	Hydrophilidae	1	1	1	0	1	1	1
Helochares lividus	Coleoptera	Hydrophilidae	1	1	1	0	1	1	1
Helochares punctatus	Coleoptera	Hydrophilidae	1	1	1	0	0	1	0
Hydrobius fuscipes	Coleoptera	Hydrophilidae	1	1	1	1	1	1	1
Hydrochus angustatus	Coleoptera	Hydrophilidae	1	0	1	0	0	0	0
Hydrochus brevis	Coleoptera	Hydrophilidae	1	0	0	0	0	0	0
Hydrochus carinatus	Coleoptera	Hydrophilidae	1	0	1	0	0	0	0
Hydrochus elongatus	Coleoptera	Hydrophilidae	1	0	0	0	1	0	0
Hydrochus ignicollis	Coleoptera	Hydrophilidae	1	0	0	0	0	0	0
Laccobius atratus	Coleoptera	Hydrophilidae	1	0	0	0	0	0	0
Laccobius biguttatus	Coleoptera	Hydrophilidae	1	0	0	0	1	0	0
Laccobius bipunctatus	Coleoptera	Hydrophilidae	1	1	1	0	0	1	0
Laccobius colon	Coleoptera	Hydrophilidae	0	0	1	0	0	0	0
Laccobius minutus	Coleoptera	Hydrophilidae	1	1	1	0	1	0	0
Laccobius sinuatus	Coleoptera	Hydrophilidae	0	0	1	0	0	0	0
Laccobius striatulus	Coleoptera	Hydrophilidae	0	1	0	0	0	0	0
Laccobius ytenensis	Coleoptera	Hydrophilidae	0	0	1	0	0	0	0
Limnoxenus niger	Coleoptera	Hydrophilidae	1	0	0	0	0	0	0

Taxa	Class	Family	1	2	3	4	5	6	7
<i>Paracymus scutellaris</i>	Coleoptera	Hydrophilidae	1	0	1	0	0	0	0
<i>Hygrobia hermanni</i>	Coleoptera	Hygrobiiidae	1	1	1	0	1	1	1
<i>Asellus aquaticus</i>	Crustacea	Asellidae	1	1	1	1	1	1	1
<i>Asellus meridianus</i>	Crustacea	Asellidae	1	1	1	1	0	1	1
<i>Austropotamobius pallipes</i>	Crustacea	Astacidae	0	1	0	0	0	0	0
<i>Crangonyx pseudogracilis</i>	Crustacea	Crangonyctidae	1	1	1	1	1	1	1
<i>Niphargus aquilex</i>	Crustacea	Crangonyctoidea	1	0	0	0	0	0	0
<i>Gammarus lacustris</i>	Crustacea	Gammaridae	0	0	0	0	1	0	0
<i>Gammarus pulex</i>	Crustacea	Gammaridae	1	1	1	1	1	1	1
Ceratopogonidae	Diptera	Ceratopogonidae	0	0	0	1	1	1	1
Chaoboridae	Diptera	Chaoboridae	0	0	0	0	1	1	1
Chironomidae	Diptera	Chironomidae	0	0	0	1	1	1	1
Culicidae	Diptera	Culicidae	0	0	0	1	1	1	1
Dixidae	Diptera	Dixidae	0	0	0	1	1	1	1
Empididae	Diptera	Empididae	0	0	0	0	1	1	1
Ephydriidae	Diptera	Ephydriidae	0	0	0	0	1	1	0
Limonidae/Pedicidae	Diptera	Limonidae/pedicidae	0	0	0	0	1	1	1
Psychodidae	Diptera	Psychodidae	0	0	0	1	1	1	1
Ptychopteridae	Diptera	Ptychopteridae	0	0	0	1	1	0	1
Sciomyzidae	Diptera	Sciomyzidae	0	0	0	0	1	0	0
Simuliidae	Diptera	Simuliidae	0	0	0	1	0	1	0
Stratiomyidae	Diptera	Stratiomyidae	0	0	0	1	1	1	0
Syrphidae	Diptera	Syrphidae	0	0	0	0	1	1	0
Tabanidae	Diptera	Tabanidae	0	0	0	0	1	0	1
Tipulidae	Diptera	Tipulidae	0	0	0	1	1	1	1
Tipulinae	Diptera	Tipulinae	0	0	0	0	0	0	0
<i>Baetis rhodani</i>	Ephemeroptera	Baetidae	0	0	0	1	0	0	1
<i>Centroptilum pennulatum</i>	Ephemeroptera	Baetidae	1	0	0	0	0	0	0
<i>Cloeon dipterum</i>	Ephemeroptera	Baetidae	1	1	1	1	1	1	1
<i>Cloeon simile</i>	Ephemeroptera	Baetidae	1	0	1	0	0	1	1
<i>Cloeon sp.</i>	Ephemeroptera	Baetidae	0	0	0	0	0	0	1
<i>Caenis horaria</i>	Ephemeroptera	Caenidae	1	1	0	1	1	1	1
<i>Caenis luctuosa</i>	Ephemeroptera	Caenidae	1	1	1	1	1	1	1
<i>Caenis macrura</i>	Ephemeroptera	Caenidae	0	1	0	0	0	0	0
<i>Caenis rivulorum</i>	Ephemeroptera	Caenidae	0	1	0	1	0	0	0
<i>Caenis robusta</i>	Ephemeroptera	Caenidae	1	1	0	1	1	1	0
<i>Caenis sp.</i>	Ephemeroptera	Caenidae	0	0	0	0	0	0	1
<i>Ephemera danica</i>	Ephemeroptera	Ephemeridae	0	1	0	1	0	0	1
<i>Ephemera vulgata</i>	Ephemeroptera	Ephemeridae	1	1	0	1	0	0	0
<i>Ephemerella ignita</i>	Ephemeroptera	Ephemeridae	0	1	0	0	0	0	1
<i>Ecdyonurus dispar</i>	Ephemeroptera	heptageniidae	0	1	0	0	0	0	0
<i>Heptagenia sulphurea</i>	Ephemeroptera	Heptageniidae	0	1	0	0	0	0	0
<i>Paraleptophlebia cincta</i>	Ephemeroptera	Leptophlebiidae	1	0	0	0	0	0	0
<i>Paraleptophlebia submarginata</i>	Ephemeroptera	Leptophlebiidae	0	1	0	0	0	0	0
<i>Potamanthus luteus</i>	Ephemeroptera	Potamanthidae	0	1	0	0	0	0	0

Taxa	Class	Family	1	2	3	4	5	6	7
<i>Siphonurus lacustris</i>	Ephemeroptera	Siphonuridae	0	1	0	0	0	0	0
<i>Acroloxus lacustris</i>	Gastropoda	Acroloxidae	1	1	1	0	1	1	1
<i>Bithynia leachii</i>	Gastropoda	Bithyniidae	1	1	0	0	1	0	0
<i>Bithynia sp.</i>	Gastropoda	Bithyniidae	0	0	0	0	1	0	0
<i>Bithynia tentaculata</i>	Gastropoda	Bithyniidae	1	1	0	0	1	1	0
<i>Potamopyrgus antipodarum</i>	Gastropoda	Hydrobiidae	1	1	1	1	1	1	1
<i>Galba truncatula</i>	Gastropoda	Lymnaeidae	1	1	1	0	0	0	0
<i>Lymnaea stagnalis</i>	Gastropoda	Lymnaeidae	1	1	1	1	1	1	0
<i>Myxas glutinosa</i>	Gastropoda	Lymnaeidae	1	0	0	0	0	0	0
<i>Omphiscola glabra</i>	Gastropoda	Lymnaeidae	1	1	1	0	0	0	0
<i>Radix auricularia</i>	Gastropoda	Lymnaeidae	1	0	0	0	1	0	0
<i>Radix balthica</i>	Gastropoda	Lymnaeidae	1	1	1	1	1	1	0
<i>Stagnicola palustris</i>	Gastropoda	Lymnaeidae	1	1	1	1	1	1	1
<i>Aplexa hypnorum</i>	Gastropoda	Physidae	1	1	1	0	0	0	0
<i>Physa acuta</i>	Gastropoda	Physidae	1	1	1	0	0	0	0
<i>Physa fontinalis</i>	Gastropoda	Physidae	1	1	0	1	1	0	0
<i>Physa heterostropha</i>	Gastropoda	Physidae	0	0	0	1	0	0	0
<i>Ancylus fluviatilis</i>	Gastropoda	Planorbidae	1	1	0	1	0	0	0
<i>Anisus leucostoma</i>	Gastropoda	Planorbidae	1	1	1	0	0	0	0
<i>Anisus vortex</i>	Gastropoda	Planorbidae	1	1	1	0	1	1	0
<i>Bathyomphalus contortus</i>	Gastropoda	Planorbidae	1	1	1	0	0	0	0
<i>Ferrissia wautieri</i>	Gastropoda	Planorbidae	1	0	1	0	0	0	0
<i>Gyraulus albus</i>	Gastropoda	Planorbidae	1	1	1	0	1	0	0
<i>Gyraulus crista</i>	Gastropoda	Planorbidae	1	1	1	1	1	1	1
<i>Gyraulus laevis</i>	Gastropoda	Planorbidae	1	0	1	0	0	1	0
<i>Hippeutis complanatus</i>	Gastropoda	Planorbidae	1	1	1	0	1	0	0
<i>Planorbarius corneus</i>	Gastropoda	Planorbidae	1	1	1	0	1	1	0
<i>Planorbis albus</i>	Gastropoda	Planorbidae	0	0	0	1	0	1	1
<i>Planorbis carinatus</i>	Gastropoda	Planorbidae	1	1	0	1	1	1	0
<i>Planorbis contortus</i>	Gastropoda	Planorbidae	0	0	0	1	0	0	1
<i>Planorbis leucostoma</i>	Gastropoda	Planorbidae	0	0	0	0	0	1	0
<i>Planorbis planorbis</i>	Gastropoda	Planorbidae	1	1	1	1	1	1	1
<i>Segmentina complanata</i>	Gastropoda	Planorbidae	0	0	0	0	0	1	0
<i>Anodonta anatina</i>	Gastropoda	Unionidae	1	0	0	0	0	0	0
<i>Anodonta cygnea</i>	Gastropoda	Unionidae	1	0	0	1	0	0	0
<i>Valvata cristata</i>	Gastropoda	Valvatidae	1	1	1	0	0	0	0
<i>Valvata macrostoma</i>	Gastropoda	Valvatidae	1	0	0	0	0	0	0
<i>Valvata piscinalis</i>	Gastropoda	Valvatidae	1	1	0	0	1	1	0
<i>Valvata sp.</i>	Gastropoda	Valvatidae	0	0	0	0	0	0	1
<i>Viviparus contectus</i>	Gastropoda	Viviparidae	1	0	0	0	0	0	0
<i>Arctocorisa carinata</i>	Hemiptera	Corixidae	1	0	0	0	0	0	0
<i>Arctocorisa germari</i>	Hemiptera	Corixidae	1	1	0	0	0	0	0
<i>Callicorixa praeusta</i>	Hemiptera	Corixidae	1	1	1	1	1	1	0
<i>Callicorixa wollastoni</i>	Hemiptera	Corixidae	1	1	0	1	1	1	0
<i>Corixa affinis</i>	Hemiptera	Corixidae	1	0	0	0	0	0	0

Taxa	Class	Family	1	2	3	4	5	6	7
Corixa dentipes	Hemiptera	Corixidae	1	1	1	1	1	1	0
Corixa panzeri	Hemiptera	Corixidae	1	1	1	1	1	1	0
Corixa punctata	Hemiptera	Corixidae	1	1	1	1	1	1	0
Cymatia bonsdorffi	Hemiptera	Corixidae	1	0	0	0	1	1	1
Cymatia coleoprata	Hemiptera	Corixidae	1	1	1	1	1	0	0
Hesperocorixa castanea	Hemiptera	Corixidae	1	1	1	0	0	1	1
Hesperocorixa linnaei	Hemiptera	Corixidae	1	1	1	1	1	1	0
Hesperocorixa moesta	Hemiptera	Corixidae	1	0	1	0	0	1	1
Hesperocorixa sahlbergi	Hemiptera	Corixidae	1	1	1	1	1	1	1
Micronecta poweri	Hemiptera	Corixidae	0	0	0	0	1	1	0
Micronecta scholtzi	Hemiptera	Corixidae	1	0	0	0	1	0	0
Paracorixa concinna	Hemiptera	Corixidae	0	0	0	0	0	0	0
Sigara concinna	Hemiptera	Corixidae	1	1	1	0	1	0	0
Sigara distincta	Hemiptera	Corixidae	1	1	1	0	1	1	1
Sigara dorsalis	Hemiptera	Corixidae	1	1	1	1	1	1	1
Sigara falleni	Hemiptera	Corixidae	1	1	1	0	1	1	1
Sigara fossarum	Hemiptera	Corixidae	1	1	1	1	1	1	1
Sigara lateralis	Hemiptera	Corixidae	1	1	1	1	1	1	0
Sigara limitata	Hemiptera	Corixidae	1	0	1	0	1	0	0
Sigara nigrolineata	Hemiptera	Corixidae	1	1	1	1	1	0	0
Sigara scotti	Hemiptera	Corixidae	1	1	1	1	0	0	0
Sigara semistriata	Hemiptera	Corixidae	1	1	1	0	0	0	0
Sigara stagnalis	Hemiptera	Corixidae	0	0	0	0	0	0	0
Sigara venusta	Hemiptera	Corixidae	1	1	0	0	0	0	0
Aquarius paludum	Hemiptera	Gerridae	1	0	0	0	0	0	0
Gerris argentatus	Hemiptera	Gerridae	1	1	0	0	0	0	0
Gerris costai	Hemiptera	Gerridae	0	1	0	0	0	0	0
Gerris gibbifer	Hemiptera	Gerridae	1	0	1	0	0	1	1
Gerris lacustris	Hemiptera	Gerridae	1	1	1	1	1	1	1
Gerris lateralis	Hemiptera	Gerridae	0	0	1	0	0	0	0
Gerris odontogaster	Hemiptera	Gerridae	1	1	1	0	1	0	0
Gerris thoracicus	Hemiptera	Gerridae	1	1	1	0	0	0	0
Hydrometra gracilentata	Hemiptera	Hydrometridae	0	0	0	1	0	0	0
Hydrometra stagnorum	Hemiptera	Hydrometridae	1	1	1	0	1	1	0
Mesovelia furcata	Hemiptera	Mesoveliidae	0	0	0	0	1	0	0
Ilyocoris cimicoides	Hemiptera	Naucoridae	1	1	1	0	1	1	0
Nepa cinerea	Hemiptera	Nepidae	1	1	0	0	1	1	0
Noterus clavicornis	Hemiptera	Noteridae	1	1	1	0	1	1	1
Noterus crassicornis	Hemiptera	Noteridae	1	0	0	0	0	0	0
Notonecta glauca	Hemiptera	Notonectidae	1	1	1	1	1	1	1
Notonecta maculata	Hemiptera	Notonectidae	0	0	0	1	1	1	1
Notonecta marmorea	Hemiptera	Notonectidae	1	1	1	0	0	0	0
Notonecta marmorea viridis	Hemiptera	Notonectidae	0	0	0	1	0	0	0
Notonecta obliqua	Hemiptera	Notonectidae	1	1	1	0	0	1	1
Plea leachi	Hemiptera	Pleidae	1	1	1	0	1	0	0

Taxa	Class	Family	1	2	3	4	5	6	7
<i>Microvelia buenoi</i>	Hemiptera	Veliidae	1	0	0	0	0	0	0
<i>Microvelia pygmaea</i>	Hemiptera	Veliidae	1	0	0	0	0	0	0
<i>Microvelia reticulata</i>	Hemiptera	Veliidae	1	1	0	0	1	0	0
<i>Velia caprai</i>	Hemiptera	Veliidae	1	1	0	0	1	0	0
<i>Aphelocheirus aestivalis</i>	Heteroptera	Aphelocheiridae	0	1	0	0	0	0	0
<i>Ranatra linearis</i>	Heteroptera	Nepidae	1	0	0	0	1	1	0
<i>Erpobdella octoculata</i>	Hirudinea	Erpobdellidae	1	1	1	1	1	1	1
<i>Erpobdella sp.</i>	Hirudinea	Erpobdellidae	0	0	0	0	1	0	1
<i>Erpobdella testacea</i>	Hirudinea	Erpobdellidae	1	1	1	1	1	1	0
<i>Trocheta bykowskii</i>	Hirudinea	Erpobdellidae	0	0	1	0	0	0	0
<i>Batracobdella paludosa</i>	Hirudinea	Glossiphoniidae	0	0	0	0	0	1	1
<i>Glossiphonia complanata</i>	Hirudinea	Glossiphoniidae	1	1	1	1	1	1	1
<i>Glossiphonia heteroclita</i>	Hirudinea	Glossiphoniidae	1	1	0	1	1	0	1
<i>Helobdella stagnalis</i>	Hirudinea	Glossiphoniidae	1	1	1	1	1	1	1
<i>Hemiclepsis marginata</i>	Hirudinea	Glossiphoniidae	1	0	0	0	1	0	0
<i>Theromyzon tessulatum</i>	Hirudinea	Glossiphoniidae	1	1	1	1	1	1	1
<i>Haemopis sanguisuga</i>	Hirudinea	Haemopidae	1	1	1	0	0	0	0
<i>Piscicola geometra</i>	Hirudinea	Piscicolidae	1	1	0	1	1	1	0
<i>Sialis fuliginosa</i>	Megaloptera	Sialidae	0	0	0	1	0	0	0
<i>Sialis lutaria</i>	Megaloptera	Sialidae	1	1	1	1	1	1	1
<i>Sialis nigripes</i>	Megaloptera	Sialidae	1	0	0	0	0	0	0
<i>Sisyra fuscata</i>	Neuroptera	Sisyridae	0	0	0	1	0	0	0
<i>Aeshna cyanea</i>	Odonata	Aeshnidae	1	0	1	0	1	1	0
<i>Aeshna grandis</i>	Odonata	Aeshnidae	1	1	1	0	1	1	0
<i>Aeshna juncea</i>	Odonata	Aeshnidae	1	0	1	0	0	0	0
<i>Aeshna mixta</i>	Odonata	Aeshnidae	0	0	0	0	0	1	0
<i>Aeshnidae (1st and 2nd instar)</i>	Odonata	Aeshnidae	0	0	0	0	0	1	1
<i>Anax imperator</i>	Odonata	Aeshnidae	1	0	1	0	1	1	0
<i>Ceriagrion tenellum</i>	Odonata	Coenagrionidae	1	0	0	0	0	0	0
<i>Coenagrion puella</i>	Odonata	Coenagrionidae	0	0	0	1	1	1	0
<i>Coenagrion pulchellum</i>	Odonata	Coenagrionidae	0	0	0	0	0	1	0
<i>Enallagma cyathigerum</i>	Odonata	Coenagrionidae	1	1	1	1	1	1	0
<i>Erythromma najas</i>	Odonata	Coenagrionidae	1	1	1	0	1	1	0
<i>Ischnura elegans</i>	Odonata	Coenagrionidae	1	1	1	1	1	1	1
<i>Ischnura pumilio</i>	Odonata	Coenagrionidae	1	0	0	0	0	0	0
<i>Pyrrhosoma nymphula</i>	Odonata	Coenagrionidae	1	1	1	1	1	1	1
<i>Cordulegaster boltonii</i>	Odonata	Cordulegastridae	1	0	0	0	0	0	0
<i>Lestes sponsa</i>	Odonata	Lestidae	1	1	0	0	1	1	1
<i>Libellula depressa</i>	Odonata	Libellulidae	1	1	1	0	1	1	1
<i>Libellula quadrimaculata</i>	Odonata	Libellulidae	1	0	1	0	1	0	0
<i>Orthetrum cancellatum</i>	Odonata	Libellulidae	1	0	0	0	1	0	0
<i>Orthetrum coerulescens</i>	Odonata	Libellulidae	1	0	0	0	0	0	0
<i>Sympetrum fonscolombii</i>	Odonata	Libellulidae	0	0	0	0	1	0	0
<i>Sympetrum sanguineum</i>	Odonata	Libellulidae	1	0	1	0	1	0	0
<i>Sympetrum striolatum</i>	Odonata	Libellulidae	1	0	1	0	1	0	1

Taxa	Class	Family	1	2	3	4	5	6	7
Oligochaeta	Oligochaeta	N/a	0	0	0	1	1	1	1
Chloroperla torrentium	Plecoptera	Chloroperlidae	0	1	0	0	0	0	0
Leuctra fusca	Plecoptera	Leuctridae	1	1	0	0	0	0	0
Leuctra hippopus	Plecoptera	Leuctridae	1	0	0	0	0	0	0
Amphinemura sulcicollis	Plecoptera	Nemouridae	0	1	0	0	0	0	0
Nemoura avicularis	Plecoptera	Nemouridae	1	0	0	0	0	0	0
Nemoura cambrica	Plecoptera	Nemouridae	0	1	0	0	0	0	0
Nemoura cinerea	Plecoptera	Nemouridae	1	1	1	1	0	0	1
Nemurella picteti	Plecoptera	Nemouridae	1	0	0	1	0	0	0
Protonemura meyeri	Plecoptera	Nemouridae	1	0	0	0	0	0	0
Apatania muliebris	Trichoptera	Apataniidae	0	0	0	0	0	1	0
Beraea pullata	Trichoptera	Beraeidae	1	1	0	0	0	1	0
Beraeodes minutus	Trichoptera	Beraeidae	1	0	0	0	0	0	0
Brachycentrus subnubilus	Trichoptera	Brachycentridae	0	1	0	0	0	0	0
Ecnomus tenellus	Trichoptera	Ecnomidae	1	0	0	0	0	0	0
Silo pallipes	Trichoptera	Goeridae	0	0	0	0	0	0	1
Ochthebius dilatatus	Trichoptera	Hydraenidae	1	0	0	0	0	0	0
Ochthebius marinus	Trichoptera	Hydraenidae	0	0	1	0	0	0	0
Ochthebius minimus	Trichoptera	Hydraenidae	1	1	1	0	1	0	0
Ochthebius nanus	Trichoptera	Hydraenidae	1	0	0	0	0	0	0
Ochthebius punctatus	Trichoptera	Hydraenidae	1	0	0	0	0	0	0
Ochthebius viridis	Trichoptera	Hydraenidae	1	0	0	0	0	0	0
Cheumatopsyche lepida	Trichoptera	Hydropsychidae	0	1	0	0	0	0	0
Hydropsyche angustipennis	Trichoptera	Hydropsychidae	0	0	0	0	0	1	0
Agraylea multipunctata	Trichoptera	Hydroptilidae	1	0	0	0	1	0	1
Agraylea sexmaculata	Trichoptera	Hydroptilidae	1	0	0	0	1	0	0
Hydroptila sp.	Trichoptera	Hydroptilidae	0	0	0	0	1	0	1
Oxyethira sp.	Trichoptera	Hydroptilidae	0	0	0	0	1	0	0
Tricholeiochiton fagesii	Trichoptera	Hydroptilidae	1	0	0	0	0	0	0
Lasiocephala basalis	Trichoptera	Lepidostomatidae	1	0	0	0	0	0	0
Lepidostoma hirtum	Trichoptera	Lepidostomatidae	0	1	0	0	0	0	0
Athripsodes aterrimus	Trichoptera	Leptoceridae	1	1	0	1	1	1	0
Athripsodes bilineatus	Trichoptera	Leptoceridae	0	1	0	0	0	0	0
Athripsodes cinereus	Trichoptera	Leptoceridae	1	1	0	0	0	0	1
Ceraclea fulva	Trichoptera	Leptoceridae	0	0	0	0	0	1	0
Ceraclea nigranervosa	Trichoptera	Leptoceridae	0	1	0	0	0	0	0
Leptocerus sp.	Trichoptera	Leptoceridae	0	0	0	0	0	0	1
Leptocerus tineiformis	Trichoptera	Leptoceridae	1	1	0	0	1	0	1
Mystacides azurea	Trichoptera	Leptoceridae	1	1	1	1	1	1	1
Mystacides longicornis	Trichoptera	Leptoceridae	1	1	0	1	0	1	1
Mystacides longicornis/nigra	Trichoptera	Leptoceridae	0	0	0	0	1	0	0
Mystacides nigra	Trichoptera	Leptoceridae	0	0	1	1	0	0	1
Oecetis lacustris	Trichoptera	Leptoceridae	1	1	0	1	1	0	0
Oecetis ochracea	Trichoptera	Leptoceridae	1	0	1	1	1	0	1
Oecetis testacea	Trichoptera	Leptoceridae	1	0	0	0	0	0	0

Taxa	Class	Family	1	2	3	4	5	6	7
<i>Trienodes bicolor</i>	Trichoptera	Leptoceridae	1	1	0	0	1	1	1
<i>Leptophlebia marginata</i>	Trichoptera	Leptophlebiidae	1	0	1	1	0	0	0
<i>Leptophlebia vespertina</i>	Trichoptera	Leptophlebiidae	1	1	0	0	0	0	0
<i>Anabolia nervosa</i>	Trichoptera	Limnephilidae	1	1	0	0	1	1	0
<i>Drusus annulatus</i>	Trichoptera	Limnephilidae	1	0	0	0	0	0	0
<i>Glyphotaelius pellucidus</i>	Trichoptera	Limnephilidae	1	1	1	1	0	1	0
<i>Grammotaulius nigropunctatus</i>	Trichoptera	Limnephilidae	1	0	0	0	0	1	0
<i>Halesus digitatus</i>	Trichoptera	Limnephilidae	1	1	0	0	0	0	0
<i>Halesus radiatus</i>	Trichoptera	Limnephilidae	1	1	0	1	0	0	0
<i>Limnephilus affinis/incisus</i>	Trichoptera	Limnephilidae	1	1	1	0	0	1	0
<i>Limnephilus aricula</i>	Trichoptera	Limnephilidae	0	0	0	0	0	1	0
<i>Limnephilus auricula</i>	Trichoptera	Limnephilidae	1	1	1	0	0	0	1
<i>Limnephilus binotatus</i>	Trichoptera	Limnephilidae	1	0	1	0	0	1	0
<i>Limnephilus bipunctatus</i>	Trichoptera	Limnephilidae	1	1	1	0	0	0	0
<i>Limnephilus centralis</i>	Trichoptera	Limnephilidae	1	1	1	1	0	0	0
<i>Limnephilus decipiens</i>	Trichoptera	Limnephilidae	1	1	0	0	1	1	0
<i>Limnephilus extricatus</i>	Trichoptera	Limnephilidae	0	0	1	1	0	0	0
<i>Limnephilus flavicornis</i> agg.	Trichoptera	Limnephilidae	1	1	1	1	1	1	0
<i>Limnephilus griseus</i>	Trichoptera	Limnephilidae	1	0	0	0	0	1	0
<i>Limnephilus hirsutus</i>	Trichoptera	Limnephilidae	1	0	1	0	0	0	0
<i>Limnephilus ignavus</i>	Trichoptera	Limnephilidae	1	0	0	0	0	0	0
<i>Limnephilus lunatus</i>	Trichoptera	Limnephilidae	1	1	1	0	1	1	1
<i>Limnephilus marmoratus</i>	Trichoptera	Limnephilidae	1	1	1	0	1	1	0
<i>Limnephilus nigriceps</i>	Trichoptera	Limnephilidae	0	0	0	0	0	1	0
<i>Limnephilus politus</i>	Trichoptera	Limnephilidae	0	0	0	0	0	0	1
<i>Limnephilus rhombicus</i>	Trichoptera	Limnephilidae	1	0	0	1	0	1	0
<i>Limnephilus sparsus</i>	Trichoptera	Limnephilidae	1	1	1	0	0	0	0
<i>Limnephilus stigma</i>	Trichoptera	Limnephilidae	1	0	1	0	0	0	0
<i>Limnephilus vittatus</i>	Trichoptera	Limnephilidae	1	1	1	0	0	1	0
<i>Micropterna lateralis</i>	Trichoptera	Limnephilidae	1	1	0	1	0	0	0
<i>Potamophylax cingulatus</i>	Trichoptera	Limnephilidae	1	0	0	0	0	0	0
<i>Potamophylax latipennis</i>	Trichoptera	Limnephilidae	1	0	0	1	0	0	0
<i>Stenophylax permistus</i>	Trichoptera	Limnephilidae	1	0	0	0	0	0	0
<i>Molanna angustata</i>	Trichoptera	Molannidae	1	0	0	1	1	1	0
<i>Agrypnia obsoleta</i>	Trichoptera	Phryganeidae	1	0	0	1	0	0	0
<i>Agrypnia pagetana</i>	Trichoptera	Phryganeidae	1	0	0	0	1	0	0
<i>Agrypnia varia</i>	Trichoptera	Phryganeidae	1	1	1	0	0	0	0
<i>Oligotricha striata</i>	Trichoptera	Phryganeidae	1	0	0	0	0	0	0
<i>Phryganea bipunctata</i>	Trichoptera	Phryganeidae	1	1	0	1	1	1	1
<i>Trichostegia minor</i>	Trichoptera	Phryganeidae	1	1	1	0	0	0	0
<i>Cyrnus flavidus</i>	Trichoptera	Polycentropodidae	1	1	0	1	1	0	0
<i>Cyrnus trimaculatus</i>	Trichoptera	Polycentropodidae	1	1	0	1	1	1	1
<i>Holocentropus dubius</i>	Trichoptera	Polycentropodidae	1	1	1	0	1	1	1
<i>Holocentropus picicornis</i>	Trichoptera	Polycentropodidae	1	1	0	0	1	1	1
<i>Holocentropus</i> sp.	Trichoptera	Polycentropodidae	0	0	0	0	0	0	1

Taxa	Class	Family	1	2	3	4	5	6	7
<i>Holocentropus stagnalis</i>	Trichoptera	Polycentropodidae	1	0	1	0	0	0	0
<i>Plectrocnemia conspersa</i>	Trichoptera	Polycentropodidae	1	0	1	0	0	0	1
<i>Plectrocnemia geniculata</i>	Trichoptera	Polycentropodidae	1	0	0	0	0	0	0
<i>Polycentropus flavomaculatus</i>	Trichoptera	Polycentropodidae	1	1	0	0	0	1	0
<i>Polycentropus kingi</i>	Trichoptera	Polycentropodidae	1	0	0	0	0	0	0
<i>Tinodes waeneri</i>	Trichoptera	Psychomyidae	1	0	0	1	0	0	0
<i>Lype reducta</i>	Trichoptera	Psychomyiidae	1	0	0	1	1	0	0
<i>Notidobia ciliaris</i>	Trichoptera	Sericostomatidae	1	0	0	0	0	0	0
<i>Sericostoma personatum</i>	Trichoptera	Sericostomatidae	0	1	0	1	0	0	1
<i>Dendrocoelum lacteum</i>	Tricladida	Dendrocoelidae	1	1	1	0	1	0	0
<i>Dugesia lugubris</i>	Tricladida	Dugesiidae	1	1	1	0	0	0	0
<i>Dugesia lugubris/polychroa</i>	Tricladida	Dugesiidae	0	0	0	0	1	0	1
<i>Dugesia polychroa</i>	Tricladida	Dugesiidae	1	1	1	0	0	0	0
<i>Dugesia tigrina</i>	Tricladida	Dugesiidae	1	1	0	0	1	0	0
<i>Planaria torva</i>	Tricladida	Planariidae	0	0	0	0	1	0	0
<i>Polycelis felina</i>	Tricladida	Planariidae	0	1	0	0	0	0	0
<i>Polycelis nigra</i>	Tricladida	Planariidae	1	1	1	0	0	0	0
<i>Polycelis nigra/tenuis</i>	Tricladida	Planariidae	0	0	0	0	1	0	1
<i>Polycelis tenuis</i>	Tricladida	Planariidae	1	1	1	0	0	0	0

Table S 2 Covariance matrix (Spearman's Rank) between land-use and environmental gradients using all study ponds (n = 387). Bold denotes a significant relationship $P < 0.001$.

	Urb	Agri	Shade	pH	Emerge	Area
Urb	-	-0.27	0.01	0.36	-0.03	0.04
Agri	-0.27	-	0.09	0.03	0.01	-0.07
Shade	0.01	0.09	-	-0.01	-0.29	0.10
pH	0.36	0.03	-0.01	-	-0.09	0.10
Emerge	-0.03	0.01	-0.29	-0.09	-	-0.05
Area	0.04	-0.07	0.10	0.10	-0.05	-

Urb = Urbanisation (% within 500m), Agri = Agriculture (% within 500m), Shade = Shading (% canopy cover), Emerge = Emergent vegetation cover (%), Area = Surface area

Table S 3 Number of sites within each land-use intensity or environmental gradient across each study. Number in parenthesis identify the range boundaries.

Gradient	NPS	ROPA	TP	W.Yorks	W.Midlands	Leics.	Wales
<u>Urbanisation (%)</u>							
1 (0.0 - 1.3)	38	6	18	1	0	2	32
2 (1.3 - 5.4)	38	15	16	11	0	1	15
3 (5.4 - 24.8)	28	11	26	18	4	6	4
4 (24.8 - 96.8)	15	2	16	6	26	32	0
<u>Agriculture (%)</u>							
1 (0.0 - 16.3)	34	4	17	7	16	9	10
2 (16.3 - 46.9)	27	1	14	28	7	15	4
3 (46.9 - 69.0)	37	8	29	1	4	8	10
4 (69.0 - 97.1)	21	21	16	0	3	9	27
<u>Shading (%)</u>							
1 (0.0 - 0.5)	28	5	32	n/a	5	16	0
2 (0.5 - 10.0)	34	16	7	n/a	7	11	1
3 (10.0 - 39.0)	38	12	16	n/a	8	6	19
4 (39.0 - 100)	19	1	21	n/a	10	8	31
<u>Emergent veg. (%)</u>							
1 (0.0 - 5.0)	7	7	8	8	11	13	23
2 (5.0 - 20.0)	36	10	3	15	12	14	19
3 (20.0 - 44.0)	45	10	19	7	7	7	5
4 (44.0 - 100)	29	7	45	6	0	7	4
<u>Surface area (sq. m)</u>							
1 (1.0 - 200)	26	4	23	4	0	29	6
2 (200 - 712)	30	17	28	3	4	5	14
3 (712 - 2,000)	35	5	14	13	12	2	15

4 - 2,000 -62,000)	28	8	11	16	14	5	16
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pH

1 (2.5 - 6.7)	43	5	22	9	0	1	14
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2 (6.7 - 7.2)	31	4	14	14	3	3	23
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3 (7.2 - 7.6)	24	14	16	11	13	10	6
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4 (7.6 - 10.2)	13	10	22	2	14	27	8
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Table S 4 Functional effect group (EG) effect trait characterisation. Figures given represent proportions of EG belonging to each respective trait category.

Study	EG	n.taxa	Broad description	Body size							Voltinism			Feeding habit						
				0.25 cm	0.25-.5 cm	0.5-1 cm	1-2 cm	2-4 cm	4-8 cm	8 cm	1	1	1	deposit feeder	shredder	scraper	filter-feeder	piercer	predator	parasite
NPS	1	61	1-2cm, 1 annual cycle, piercers / shredders	0.05	0.00	0.28	0.65	0.01	0.00	0.00	0.02	0.67	0.32	0.00	0.24	0.11	0.04	0.43	0.16	0.01
	2	80	0.5-1cm, 1 annual cycle, shredders / scrapers	0.00	0.16	0.76	0.08	0.00	0.00	0.00	0.02	0.72	0.26	0.09	0.49	0.19	0.04	0.11	0.08	0.00
	3	32	1-4cm, 1 annual cycle, predators	0.00	0.00	0.03	0.44	0.40	0.14	0.00	0.33	0.60	0.07	0.01	0.01	0.02	0.00	0.02	0.95	0.00
	4	60	0.25-0.5cm, >1 annual cycle, piercers	0.02	0.83	0.15	0.00	0.00	0.00	0.00	0.00	0.25	0.75	0.01	0.48	0.01	0.00	0.51	0.00	0.00
	5	53	2-4cm, 1 annual cycle, shredders	0.00	0.00	0.00	0.41	0.52	0.03	0.04	0.09	0.82	0.09	0.01	0.68	0.10	0.03	0.10	0.04	0.05
	6	52	0.25-0.5cm, 1 annual cycle, scrapers	0.00	0.89	0.11	0.00	0.00	0.00	0.00	0.00	0.81	0.19	0.00	0.39	0.51	0.00	0.02	0.07	0.00

ROPA	1	42	1-2cm, 1 annual cycle, shredders	0.00	0.00	0.00	0.58	0.38	0.01	0.02	0.13	0.74	0.13	0.03	0.64	0.20	0.02	0.05	0.04	0.02
	2	57	0.5-1cm, 1 annual cycle, shredders	0.00	0.09	0.65	0.25	0.00	0.00	0.00	0.04	0.84	0.12	0.05	0.50	0.20	0.05	0.15	0.05	0.00
	3	17	1-4cm, 1 annual cycle, predators	0.00	0.00	0.07	0.45	0.44	0.04	0.00	0.22	0.71	0.07	0.00	0.00	0.00	0.00	0.00	1.00	0.00
	4	31	0.25-0.5cm, 1 annual cycle, scrapers / shredders	0.00	0.84	0.16	0.00	0.00	0.00	0.00	0.00	0.79	0.21	0.00	0.40	0.48	0.00	0.03	0.08	0.00
	5	28	1-2cm, 1 annual cycle, piercers	0.05	0.03	0.24	0.52	0.10	0.07	0.00	0.01	0.71	0.29	0.00	0.03	0.00	0.11	0.58	0.25	0.04
	6	39	0.25-0.5cm, >1 annual cycle, shredders	0.00	0.86	0.14	0.00	0.00	0.00	0.00	0.00	0.24	0.76	0.00	0.53	0.01	0.00	0.46	0.00	0.00
	7	24	0.5-1cm, >1 annual cycle, shredders / piercers	0.00	0.20	0.80	0.00	0.00	0.00	0.00	0.00	0.35	0.65	0.17	0.38	0.20	0.00	0.23	0.02	0.00
Temporary Ponds	1	47	1-2cm, 1 annual cycle, piercers	0.01	0.04	0.26	0.65	0.04	0.01	0.00	0.00	0.76	0.24	0.00	0.29	0.05	0.02	0.53	0.10	0.01
	2	70	0.25-0.5cm, 1 annual cycle, shredders / scrapers	0.00	0.60	0.36	0.04	0.00	0.00	0.00	0.01	0.81	0.18	0.02	0.47	0.39	0.01	0.01	0.11	0.00

W. Yorks	3	22	1-4cm, 1 annual cycle, predators	0.00	0.00	0.04	0.38	0.37	0.17	0.05	0.33	0.61	0.06	0.00	0.00	0.00	0.00	0.02	0.98	0.00
	4	24	1-2cm, 1 annual cycle, shredders	0.00	0.00	0.00	0.51	0.47	0.02	0.00	0.08	0.76	0.16	0.00	0.79	0.14	0.00	0.00	0.02	0.04
	5	65	0.25-0.5cm, >1 annual cycle, shredders / piercers	0.00	0.64	0.36	0.00	0.00	0.00	0.00	0.00	0.29	0.71	0.03	0.48	0.09	0.00	0.40	0.01	0.00
	1	24	0.5-1cm, 1 annual cycle, shredders / piercers	0.00	0.04	0.61	0.33	0.01	0.01	0.00	0.03	0.79	0.18	0.08	0.45	0.10	0.00	0.34	0.04	0.00
	2	10	2-4cm, 1 annual cycle, shredders / scrapers	0.00	0.00	0.00	0.05	0.84	0.12	0.00	0.25	0.65	0.11	0.11	0.45	0.24	0.08	0.00	0.13	0.00
	3	29	1-2cm, 1 annual cycle, shredders / scrapers	0.00	0.10	0.03	0.62	0.19	0.02	0.03	0.02	0.85	0.13	0.00	0.45	0.27	0.01	0.16	0.03	0.08
	4	33	0.5-1cm, >1 annual cycle, generalists	0.00	0.20	0.69	0.09	0.01	0.01	0.00	0.00	0.35	0.65	0.18	0.27	0.20	0.14	0.13	0.09	0.00
	5	9	1-2cm, 1 annual cycle, predators	0.00	0.00	0.00	0.69	0.31	0.00	0.00	0.34	0.56	0.10	0.02	0.00	0.02	0.00	0.00	0.96	0.00
	6	8	0.25-0.5cm, >1 annual cycle, piercers / shredders	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.72	0.00	0.46	0.00	0.00	0.49	0.00	0.05

West Midlands	1	43	1-2cm, 1 annual cycle, scrapers	0.00	0.01	0.14	0.52	0.29	0.04	0.00	0.04	0.77	0.19	0.01	0.14	0.52	0.29	0.04	0.00	0.04
	2	40	0.25-1cm, 1 annual cycle, shredders / deposit feeders	0.00	0.25	0.49	0.17	0.09	0.01	0.00	0.00	0.86	0.14	0.25	0.49	0.17	0.09	0.01	0.00	0.00
	3	36	1-4cm, <1 - 1 annual cycle, scrapers / filterers	0.03	0.01	0.09	0.50	0.30	0.08	0.00	0.21	0.58	0.22	0.01	0.09	0.50	0.30	0.08	0.00	0.21
	4	31	0.25-0.5cm, >1 annual cycle, deposit feeders	0.02	0.88	0.10	0.00	0.00	0.00	0.00	0.00	0.40	0.60	0.88	0.10	0.00	0.00	0.00	0.00	0.00
	5	25	0.25-1cm, >1 annual cycle, shredders	0.06	0.18	0.73	0.02	0.01	0.01	0.00	0.00	0.28	0.72	0.18	0.73	0.02	0.01	0.01	0.00	0.00
Leicestershire	1	29	0.25-2cm, 1 annual cycle, shredders / scrapers	0.00	0.18	0.44	0.33	0.04	0.01	0.00	0.01	0.87	0.12	0.18	0.44	0.33	0.04	0.01	0.00	0.01
	2	25	1-4cm, ≤1 annual cycle, scrapers / parasites	0.00	0.00	0.15	0.46	0.26	0.14	0.00	0.29	0.49	0.22	0.00	0.15	0.46	0.26	0.14	0.00	0.29
	3	17	0.5-2cm, 1 annual cycle, scrapers / shredders	0.00	0.00	0.30	0.70	0.00	0.00	0.00	0.00	0.76	0.24	0.00	0.30	0.70	0.00	0.00	0.00	0.00
	4	25	0.25-1cm, ≥1 annual cycle, filterers / scrapers	0.00	0.74	0.25	0.01	0.00	0.00	0.00	0.00	0.56	0.44	0.74	0.25	0.01	0.00	0.00	0.00	0.00

Wales	5	29	1-4cm, 1 annual cycle, filterers / scrapers	0.00	0.00	0.00	0.42	0.52	0.06	0.00	0.06	0.83	0.11	0.00	0.00	0.42	0.52	0.06	0.00	0.06
	6	25	0.25-1cm, ≥ 1 annual cycle, shredders / deposit feeders	0.03	0.20	0.74	0.02	0.01	0.01	0.00	0.00	0.31	0.69	0.20	0.74	0.02	0.01	0.01	0.00	0.00
	1	18	1-2cm, 1 annual cycle, shredders / piercers	0.00	0.00	0.00	0.82	0.18	0.00	0.00	0.02	0.79	0.19	0.00	0.47	0.14	0.00	0.31	0.04	0.04
	2	27	0.5-1cm, 1 annual cycle, shredders	0.00	0.07	0.72	0.22	0.00	0.00	0.00	0.02	0.84	0.14	0.05	0.52	0.16	0.03	0.17	0.07	0.00
	3	18	2-4cm, < 1 or 1 annual cycle, predators / shredders	0.00	0.00	0.01	0.07	0.79	0.13	0.00	0.23	0.68	0.08	0.06	0.21	0.06	0.02	0.11	0.48	0.06
	4	16	0.25-0.5cm, > 1 annual cycle, piercers / shredders	0.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.29	0.71	0.02	0.45	0.01	0.00	0.51	0.00	0.00
	5	26	0.5-1cm, 1 or > 1 annual cycle, shredders / deposit feeders	0.00	0.19	0.72	0.06	0.02	0.02	0.00	0.00	0.36	0.64	0.23	0.31	0.22	0.05	0.13	0.07	0.00
	6	13	1-2cm, 1 or > 1 annual cycle, predators	0.00	0.00	0.25	0.72	0.03	0.00	0.00	0.05	0.52	0.43	0.00	0.00	0.00	0.10	0.12	0.79	0.00
7	11	0.25-1cm, 1 annual cycle, scrapers	0.00	0.73	0.27	0.00	0.00	0.00	0.00	0.00	0.84	0.16	0.00	0.27	0.68	0.00	0.00	0.05	0.00	

Table S 5 Partial correlation tests (Spearman's Rank coefficient) for urban land-use upon functional redundancy, controlling for the effect of local environmental gradients. Bold denotes significance ($P < 0.001$). Partial correlations were carried out using the `pcor.test` function of the package 'ppcor' for R Statistical Software. Grey cells indicate partial correlations that deviate notably from the zero-order correlation.

Controlling variable	NPS	ROPA	TP	W.Yorks	W.Mids	Leic.	Wales
(zero-order ρ)	0.178	0.010	-0.017	0.006	-0.056	-0.017	-0.032
Shade	0.187	0.018	0.030	n/a	-0.199	-0.129	-0.035
Emergent veg.	0.176	0.016	-0.032	-0.008	-0.072	-0.191	-0.025
Surface area	0.149	0.008	-0.023	0.014	-0.164	-0.122	-0.052
pH	0.100	0.034	-0.061	0.000	-0.093	0.003	-0.014

Table S 6 Partial correlation tests (Spearman's Rank coefficient) for urban land-use upon response diversity, controlling for the effect of local environmental gradients. Bold denotes significance ($P < 0.001$). Partial correlations were carried out using the `pcor.test` function of the package 'ppcor' for R Statistical Software. Grey cells indicate partial correlations that deviate notably from the zero-order correlation.

Controlling variable	NPS	ROPA	TP	W.Yorks	W.Mids	Leic.	Wales
(zero-order ρ)	0.129	0.106	0.038	0.010	-0.030	-0.041	0.020
Shade	0.123	0.140	0.050	n/a	-0.103	-0.111	0.034
Emergent veg.	0.137	0.146	0.030	-0.061	-0.028	-0.157	0.037
Surface area	0.097	0.137	0.024	-0.017	-0.121	-0.103	0.015
pH	0.063	0.115	0.019	-0.027	-0.062	-0.008	0.045

Table S 7 Partial correlation tests (Spearman's Rank coefficient) for agricultural land-use upon functional redundancy, controlling for the effect of local environmental gradients. Bold denotes significance ($P < 0.001$). Partial correlations were carried out using the `pcor.test` function of the package 'ppcor' for R Statistical Software. Grey cells indicate partial correlations that deviate notably from the zero-order correlation.

Controlling variable	NPS	ROPA	TP	W.Yorks	W.Mids	Leic.	Wales
(zero-order ρ)	0.085	0.111	0.054	0.009	0.342	0.108	0.001
Shade	0.090	0.088	0.059	n/a	0.353	0.064	-0.025
Emergent veg.	0.072	0.084	0.072	0.030	0.342	0.126	-0.019
Surface area	0.121	0.100	0.059	0.028	0.417	0.062	-0.036
pH	0.037	0.091	0.029	0.019	0.355	0.017	0.000

Table S 8 Partial correlation tests (Spearman's Rank coefficient) for agricultural land-use upon response diversity, controlling for the effect of local environmental gradients. Bold denotes significance ($P < 0.001$). Partial correlations were carried out using the `pcor.test` function of the package 'ppcor' for R Statistical Software. Grey cells indicate partial correlations that deviate notably from the zero-order correlation.

Controlling variable	NPS	ROPA	TP	W.Yorks	W.Mids	Leic.	Wales
(zero-order ρ)	0.086	0.078	0.044	0.046	0.117	0.088	0.016
Shade	0.075	0.008	0.047	n/a	0.081	0.051	-0.013
Emergent veg.	0.082	-0.007	0.054	0.028	0.094	0.098	-0.011
Surface area	0.116	0.023	0.071	0.027	0.145	0.047	-0.025
pH	0.032	-0.010	0.035	0.029	0.095	0.014	0.005