

**Monitoring invertebrate features on Sites of
Special Scientific Interest: aquatic
invertebrates on the Gwent Levels: Magor
and Undy SSSI, Nash and Goldcliff SSSI,
Newport Wetlands SSSI, Rumney and
Peterstone SSSI**

DC Boyce

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CRYNODEB GWEITHREDOL

EXECUTIVE SUMMARY

This report describes a programme of aquatic invertebrate sampling undertaken on the Gwent Levels for the Countryside Council for Wales (CCW) in grazing marsh ditches on the Magor & Undy, Nash & Goldcliff, Newport Wetlands and Rumney & Peterstone SSSIs in 2012. It is necessary for CCW to develop a monitoring strategy for the aquatic invertebrate fauna in order to meet its commitments under the Common Standards Monitoring (CSM) programme. The aim of this project is to provide baseline data that will enable CCW to assess the condition of the Aquatic Invertebrate Feature on the two SSSIs.

This contract required 44 main reed sections, plus five field ditches on the Newport Wetlands, to be sampled according to standard methods developed for a national survey of the ecology of ditch systems by Buglife (Palmer et al. 2009 and 2010). The samples collected from the five field ditches were amalgamated into two blocks in order to make the data comparable with that collected from the main reed sections. In all, there were therefore 46 sample stations established across the four SSSIs. Sampling was carried out between 6 June and 30 July, and concentrated on the collection of aquatic beetles, bugs and snails.

In all, 148 aquatic invertebrate species were recorded during the sampling programme, with three, the king diving beetle *Dytiscus dimidiatus*, the great silver water beetle *Hydrophilus piceus* and the soldierfly *Odontomyia ornata*, being Red Data Book species. A further nine nationally scarce species and 18 that are thought to have a high fidelity to grazing marsh habitats were noted. Species richness in the 46 sample stations ranged from 14 to 42 species. The Species Quality Index and the Habitat Quality Score were in the range from 1.06-1.47 and 0-11.67 respectively.

As in previous years aquatic invertebrate sampling on the Gwent Levels, these figures were low compared to grazing marsh ditches sampled in other parts of southern Britain, such as the Somerset Levels. Two main causes are thought likely to contribute to the relatively low invertebrate diversity. Firstly, many of the ditches were choked with growth of duckweeds *Lemna* spp., including the recent American colonist *Lemna minuta*. The presence of abundant duckweed is thought to indicate a high degree of eutrophication. Dense mats of duckweed also suppress the growth of submerged beds of aquatic macrophytes, these being a very important niche for aquatic invertebrates.

Secondly, many of the ditches are subject to a very regular programme of clearing out, which creates steep, unfavourable bank profiles that lack the shallow marginal areas required by many aquatic invertebrates. Very regular dredging also prevents the development of the late-successional ditch habitats with diverse aquatic and emergent vegetation that support the greatest diversity of aquatic invertebrate species.

1 INTRODUCTION

This report describes a programme of aquatic invertebrate sampling undertaken for the Countryside Council for Wales (CCW) in grazing marsh ditches (known locally as reens) on the Magor and Undy, Nash and Goldcliff, Newport Wetlands and Rumney and Peterstone Sites of Special Scientific Interest (SSSI), Gwent Levels, Monmouth in 2012. Central grid references for the four sites approximate to ST440860, ST350850, ST350830 and ST250800 respectively. The work aims to provide baseline information that can be used to inform the development of a monitoring strategy for the aquatic invertebrate fauna of the site. Magor and Undy covers an area of 586 hectares (ha.) of grazing marsh and for Nash and Goldcliff, Newport Wetlands and Rumney and Peterstone these figures are 760, 374 and 969 ha. respectively. They are four of seven SSSIs, which collectively cover 5734 ha. of the Gwent Levels. This is the third in a series of aquatic invertebrate monitoring contracts, with similar exercises having been undertaken on the Whitson SSSI in 2009 (Boyce, 2010), and on the Redwick and Llandevenuey SSSI and St. Brides SSSI in 2011 (Boyce, 2012). The current study therefore completes a first monitoring cycle of all the Gwent Levels' constituent SSSIs. There have been a number of other earlier invertebrate surveys of the aquatic ditch fauna of the Levels, with these being summarised by Bratton (2002). These various studies demonstrate that the area hosts an aquatic invertebrate fauna of exceptional importance.

It is necessary for CCW to develop a monitoring strategy for the aquatic invertebrate fauna in order to meet its commitments under the Common Standards Monitoring (CSM) programme. CSM provides a framework by which the condition of features can be rapidly assessed against targets that define the desired state of appropriate attributes. These attributes (2-5 per feature) should generally be capable of being monitored by non-specialist staff, whilst also being ecologically relevant to the feature. Further details on the principles behind CSM can be found on the Joint Nature Conservation Committee (JNCC) website.

The aim of this project is to provide baseline data that will enable CCW to assess the condition of the Aquatic Invertebrate Feature on the Magor and Undy, Nash and Goldcliff, Newport Wetlands and Rumney and Peterstone SSSIs. This will be achieved through the collection of standardised samples from a suite of main ditches and then evaluating the data using indices developed recently for ditch habitats by Palmer et al. (2010).

2 METHODS

Magor and Undy, Nash and Goldcliff, Newport Wetlands and Rumney and Peterstone SSSIs are four of seven component SSSIs of the Gwent Levels. They respectively contain 32, 18, two and 24 main reens (in addition to which all these sites have an extensive network of field ditches), amounting to approximately 38, 30, two and 40 kms. in length, managed by the Environment Agency (EA) and Internal Drainage Boards (IDB). EA reens are managed regularly (every one to three years) whilst IDB ditches are generally cleared on a seven-year cycle.

For conservation purposes CCW has delineated 'field blocks' within the SSSI, each of which is bounded by the intersecting main reens. The Magor and Undy SSSI has 27 Field Block Units and 32 Main Reen Units. Nash and Goldcliff SSSI has 33 Field Block Units and 18 Main Reen Units. Newport Wetlands SSSI has five Field Block Units and two Main Reen Units and Rumney and Peterstone SSSI has 52 Field Block Units and 24 Main Reen Units. This contract required 14, 12, two and 16 of the reen sections at each of the above sites respectively to be sampled, and in addition five samples were to be collected from field ditches on the Newport Wetlands SSSI. As in 2008 and 2011, all sampling was carried out using the standard methods developed for a national survey of the ecology of ditch systems by Buglife (Palmer et al., 2010). For each of the main reen sections, the contractor identified three sub-sample points containing habitat conditions likely to support rich invertebrate assemblages. These three sub-sections were collectively considered to constitute a single sample station. However, the five field ditch sites on the Newport Wetlands (identified as 'NWFD' sample stations elsewhere in this report) were all short in length, and here the sample station consisted of just a single sample. Each sample station has been allocated a coded survey number, with those sample stations prefixed with 'MU' being on the Magor and Undy SSSI, 'NG' refers to Nash and Goldcliff, 'NW' denotes a Newport Wetlands sample station and 'RP' is used for sites on the Rumney and Peterstone SSSI. The unique coded survey number, the EA/IDB ditch to which this refers, and a ten-figure GPS-derived grid reference (including the margin of error given for each of these readings) is presented in Tables 2.1 to 2.4, and the location of the sample stations is also shown in Figures 2.1 to 2.4.

Before beginning to collect invertebrates, an eight-figure GPS reading of the location of each sub-sample station was recorded and a photograph of the ditch length to be sampled was taken. In each sub-sample, a pond net was used to collect material from patches of vegetation that exhibited the greatest small-scale mosaic structure until the net began to fill to the point that it became more difficult to push. This generally took between 1-3 minutes and the net was usually about a quarter to a third full of plant material (about 2-3 litres by volume). The sample was then spread out onto a white polythene sheet and invertebrates were recorded/collected for 8 minutes as the material was teased apart. Part of the debris was then put into a white tray with c. 2cm of water, so that feeble animals could swim free and be collected using a tea strainer. The latter element of the sub-sample only took about 1 minute.

Finally, all of the debris was tipped into a bucket of water, the larger pieces quickly being removed (dunking them up and down while doing so to release caught-up animals), most of the water was then decanted, with the heavy residue being tipped into the white tray (with c. 1cm of water). By tipping the contents to one end of the tray, then slowly tipping it back again, the snails were left stranded in a pile. They could then be scooped up for preservation or sorted quickly for tiny species (*Gyraulus*, *Hippeutis*, *Valvata*, etc.). Further details of the sampling method can be found in Palmer et al. (2010). Taxonomic groups to be covered by this contract were: Coleoptera, Hemiptera and Mollusca, but in the latter case, excluding small bivalve molluscs such as the various *Pisidium* spp. In addition, larvae of either the hairy dragonfly

Brachytron pratense, or soldierflies (Stratiomyidae) were collected and identified to species. The contract stipulated that the water spider *Argyroneta aquatica* should also be recorded. To ensure that the invertebrate sub-sample points were included in subsequent habitat assessments being undertaken by CCW staff, the surveyor also completed a habitat recording form at each of these. The methods of assessing ditch habitat condition employed are outlined below and a blank habitat recording form is included at Appendix 3.

The dominant vegetation (ie. that comprising more than 50% of the area) within a one-metre strip across the ditch centred on the sampling point was recorded. In many cases there was more than one qualifying ditch type, corresponding to the three structural layers (underwater, surface and emergent). It was therefore possible to record up to three ditch types per sample point, eg. **Su/F/Em**.

The definition of the various ditch vegetation types recorded was as follows:

- O Open water** - Unshaded ditches where more than half of the sample area contained no aquatic or emergent vegetation.
- A Algae** - Filamentous algae.
- F Floating** - Large-leaved floating aquatics.
- L Lemna** - Floating *Lemna* spp..
- Su Submergents** - Submergent spp..
- R Rafts** - Raft spp..
- Es Short emergents** - Emergent vegetation up to 50cms tall (this condition might arise from grazing or cutting of taller emergent species).
- Em Medium emergents** - Emergent vegetation between 50 and 100 cms tall.
- Et Tall emergents** - Emergent vegetation greater than 100cms tall.
- D Dry ditch** - Sample area with less than 50% water, vegetation varied.
- Sh Shallow** - More than 50% of the sample area containing water less than 10cm deep, vegetation varied.
- H Hedge** - Heavily shaded by hedge(s) such that little aquatic vegetation was present.
- T Turbid** - Water conditions prevented assessment of submerged ditch flora.

The nature of the ditch margin was also recorded by assigning each sub-sample point to one of the categories given below. The margin category was based on the dominant structure evident over a one-metre length of margin centred on the sample point. The sample assessed condition over a width of 20cms out from the point at which the water met the bank.

The definition of the various ditch margin categories was as follows:

- BG Bare ground** - Poaching or other disturbance to the bank (including recent re-profiling) resulted in more than 50% of the sample area (below water) being devoid of vegetation.
- LP Lightly poached** - Moderate disturbance to the bank by livestock resulted in a mosaic of bare sediment and vegetation such that between 20 and 50% of the sample area was bare.
- MP Mature Poached** - More than 50% of the sample area consisted of distinct raised tussocks of terrestrial grasses, rushes or sedges, and less than 20% of the sample area was composed of bare sediment.
- FA Filamentous algae** - More than 50% of the sample area consisted of dense filamentous algae, but less than 20% was bare sediment.
- FL Floating Lemna** - More than 50% of the sample area consisted of mats of floating *Lemna* spp., but less than 20% was bare sediment.
- FB Floating Broadleaves** - More than 50% of the sample area was covered by large-leaved floating aquatics, but less than 20% was bare sediment.

SV Submerged vegetation - More than 50% of the sample area consisted of submerged vegetation growing from the ditch bed, but less than 20% was bare sediment.

RF Rafts - More than 50% of the sample area consisted of raft vegetation, but less than 20% was bare sediment.

SE Short emergents - More than 50% of the sample area consisted of emergent vegetation up to 15cms tall (including grasses & moss), but less than 20% was bare sediment. This condition might arise from grazing or cutting of taller emergent species.

ME Medium emergents - More than 50% of the sample area consisted of emergent vegetation between 15 and 50cms tall, but less than 20% was bare sediment. This condition might arise from grazing or cutting of taller emergent species.

TE Tall emergents - More than 50% of the sample area consisted of tall emergent vegetation greater than 1 metre high, but less than 20% was bare sediment.

TV Terrestrial vegetation - Marginal 20cm zone dominated by terrestrial vegetation that obscured or shaded out the aquatics (note: short grasses & moss are included under short emergents). This was a frequent situation on unmanaged ditch banks.

A record was also made of the plant species recorded in various ditch micro-habitats. The following section lists these micro-habitats along with some of the plant species that are most characteristic of them on the Gwent Levels. Note that due to the difficulty in identifying them accurately, the various fine-leaved pondweeds occurring in the submergent micro-habitat have been recorded simply as 'fine-leaved pondweeds'. Some voucher specimens were retained and identified to species level in the laboratory using a stereomicroscope. Because emergent vegetation was often much more diverse than that occurring in the other ditch micro-habitats, it was only required that up to three dominant species of emergents were entered onto the habitat recording form.

Submergent – *Ceratophyllum* spp., *Chara* spp., *Cladophora*, *Elodea canadensis*, *Enteromorpha* spp., Filamentous algae, *Lemna trisulca*, *Myriophyllum* spp., *Potamogeton* spp., *Ranunculus* spp., *Zanichellia palustris*.

Floating – *Lemna gibba*, *Lemna minor*, *Lemna polyrhiza*, *Polygonum amphibium*, *Potamogeton natans*

Rafts – *Agrostis stolonifera*, *Alopecurus geniculatus*, *Apium nodiflorum*, *Berula erecta*, *Callitriche* spp., *Catabrosa aquatica*, *Glyceria fluitans*, *Hydrocharis morsus-ranae*, *Mentha aquatica*, *Myosotis* spp., *Nasturtium officinale*, *Veronica* spp..

Emergents – *Alisma plantago-aquatica*, *Butomus umbellatus*, *Carex* spp., *Eleocharis palustris*, *Equisetum* spp., *Glyceria maxima*, *Iris pseudacorus*, *Juncus* spp., *Oenanthe crocata*, *Oenanthe fistulosa*, *Phalaris arundinacea*, *Phragmites australis*, *Ranunculus scleratus*, *Sagittaria sagittifolia*, *Scirpus maritimus*, *Sparganium erectum*, *Typha angustifolia*, *T. latifolia*.

Lastly, a record of any noteworthy plant species additional to those recorded for the various microhabitats was made at the bottom of the habitat recording form.

Fieldwork was carried out 06, 07, 13, 14, 15, 18, 19, 20, 27, 28, 29 June, 03, 05, 18, 19, 20, 27, 28, 29 and 30 July 2012. Samples collected were preserved in either 70% alcohol (molluscs and very small and/or delicate insects) or by freezing (larger and/or less fragile insects). All material was identified to species level, with voucher specimens of any rarities, or species that had not previously been recorded from the Gwent Levels being retained.

At each of the 44 main reed sites, data from the three sub-samples was amalgamated into a table for each sample station (see Tables X to Y). For the five field ditch sample stations the results from the single sample have been tabulated. Also included in all these tables is an indication of the abundance of the taxon in each sub-sample, where D = 1-10, C = 11-100, B = >100 and A = >1000.

Further columns in these tables give the species status and marsh fidelity scores for each species as listed by Palmer et al. (2010). Using these figures, a Species Quality Score (SQS), Species Quality Index (SQI) and Habitat Quality Score (HQS) have been calculated for each of the 12 sample stations. A summary of the results generated using these metrics can be found at Appendix 1. Further information on the calculation of these scores can be found in Palmer et al. (2010). In addition, the total number of aquatic species recorded during sampling has also been added up, to give a Species Richness Score (SRS) for each of the sample stations. These various scores can be found at the bottom of the relevant sample station tables (Tables 3.1.1 to 3.1.46) and also in the data summary at Table 3.1.

Table 2.1: Sample stations, Magor and Undy SSSI aquatic invertebrate survey - 2012

Site code	Sub-sample	Grid ref. (GPS error)
MU01	EA8A	ST4838187208 (3m)
	EA8B	ST4778487012 (3m)
	EA8C	ST4737886808 (4m)
MU02	EA12A	ST4651086441 (3m)
	EA12B	ST4639386501 (3m)
	EA12C	ST4617886757 (3m)
MU03	EA13A	ST4448585332 (3m)
	EA13B	ST4557885900 (5m)
	EA13C	ST4577685988 (4m)
MU04	EA14A	ST4459486653 (4m)
	EA14B	ST4488686158 (3m)
	EA14C	ST4496586065 (3m)
MU05	EA17A	ST4384184908 (3m)
	EA17B	ST4358785116 (4m)
	EA17C	ST4332385699 (4m)
MU06	EA18A	ST4294984488 (4m)
	EA18B	ST4282684675 (3m)
	EA18C	ST4292584544 (3m)
MU07	IDB23A	ST4421486628 (3m)
	IDB23B	ST4446486402 (3m)
	IDB23C	ST4453986420 (4m)
MU08	IDB24bA	ST4382585650 (3m)
	IDB24bB	ST4379385714 (4m)
	IDB24bC	ST4370685952 (3m)
MU09	IDB26A	ST4397285733 (3m)
	IDB26B	ST4376186016 (4m)
	IDB26C	ST4369686156 (3m)
MU10	IDB27A	ST4381086392 (4m)
	IDB27B	ST4392386338 (3m)
	IDB27C	ST4417386266 (3m)
MU11	IDB28A	ST4467286065 (3m)
	IDB28B	ST4444985921 (3m)
	IDB28C	ST4430985852 (3m)
MU12	IDB29A	ST4312286561 (3m)
	IDB29B	ST4320186529 (3m)
	IDB29C	ST4332786474 (3m)
MU13	IDB33aA	ST4249586362 (4m)
	IDB33aB	ST4259186013 (3m)
	IDB33aC	ST4254286165 (3m)
MU14	IDB34A	ST4297086490 (4m)
	IDB34B	ST4309886214 (3m)
	IDB34C	ST4318185848 (4m)

Table 2.2: Sample stations, Nash and Goldcliff SSSI aquatic invertebrate survey - 2012

Site code	Sub-sample	Grid ref.
NG01	EA26A	ST3767283405 (3m)
	EA26B	ST3734784039 (3m)
	EA26C	ST3716384265 (3m)
NG02	EA27A	ST3636684376 (3m)
	EA27B	ST3620684050 (3m)
	EA27C	ST3628084769 (3m)
NG03	IDB64A	ST3655784647 (4m)
	IDB64B	ST3658384662 (3m)
	IDB64C	ST3682384826 (3m)
NG04	IDB65A	ST3668885452 (4m)
	IDB65B	ST3639585291 (3m)
	IDB65C	ST3624285220 (3m)
NG05	IDB68A	ST3638085702 (3m)
	IDB68B	ST3645185615 (4m)
	IDB68C	ST3652685110 (3m)
NG06	IDB69A	ST3501484619 (5m)
	IDB69B	ST3522984653 (3m)
	IDB69C	ST3608285254 (4m)
NG07	IDB70A	ST3583883059 (3m)
	IDB70B	ST3544783300 (3m)
	IDB70C	ST3698982991 (7m)
NG08	IDB71A	ST3690983770 (4m)
	IDB71B	ST3672783546 (3m)
	IDB71C	ST3668283426 (3m)
NG09	IDB73A	ST3420283604 (4m)
	IDB73B	ST3421383759 (3m)
	IDB73C	ST3434883254 (3m)
NG10	IDB77A	ST3527286054 (4m)
	IDB77B	ST3526485966 (4m)
	IDB77C	ST3502185439 (3m)
NG11	IDB85A	ST3502083944 (4m)
	IDB85B	ST3530484160 (3m)
	IDB85C	ST3541184316 (3m)
NG12	IDB86A	ST3599883633 (3m)
	IDB86B	ST3586283655 (4m)
	IDB86C	ST3540283450 (3m)

Table 2.3: Sample stations, Newport Wetlands SSSI aquatic invertebrate survey - 2012

Site code	Sub-sample	Grid ref.
NW01	IDB59A	ST3738582433 (3m)
	IDB59B	ST3699882651 (3m)
	IDB59C	ST3695082818 (3m)
NW02	IDB87A	ST3579182527 (3m)
	IDB87B	ST3558382726 (3m)
	IDB87C	ST3546082819 (3m)
NWFD01	Field ditch	ST3579982845 (3m)
NWFD02	Field ditch	ST3577582927 (3m)
NWFD03	Field ditch	ST3561382851 (3m)
NWFD04	Field ditch	ST3500982703 (4m)
NWFD05	Field ditch	ST3506882519 (4m)

Table 2.4: Sample stations, Rumney and Peterstone SSSI aquatic invertebrate survey - 2012

Site code	Sub-sample	Grid ref.
RP01	EA1A	ST2319677743 (3m)
	EA1B	ST2284877991 (3m)
	EA1C	ST2256678193 (3m)
RP02	EA2A	ST2470978664 (3m)
	EA2B	ST2419578262 (5m)
	EA2C	ST2455178565 (3m)
RP03	EA3A	ST2626980494 (4m)
	EA3B	ST2645180611 (5m)
	EA3C	ST2678480792 (4m)
RP04	EA4A	ST2517479428 (3m)
	EA4B	ST2492179824 (3m)
	EA4C	ST2481880047 (3m)
RP05	EA5A	ST2751580139 (3m)
	EA5B	ST2695379915 (3m)
	EA5C	ST2641279669 (3m)
RP06	EA6A	ST2683881523 (3m)
	EA6B	ST2693081434 (3m)
	EA6C	ST2704281317 (3m)
RP07	IDB4A	ST2339778876 (4m)
	IDB4B	ST2374879070 (4m)
	IDB4C	ST2311978627 (3m)
RP08	IDB5A	ST2362777972 (3m)
	IDB5B	ST2349277874 (3m)
	IDB5C	ST2342977832 (3m)
RP09	IDB6A	ST2330579183 (3m)
	IDB6B	ST2317579218 (3m)
	IDB6C	ST2347079225 (5m)
RP10	IDB7A	ST2347679687 (3m)
	IDB7B	ST2367279699 (3m)
	IDB7C	ST2380579847 (3m)
RP11	IDB12A	ST2698980421 (3m)
	IDB12B	ST2697680491 (3m)
	IDB12C	ST2700780450 (3m)
RP12	IDB13A	ST2601281303 (3m)
	IDB13B	ST2620681365 (3m)
	IDB13C	ST2654281545 (3m)
RP13	IDB14A	ST2571381531 (3m)
	IDB14B	ST2577181494 (3m)
	IDB14C	ST2608181541 (3m)
RP14	IDB46A	ST2466379895 (4m)
	IDB46B	ST2458279664 (3m)
	IDB46C	ST2453079563 (3m)
RP15	IDB47A	ST2520581208 (3m)
	IDB47B	ST2515781040 (3m)
	IDB47C	ST2508780818 (3m)
RP16	IDB49A	ST2538280302 (3m)
	IDB49B	ST2564580381 (3m)
	IDB49C	ST2566780411 (5m)

Figure 2.1: Sample stations, Magor and Undy SSSI - 2012

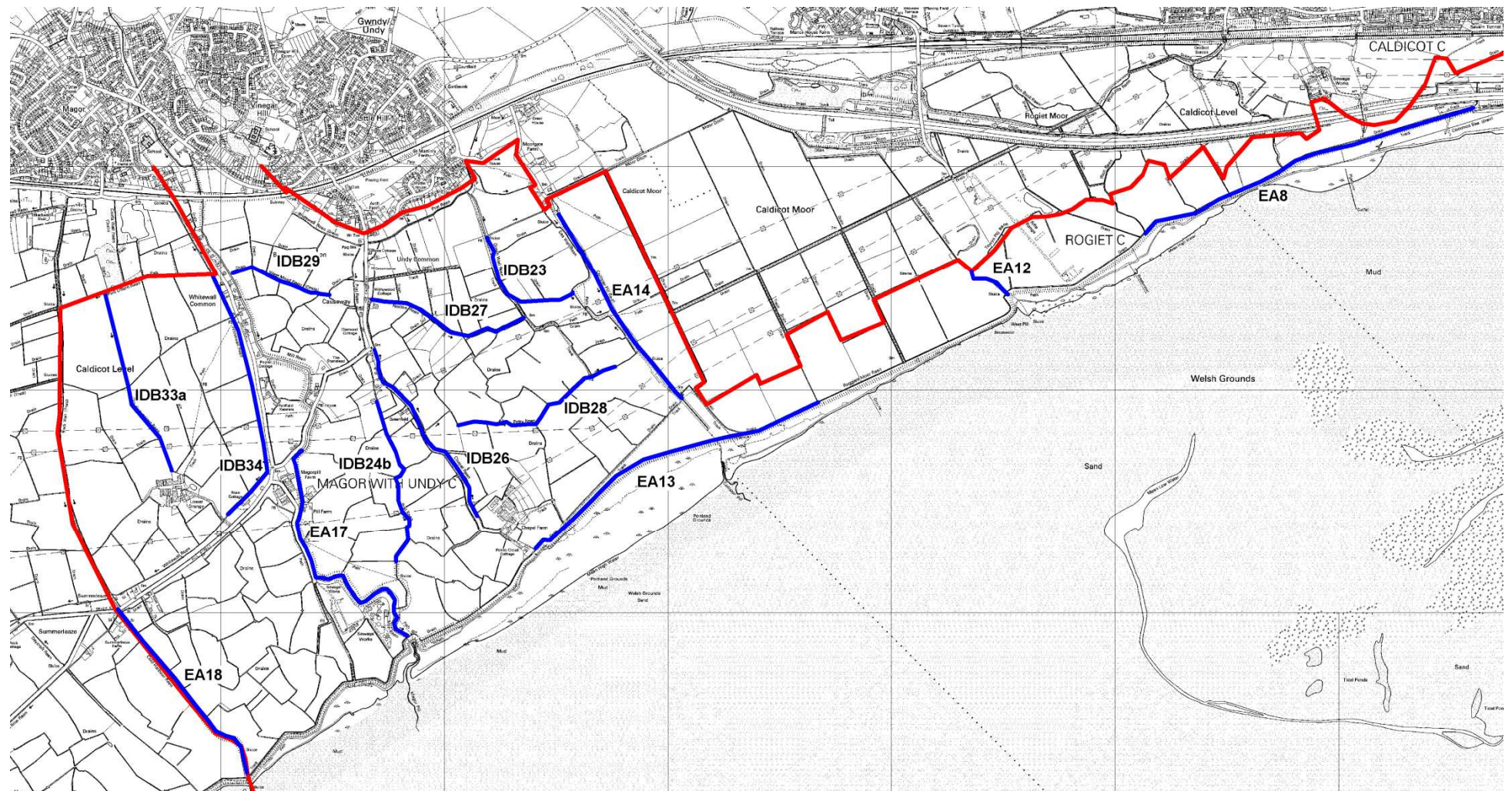


Figure 2.2. Sample stations, Nash and Goldcliff SSSI 2012

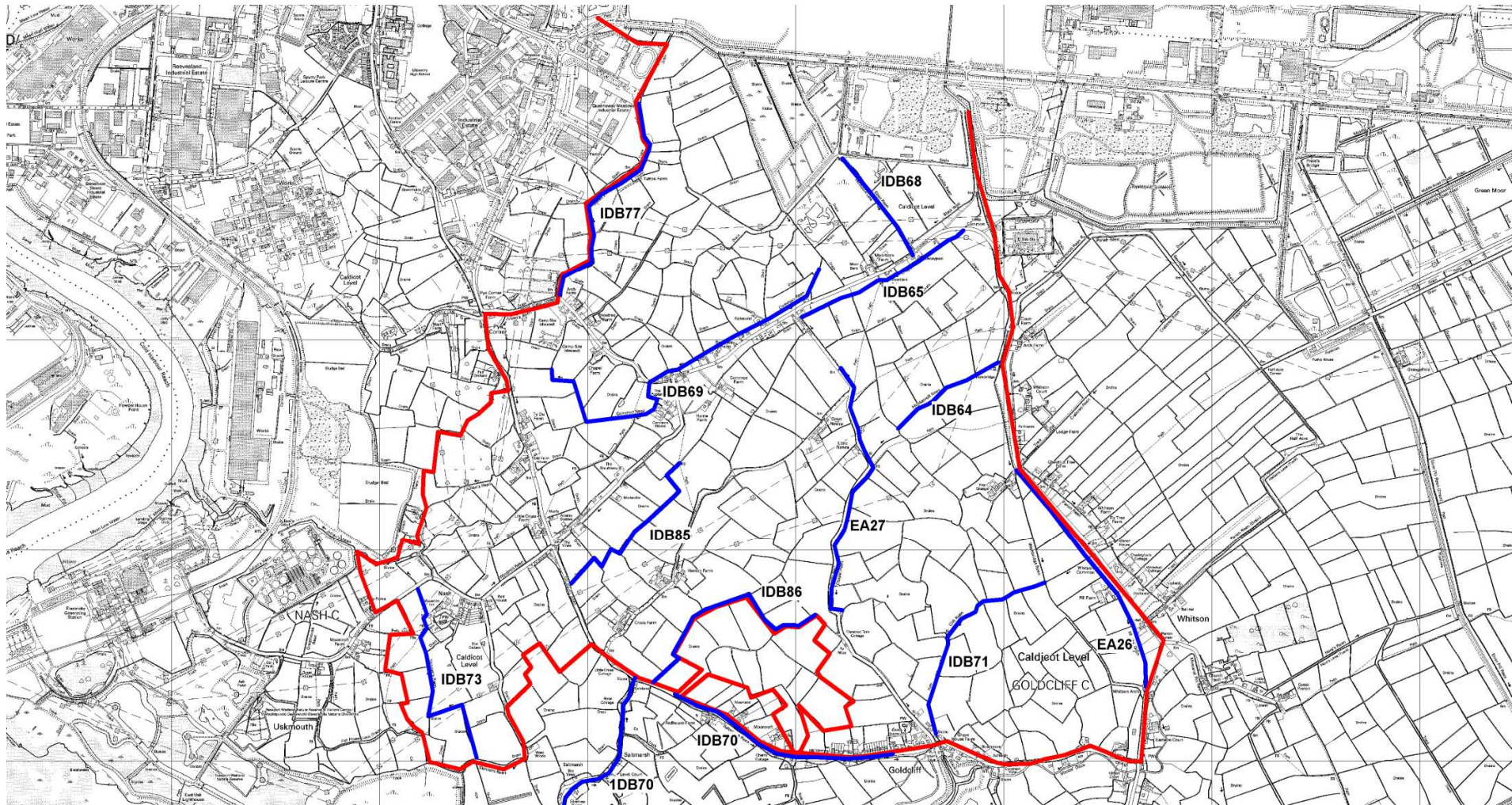


Figure 2.3. Sample stations, Newport Wetlands SSSI 2012

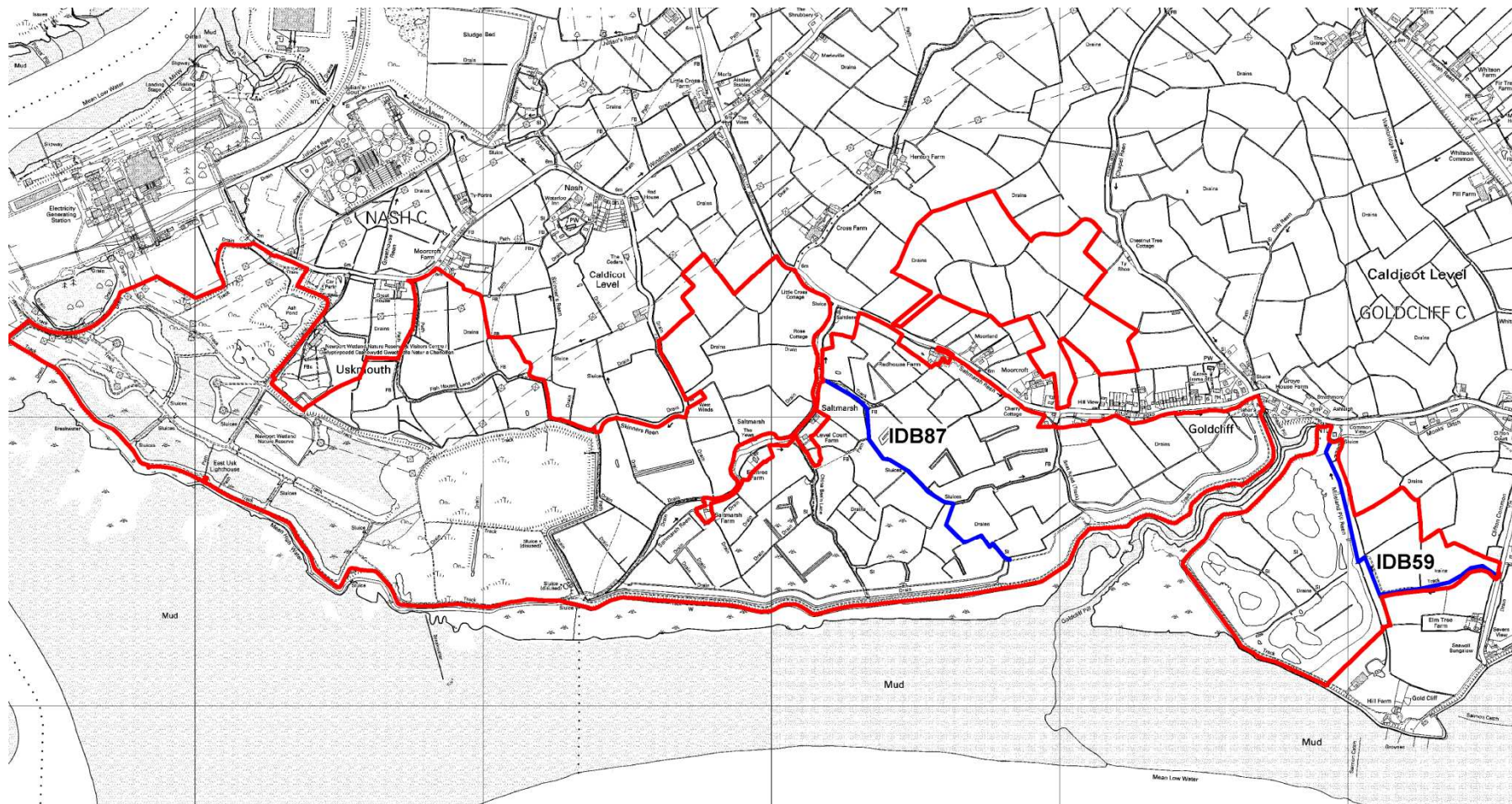
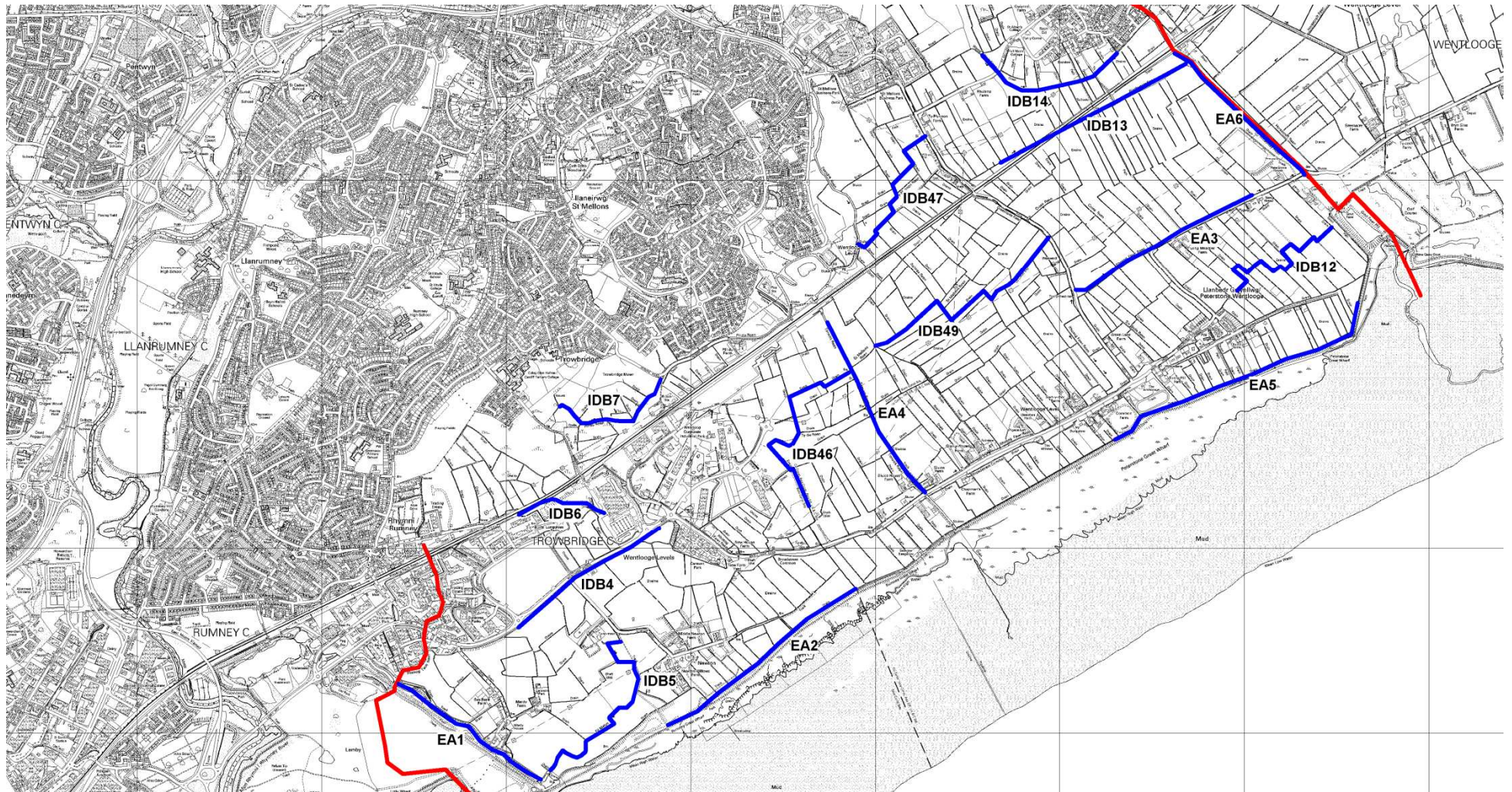


Figure 2.4. Sample stations, Rumney and Peterstone SSSI 2012



3 RESULTS

Tables 3.1 and 3.2 provide a summary of the results of the 2012 monitoring exercise. Table 3.1 gives the Species Richness Score, Species Quality Score, Species Quality Index and Habitat Quality Score for both the 44 main reens and the five field ditch sample stations. Note that all the scores for the main reens are arrived at by pooling the results from the three sub-samples collected at each station. The field ditch figures are the result of just a single sample, and so are not strictly comparable with the data collected from the main reens. Following on from this Table 3.2 lists all of the invertebrate species recorded during the 2012 monitoring exercise, along with the station(s) they were recorded from, their national conservation status and the marsh fidelity and status scores allotted to them in Palmer et al. (2010).

The main part of this section of the report comprises a series of site reports that give the full data for all the sample stations, along with a short description of each. A photograph of all sub-sample sites is also included here.

Lastly, there follows a list of all nationally scarce or Red Data Book species as defined by Falk (1991) and Foster (2010) that were recorded during the 2012 survey. The species accounts include brief notes on ecology, UK and Welsh distribution.

Table 3.1. Summary of invertebrate monitoring, Gwent Levels - 2012

Sample station	SRS	SQS	SQI	HQS
MU01	25	33	1.32	8.00
MU02	16	18	1.12	6.25
MU03	14	17	1.21	0
MU04	28	34	1.21	3.57
MU05	28	35	1.25	3.57
MU06	33	39	1.18	4.54
MU07	26	29	1.11	1.92
MU08	22	24	1.09	0
MU09	15	22	1.47	3.33
MU10	21	25	1.19	0
MU11	27	31	1.15	0
MU12	40	49	1.22	5.00
MU13	31	35	1.13	1.61
MU14	28	33	1.18	1.79
NG01	25	27	1.08	0
NG02	41	57	1.39	7.32
NG03	28	34	1.21	1.79
NG04	32	40	1.25	7.81
NG05	30	37	1.23	6.67
NG06	36	46	1.28	6.94
NG07	30	36	1.20	5.00
NG08	34	38	1.12	4.41
NG09	42	54	1.28	9.52
NG10	24	28	1.17	4.17
NG11	24	27	1.12	4.17
NG12	32	34	1.06	4.69
NW01	33	40	1.21	7.58
NW02	30	42	1.40	11.67
NWFD01-03	39	53	1.34	12.82
NWFD04-05	27	36	1.33	9.26
RP01	30	34	1.13	3.33
RP02	28	35	1.25	7.14
RP03	17	19	1.12	5.88
RP04	29	34	1.17	5.17
RP05	28	32	1.14	3.57
RP06	30	41	1.37	11.67
RP07	33	38	1.15	4.54
RP08	19	21	1.10	7.89
RP09	42	52	1.24	9.52
RP10	35	43	1.23	4.29
RP11	29	40	1.38	8.62
RP12	36	43	1.19	6.94
RP13	33	35	1.06	3.03
RP14	21	23	1.09	2.38
RP15	34	40	1.18	7.35
RP16	39	47	1.20	5.13

Table 3.2. Checklist of invertebrates from Gwent Levels, 2012

Species	Cons. Status	Marsh fidelity	Status score	Sample station(s)
<i>Valvata cristata</i>		1	2	MU04,05,09,10,11. NG02,06,08. RP01,04,07,09,10,14.
<i>Potamopyrgus antipodarum</i>		-	-	MU01,02,03,05. NG01,11. NWFD01-03. RP02,05,08,10.
<i>Bithynia tentaculata</i>		1	1	MU04,05,06,07,12. NG01,02,03,04,05,06,07,08,09,10,12. NW01. NWFD04&05. RP01,03,04,05,06,07,09,10,11,12,13,14,15,16.
<i>Aplexa hypnorum</i>		1	2	MU03,09. RP02,05,12.
<i>Physa</i> sp.		1	1	MU01,02,04,05,12. NG01,02,03,04,05,07,08,09,10,11,12. NW02. NWFD01-03,04&05. RP01,03,04,05,06,07,08,09,10,11,12,13,14,15,16.
<i>Galba truncatula</i>		1	1	MU05. RP05.
<i>Lymnaea palustris</i>		1	1	MU05,06,12. RP04,07,09,10.
<i>Lymnaea stagnalis</i>		1	1	MU04,05,06,07,11,12. NG01,02,04,05,07,08,09,12. NW01,02. NWFD01-03,04&05. RP01,02,03,04,06,07,08,09,10,12,13,14,15,16.
<i>Radix auricularia</i>		1	2	MU12. NG07. NW01,02. NWFD01-03.
<i>Radix baltica</i>		1	1	MU01,02,04,05,06,07,08,09,10,12. NG01,02,03,04,05,06,07,08,09,10,11,12. NW01,02. NWFD01-03,04&05. RP01,02,03,04,06,07,09,10,11,12,13,14,15,16.
<i>Planorbis planorbis</i>		1	1	MU04,05,06,07,08,09,10,11,12. NG01,02,03,04,05,06,07,08,09,10,11,12. NW01,02. NWFD01-03,04&05. RP02,05,06,07,09,11,12,13,14,15.
<i>Anisus leucostoma</i>		1	1	RP05.
<i>Anisus vortex</i>		1	1	MU01,02,03,04,05,06,07,08,09,10,11,12. NG01,02,03,04,05,06,07,08,09,10,11,12. NW01,02. NWFD01-03,04&05. RP01,02,03,04,05,06,07,09,10,11,12,13,14,15,16.
<i>Bathyomphalus contortus</i>		1	2	MU04,05,06,08,12. RP10.
<i>Gyraulus albus</i>		1	2	MU05. NWFD01-03,04&05. RP04,10,15.
<i>Gyraulus crista</i>		1	1	NW01. RP09.
<i>Hippeutis complanatus</i>		1	2	MU04,05,06,09. NG02,04,06,07,09. NWFD04&05. RP02,06.
<i>Planorbarius corneus</i>		1	1	MU04,07,08,09,10,12. NG06,09,10,11. NW01. RP01,02,03,04,05,07,09,11,12,13,14,15,16.
<i>Polycelis felina</i>		-	-	NG10.
<i>Polycelis nigra</i>		-	-	MU12. NG06,09,10,12. RP05,11,14,16.
<i>Polycelis tenuis</i>		-	-	MU12. NG01,06,10,12. RP01,02,03,06,12.
<i>Dugesia lugubris</i>		-	-	MU08,12. NG04,09,10,12. RP01,04,13,14,16.
<i>Dugesia polychroa</i>		-	-	NG10.
<i>Dendrocoelum lacteum</i>		-	-	RP06,16.
<i>Piscicola geometra</i>		1	1	RP04.

<i>Theromyzon tessulatum</i>		1	1	MU06,12. NG01,02,03,04,06,08,09,12. NWFD01-03,04&05. RP01,04,07,09,11,13,15,16.
<i>Hemiclepsis marginata</i>		1	2	RP10.
<i>Glossiphonia complanata</i>		1	1	MU06,08,12. NG04,05,06,10,12. NWFD01-03,04&05. RP04,09,11,16.
<i>Glossiphonia heteroclita</i>		1	2	NG02,03. RP16.
<i>Helobdella stagnalis</i>		1	1	NG09. NWFD01-03. RP02,04,11,14,16.
<i>Haemopsis sanguisuga</i>		1	2	NG06.
<i>Erpobdella octoculata</i>		1	1	MU06,08,12. NG01,02,03,04,05,06,08,09,10,12. NWFD01-03. RP01,03,09,11,12,13,14,15,16.
<i>Brachytron pratense</i>		2	2	NG02,05,09. NW01,02. RP06.
<i>Sialis lutaria</i>		1	1	NG08.
<i>Mesovelgia furcata</i>		1	2	RP01,04,06,16.
<i>Hydrometra stagnorum</i>		1	1	MU06,11. NG01,03,05,08,09. NW01. RP03,06,07,08,13,15.
<i>Microvelia reticulata</i>		1	1	MU01,02,12. NG01,12. NWFD01-03,04&05. RP01,03,04,09,13,15,16.
<i>Velia caprai</i>		1	1	MU02,12. RP02.
<i>Gerris lacustris</i>		1	1	MU12. NG04. NW01. NWFD01-03. RP04,05,06,12,13,15,16.
<i>Gerris odontogaster</i>		1	1	RP06.
<i>Nepa cinerea</i>		1	1	MU01,05,08,11. NG04,10. NWFD01-03. RP01,02,03,04,06,07,08,09,10,13,16.
<i>Ranatra linearis</i>		1	2	NWFD04&05.
<i>Ilyocoris cimicoides</i>		1	1	MU05,06,07,12. NG02,03,04,05,06,07,09,12. NW01,02. NWFD01-03, 04&05. RP01,02,03,04,06,07,08,09,10,12,13,15,16
<i>Notonecta glauca</i>		1	1	MU05,06,07,08,11,12. NG02,03,04,05,06,08,09,12. NW02. NWFD04&05. RP01,02,03,04,05,06,07,09,10,11,12,13,14,15,16.
<i>Notonecta marmorea</i>		1	1	NWFD01-03.
<i>Plea minutissima</i>		1	1	MU04,07,11,12. NG02,06,07,09,12. NW01,02. NWFD01-03,04&05. RP09.
<i>Corixa affinis</i>		1	2	NWFD01-03, 04&05.
<i>Corixa panzeri</i>		1	2	NWFD01-03, 04&05.
<i>Corixa punctata</i>		1	1	NG09. NWFD01-03, 04&05.
<i>Hespercorixa linnaei</i>		1	1	MU05,07. NG02,06,07,09. NW01. NWFD04&05. RP01,04,05,07,12.
<i>Hespercorixa sahlbergi</i>		1	1	MU01,11,12. NG05,06,07,09,11,12. NW02. NWFD04&05. RP01,04,05,07,09,10,13,14,16.
<i>Callicorixa praeusta</i>		1	1	MU04. NG08. NW02. NWFD01-03. RP01.
<i>Sigara distincta</i>		1	1	NG08. NWFD01-03.
<i>Sigara dorsalis</i>		1	1	MU02,04,05,06,07,08,11,12. NG01,02,03,05,06,07,08,09,10,12. NW01,02. NWFD01-03,04&05. RP04,06,07,09,10,12,13,15,16.
<i>Sigara falleni</i>		1	1	MU04,06,11,12. NG12. NW01. RP15.

<i>Sigara fossarum</i>		1	1	MU04. NG01,05,08. NW01,02. NWFD01-03.
<i>Sigara lateralis</i>		1	1	NWFD01-03.
<i>Sigara nigrolineata</i>		1	1	RP07.
<i>Gyrinus caspius</i>		2	2	NW02. NWFD01-03.
<i>Gyrinus substriatus</i>		1	1	NG01. RP05,09,13,15.
<i>Peltodytes caesus</i>	NS.	3	3	MU04,05. NG04,06,07,09,11. NW02. NWFD01-03,04&05. RP03,04,06,07,09,12,15,16.
<i>Haliplus confinis</i>		1	2	NG02.
<i>Haliplus lineatocollis</i>		1	1	MU04,05,07,10,11,12. NG04,06,07,11,12. RP07,08,09,13,15,16.
<i>Haliplus fluviatilis</i>		1	1	NG01.
<i>Haliplus heydeni</i>		1	2	MU06,07,08,09,10. NG02,03,04,06,08,10. NW01.
<i>Haliplus immaculatus</i>		2	1	MU12. NG12. RP01,04,06,08,09,10,13,15,16.
<i>Haliplus ruficollis</i>		1	1	MU01,04,05,06,07,08,10,11,12. NG01,02,03,04,05,06,07,08,09,11,12. NW01,02. NWFD01-03, 04&05. RP01,02,03,04,05,06,07,08,09,11,12,13,14,15,16.
<i>Haliplus sibiricus</i>		1	1	MU02,04,05,06,07,08,10,11,12. NG01,02,03,08. NW01. RP02,06,09,13,15,16.
<i>Haliplus flavicollis</i>		1	2	MU04,07.
<i>Noterus clavicornis</i>		1	1	MU04,05,06,07,08,10,11,12. NG02,03,04,06,07,08,09,11,12. NW01,02. NWFD01-03, 04&05. RP01,02,03,06,07,08,10,11,12,13,14,15,16.
<i>Hygrobia hermanni</i>		1	2	NG04,07,09. NW02. NWFD01-03. RP01,09.
<i>Agabus sturmii</i>		1	1	MU04,06,12. NG03,04,08. RP05,07,08,12.
<i>Agabus bipustulatus</i>		1	1	MU01,06. NG04,05,08. RP08,09,12,13,16.
<i>Agabus conspersus</i>	NS.	2	4	MU01.
<i>Agabus didymus</i>		1	2	MU05,12.
<i>Agabus nebulosus</i>		1	1	MU02. NG05. NW02. RP12.
<i>Ilybius ater</i>		2	1	NG02,04.
<i>Ilybius fenestratus</i>		1	2	NG02.
<i>Ilybius fuliginosus</i>		1	1	MU12.
<i>Ilybius quadriguttatus</i>		2	2	MU01,02,06,12. NG04,05,06,09,12. RP02,05,08,09,11,12,13,15,16.
<i>Colymbetes fuscus</i>		1	1	NG02. RP15.
<i>Rhantus grapii</i>		2	2	MU12. NG03,09,10. RP02,05,12.
<i>Rhantus suturalis</i>		2	2	RP08.
<i>Liopterus haemorrhoidalis</i>		1	2	MU01. RP11,16.
<i>Acilius sulcatus</i>		1	1	RP11.
<i>Dytiscus dimidiatus</i>	NT.	1	4	RP11.

<i>Dytiscus marginalis</i>		1	1	MU02,06,08,10,12. NG02,03,04,09,10,12. NW02. RP02,05,13,16.
<i>Hydaticus transversalis</i>	NS.	3	3	RP02,06,09,11.
<i>Hydroglyphus geminus</i>		1	2	RP09.
<i>Graptodytes pictus</i>		2	2	MU01,02,06,07,12. NG09,10,12. NW01. RP06,07,09,10,12,14,15.
<i>Hydroporus angustatus</i>		1	1	MU01,03,04,06,07,08,10,11,12. NG02,04,05,07,08,09,10,11,12. RP01,02,05,07,09,11,12,14,15,16.
<i>Hydroporus erythrocephalus</i>		1	1	MU01.
<i>Hydroporus incognitus</i>		1	1	MU04. NG06,11. RP02,05.
<i>Hydroporus palustris</i>		1	1	MU01,02,03,04,06,07,08,10,11,12. NG02,03,04,05,06,07,08,09,10,11,12. NW01. RP01,02,05,06,07,08,09,10,11,13,14,16.
<i>Hydroporus planus</i>		1	1	MU01,03,04,06. NG05,06,07,11,12. NW02. RP01,04,07,08,09,10,14.
<i>Hydroporus pubescens</i>		1	1	MU01. NG05,08,10. NW02. RP07,08,09,10,11.
<i>Hydroporus tessellatus</i>		1	1	MU01. NG05,06,07,09. NW01. RP05.
<i>Nebrioporus elegans</i>		1	1	MU12.
<i>Porhydrus lineatus</i>		1	2	NG09. RP02,06,07.
<i>Stictotarsus 22-pustulatus</i>		1	2	RP06.
<i>Suphrodytes figuratus</i>		1	2	NG11.
<i>Hygrotus impressopunctatus</i>		1	1	MU03. NG11.
<i>Hygrotus inaequalis</i>		1	1	MU01,02,03,04,05,06,07,10,11,12. NG02,05,06,07,08,09,10,11,12. NW02. NWFD01-03,04&05. RP01,02,04,05,08,09,11,14,16.
<i>Hygrotus versicolor</i>		1	2	NG01. RP01,10.
<i>Hyphydrus ovatus</i>		1	1	MU05,07,08,11,12. NG01,02,03,06,07,08,09,10,11,12. NW01,02. NWFD01-03. RP01,02,04,06,07,10,12,15.
<i>Bembidion obtusum</i>		-	-	MU05.
<i>Agonum fuliginosum</i>		-	-	MU11.
<i>Odacantha melanura</i>	Nb.	-	-	RP16.
<i>Laccophilus hyalinus</i>		1	2	NG01,03. NW01. RP06,15.
<i>Laccophilus minutus</i>		2	1	NW01,02. NWFD01-03. RP01.
<i>Helophorus aequalis</i>		1	1	MU02,03,06,07,08,09,10,11,12. NG02,09,11,12. NW01. RP16.
<i>Helophorus grandis</i>		1	1	NG08,11.
<i>Helophorus brevipalpis</i>		1	1	MU01,02,03,04,05,06,07,08,09,10,11,12. NG01,02,03,04,05,06,07,08,09,11,12. NW01. RP03,05,06,09,10,11,13,16.
<i>Helophorus flavipes</i>		1	1	NG07.
<i>Helophorus minutus</i>				RP10.
<i>Helophorus obscurus</i>		1	1	NWFD01-03. RP15.

<i>Anacaena globulus</i>		1	1	MU01,03,05,10,12. NG01,03,08,09,10,11,12. RP01,02,03,04,07,10,12,13.
<i>Anacaena limbata</i>		1	1	MU01,02,03,05,06,09,10,11,12. NG01,02,03,04,05,06,07,08,09,10,12. NW01. RP01,02,05,06,07,08,09,10,12,13,14,15,16.
<i>Anacaena lutescens</i>		1	1	NG02,06,10. RP07.
<i>Berosus affinis</i>		3	2	NG08. NW01,02. NWFD01-03, 04&05.
<i>Cymbiodyta marginella</i>		1	2	MU03,11. NG02. RP05.
<i>Enochrus coarctatus</i>		2	2	MU06,09. NG02,06,09. RP11.
<i>Enochrus melanocephalus</i>		1	2	NG03.
<i>Enochrus ochropterus</i>		1	2	MU09,10. NG05.
<i>Enochrus testaceus</i>		1	2	MU09,10,11,12. NG03,04,06,10. RP11,16.
<i>Helochares lividus</i>		2	2	MU12. NG02,04,06,07,08,09. NWFD01-03,04&05. RP09,11.
<i>Hydrobius fuscipes</i>		1	1	MU01,03,08,09,11,12. NG05,07,11. RP05,09,11,12,13,15,16.
<i>Hydrophilus piceus</i>	NT.	3	4	NWFD01-03.
<i>Laccobius bipunctatus</i>		1	1	MU07,08,10,11,12. NG01,02,03,04,06,07,08,09,10,11,12. NW01,02. RP02,05,08,09,11,12,13,14,15,16.
<i>Laccobius minutus</i>		2	1	NWFD01-03.
<i>Coelostoma orbiculare</i>		1	2	MU03,11. RP13.
<i>Cercyon ustulatus</i>		1	2	NG02.
<i>Ochthebius dilatatus</i>		1	2	NG02. NW01,02. NWFD01-03.
<i>Scirtes hemisphaericus</i>		-	-	NG10. RP02,11,16.
<i>Scirtes orbicularis</i>	Na.	-	-	NG10. RP11,12.
<i>Elmis aenea</i>		1	1	NG01. RP10.
<i>Silis ruficollis</i>	Nb.	-	-	RP16.
<i>Paederus riparius</i>		-	-	MU12.
<i>Stenus cicindeloides</i>		-	-	MU02,03,05,11,12. NG04. RP10,16.
<i>Stenus latifrons</i>		-	-	MU02. NG02. NW01.
<i>Stenus similis</i>				RP13.
<i>Stenus solutus</i>		-	-	MU02.
<i>Stenus binotatus</i>		-	-	MU12. NG02,09,12. NW01. RP11,12,13,16.
<i>Stenus nitidiusculus</i>		-	-	MU12.
<i>Stenus picipennis</i>		-	-	MU03,11.
<i>Stenus boops</i>		-	-	MU03,11. NG02,08. RP05,13.
<i>Stenus incrassatus</i>		-	-	RP05.
<i>Stenus junio</i>		-	-	RP05.

<i>Coccidula rufa</i>		-	-	MU11,12. NW01.
<i>Coccidula scutellata</i>		-	-	NG04.
<i>Scymnus haemorrhoidalis</i>		-	-	NW01.
<i>Anisosticta 19-punctata</i>		-	-	MU05.
<i>Plateumaris sericea</i>		-	-	NG03,04,05. RP16.
<i>Donacia marginata</i>		-	-	RP13,16.
<i>Donacia semicuprea</i>		-	-	MU06,12. NG02,03,04,08. NW01. RP04,06,12.
<i>Donacia simplex</i>		-	-	RP15.
<i>Donacia versicoloreae</i>		-	-	RP12.
<i>Phaedon cochleariae</i>		-	-	MU12.
<i>Prasocuris phellandrii</i>				RP16.
<i>Notaris acridulus</i>		-	-	MU10,11,12.
<i>Thryogenes festucae</i>		-	-	MU02.
<i>Tanysphyrus lemnae</i>		-	-	NG02,04,05. RP06.
<i>Bagous limosus</i>	Nb.	-	-	NW02.
<i>Poophagus sisymbrii</i>		-	-	MU12.
<i>Stenopelmus rufinasus</i>		-	-	NG02.
<i>Hypera pollux</i>		-	-	RP13,16.
<i>Odontomyia ornata</i>	RDB2.	3	5	NG02,05. NW02.
<i>Odontomyia tigrina</i>	N.	2	3	MU12.
<i>Oplodontha viridula</i>		1	2	RP11,16.
<i>Stratiomys singularior</i>	N.	2	3	MU01.

3.1 Site reports

3.1.1. Sample station MU01 (EA8)

All three sub-samples were taken from the south bank of this deeply sunken ditch, which despite the very wet summer held little water. Access to this site was problematic, due to the presence of a military firing range immediately to the north of a part of the ditch length to be sampled. Due to heavy firing activity it was not possible to access the site until 30 July. All samples were taken from the south bank of this ditch. The presence of abundant emergent sea club-rush *Scirpus maritimus* suggested some brackish influence in this ditch, which lies immediately behind the sea bank. For a considerable part of its length, the reed is immediately adjacent to a managed hedge, which runs along its northern bank. This, combined with the severe bank profiles and ungrazed, rank, overhanging vegetation meant that the water was heavily shaded. There were no submerged or floating macrophytes, though in places there were beds of 'brown mosses' growing in the shallow water. Though parts of the south bank are cattle grazed in conjunction with the sea bank, the very steep bank gradients were preventing stock from accessing the ditch or its margins.

Table 3.1.1. Invertebrates from sample station MU01, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>		D,A,C	-	-
<i>Physa</i> sp.		-,C,-	1	1
<i>Radix baltica</i>		D,C,D	1	1
<i>Anisus vortex</i>		D,-D	1	1
<i>Microvelia reticulata</i>		-,D,-	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Hespercorixa sahlbergi</i>		-, -,D	1	1
<i>Haliphus lineatocollis</i>		-,D,D	1	1
<i>Haliphus ruficollis</i>		-,D,D	1	1
<i>Agabus bipustulatus</i>		D,D,-	1	1
<i>Agabus conspersus</i>	NS.	D,D,-	2	4
<i>Ilybius quadriguttatus</i>		D,D,-	2	2
<i>Liopterus haemorrhoidalis</i>		-,D,-	1	2
<i>Graptodytes pictus</i>		-,D,-	2	2
<i>Hydroporus angustatus</i>		D,C,-	1	1
<i>Hydroporus erythrocephalus</i>		D,-,-	1	1
<i>Hydroporus palustris</i>		C,C,D	1	1
<i>Hydroporus planus</i>		D,D,-	1	1
<i>Hydroporus pubescens</i>		D,-,-	1	1
<i>Hydroporus tessellatus</i>		-,D,-	1	1
<i>Hygrotus inaequalis</i>		-,D,-	1	1
<i>Helophorus brevipalpis</i>		-,D,D	1	1
<i>Anacaena globulus</i>		-,D,-	1	1
<i>Anacaena limbata</i>		C,D,-	1	1
<i>Hydrobius fuscipes</i>		-,D,-	1	1
<i>Stratiomys singularior</i>	N.	D,-,-	2	3
		SRS		25
		SQS		33
		SQI		1.32
		HQS		8.00

3.1.2. Sample station MU02 (EA12)

Sub-samples A and B were taken from the west bank and sub-sample C from the east bank. This was a very deeply excavated ditch, with steep banks and only shallow water despite the very wet summer. Sampling was carried out on 7 June 2012. The presence of abundant emergent sea club-rush on the southern section of this ditch nearest to the seawall (MU02A and MU02B) suggested some brackish influence. To the north, the ditch becomes choked with dense beds of emergent common reed *Phragmites australis* (MU03). There were no submerged macrophytes, and just a few floating patches of small duckweeds *Lemna* spp. in sub-sample A. In most places, the ditch margins were heavily shaded by rank overhanging terrestrial vegetation. Throughout its length, this ditch was fenced from stock on both banks.

Table 3.1.2. Invertebrates from sample station MU02, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>		B,B,C	-	-
<i>Physa</i> sp.		-,D,-	1	1
<i>Radix baltica</i>		D,-,C	1	1
<i>Anisus vortex</i>		-, -,B	1	1
<i>Microvelia reticulata</i>		-, -,D	1	1
<i>Velia caprai</i>		D,-,-	1	1
<i>Sigara dorsalis</i>		-,D,D	1	1
<i>Haliphus sibiricus</i>		-,D,D	1	1
<i>Agabus nebulosus</i>		-, -,D	1	1
<i>Ilybius quadriguttatus</i>		-, -,D	2	2
<i>Dytiscus marginalis</i>		-,D,-	1	1
<i>Graptodytes pictus</i>		-, -,D	2	2
<i>Hydroporus palustris</i>		-, -,C	1	1
<i>Hygrotus inaequalis</i>		-,D,-	1	1
<i>Helophorus aequalis</i>		D,-,-	1	1
<i>Helophorus brevipalpis</i>		C,C,C	1	1
<i>Anacaena limbata</i>		-, -,D	1	1
<i>Stenus cicindeloides</i>		-, -,D	-	-
<i>Stenus latifrons</i>		-, -,D	-	-
<i>Stenus solutus</i>		-, -,D	-	-
<i>Thryogenes festucae</i>		D,-,-	-	-
		SRS		16
		SQS		18
		SQI		1.12
		HQS		6.25

3.1.3. Sample station MU03 (EA13)

All sub-samples were collected from the south bank. The MU03A sub-sample was collected on 14 June, but due to access problems, the other two sub-samples were not collected until 30 July. The majority of this ditch is in the ownership of Mr. Attiwell, who asked me to leave his land when I had only collected the MU03A sub-sample. This was unfortunate, as the only section of this ditch outside of his ownership (approximately the eastern third) was almost completely dried out, and was densely shaded on both banks by low hawthorn *Crataegus monogyna* hedges. Two sub-samples of sorts were collected here, at points where there were small gaps in the hedge where cattle had access from the seawall that lay immediately to the south of this ditch. The MU03A sub-sample site was well grazed by cattle, and had shallow poached margins. Mr. Attiwell informed me that this ditch usually dried out over the summer, and this seemed likely, as even after heavy recent rain in June, the water was quite shallow. Vegetation here was dominated by dense rafts of floating sweet-grass *Glyceria fluitans*. The more easterly ditch sections, from which sub-samples MU03B and C were collected had almost no water by July, and were completely choked by tall common reed, as well as some dense patches of watercress *Rorippa nasturtium-aquaticum* in the few more open areas where stock had access to the ditch edge. Ditch margins were heavily shaded by both the hedges and overhanging terrestrial vegetation.

Table 3.1.3. Invertebrates from sample station MU03, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>		-,C,-	-	-
<i>Aplexa hypnorum</i>		D,-,-	1	2
<i>Anisus vortex</i>		D,-,-	1	1
<i>Hydroporus angustatus</i>		D,-,-	1	1
<i>Hydroporus palustris</i>		D,D,-	1	1
<i>Hydroporus planus</i>		D,-,-	1	1
<i>Hygrotus impressopunctatus</i>		D,-,-	1	1
<i>Hygrotus inaequalis</i>		D,-,-	1	1
<i>Helophorus aequalis</i>		D,-,-	1	1
<i>Helophorus brevipalpis</i>		C,-,-	1	1
<i>Anacaena globulus</i>		-, -,D	1	1
<i>Anacaena limbata</i>		C,D,-	1	1
<i>Cymbiodyta marginella</i>		D,-,-	1	2
<i>Hydrobius fuscipes</i>		D,-,-	1	1
<i>Coelostoma orbiculare</i>		D,-,-	1	2
<i>Stenus cicindeloides</i>		D,-,-	-	-
<i>Stenus picipennis</i>		D,-,-	-	-
<i>Stenus boops</i>		D,-,-	-	-
		SRS		14
		SQS		17
		SQI		1.21
		HQS		0

3.1.4. Sample station MU04 (EA14)

All sub-samples were collected on 13 June, from the west bank. This was a large, deep, and relatively homogeneous ditch, with dense beds of submerged aquatic vegetation, amongst which hairlike pondweed *Potamogeton trichoides*, rigid hornwort *Ceratophyllum demersum*, Canadian pondweed *Elodea canadensis* and horned pondweed *Zannichellia palustris* were the main constituents. There was also much tall emergent common reed and common bur-reed *Sparganium erectum*, especially towards the ditch margins. The ditch was fenced from stock on both sides, and the steep slope down to the water had rank terrestrial vegetation.

Table 3.1.4. Invertebrates from sample station MU04, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		D,-,C	1	2
<i>Bithynia tentaculata</i>		D,C,D	1	1
<i>Physa</i> sp.		-, -,C	1	1
<i>Lymnaea stagnalis</i>		C,C,D	1	1
<i>Radix baltica</i>		C,C,C	1	1
<i>Planorbis planorbis</i>		-,C,B	1	1
<i>Anisus vortex</i>		C,C,B	1	1
<i>Bathymophalus contortus</i>		D,B,C	1	2
<i>Hippeutis complanatus</i>		-, -,D	1	2
<i>Planorbarius corneus</i>		D,C,D	1	1
<i>Plea minutissima</i>		D,-,-	1	1
<i>Callicorixa praeusta</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		C,-,C	1	1
<i>Sigara falleni</i>		D,D,D	1	1
<i>Sigara fossarum</i>		D,-,-	1	1
<i>Peltodytes caesus</i>	NS.	-, -,D	3	3
<i>Haliphus lineatocollis</i>		-,D,D	1	1
<i>Haliphus ruficollis</i>		D,D,C	1	1
<i>Haliphus sibiricus</i>		C,C,C	1	1
<i>Haliphus flavicollis</i>		D,-,-	1	2
<i>Noterus clavicornis</i>		D,D,D	1	1
<i>Agabus sturmii</i>		-, -,D	1	1
<i>Hydroporus angustatus</i>		-,D,-	1	1
<i>Hydroporus incognitus</i>		-,D,-	1	1
<i>Hydroporus palustris</i>		-,D,D	1	1
<i>Hydroporus planus</i>		-,D,-	1	1
<i>Hygrotus inaequalis</i>		D,-,-	1	1
<i>Helophorus brevialpis</i>		D,C,C	1	1
		SRS		28
		SQS		34
		SQI		1.21
		HQS		3.57

3.1.5. Sample station MU05 (EA17)

All sub-samples were collected on 18 June, with MU05A and B being collected from the east bank and MU05C from the west side of the ditch. MU05 was a very large, deep ditch with an appreciable current. There was little submerged or floating aquatic vegetation except for a little water-starwort *Callitriche* sp. and unbranched bur-reed *Sparganium emersum*. The ditch was open to stock in places around MU05A and B, though the presence of an outgrown hedge along this side of the ditch was preventing stock access in all but a few places. Around MU05C, there was no stock access on either bank. At the ditch margins there was a band of tall emergent common reed, branched bur-reed, reed sweet-grass *Glyceria maxima*, large sedges *Carex* sp. and hemlock water-dropwort *Oenanthe crocata*, grading into rank terrestrial vegetation higher on the bank side.

Table 3.1.5. Invertebrates from sample station MU05, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		-, -, C	1	2
<i>Potamopyrgus antipodarum</i>		C, -, -	-	-
<i>Bithynia tentaculata</i>		-, C, C	1	1
<i>Physa</i> sp.		D, C, -	1	1
<i>Galba truncatula</i>		C, -, -	1	1
<i>Lymnaea palustris</i>		-, C, D	1	1
<i>Lymnaea stagnalis</i>		-, C, D	1	1
<i>Radix baltica</i>		D, C, C	1	1
<i>Planorbis planorbis</i>		-, D, C	1	1
<i>Anisus vortex</i>		D, C, B	1	1
<i>Bathyomphalus contortus</i>		-, -, C	1	2
<i>Gyraulus albus</i>		-, D, -	1	2
<i>Hippeutis complanatus</i>		-, -, D	1	2
<i>Nepa cinerea</i>		-, -, D	1	1
<i>Ilyocoris cimicoides</i>		-, -, D	1	1
<i>Notonecta glauca</i>		-, -, D	1	1
<i>Hespercorixa linnaei</i>		-, -, D	1	1
<i>Sigara dorsalis</i>		D, D, D	1	1
<i>Peltodytes caesus</i>	NS.	D, -, -	3	3
<i>Haliphus lineatocollis</i>		-, D, -	1	1
<i>Haliphus ruficollis</i>		D, -, -	1	1
<i>Haliphus sibiricus</i>		C, D, D	1	1
<i>Noterus clavicornis</i>		-, -, D	1	1
<i>Agabus didymus</i>		-, C, -	1	2
<i>Hygrotus inaequalis</i>		D, -, -	1	1
<i>Hyphydrus ovatus</i>		-, -, C	1	1
<i>Bembidion obtusum</i>		-, D, -	-	-
<i>Helophorus brevipalpis</i>		-, D, C	1	1
<i>Anacaena globulus</i>		-, -, D	1	1
<i>Anacaena limbata</i>		D, -, D	1	1
<i>Stenus cicindeloides</i>		-, D, -	-	-
<i>Anisosticta 19-punctata</i>		-, -, D	-	-
			SRS	28
			SQS	35
	HQS	3.57	SQI	1.25

3.1.6. Sample station MU06 (EA18)

All sub-samples were collected on 19 June, with MU06A and B being sampled from the west bank and MU05C from the east side of the ditch. MU06 is another large, deep reed. There was little submerged or floating aquatic vegetation except for locally frequent rigid hornwort and duckweed. The ditch was open to cattle along at least one bank for much of its length and they had created some poached areas with shallow water. Generally, fringing vegetation was dominated by tall common reed and reed sweet-grass, though in places where stock poaching was heavy these species were of more patchy occurrence with some areas of sparsely vegetated open ground.

Table 3.1.6. Invertebrates in sample station MU06, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>	-,-,C	1	1	
<i>Lymnaea palustris</i>	-,-,D	1	1	
<i>Lymnaea stagnalis</i>	D,-,D	1	1	
<i>Radix baltica</i>	C,C,C	1	1	
<i>Planorbis planorbis</i>	C,-,B	1	1	
<i>Anisus vortex</i>	C,C,C	1	1	
<i>Bathymophalus contortus</i>	D,C,C	1	2	
<i>Hippeutis complanatus</i>	D,C,D	1	2	
<i>Theromyzon tessulatum</i>	D,D,D	1	1	
<i>Glossiphonia complanata</i>	D,-,-	1	1	
<i>Erpobdella octoculata</i>	C,-,D	1	1	
<i>Hydrometra stagnorum</i>	-,D,-	1	1	
<i>Ilyocoris cimicoides</i>	D,-,-	1	1	
<i>Notonecta glauca</i>	-,D,D	1	1	
<i>Sigara dorsalis</i>	D,-,C	1	1	
<i>Sigara falleni</i>	-,-,D	1	1	
<i>Haliplus heydeni</i>	D,D,D	1	2	
<i>Haliplus ruficollis</i>	D,D,C	1	1	
<i>Haliplus sibiricus</i>	-,-,B	1	1	
<i>Noterus clavicornis</i>	D,D,C	1	1	
<i>Agabus sturmii</i>	-,D,-	1	1	
<i>Agabus bipustulatus</i>	-,D,-	1	1	
<i>Ilybius quadriguttatus</i>	-,D,-	2	2	
<i>Dytiscus marginalis</i>	-,-,D	1	1	
<i>Graptodytes pictus</i>	-,D,-	2	2	
<i>Hydroporus angustatus</i>	-,D,D	1	1	
<i>Hydroporus palustris</i>	-,C,C	1	1	
<i>Hydroporus planus</i>	-,D,-	1	1	
<i>Hygrotus inaequalis</i>	C,D,-	1	1	
<i>Helophorus aequalis</i>	D,-,-	1	1	
<i>Helophorus brevipalpis</i>	C,C,C	1	1	
<i>Anacaena limbata</i>	-,D,-	1	1	
<i>Enochrus coarctatus</i>	-,D,-	2	2	
<i>Donacia semicuprea</i>	-,D,-	-	-	
	SQI	1.18	SRS	33
	HQS	4.54	SQS	39

3.1.7. Sample station MU07 (IDB23)

All sub-samples were collected on 13 June, from the southern and western ditch sides. This was a relatively small ditch, partially fenced, though mostly open to surrounding fields that were being cut for silage. There was little evidence of stock accessing the ditch sides, which were steep and with the ditch margins having dense overhanging terrestrial vegetation. There was much floating growth of small duckweeds *Lemna minor/minuta*, and also some fat duckweed *L. gibba* and ivy-leaved duckweed *L. trisulca*. Submerged fine-leaved pondweeds were also quite abundant, and there was sparse tall emergent common reed, hemlock water-dropwort, large sedges and yellow flag *Iris pseudacorus* around the ditch margins.

Table 3.1.7. Invertebrates in sample station MU07, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		-,C,-	1	1
<i>Lymnaea stagnalis</i>		D,D,-	1	1
<i>Radix baltica</i>		-,C,C	1	1
<i>Planorbis planorbis</i>		C,C,C	1	1
<i>Anisus vortex</i>		D,D,-	1	1
<i>Planorbarius corneus</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		-,D,D	1	1
<i>Notonecta glauca</i>		-, -,D	1	1
<i>Plea minutissima</i>		-, -,D	1	1
<i>Hespercorixa linnaei</i>		D,-,C	1	1
<i>Hespercorixa sahlbergi</i>		-,D,D	1	1
<i>Sigara dorsalis</i>		-, -,D	1	1
<i>Haliphus lineatocollis</i>		-,D,-	1	1
<i>Haliphus heydeni</i>		-,C,-	1	2
<i>Haliphus ruficollis</i>		C,C,D	1	1
<i>Haliphus sibiricus</i>		-,D,D	1	1
<i>Haliphus flavicollis</i>		D,-,-	1	2
<i>Noterus clavicornis</i>		-,D,D	1	1
<i>Graptodytes pictus</i>		-,C,-	2	2
<i>Hydroporus angustatus</i>		D,D,-	1	1
<i>Hydroporus palustris</i>		D,C,C	1	1
<i>Hygrotus inaequalis</i>		C,C,D	1	1
<i>Hyphydrus ovatus</i>		-,D,-	1	1
<i>Helophorus aequalis</i>		-, -,D	1	1
<i>Helophorus brevipalpis</i>		C,C,C	1	1
<i>Laccobius bipunctatus</i>		-,D,-	1	1
		SRS		26
		SQS		29
		SQI		1.11
		HQS		1.92

3.1.8. Sample station MU08 (IDB24b)

Sub-samples MU08A and MU08B were collected on 15 June, but due to access problems MU08C was not recorded until 30 July. All samples were collected from the eastern ditch bank. MU08 was a relatively small ditch, with dense floating mats of small duckweeds and greater duckweed *Spirodela polyrhiza*, and well-developed stands of tall emergent common reed and reed sweet-grass. There was also a little submerged curled pondweed *Potamogeton crispus* very locally. MU08A and B were both fenced from stock, but cattle had access to the east bank at MU08C. For the most part, the marginal zone was dominated by rank terrestrial vegetation overhanging the ditch edge.

Table 3.1.8. Invertebrates in sample station MU08, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Radix baltica</i>		C,C,D	1	1
<i>Planorbis planorbis</i>		B,B,C	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Bathynomphalus contortus</i>		C,C,C	1	2
<i>Planorbarius corneus</i>		C,-,-	1	1
<i>Dugesia lugubris</i>		-, -,D	-	-
<i>Glossiphonia complanata</i>		-,D,D	1	1
<i>Erpobdella octoculata</i>		D,D,D	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Notonecta glauca</i>		D,D,-	1	1
<i>Sigara dorsalis</i>		-,D,-	1	1
<i>Halipus heydeni</i>		-,D,-	1	2
<i>Halipus ruficollis</i>		-, -,C	1	1
<i>Halipus sibiricus</i>		D,-,-	1	1
<i>Noterus clavicornis</i>		D,D,-	1	1
<i>Dytiscus marginalis</i>		-,D,-	1	1
<i>Hydroporus angustatus</i>		-,C,D	1	1
<i>Hydroporus palustris</i>		D,C,C	1	1
<i>Hyphydrus ovatus</i>		-,D,D	1	1
<i>Helophorus aequalis</i>		D,D,-	1	1
<i>Helophorus brevipalpis</i>		C,C,-	1	1
<i>Hydrobius fuscipes</i>		-,D,-	1	1
<i>Laccobius bipunctatus</i>		-, -,D	1	1
		SRS		22
		SQS		24
		SQI		1.09
		HQS		0

3.1.9. Sample station MU09 (IDB26)

All three sub-samples were collected here on 14 June from the western ditch bank. This was a small but relatively deep ditch, with a steep bank profile. Small duckweeds were abundant throughout the ditch, and submerged horned pondweed was frequent, though in most places the water column was open. In places, there were rafts of floating sweet-grass, as well as scattered patches of tall emergent common reed, reed sweet-grass, reed canary-grass *Phalaris arundinacea* and hemlock water-dropwort. There was little evidence of stock accessing this ditch anywhere, with the whole western bank abutting a minor road, and the eastern bank either being fenced or given over to silage production. As a consequence the ditch margins had a dense fringe of overhanging terrestrial vegetation.

Table 3.1.9. Invertebrates in sample station MU09, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		D,-,C	1	2
<i>Aplexa hypnorum</i>		-,D,-	1	2
<i>Radix baltica</i>		C,C,-	1	1
<i>Planorbis planorbis</i>		D,C,B	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Hippeutis complanatus</i>		-, -,D	1	2
<i>Planorbarius corneus</i>		-,D,-	1	1
<i>Haliphus heydeni</i>		-,D,D	1	2
<i>Helophorus aequalis</i>		C,C,-	1	1
<i>Helophorus brevipalpis</i>		C,B,B	1	1
<i>Anacaena limbata</i>		-,D,-	1	1
<i>Enochrus coarctatus</i>		D,-,-	2	2
<i>Enochrus ochropterus</i>		-,D,-	1	2
<i>Enochrus testaceus</i>		-,D,-	1	2
<i>Hydrobius fuscipes</i>		-,D,-	1	1
		SRS		15
		SQS		22
		SQI		1.47
		HQS		3.33

3.1.10. Sample station MU10 (IDB27)

The three sub-samples at MU10 were collected on 14 June from the northern ditch bank. This was another small but relatively deep ditch, with a steep bank profile. Most of the ditch surface was covered by a floating mat of small duckweeds, with greater duckweed, ivy-leaved duckweed and fat duckweed also all recorded. The water column was for the most part open, with just a few patches of submerged horned pondweed and whorled water-milfoil *Myriophyllum verticillatum*. There was also a significant quantity of tall emergent reed sweet-grass, hemlock water-dropwort and large sedges. Stock were unable to access the ditch at any point, with the whole northern bank adjoining a minor road, while the south bank was fenced. As a consequence the ditch margins had a dense fringe of overhanging terrestrial vegetation.

Table 3.1.10. Invertebrates in sample station MU10, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		D,D,-	1	2
<i>Radix baltica</i>		C,C,-	1	1
<i>Planorbis planorbis</i>		B,B,B	1	1
<i>Anisus vortex</i>		-,C,C	1	1
<i>Planorbarius corneus</i>		C,C,-	1	1
<i>Haliphus lineatocollis</i>		D,D,D	1	1
<i>Haliphus heydeni</i>		-,D,-	1	2
<i>Haliphus ruficollis</i>		D,D,D	1	1
<i>Haliphus sibiricus</i>		-, -,C	1	1
<i>Noterus clavicornis</i>		D,-,D	1	1
<i>Dytiscus marginalis</i>		-, -,D	1	1
<i>Hydroporus angustatus</i>		D,D,-	1	1
<i>Hydroporus palustris</i>		D,-,D	1	1
<i>Hygrotus inaequalis</i>		-,D,D	1	1
<i>Helophorus aequalis</i>		-, -,D	1	1
<i>Helophorus brevipalpis</i>		D,C,C	1	1
<i>Anacaena globulus</i>		-, -,D	1	1
<i>Anacaena limbata</i>		-,D,D	1	1
<i>Enochrus ochropterus</i>		D,-,-	1	2
<i>Enochrus testaceus</i>		D,-,-	1	2
<i>Laccobius bipunctatus</i>		-,D,-	1	1
<i>Notaris acridulus</i>		D,-,-	-	-
		SRS		21
		SQS		25
		SQI		1.19
		HQS		0

3.1.11. Sample station MU11 (IDB28)

The three sub-samples at MU11 were collected on 13 June with the first sample being collected from the south bank, and the second two from the north. This was a small, steep-sided ditch, similar to many of the other IDB reens sampled on Magor and Undy in 2012. Small and greater duckweeds were only present as a scattered growth, and there was also a little floating amphibious bistort *Polygonum amphibium*. The water column was for the most part open, though with locally abundant beds of curled, and hairlike pondweed, as well as some rigid hornwort. Another feature of this ditch was the presence of extensive rafts of floating sweet-grass. Stock were unable to access the ditch at any point, with both banks being fenced from stock. As a consequence the ditch margins had a dense fringe of overhanging terrestrial vegetation.

Table 3.1.11. Invertebrates in sample station MU11, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		-, -, D	1	2
<i>Lymnaea stagnalis</i>		-, D, -	1	1
<i>Planorbis planorbis</i>		C, C, C	1	1
<i>Anisus vortex</i>		C, B, B	1	1
<i>Hydrometra stagnorum</i>		-, -, D	1	1
<i>Nepa cinerea</i>		-, D, D	1	1
<i>Notonecta glauca</i>		C, C, D	1	1
<i>Plea minutissima</i>		-, C, -	1	1
<i>Hespercorixa sahlbergi</i>		D, -, -	1	1
<i>Sigara dorsalis</i>		-, C, -	1	1
<i>Sigara falleni</i>		D, -, -	1	1
<i>Haliphus lineatocollis</i>		C, -, -	1	1
<i>Haliphus ruficollis</i>		D, C, -	1	1
<i>Haliphus sibiricus</i>		C, C, -	1	1
<i>Noterus clavicornis</i>		D, D, D	1	1
<i>Hydroporus angustatus</i>		D, -, D	1	1
<i>Hydroporus palustris</i>		C, D, C	1	1
<i>Hygrotus inaequalis</i>		-, D, D	1	1
<i>Hyphydrus ovatus</i>		-, D, -	1	1
<i>Agonum fuliginosum</i>		-, -, D	-	-
<i>Helophorus aequalis</i>		C, D, -	1	1
<i>Helophorus brevipalpis</i>		A, C, D	1	1
<i>Anacaena limbata</i>		D, -, -	1	1
<i>Cymbiodyta marginella</i>		D, -, D	1	2
<i>Enochrus testaceus</i>		D, -, -	1	2
<i>Hydrobius fuscipes</i>		D, -, -	1	1
<i>Laccobius bipunctatus</i>		D, D, D	1	1
<i>Coelostoma orbiculare</i>		-, -, D	1	2
<i>Stenus cicindeloides</i>		-, -, D	-	-
<i>Stenus picipennis</i>		-, -, D	-	-
<i>Stenus boops</i>		-, -, D	-	-
<i>Coccidula rufa</i>		-, -, D	-	-
<i>Notaris acridulus</i>		-, -, D	-	-
	SRS	27	SQI	1.15
	SQS	31	HQS	0

3.1.12. Sample station MU12 (IDB29)

At MU12, all three sub-samples were collected from the north bank on 15 June. This was a moderately large ditch with an appreciable flow. Much of the water column was open, though there was patchy submerged vegetation dominated by Canadian pondweed, water-starwort, plus a little horned pondweed. Small duckweeds and greater duckweed only occurred as very scattered floating patches. The ditch was unfenced, and though there were no stock at the time of the survey, it had low, trampled margins that indicated cattle have had access recently. Ditch margins had a fairly low band of mixed emergent vegetation dominated by floating sweet-grass, reed sweet-grass, watercress, water horsetail *Equisetum fluviatile* and lesser water-parsnip *Berula erecta*. At MU12A, the south bank was wooded, which cast substantial shade over this section of the ditch.

Table 3.1.12. Invertebrates in sample station MU12, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		D,C,C	1	1
<i>Lymnaea palustris</i>		-,C,-	1	1
<i>Lymnaea stagnalis</i>		D,C,C	1	1
<i>Radix auricularia</i>		D,C,-	1	2
<i>Radix baltica</i>		B,A,B	1	1
<i>Planorbis planorbis</i>		D,C,C	1	1
<i>Anisus vortex</i>		D,B,C	1	1
<i>Bathymophalus contortus</i>		D,D,-	1	2
<i>Planorbarius corneus</i>		D,C,D	1	1
<i>Glossiphonia complanata</i>		D,D,-	1	1
<i>Erpobdella octoculata</i>		-, -,D	1	1
<i>Velia caprai</i>		C,-,-	1	1
<i>Gerris lacustris</i>		-,D,D	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		-, -,D	1	1
<i>Sigara dorsalis</i>		C,D,-	1	1
<i>Sigara falleni</i>		-, -,D	1	1
<i>Haliphus lineatocollis</i>		C,-,-	1	1
<i>Haliphus immaculatus</i>		D,-,D	2	1
<i>Haliphus sibiricus</i>		B,B,C	1	1
<i>Noterus clavicornis</i>		-, -,D	1	1
<i>Agabus sturmii</i>		D,-,-	1	1
<i>Agabus didymus</i>		D,-,-	1	2
<i>Ilybius fuliginosus</i>		D,-,-	1	1
<i>Rhantus grapii</i>		-, -,D	2	2
<i>Dytiscus marginalis</i>		-,D,-	1	1
<i>Hydroporus angustatus</i>		-,D,-	1	1
<i>Hydroporus palustris</i>		D,-,D	1	1
<i>Hydroporus planus</i>		D,-,D	1	1
<i>Nebrioporus elegans</i>		D,-,-	1	1
<i>Helophorus aequalis</i>		D,-,D	1	1
<i>Helophorus brevipalpis</i>		C,C,C	1	1
<i>Anacaena globulus</i>		-,D,-	1	1
<i>Anacaena limbata</i>		D,D,D	1	1

<i>Enochrus testaceus</i>	-,-,D	1	2
<i>Helochares lividus</i>	-,-,D	2	2
<i>Hydrobius fuscipes</i>	-,D,-	1	1
<i>Laccobius bipunctatus</i>	D,D,D	1	1
<i>Paederus riparius</i>	-,D,D	-	-
<i>Stenus cicindeloides</i>	-,-,D	-	-
<i>Stenus binotatus</i>	-,D,D	-	-
<i>Stenus nitidiusculus</i>	-,D,D	-	-
<i>Coccidula rufa</i>	-,D,-	-	-
<i>Donacia semicuprea</i>	-,D,-	-	-
<i>Phaedon cochleariae</i>	-,D,-	-	-
<i>Notaris acridulus</i>	-,D,-	-	-
<i>Poophagus sisymbrii</i>	-,D,-	-	-
<i>Odontomyia tigrina</i>	-,-,D	2	3
N.		SRS	40
		SQS	49
		SQI	1.22
		HQS	5.00

3.1.13. Sample station MU13 (IDB33a)

MU13 was sampled on 19 June in the company of Rob Bacon of CCW. The first two samples were taken from the west bank, and the last from the east bank. In most places, the water column was densely shaded by a thick mat of small duckweeds and greater duckweed, and there was also a little floating growth of frogbit *Hydrocharis morsus-ranae*. However, in a few places where duckweeds were less abundant, there was some submerged growth of horned, Canadian, curled and fine-leaved pondweeds. The ditch margins are quite poached in some places, with a moderately tall emergent fringe of floating sweet-grass and a little water horsetail. Elsewhere the banks were steeper and less poached, with tall emergent and terrestrial reed sweet-grass and hemlock water-dropwort. Along the southern part of the ditch, one bank was flanked by a low hawthorn hedge.

Table 3.1.13. Invertebrates in sample station MU13, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		C,-,D	1	1
<i>Physa</i> sp.		C,-,D	1	1
<i>Lymnaea palustris</i>		D,-,-	1	1
<i>Radix baltica</i>		C,-,C	1	1
<i>Planorbis planorbis</i>		B,D,C	1	1
<i>Anisus vortex</i>		B,D,C	1	1
<i>Bathymophalus contortus</i>		C,-,-	1	2
<i>Hippeutis complanatus</i>		C,D,-	1	2
<i>Planorbarius corneus</i>		C,-,-	1	1
<i>Polycelis nigra</i>		-,D,-	-	-
<i>Theromyzon tessulatum</i>		D,-,-	1	1
<i>Glossiphonia complanata</i>		D,D,D	1	1
<i>Helobdella stagnalis</i>		-,D,-	1	1
<i>Erpobdella octoculata</i>		C,-,C	1	1
<i>Nepa cinerea</i>		-, -,D	1	1
<i>Notonecta glauca</i>		D,-,D	1	1
<i>Hespercorixa linnaei</i>		D,-,-	1	1
<i>Haliphus lineatocollis</i>		-,D,-	1	1
<i>Haliphus heydeni</i>		C,D,C	1	2
<i>Haliphus ruficollis</i>		B,D,C	1	1
<i>Noterus clavicornis</i>		D,-,-	1	1
<i>Agabus bipustulatus</i>		D,-,-	1	1
<i>Ilybius quadriguttatus</i>		-,D,D	2	2
<i>Dytiscus marginalis</i>		-, -,D	1	1
<i>Hydroporus angustatus</i>		-,D,-	1	1
<i>Hydroporus erythrocephalus</i>		-, -,D	1	1
<i>Hydroporus palustris</i>		C,D,C	1	1
<i>Hydroporus pubescens</i>		C,-,D	1	1
<i>Hygrotus inaequalis</i>		D,C,-	1	1
<i>Helophorus aequalis</i>		C,C,D	1	1
<i>Helophorus brevipalpis</i>		B,C,C	1	1
<i>Laccobius bipunctatus</i>		D,C,D	1	1
<i>Stenus boops</i>		D,-,-	-	-

SRS	31
SQS	35
SQI	1.13
HQS	1.61

3.1.14. Sample station MU14 (IDB34)

This sample station was visited on 18 and 19 June. The MU14A sample was taken from the west bank of the ditch and MU14B and MU14C were taken from the east bank. For much of its length, this ditch had a dense floating mat of small duckweeds, as well as some greater and fat duckweed. Submerged beds of horned pondweed were very locally distributed in those few areas where the duckweed mat was less dense. In many places the ditch was choked with beds of tall emergent branched bur-reed. The banks of this ditch were steep, with no evidence of recent poaching by stock. The banks were mostly clothed in rank terrestrial vegetation, though along its northern length the east bank is shaded by a hedge.

Table 3.1.14. Invertebrates in sample station MU14, Gwent Levels, Magor and Undy SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		D,C,C	1	1
<i>Lymnaea stagnalis</i>		-,D,-	1	1
<i>Radix baltica</i>		C,C,-	1	1
<i>Planorbis planorbis</i>		C,C,C	1	1
<i>Anisus vortex</i>		C,C,D	1	1
<i>Bathymomphalus contortus</i>		D,-,-	1	2
<i>Hippeutis complanatus</i>		D,-,-	1	2
<i>Planorbarius corneus</i>		D,-,-	1	1
<i>Polycelis tenuis</i>		-,C,C	-	-
<i>Dugesia lugubris</i>		-, -,C	-	-
<i>Erpobdella octoculata</i>		D,C,-	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		D,-,-	1	1
<i>Notonecta glauca</i>		D,D,-	1	1
<i>Hesperocorixa sahlbergi</i>		D,-,-	1	1
<i>Sigara dorsalis</i>		D,D,-	1	1
<i>Haliphus lineatocollis</i>		D,-,-	1	1
<i>Haliphus heydeni</i>		C,C,C	1	2
<i>Haliphus ruficollis</i>		C,C,-	1	1
<i>Haliphus sibiricus</i>		-,D,D	1	1
<i>Noterus clavicornis</i>		D,D,-	1	1
<i>Hydroporus angustatus</i>		D,D,D	1	1
<i>Hydroporus palustris</i>		D,D,D	1	1
<i>Hydroporus planus</i>		-,D,-	1	1
<i>Hygrotus inaequalis</i>		D,C,D	1	1
<i>Helophorus brevipalpis</i>		C,C,D	1	1
<i>Anacaena limbata</i>		-,D,-	1	1
<i>Enochrus testaceus</i>		-,D,-	1	2
<i>Helochares lividus</i>		-, -,C	2	2
<i>Laccobius bipunctatus</i>		-,D,D	1	1
<i>Tanysphyrus lemnae</i>		-,D,-	-	-
		SRS		28
		SQS		33
		SQI		1.18
		HQS		1.79

3.1.15. Sample station NG01 (EA26)

Sample station NG01 was visited on 27 June. The first and third samples were collected from the west bank and the second from the east. This was a large ditch with a comparatively strong flow and very open water column. Submerged vegetation was confined to just a few clumps of Canadian pondweed and floating duckweeds were virtually absent. There was no emergent vegetation and the banks had tall, rank terrestrial vegetation. The surrounding fields all appeared to be managed for silage production at the time of the survey, and as a consequence, there was no poaching of the bank margins, which were rather steep-sided.

Table 3.1.15. Invertebrates in sample station NG01, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>		C,C,C	-	-
<i>Bithynia tentaculata</i>		C,C,C	1	1
<i>Physa</i> sp.		C,C,C	1	1
<i>Lymnaea stagnalis</i>		D,-,-	1	1
<i>Radix baltica</i>		C,D,D	1	1
<i>Planorbis planorbis</i>		-,C,D	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Polycelis tenuis</i>		D,-,-	-	-
<i>Theromyzon tessulatum</i>		D,-,-	1	1
<i>Erpobdella octoculata</i>		D,D,D	1	1
<i>Hydrometra stagnorum</i>		-, -,D	1	1
<i>Microvelia reticulata</i>		D,-,-	1	1
<i>Sigara dorsalis</i>		-,C,D	1	1
<i>Sigara falleni</i>		-,D,-	1	1
<i>Sigara fossarum</i>		D,-,-	1	1
<i>Gyrinus substriatus</i>		-,D,-	1	1
<i>Haliphus fluvialis</i>		-,D,C	1	1
<i>Haliphus ruficollis</i>		-, -,D	1	1
<i>Haliphus sibiricus</i>		D,D,D	1	1
<i>Hygrotus versicolor</i>		D,-,-	1	2
<i>Hyphydrus ovatus</i>		D,-,-	1	1
<i>Laccophilus hyalinus</i>		D,D,-	1	2
<i>Helophorus brevipalpis</i>		D,D,D	1	1
<i>Anacaena globulus</i>		D,D,-	1	1
<i>Anacaena limbata</i>		D,D,D	1	1
<i>Laccobius bipunctatus</i>		D,D,C	1	1
<i>Elmis aenea</i>		-,D,D	1	1
		SRS		25
		SQS		27
		SQI		1.08
		HQS		0

3.1.16. Sample station NG02 (EA27)

Ditch NG02 was sampled on 21 and 27 June. All three samples were taken from the east bank. This was a large ditch, parts of which had a dense floating mat of small duckweeds and greater duckweed. In areas where *Lemna* cover was lower, there was a well developed submerged macrophyte community in which fine-leaved pondweeds, rigid hornwort and curled pondweed were the main constituents. There was also a little frogbit in marginal areas of the ditch. Much of the eastern bank was open to cattle, and had a poached, gently sloping margin with a well developed band of tall emergent fen dominated by reed sweet-grass, floating sweet-grass, large sedges and rushes *Juncus* spp. The western bank lay adjacent to a minor road for its entire length, and for the most part was characterised by steep banks with rank terrestrial vegetation.

Table 3.1.16. Invertebrates in sample station NG02, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		-, -, D	1	2
<i>Bithynia tentaculata</i>		D, C, C	1	1
<i>Physa</i> sp.		C, C, C	1	1
<i>Lymnaea stagnalis</i>		C, D, D	1	1
<i>Radix baltica</i>		C, C, -	1	1
<i>Planorbis planorbis</i>		C, C, C	1	1
<i>Anisus vortex</i>		B, B, B	1	1
<i>Hippeutis complanatus</i>		-, D, -	1	2
<i>Theromyzon tessulatum</i>		D, D, C	1	1
<i>Glossiphonia heteroclita</i>		-, -, D	1	2
<i>Erpobdella octoculata</i>		C, C, C	1	1
<i>Brachytron pratense</i>		D, -, -	2	2
<i>Ilyocoris cimicoides</i>		D, -, D	1	1
<i>Notonecta glauca</i>		-, -, D	1	1
<i>Plea minutissima</i>		D, -, -	1	1
<i>Hespercorixa linnaei</i>		-, -, D	1	1
<i>Sigara dorsalis</i>		-, -, D	1	1
<i>Halipus confinis</i>		-, D, -	1	2
<i>Halipus heydeni</i>		C, D, -	1	2
<i>Halipus ruficollis</i>		D, -, -	1	1
<i>Halipus sibiricus</i>		C, D, D	1	1
<i>Noterus clavicornis</i>		C, C, C	1	1
<i>Ilybius ater</i>		D, -, -	2	1
<i>Ilybius fenestratus</i>		D, -, -	1	2
<i>Colymbetes fuscus</i>		-, -, D	1	1
<i>Dytiscus marginalis</i>		D, -, -	1	1
<i>Hydroporus angustatus</i>		-, D, D	1	1
<i>Hydroporus palustris</i>		-, C, C	1	1
<i>Hygrotus inaequalis</i>		-, -, D	1	1
<i>Hyphydrus ovatus</i>		C, D, -	1	1
<i>Helophorus aequalis</i>		D, D, D	1	1
<i>Helophorus brevipalpis</i>		C, C, C	1	1
<i>Anacaena limbata</i>		D, C, C	1	1
<i>Anacaena lutescens</i>		-, -, D	1	1

<i>Cymbiodyta marginella</i>	-,D,-	1	2
<i>Enochrus coarctatus</i>	-,-,D	2	2
<i>Helochares lividus</i>	-,-,D	2	2
<i>Laccobius bipunctatus</i>	-,C,C	1	1
<i>Cercyon ustulatus</i>	-,D,-	1	2
<i>Ochthebius dilatatus</i>	-,D,-	1	2
<i>Stenus latifrons</i>	-,D,-	-	-
<i>Stenus binotatus</i>	-,-,D	-	-
<i>Stenus boops</i>	-,-,D	-	-
<i>Donacia semicuprea</i>	D,C,D	-	-
<i>Tanysphyrus lemnae</i>	D,D,-	-	-
<i>Stenopelmus rufinasus</i>	-,-,D	-	-
<i>Odontomyia ornata</i>	-,-,D	3	5
RDB2.		SRS	41
		SQS	57
		SQI	1.39
		HQS	7.32

3.1.17. Sample station NG03 (IDB64)

This ditch was sampled on 21 and 27 June, with the first two samples being taken from the south bank, and the last from the north side. NG03 was a relatively small ditch with dense submerged macrophytes, amongst which fine-leaved pondweeds, rigid hornwort, curled pondweed and Canadian pondweed were the main species. Floating mats of small duckweeds and greater duckweed were locally abundant and in some places there was a well developed tall emergent fringe of reed sweet-grass, large sedges and reed canary-grass. The surrounding fields were being managed for silage at the time of this visit, and as a consequence, there were no recently poached margins. Most of the banks had a steep profile with rank terrestrial vegetation, though in a couple of places, there were shallow bays that appeared to have been created by past cattle poaching. For a significant part of its length, this ditch was shaded on one bank by a low and patchy hedge.

Table 3.1.17. Invertebrates in sample station NG03, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons.	Abundance	Marsh fidelity	Status score
	Status			
<i>Bithynia tentaculata</i>		C,C,C	1	1
<i>Physa</i> sp.		C,C,-	1	1
<i>Radix baltica</i>		C,-,C	1	1
<i>Planorbis planorbis</i>		C,C,B	1	1
<i>Anisus vortex</i>		C,C,B	1	1
<i>Theromyzon tessulatum</i>		D,-,D	1	1
<i>Glossiphonia heteroclita</i>		D,-,D	1	2
<i>Erpobdella octoculata</i>		D,D,D	1	1
<i>Hydrometra stagnorum</i>		-, -,D	1	1
<i>Ilyocoris cimicoides</i>		-, -,D	1	1
<i>Notonecta glauca</i>		-,D,D	1	1
<i>Sigara dorsalis</i>		D,-,-	1	1
<i>Haliphus heydeni</i>		-,D,-	1	2
<i>Haliphus ruficollis</i>		-, -,C	1	1
<i>Haliphus sibiricus</i>		C,-,C	1	1
<i>Noterus clavicornis</i>		-,D,C	1	1
<i>Agabus sturmii</i>		-,D,-	1	1
<i>Rhantus grapii</i>		-,D,-	2	2
<i>Dytiscus marginalis</i>		-,D,D	1	1
<i>Hydroporus palustris</i>		-,C,C	1	1
<i>Hyphydrus ovatus</i>		D,D,D	1	1
<i>Laccophilus hyalinus</i>		-, -,D	1	2
<i>Helophorus brevipalpis</i>		C,C,C	1	1
<i>Anacaena globulus</i>		-,D,D	1	1
<i>Anacaena limbata</i>		D,D,C	1	1
<i>Enochrus melanocephalus</i>		D,-,-	1	2
<i>Enochrus testaceus</i>		D,-,D	1	2
<i>Laccobius bipunctatus</i>		D,D,C	1	1
<i>Plateumaris sericea</i>		-,D,-	-	-
<i>Donacia semicuprea</i>		D,C,-	-	-
	SQI	1.21	SRS	28
	HQS	1.79	SQS	34

3.1.18. Sample station NG04 (IDB65)

Sample station NG04 was visited on 20 June 2012. The first two samples were collected from the south bank, and the last from the north. This ditch had abundant submerged macrophytes throughout, with rigid hornwort and fine-leaved, curled, and Canadian pondweeds being noted in the sample stations. Floating mats of small duckweeds and greater duckweed were another conspicuous feature, though they were not as dominant as in many of the other ditches sampled on the Gwent Levels this year. There were also some floating leaves of frogbit in the marginal area of the reed. The ditch margins were backed by silage and cereal fields, and did not appear to have been grazed recently. Marginal vegetation was dominated by tall emergent bands of common reed, reed sweet-grass, reed canary-grass, hemlock water-dropwort, yellow flag and large sedges.

Table 3.1.18. Invertebrates in sample station NG04, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		-,C,C	1	1
<i>Physa</i> sp.		C,C,C	1	1
<i>Lymnaea stagnalis</i>		D,D,-	1	1
<i>Radix baltica</i>		C,C,C	1	1
<i>Planorbis planorbis</i>		-,C,C	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Hippeutis complanatus</i>		-, -,D	1	2
<i>Dugesia lugubris</i>		-,D,C	-	-
<i>Theromyzon tessulatum</i>		-,D,C	1	1
<i>Glossiphonia complanata</i>		-,D,D	1	1
<i>Erpobdella octoculata</i>		C,C,C	1	1
<i>Gerris lacustris</i>		-,D,-	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		D,D,-	1	1
<i>Notonecta glauca</i>		D,D,D	1	1
<i>Peltodytes caesus</i>	NS.	-,C,-	3	3
<i>Haliphus lineatocollis</i>		D,-,-	1	1
<i>Haliphus heydeni</i>		D,C,D	1	2
<i>Haliphus ruficollis</i>		D,-,-	1	1
<i>Noterus clavicornis</i>		D,D,D	1	1
<i>Hygrobia hermanni</i>		-,D,-	1	2
<i>Agabus sturmii</i>		D,D,-	1	1
<i>Agabus bipustulatus</i>		-,D,-	1	1
<i>Ilybius ater</i>		-,D,-	2	1
<i>Ilybius quadriguttatus</i>		-,D,-	2	2
<i>Dytiscus marginalis</i>		-,D,-	1	1
<i>Hydroporus angustatus</i>		-,C,-	1	1
<i>Hydroporus palustris</i>		D,C,D	1	1
<i>Helophorus brevipalpis</i>		D,C,D	1	1
<i>Anacaena limbata</i>		-,D,C	1	1
<i>Enochrus testaceus</i>		D,-,D	1	2
<i>Helochares lividus</i>		-,D,-	2	2
<i>Laccobius bipunctatus</i>		D,D,-	1	1
<i>Stenus cicindeloides</i>		-,D,-	-	-

<i>Coccidula scutellata</i>	-, -, D	-	-
<i>Plateumaris sericea</i>	-, D, -	-	-
<i>Donacia semicuprea</i>	D, -, -	-	-
<i>Tanysphyrus lemnae</i>	-, D, -	-	-
	SRS		32
	SQS		40
	SQI		1.25
	HQS		7.81

3.1.19. Sample station NG05 (IDB68)

This ditch was sampled on 20 June 2012. All three samples were collected from the north-eastern bank, the south-western bank being backed by a tall, shading hedge. NG05 was a 'clean' ditch that appeared to have been cleared out quite recently, with little in the way of emergent vegetation. Small duckweeds and greater duckweed were patchily abundant on the surface, along with frequent floating leaves of frogbit. Submerged mats of fine-leaved, curled and Canadian pondweeds were also locally abundant. The banks were quite steep-sided with little evidence of poaching by animals and were clothed in tall sedges and yellow flag.

Table 3.1.19. Invertebrates in sample station NG05, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		-,D,D	1	1
<i>Physa</i> sp.		-,C,-	1	1
<i>Lymnaea stagnalis</i>		-, -,D	1	1
<i>Radix baltica</i>		C,C,-	1	1
<i>Planorbis planorbis</i>		D,D,C	1	1
<i>Anisus vortex</i>		D,C,C	1	1
<i>Glossiphonia complanata</i>		D,-,-	1	1
<i>Erpobdella octoculata</i>		C,D,D	1	1
<i>Brachytron pratense</i>		-,D,-	2	2
<i>Hydrometra stagnorum</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		-, -,D	1	1
<i>Notonecta glauca</i>		D,-,-	1	1
<i>Hesperocorixa sahlbergi</i>		D,D,-	1	1
<i>Sigara dorsalis</i>		-,D,D	1	1
<i>Sigara fossarum</i>		-,D,-	1	1
<i>Haliphus ruficollis</i>		D,D,D	1	1
<i>Agabus bipustulatus</i>		D,D,D	1	1
<i>Agabus nebulosus</i>		-,D,-	1	1
<i>Ilybius quadriguttatus</i>		-, -,D	2	2
<i>Hydroporus angustatus</i>		C,C,D	1	1
<i>Hydroporus palustris</i>		C,D,D	1	1
<i>Hydroporus planus</i>		D,D,-	1	1
<i>Hydroporus pubescens</i>		C,C,D	1	1
<i>Hydroporus tessellatus</i>		D,D,-	1	1
<i>Hygrotus inaequalis</i>		C,-,D	1	1
<i>Helophorus brevipalpis</i>		-,D,-	1	1
<i>Anacaena limbata</i>		D,-,-	1	1
<i>Enochrus ochropterus</i>		-,D,D	1	2
<i>Hydrobius fuscipes</i>		D,-,-	1	1
<i>Plateumaris sericea</i>		-,D,-	-	-
<i>Tanytarsus lemnae</i>		-,D,-	-	-
<i>Odontomyia ornata</i>	RDB2.	-, -,D	3	5
			SRS	30
			SQS	37
			SQI	1.23
			HQS	6.67

3.1.20. Sample station NG06 (IDB69)

NG06 was a very long ditch length that was sampled on 3 and 27 July 2012. The first and third samples were taken from the south bank and the second sample from the north. It was divided into two distinct sections: the western half, which had cattle grazed margins, and shallow, poached margins (NG06A and B); and the eastern half that was given over to silage production, with steep banks and rank terrestrial vegetation (NG06C). In the western section, duckweed cover was relatively low and there was high cover of submerged beds of hairlike pondweed. In the eastern sample, there was high cover of small duckweeds and greater duckweed and no submerged macrophytes. The poached margins had low cover of lesser water-parsnip with taller tussocks of rushes, and in the ungrazed section the banks had a tall fringe of common reed.

Table 3.1.20. Invertebrates in sample station NG06, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		-, -, D	1	2
<i>Bithynia tentaculata</i>		C, C, -	1	1
<i>Radix baltica</i>		B, C, C	1	1
<i>Planorbis planorbis</i>		C, C, D	1	1
<i>Anisus vortex</i>		C, C, C	1	1
<i>Hippeutis complanatus</i>		-, -, D	1	2
<i>Planorbarius corneus</i>		C, C, C	1	1
<i>Polycelis nigra</i>		-, D, -	-	-
<i>Polycelis tenuis</i>		D, C, -	-	-
<i>Theromyzon tessulatum</i>		-, D, D	1	1
<i>Glossiphonia complanata</i>		D, D, D	1	1
<i>Haemopsis sanguisuga</i>		D, D, -	1	2
<i>Erpobdella octoculata</i>		C, C, -	1	1
<i>Ilyocoris cimicoides</i>		D, -, D	1	1
<i>Notonecta glauca</i>		D, -, D	1	1
<i>Plea minutissima</i>		D, D, -	1	1
<i>Hespercorixa linnaei</i>		D, -, -	1	1
<i>Hespercorixa sahlbergi</i>		-, -, D	1	1
<i>Sigara dorsalis</i>		D, -, -	1	1
<i>Peltodytes caesus</i>	NS.	-, D, -	3	3
<i>Haliphus lineatocollis</i>		D, -, D	1	1
<i>Haliphus heydeni</i>		C, D, D	1	2
<i>Haliphus ruficollis</i>		D, C, D	1	1
<i>Noterus clavicornis</i>		D, -, -	1	1
<i>Ilybius quadriguttatus</i>		-, D, -	2	2
<i>Hydroporus incognitus</i>		-, -, D	1	1
<i>Hydroporus palustris</i>		C, D, D	1	1
<i>Hydroporus planus</i>		-, -, D	1	1
<i>Hydroporus tessellatus</i>		D, -, -	1	1
<i>Hygrotus inaequalis</i>		D, D, D	1	1
<i>Hyphydrus ovatus</i>		D, -, -	1	1
<i>Helophorus brevipalpis</i>		D, -, D	1	1
<i>Anacaena limbata</i>		D, -, -	1	1
<i>Anacaena lutescens</i>		-, -, D	1	1

<i>Enochrus coarctatus</i>	D,-,-	2	2
<i>Enochrus testaceus</i>	-,D,D	1	2
<i>Helochares lividus</i>	-, -,D	2	2
<i>Laccobius bipunctatus</i>	D,-,D	1	1
	SRS	36	
	SQS	46	
	SQI	1.28	
	HQS	6.94	

3.1.21. Sample station NG07 (IDB70)

NG07 was sampled on 28 June, with the first sample collected from the south bank and the remaining two from the north. A minor road runs adjacent to the northern edge of this ditch. Aquatic vegetation comprised dense submerged growth of hairlike and horned pondweed and locally abundant floating rafts of small duckweeds and greater duckweed. In most places banks were steep with silage being grown along much of the southern bank, and evidence of stock accessing the bankside only in the area of NG07A. The banks had tall terrestrial vegetation dominated by hemlock water-dropwort.

Table 3.1.21. Invertebrates in sample station NG07, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		C,C,-	1	1
<i>Physa</i> sp.		B,C,C	1	1
<i>Lymnaea stagnalis</i>		C,C,D	1	1
<i>Radix auricularia</i>		-,D,-	1	2
<i>Radix baltica</i>		C,D,C	1	1
<i>Planorbis planorbis</i>		C,C,C	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Hippeutis complanatus</i>		C,-,D	1	2
<i>Ilyocoris cimicoides</i>		-,D,-	1	1
<i>Plea minutissima</i>		D,-,-	1	1
<i>Hespercorixa linnaei</i>		-, -,D	1	1
<i>Hespercorixa sahlbergi</i>		D,C,-	1	1
<i>Sigara dorsalis</i>		C,-,-	1	1
<i>Peltodytes caesus</i>	NS.	D,D,-	3	3
<i>Haliphus lineatocollis</i>		-,D,D	1	1
<i>Haliphus ruficollis</i>		C,C,-	1	1
<i>Noterus clavicornis</i>		D,D,D	1	1
<i>Hygrobia hermanni</i>		D,-,-	1	2
<i>Hydroporus angustatus</i>		D,D,D	1	1
<i>Hydroporus palustris</i>		C,D,D	1	1
<i>Hydroporus planus</i>		D,D,D	1	1
<i>Hydroporus tessellatus</i>		-,D,-	1	1
<i>Hygrotus inaequalis</i>		D,C,C	1	1
<i>Hyphydrus ovatus</i>		-,D,-	1	1
<i>Helophorus brevipalpis</i>		C,D,-	1	1
<i>Helophorus flavipes</i>		D,-,-	1	1
<i>Anacaena limbata</i>		-,D,D	1	1
<i>Helochares lividus</i>		D,-,-	2	2
<i>Hydrobius fuscipes</i>		-, -,D	1	1
<i>Laccobius bipunctatus</i>		C,D,-	1	1
		SRS		30
		SQS		36
		SQI		1.20
		HQS		5.00

3.1.22. Sample station NG08 (IDB71)

This ditch was sampled on 27 June, with all three samples being collected from its north-western bank. It was a relatively small ditch, with no submerged macrophytes, and sparse floating growth of small duckweeds. All three samples sites showed evidence of past poaching by cattle, and had relatively well vegetated margins with common reed, reed sweet-grass, reed canary-grass, rushes, floating sweet-grass and lesser water-parsnip. The first sample was partially shaded by overhanging hawthorn scrub.

Table 3.1.22. Invertebrates in sample station NG08, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		-,D,C	1	2
<i>Bithynia tentaculata</i>		C,C,C	1	1
<i>Physa</i> sp.		C,C,C	1	1
<i>Lymnaea stagnalis</i>		D,D,-	1	1
<i>Radix baltica</i>		C,-,D	1	1
<i>Planorbis planorbis</i>		C,C,C	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Theromyzon tessulatum</i>		C,D,-	1	1
<i>Erpobdella octoculata</i>		D,D,-	1	1
<i>Sialis lutaria</i>		-,D,-	1	1
<i>Hydrometra stagnorum</i>		-,D,-	1	1
<i>Notonecta glauca</i>		D,D,D	1	1
<i>Callicorixa praeusta</i>		D,-,-	1	1
<i>Sigara distincta</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		D,C,C	1	1
<i>Sigara fossarum</i>		D,-,-	1	1
<i>Haliphus heydeni</i>		-,D,-	1	2
<i>Haliphus ruficollis</i>		D,-,C	1	1
<i>Haliphus sibiricus</i>		C,C,-	1	1
<i>Noterus clavicornis</i>		C,C,C	1	1
<i>Agabus sturmii</i>		-, -,D	1	1
<i>Agabus bipustulatus</i>		-,D,-	1	1
<i>Hydroporus angustatus</i>		-, -,D	1	1
<i>Hydroporus palustris</i>		C,C,C	1	1
<i>Hydroporus pubescens</i>		-, -,D	1	1
<i>Hygrotus inaequalis</i>		D,C,-	1	1
<i>Hyphydrus ovatus</i>		C,C,C	1	1
<i>Helophorus grandis</i>		-, -,D	1	1
<i>Helophorus brevipalpis</i>		C,C,C	1	1
<i>Anacaena globulus</i>		-,D,-	1	1
<i>Anacaena limbata</i>		-,D,D	1	1
<i>Berosus affinis</i>		-,D,-	3	2
<i>Helochares lividus</i>		-,D,-	2	2
<i>Laccobius bipunctatus</i>		D,C,C	1	1
<i>Stenus boops</i>		-, -,D	-	-
<i>Donacia semicuprea</i>		D,C,C	-	-
	SQI	1.12	SRS	34
	HQS	4.41	SQS	38

3.1.23. Sample station NG09 (IDB73)

NG09 is a fairly small ditch that was sampled on 28 and 29 June, with all three samples being collected from the east bank. Along much of the reed, there are dense, submerged beds of horned pondweed and some ivy-leaved duckweed. Floating rafts of small duckweeds, as well as greater and fat duckweed are frequent throughout, though nowhere are these species dominant. The first sample has banks poached by cattle, and as a consequence has shallow margins with low and patchy cover of lesser water-parsnip, floating sweet-grass and rushes. The remaining two samples are backed by silage fields and have steeper banks with a little emergent floating sweet-grass, branched bur-reed and water-plantain *Alisma plantago-aquatica*.

Table 3.1.23. Invertebrates in sample station NG09, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		C,B,C	1	1
<i>Physa</i> sp.		-,C,C	1	1
<i>Lymnaea stagnalis</i>		D,D,D	1	1
<i>Radix baltica</i>		D,B,C	1	1
<i>Planorbis planorbis</i>		C,C,C	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Hippeutis complanatus</i>		C,C,-	1	2
<i>Planorbarius corneus</i>		D,C,C	1	1
<i>Polycelis nigra</i>		D,-,-	-	-
<i>Dugesia lugubris</i>		D,-,-	-	-
<i>Theromyzon tessulatum</i>		-,D,D	1	1
<i>Helobdella stagnalis</i>		D,-,-	1	1
<i>Erpobdella octoculata</i>		D,C,D	1	1
<i>Brachytron pratense</i>		D,-,-	2	2
<i>Hydrometra stagnorum</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		D,-,-	1	1
<i>Notonecta glauca</i>		C,D,D	1	1
<i>Plea minutissima</i>		D,-,-	1	1
<i>Corixa punctata</i>		-,D,-	1	1
<i>Hespercorixa linnaei</i>		D,-,-	1	1
<i>Hespercorixa sahlbergi</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		D,D,-	1	1
<i>Peltodytes caesus</i>	NS.	-,D,-	3	3
<i>Haliplus ruficollis</i>		C,C,D	1	1
<i>Noterus clavicornis</i>		C,C,C	1	1
<i>Hygrobia hermanni</i>		D,-,-	1	2
<i>Ilybius quadriguttatus</i>		-, -,D	2	2
<i>Rhantus grapii</i>		-, -,D	2	2
<i>Dytiscus marginalis</i>		-, -,D	1	1
<i>Graptodytes pictus</i>		D,D,-	2	2
<i>Hydroporus angustatus</i>		D,-,D	1	1
<i>Hydroporus palustris</i>		C,C,D	1	1
<i>Hydroporus tessellatus</i>		-,D,-	1	1
<i>Porhydrus lineatus</i>		D,-,-	1	2
<i>Hygrotus inaequalis</i>		D,D,-	1	1
<i>Hyphidrus ovatus</i>		-,C,D	1	1

<i>Helophorus aequalis</i>	-,D,-	1	1
<i>Helophorus brevipalpis</i>	C,C,C	1	1
<i>Anacaena globulus</i>	-,D,D	1	1
<i>Anacaena limbata</i>	D,D,D	1	1
<i>Enochrus coarctatus</i>	-, -,D	2	2
<i>Helochares lividus</i>	C, -, -	2	2
<i>Laccobius bipunctatus</i>	D,C,D	1	1
<i>Stenus binotatus</i>	D, -, -	-	-
	SRS	42	
	SQS	54	
	SQI	1.28	
	HQS	9.52	

3.1.24. Sample station NG10 (IDB77)

Ditch NG10 was surveyed on 3 July. The first and last samples were collected from the east bank, and the second from the west. For the most part this ditch had an open water column, though beds of lesser pondweed *Potamogeton pusillus*, fine-leaved and curled pondweeds were locally abundant. Cover of Lemnaceae was high here, with small duckweeds comprising the bulk of cover, though greater and ivy-leaved duckweeds were also recorded. The first and last samples had shallow bank profiles on the east bank that were being maintained by cattle poaching. In these areas, the shallow, poached margins had a low cover of emergent floating sweet-grass, reed sweet-grass, rushes large sedges, lesser water-parsnip and some water-plantain. Ungrazed banks had more steeply profiled banks and taller stands of the same species.

Table 3.1.24. Invertebrates in sample station NG10, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		D,C,-	1	1
<i>Physa</i> sp.		C,C,C	1	1
<i>Radix baltica</i>		C,B,-	1	1
<i>Planorbis planorbis</i>		C,C,C	1	1
<i>Anisus vortex</i>		C,C,D	1	1
<i>Planorbarius corneus</i>		C,C,C	1	1
<i>Polycelis felina</i>		D,-,-	-	-
<i>Polycelis nigra</i>		-, -,D	-	-
<i>Polycelis tenuis</i>		-,C,C	-	-
<i>Dugesia lugubris</i>		-,D,D	-	-
<i>Dugesia polychroa</i>		C,-,-	-	-
<i>Glossiphonia complanata</i>		C,-,-	1	1
<i>Erpobdella octoculata</i>		C,C,C	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		-,C,-	1	1
<i>Haliphus heydeni</i>		-,D,-	1	2
<i>Rhantus grapii</i>		-, -,D	2	2
<i>Dytiscus marginalis</i>		-,D,-	1	1
<i>Graptodytes pictus</i>		D,D,-	2	2
<i>Hydroporus angustatus</i>		D,-,D	1	1
<i>Hydroporus palustris</i>		C,D,C	1	1
<i>Hydroporus pubescens</i>		-, -,D	1	1
<i>Hygrotus inaequalis</i>		-, -,D	1	1
<i>Hyphydrus ovatus</i>		D,-,-	1	1
<i>Anacaena globulus</i>		-, -,D	1	1
<i>Anacaena limbata</i>		-, -,D	1	1
<i>Anacaena lutescens</i>		D,-,-	1	1
<i>Enochrus testaceus</i>		D,-,-	1	2
<i>Laccobius bipunctatus</i>		-,D,D	1	1
<i>Scirtes hemisphaericus</i>		D,-,-	-	-
<i>Scirtes orbicularis</i>	Na.	C,-,D	-	-
			SRS	24
			SQS	28
			SQI	1.17
			HQS	4.17

3.1.25. Sample station NG11 (IDB85)

This site was sampled on 29 June 2012. All three samples were collected from the southern bank of the reen. This was a very dull, eutrophicated ditch, with dense floating growth of small duckweeds, plus fat and greater duckweed. A little hairlike pondweed still persisted beneath the dense duckweed mat. Adjacent land had cereal and silage crops, and there was no evidence of stock usage of the ditch banks recently. Partly as a consequence of this, ditch banks were steep-sided, with rank growth of hemlock water-dropwort, which was shading out the water in many places. At the second sample site, the far bank had a tall hawthorn hedge.

Table 3.1.25. Invertebrates in sample station NG11, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>		-,D,-	-	-
<i>Physa</i> sp.		D,-,D	1	1
<i>Radix baltica</i>		-, -,D	1	1
<i>Planorbis planorbis</i>		C,-,C	1	1
<i>Anisus vortex</i>		-, -,D	1	1
<i>Planorbarius corneus</i>		-, -,D	1	1
<i>Hespercorixa sahlbergi</i>		-, -,D	1	1
<i>Peltodytes caesus</i>	NS.	-, -,D	3	3
<i>Haliphus lineatocollis</i>		-, -,D	1	1
<i>Haliphus ruficollis</i>		-, -,D	1	1
<i>Noterus clavicornis</i>		-, -,D	1	1
<i>Hydroporus angustatus</i>		-,C,D	1	1
<i>Hydroporus incognitus</i>		D,-,D	1	1
<i>Hydroporus palustris</i>		C,D,C	1	1
<i>Hydroporus planus</i>		-, -,D	1	1
<i>Suphrodytes figuratus</i>		D,-,-	1	2
<i>Hygrotus impressopunctatus</i>		-,D,-	1	1
<i>Hygrotus inaequalis</i>		D,C,C	1	1
<i>Hyphydrus ovatus</i>		-,D,D	1	1
<i>Helophorus aequalis</i>		D,-,-	1	1
<i>Helophorus grandis</i>		D,-,-	1	1
<i>Helophorus brevipalpis</i>		C,C,C	1	1
<i>Anacaena globulus</i>		D,D,-	1	1
<i>Hydrobius fuscipes</i>		-, -,D	1	1
<i>Laccobius bipunctatus</i>		D,-,-	1	1
		SRS		24
		SQS		27
		SQI		1.12
		HQS		4.17

3.1.26. Sample station NG12 (IDB86)

NG12 was sampled on 28 June 2012. All three samples were collected from the southern bank of the reen. This was a fairly small field ditch that was steep-sided, and lay adjacent to silage fields in its western half, while its eastern part was cattle grazed pasture with shallow, poached ditch margins. It supported large populations of submerged macrophytes, with curled, hairlike and horned pondweed being noted during the current study. Lemnaceae were sparse, though rafts of small duckweeds, plus some greater and ivy-leaved duckweed were scattered throughout. The poached margins had diverse medium-height emergents, amongst which the main constituents were floating sweet-grass, water-plantain, lesser water-parsnip and rushes. The former two were also present in the ungrazed western ditch section, which had rank grassland on the steep banks fringing the reen.

Table 3.1.26. Invertebrates in sample station NG12, Gwent Levels, Nash and Goldcliff SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		B,B,C	1	1
<i>Physa</i> sp.		-, -,B	1	1
<i>Lymnaea stagnalis</i>		C,D,-	1	1
<i>Radix baltica</i>		C,C,C	1	1
<i>Planorbis planorbis</i>		B,C,A	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Polycelis nigra</i>		-,D,-	-	-
<i>Polycelis tenuis</i>		D,D,-	-	-
<i>Dugesia lugubris</i>		D,C,D	-	-
<i>Theromyzon tessulatum</i>		D,-,D	1	1
<i>Glossiphonia complanata</i>		-,D,-	1	1
<i>Erpobdella octoculata</i>		D,C,D	1	1
<i>Microvelia reticulata</i>		D,C,-	1	1
<i>Ilyocoris cimicoides</i>		C,C,C	1	1
<i>Notonecta glauca</i>		-, -,D	1	1
<i>Plea minutissima</i>		D,-,D	1	1
<i>Hespercorixa sahlbergi</i>		D,-,D	1	1
<i>Sigara dorsalis</i>		D,D,-	1	1
<i>Sigara falleni</i>		D,-,D	1	1
<i>Haliphus lineatocollis</i>		-, -,D	1	1
<i>Haliphus immaculatus</i>		D,D,-	2	1
<i>Haliphus ruficollis</i>		C,C,C	1	1
<i>Noterus clavicornis</i>		D,D,D	1	1
<i>Ilybius quadriguttatus</i>		-, -,D	2	2
<i>Dytiscus marginalis</i>		D,D,D	1	1
<i>Graptodytes pictus</i>		D,-,-	2	2
<i>Hydroporus angustatus</i>		-,D,D	1	1
<i>Hydroporus palustris</i>		C,C,-	1	1
<i>Hygrotus inaequalis</i>		C,C,C	1	1
<i>Hyphydrus ovatus</i>		D,D,D	1	1
<i>Helophorus aequalis</i>		-, -,D	1	1
<i>Helophorus brevipalpis</i>		C,C,B	1	1
<i>Anacaena globulus</i>		D,-,D	1	1
<i>Anacaena limbata</i>		D,D,-	1	1

<i>Laccobius bipunctatus</i>	C,D,D	1	1
<i>Stenus binotatus</i>	-, -,D	-	-
	SRS	32	32
	SQS	34	34
	SQI	1.06	1.06
	HQS	4.69	4.69

3.1.27. Sample station NW01 (IDB59)

This ditch was sampled on 6 June 2012. All three samples were taken from the east bank. Both floating and submerged vegetation were quite sparsely distributed, though in the former situation small duckweeds and greater duckweed were present, and scattered patches of horned pondweed were present in all sample sites. A feature of this reed was the occurrence of abundant and submerged growth of algae. In those parts of the ditch that were fenced from stock, there were patches of tall fen in which common reed, sea club-rush and hemlock water-dropwort were prominent. In other places, the ditch margins were open to stock, and the poached margins had shorter more patchy emergent vegetation in which floating sweet-grass and rushes were abundant.

Table 3.1.27. Invertebrates in sample station NW01, Gwent Levels, Newport Wetlands SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		D,D,D	1	1
<i>Lymnaea stagnalis</i>		D,-,D	1	1
<i>Radix auricularia</i>		-, -,D	1	2
<i>Radix baltica</i>		D,D,D	1	1
<i>Planorbis planorbis</i>		C,C,C	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Gyraulus crista</i>		-,D,-	1	1
<i>Planorbarius corneus</i>		D,D,-	1	1
<i>Brachytron pratense</i>		-, -,D	2	2
<i>Hydrometra stagnorum</i>		-, -,D	1	1
<i>Gerris lacustris</i>		-, -,D	1	1
<i>Ilyocoris cimicoides</i>		D,D,D	1	1
<i>Plea minutissima</i>		-, -,C	1	1
<i>Hespercorixa linnaei</i>		D,D,-	1	1
<i>Sigara dorsalis</i>		-,D,D	1	1
<i>Sigara falleni</i>		-,C,-	1	1
<i>Sigara fossarum</i>		-,C,D	1	1
<i>Haliphus heydeni</i>		D,-,-	1	2
<i>Haliphus ruficollis</i>		-,C,C	1	1
<i>Haliphus sibiricus</i>		D,-,-	1	1
<i>Noterus clavicornis</i>		D,D,D	1	1
<i>Graptodytes pictus</i>		-,D,-	2	2
<i>Hydroporus palustris</i>		-,D,C	1	1
<i>Hydroporus tessellatus</i>		-,D,-	1	1
<i>Hyphydrus ovatus</i>		D,-,D	1	1
<i>Laccophilus hyalinus</i>		-, -,D	1	2
<i>Laccophilus minutus</i>		-, -,D	2	1
<i>Helophorus aequalis</i>		-, -,D	1	1
<i>Helophorus brevipalpis</i>		D,C,C	1	1
<i>Anacaena limbata</i>		D,-,D	1	1
<i>Berosus affinis</i>		-, -,D	3	2
<i>Laccobius bipunctatus</i>		-, -,D	1	1
<i>Ochthebius dilatatus</i>		-, -,D	1	2
<i>Stenus latifrons</i>		-, -,D	-	-
<i>Stenus binotatus</i>		-, -,D	-	-

<i>Coccidula rufa</i>	-,-,D	-	-
<i>Scymnus haemorrhoidalis</i>	-,-,D	-	-
<i>Donacia semicuprea</i>	-,-,D	-	-
		SRS	33
		SQS	40
		SQI	1.21
		HQS	7.58

3.1.28. Sample station NW02 (IDB87)

This site was sampled on 6 June 2012. All three samples were taken from the north-east bank. The ditch looked to be in generally good condition, with cattle poaching of the margins creating excellent shallow-edge habitats throughout. The only negative factor was the presence of dense water fern *Azolla filiculoides*, which was especially prevalent around NW02B. Other than some ivy-leaved duckweed, *Lemna* cover was extremely low, with the other major component of the floating vegetation community being abundant frogbit. Submerged macrophytes were sparsely distributed, Canadian pondweed being the only species noted in the sample sites. The shallow ditch margins had much bare poached mud and a wide range of short to mid-height emergents, amongst which common reed, rushes, water-plantain, forget-me-nots *Myosotis* sp., water mint *Mentha aquatica* and lesser water-parsnip were conspicuous.

Table 3.1.28. Invertebrates in sample station NW02, Gwent Levels, Newport Wetlands SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Physa</i> sp.		B,C,B	1	1
<i>Lymnaea stagnalis</i>		C,C,C	1	1
<i>Radix auricularia</i>		-, -,D	1	2
<i>Radix baltica</i>		C, -, -	1	1
<i>Planorbis planorbis</i>		D, -, C	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Brachytron pratense</i>		D,D,-	2	2
<i>Ilyocoris cimicoides</i>		D,C,C	1	1
<i>Notonecta glauca</i>		C,D,D	1	1
<i>Plea minutissima</i>		C,C,C	1	1
<i>Hespercorixa sahlbergi</i>		-, -,D	1	1
<i>Callicorixa praeusta</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		C,D,C	1	1
<i>Sigara fossarum</i>		C,D,C	1	1
<i>Gyrinus caspius</i>		-, -,D	2	2
<i>Peltodytes caesus</i>	NS.	C, -, -	3	3
<i>Haliphus ruficollis</i>		C,C,C	1	1
<i>Noterus clavicornis</i>		-, -,D	1	1
<i>Hygrobia hermanni</i>		-,D,D	1	2
<i>Agabus nebulosus</i>		D,D,D	1	1
<i>Dytiscus marginalis</i>		D,D,-	1	1
<i>Hydroporus planus</i>		D,C,D	1	1
<i>Hydroporus pubescens</i>		-,D,-	1	1
<i>Hygrotus inaequalis</i>		C, -,D	1	1
<i>Hyphydrus ovatus</i>		D,D,D	1	1
<i>Laccophilus minutus</i>		C,D,-	2	1
<i>Berosus affinis</i>		-, -,D	3	2
<i>Laccobius bipunctatus</i>		D, -, -	1	1
<i>Ochthebius dilatatus</i>		D, -, -	1	2
<i>Bagous limosus</i>	Nb.	D, -, -	-	-
<i>Odontomyia ornata</i>	RDB2.	D, -, -	3	5
			SRS	30
	HQS	11.67	SQS	42
			SQI	1.40

3.1.29. Sample station NWFD01, 02 & 03

These three ditches lay close to each other within the central eastern part of the Reserve. Samples were collected here on 27 July 2012. All these ditches had shallow, muddy margins that were being well poached by cattle. The water column had large beds of horned and curled pondweeds and rigid hornwort, interspersed with areas of open water. Lemnaceae were not abundant, though small, greater and ivy-leaved duckweeds were all recorded. In the emergent zone, rushes, common spike-rush *Eleocharis palustris* and sea club-rush were locally abundant, and there was also some common reed where the water was deep enough to prevent stock access.

Table 3.1.29. Invertebrates in sample station NWFD 01-03, Gwent Levels, Newport Wetlands SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>		-,C,-	-	-
<i>Physa</i> sp.		C,C,C	1	1
<i>Lymnaea stagnalis</i>		C,C,-	1	1
<i>Radix auricularia</i>		-,D,D	1	2
<i>Radix baltica</i>		-, -,D	1	1
<i>Planorbis planorbis</i>		C,C,D	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Gyraulus albus</i>		D,-,D	1	2
<i>Theromyzon tessulatum</i>		D,D,D	1	1
<i>Glossiphonia complanata</i>		D,D,D	1	1
<i>Helobdella stagnalis</i>		-, -,D	1	1
<i>Erpobdella octoculata</i>		D,-,D	1	1
<i>Microvelia reticulata</i>		D,-,-	1	1
<i>Gerris lacustris</i>		D,-,-	1	1
<i>Nepa cinerea</i>		D,-,-	1	1
<i>Ilyocoris cimicoides</i>		C,C,-	1	1
<i>Notonecta marmorea</i>		C,D,D	1	1
<i>Plea minutissima</i>		D,D,D	1	1
<i>Corixa affinis</i>		D,-,D	1	2
<i>Corixa panzeri</i>		D,C,D	1	2
<i>Corixa punctata</i>		D,-,D	1	1
<i>Callicorixa praeusta</i>		C,-,-	1	1
<i>Sigara distincta</i>		C,B,C	1	1
<i>Sigara dorsalis</i>		C,C,B	1	1
<i>Sigara fossarum</i>		-,D,-	1	1
<i>Sigara lateralis</i>		B,C,D	1	1
<i>Gyrinus caspius</i>		D,-,D	2	2
<i>Peltodytes caesus</i>	NS.	D,-,-	3	3
<i>Haliphus ruficollis</i>		-,D,-	1	1
<i>Noterus clavicornis</i>		C,D,D	1	1
<i>Hygrobia hermanni</i>		-, -,D	1	2
<i>Hygrotus inaequalis</i>		D,D,-	1	1
<i>Hyphydrus ovatus</i>		D,-,-	1	1
<i>Laccophilus minutus</i>		D,-,D	2	1
<i>Helophorus obscurus</i>		D,D,-	1	1
<i>Berosus affinis</i>		D,D,C	3	2

<i>Helochares lividus</i>		D,-,-	2	2
<i>Hydrophilus piceus</i>	NT.	D,-,-	3	4
<i>Laccobius minutus</i>		D,D,D	2	1
<i>Ochthebius dilatatus</i>		D,-,-	1	2
			SRS	39
			SQS	53
			SQI	1.34
			HQS	12.82

3.1.30. Sample station NWFD 04 & 05

Field ditches NWFD04 and 05 lie in the central western part of the Reserve and were sampled on 28 July 2012. These were very similar in character to the Newport Wetlands field ditches sampled the previous day (see sub-section 3.1.28 above), having shallow margins accessible to cattle, which have created excellent poached, habitats around the ditch margins. Submerged macrophytes were locally frequent, with horned and Canadian pondweed recorded in 2012. No duckweeds were present in these two samples, but the water surface was covered with a dense floating mat of broad-leaved pondweed *Potamogeton natans*. Emergent vegetation was dominated by a patchy, low cover of common spike-rush, sea club-rush, with some taller stands of common reed and greater reed-mace *Typha latifolia*, where the water was sufficiently deep to discourage stock access.

Table 3.1.30. Invertebrates in sample station NWFD 04 & 05, Gwent Levels, Newport Wetlands SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		-,D	1	1
<i>Physa</i> sp.		-,C	1	1
<i>Lymnaea stagnalis</i>		C,C	1	1
<i>Radix baltica</i>		D,C	1	1
<i>Planorbis planorbis</i>		C,-	1	1
<i>Anisus vortex</i>		-,C	1	1
<i>Gyraulus albus</i>		-,C	1	2
<i>Hippeutis complanatus</i>		D,-	1	2
<i>Theromyzon tessulatum</i>		D,D	1	1
<i>Glossiphonia complanata</i>		-,D	1	1
<i>Microvelia reticulata</i>		D,D	1	1
<i>Ranatra linearis</i>		D,-	1	2
<i>Ilyocoris cimicoides</i>		C,C	1	1
<i>Notonecta glauca</i>		D,D	1	1
<i>Plea minutissima</i>		D,-	1	1
<i>Corixa affinis</i>		C,C	1	2
<i>Corixa panzeri</i>		C,C	1	2
<i>Corixa punctata</i>		C,C	1	1
<i>Hespercorixa linnaei</i>		C,-	1	1
<i>Hespercorixa sahlbergi</i>		D,-	1	1
<i>Sigara dorsalis</i>		C,C	1	1
<i>Peltodytes caesus</i>	NS.	D,-	3	3
<i>Haliphus ruficollis</i>		C,D	1	1
<i>Noterus clavicornis</i>		C,C	1	1
<i>Hygrotus inaequalis</i>		C,D	1	1
<i>Berosus affinis</i>		-,C	3	2
<i>Helochares lividus</i>		D,-	2	2
			SRS	27
			SQS	36
			SQI	1.33
			HQS	9.26

3.1.31. Sample station RP01 (EA1)

Ditch RP01 was sampled on 20 July 2012. This was a large main drain, with a very wide and deep water column. Submerged macrophytes were abundant, with rigid hornwort, fine-leaved and Canadian pondweeds recorded, though there were also appreciable areas of open water. Floating mats of small duckweeds, plus some ivy-leaved and greater duckweed were present, though not excessively abundant. There was also an abundance of floating frogbit leaves towards the ditch margins. There were good stands of tall emergent fen vegetation dominated by branched bur-reed, large sedges, yellow flag, reed sweet-grass, greater reed-mace and lesser reed-mace *Typha angustifolia*. Stock had no access to the banks of this reed.

Table 3.1.31. Invertebrates in sample station RP01, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		C,B,-	1	2
<i>Bithynia tentaculata</i>		C,-,C	1	1
<i>Physa</i> sp.		C,B,C	1	1
<i>Lymnaea stagnalis</i>		D,C,C	1	1
<i>Radix baltica</i>		D,C,D	1	1
<i>Anisus vortex</i>		C,D,D	1	1
<i>Planorbarius corneus</i>		D,C,C	1	1
<i>Polycelis tenuis</i>		C,C,D	-	-
<i>Dugesia lugubris</i>		-,D,-	-	-
<i>Theromyzon tessulatum</i>		-,D,D	1	1
<i>Erpobdella octoculata</i>		D,D,D	1	1
<i>Mesovelia furcata</i>		-,D,-	1	2
<i>Microvelia reticulata</i>		-,D,-	1	1
<i>Nepa cinerea</i>		-,D,D	1	1
<i>Ilyocoris cimicoides</i>		D,D,-	1	1
<i>Notonecta glauca</i>		D,D,D	1	1
<i>Hespercorixa linnaei</i>		D,-,-	1	1
<i>Hespercorixa sahlbergi</i>		D,-,-	1	1
<i>Callicorixa praeusta</i>		D,-,-	1	1
<i>Haliphus immaculatus</i>		C,-,-	2	1
<i>Haliphus ruficollis</i>		-,D,-	1	1
<i>Noterus clavicornis</i>		-, -,D	1	1
<i>Hygrobia hermanni</i>		C,-,D	1	2
<i>Hydroporus angustatus</i>		-, -,D	1	1
<i>Hydroporus palustris</i>		D,D,C	1	1
<i>Hydroporus planus</i>		D,-,-	1	1
<i>Hygrotus inaequalis</i>		D,D,-	1	1
<i>Hygrotus versicolor</i>		D,D,-	1	2
<i>Hyphydrus ovatus</i>		D,-,D	1	1
<i>Laccophilus minutus</i>		D,-,-	2	1
<i>Anacaena globulus</i>		-,D,-	1	1
<i>Anacaena limbata</i>		-,D,C	1	1
		SRS		30
		SQS		34
		SQI		1.13
		HQS		3.33

3.1.32. Sample station RP02 (EA2)

Ditch RP02 was sampled on 20 July 2012. This was a small, shallow ditch lying just behind the seawall. For most of its length it was choked with tall emergent vegetation dominated by common reed, large sedges and greater reedmace. However, there were some slightly less overgrown areas in which mid-height stands of lesser water-parsnip constituted the main emergent vegetation. In these latter areas there was sufficient open water to support sparse submerged plants of rigi hornwort, plus a little floating small duckweeds and ivy-leaved duckweed. On the seaward side of the ditch, it was open to grazing by cattle, that have created shallow, poached ditch margins.

Table 3.1.32. Invertebrates in sample station RP02, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>		-,-,B	-	-
<i>Aplexa hypnorum</i>		-,-,D	1	2
<i>Lymnaea stagnalis</i>		D,-,C	1	1
<i>Radix baltica</i>		C,-,-	1	1
<i>Planorbis planorbis</i>		-,-,D	1	1
<i>Anisus vortex</i>		-,-,D	1	1
<i>Hippeutis complanatus</i>		-,-,D	1	2
<i>Planorbarius corneus</i>		C,-,C	1	1
<i>Polycelis tenuis</i>		-,-,D	-	-
<i>Helobdella stagnalis</i>		D,-,-	1	1
<i>Velia caprai</i>		-,-,D	1	1
<i>Nepa cinerea</i>		D,-,-	1	1
<i>Ilyocoris cimicoides</i>		D,-,-	1	1
<i>Notonecta glauca</i>		-,-,D	1	1
<i>Haliphus ruficollis</i>		D,-,D	1	1
<i>Haliphus sibiricus</i>		-,-,D	1	1
<i>Noterus clavicornis</i>		D,-,-	1	1
<i>Ilybius quadriguttatus</i>		D,-,C	2	2
<i>Rhantus grapii</i>		D,-,-	2	2
<i>Dytiscus marginalis</i>		-,-,D	1	1
<i>Hydaticus transversalis</i>	NS.	-,-,D	3	3
<i>Hydroporus angustatus</i>		C,-,-	1	1
<i>Hydroporus incognitus</i>		-,-,D	1	1
<i>Hydroporus palustris</i>		D,-,D	1	1
<i>Porhydrus lineatus</i>		D,-,-	1	2
<i>Hygrotus inaequalis</i>		C,-,D	1	1
<i>Hyphydrus ovatus</i>		D,-,D	1	1
<i>Anacaena globulus</i>		D,-,-	1	1
<i>Anacaena limbata</i>		D,D,D	1	1
<i>Laccobius bipunctatus</i>		D,-,-	1	1
<i>Scirtes hemisphaericus</i>		D,-,-	-	-
		SRS	28	
		SQS	35	
		SQI	1.25	
		HQS	7.14	

3.1.33. Sample station RP03 (EA3)

RP03 was sampled on 5 July 2012. All three samples were collected from the southern bank. This was a large ditch that has become overgrown with tall common reed, and there was also tall hemlock water-dropwort growing on the steep bank sides near the water's edge. The only other emergent species to occur here with any frequency was arrowhead *Sagittaria sagittifolia*. Duckweeds were absent from this ditch, but there was abundant floating leaves of broad-leaved pondweed. Submerged vegetation was scarce, with just a little Canadian pondweed recorded from the sample sites. The southern bank of the ditch bordered onto a minor road and track, and the north bank was fenced, and the banks were steep-sided with rank terrestrial vegetation and no shallow poached margins.

Table 3.1.33. Invertebrates in sample station RP03, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		-,D,-	1	1
<i>Physa</i> sp.		C,C,C	1	1
<i>Lymnaea stagnalis</i>		C,C,D	1	1
<i>Radix baltica</i>		D,-,-	1	1
<i>Anisus vortex</i>		D,D,D	1	1
<i>Planorbarius corneus</i>		D,C,-	1	1
<i>Polycelis tenuis</i>		D,D,-	-	-
<i>Erpobdella octoculata</i>		D,-,-	1	1
<i>Hydrometra stagnorum</i>		D,-,-	1	1
<i>Microvelia reticulata</i>		D,-,-	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		-, -,D	1	1
<i>Notonecta glauca</i>		D,D,D	1	1
<i>Peltodytes caesus</i>	NS.	D,-,-	3	3
<i>Haliphus ruficollis</i>		D,-,D	1	1
<i>Noterus clavicornis</i>		-,D,-	1	1
<i>Helophorus brevipalpis</i>		D,-,-	1	1
<i>Anacaena globulus</i>		-,D,-	1	1
		SRS		17
		SQS		19
		SQI		1.12
		HQS		5.88

3.1.34. Sample station RP04 (EA4)

This is a large main drain that was sampled on 28 July 2012. The first sample was collected from the east bank, and the two following from the west. There are extensive beds of submerged macrophytes here, with fine-leaved pondweeds, rigid hornwort and Canadian pondweed recorded in 2012. Floating mats of small duckweeds, greater duckweed and ivy-leaved duckweed are widely distributed, becoming dominant in some places, and the shallow margins have abundant rafts of frogbit. Much of the adjacent land is given over to cereals, and as a consequence the banks here are steep, with tall terrestrial vegetation. However, along the northern half of the ditch, the west bank is cattle grazed, which has created softer, more open margins.

Table 3.1.34. Invertebrates in sample station RP04, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		-, -, D	1	2
<i>Bithynia tentaculata</i>		C, C, -	1	1
<i>Physa</i> sp.		C, C, C	1	1
<i>Lymnaea palustris</i>		D, C, D	1	1
<i>Lymnaea stagnalis</i>		-, D, -	1	1
<i>Radix baltica</i>		-, -, D	1	1
<i>Anisus vortex</i>		C, D, C	1	1
<i>Gyraulus albus</i>		D, -, D	1	2
<i>Planorbarius corneus</i>		-, D, -	1	1
<i>Dugesia lugubris</i>		C, C, -	-	-
<i>Piscicola geometra</i>		D, -, D	1	1
<i>Theromyzon tessulatum</i>		D, D, D	1	1
<i>Glossiphonia complanata</i>		C, -, -	1	1
<i>Helobdella stagnalis</i>		D, D, -	1	1
<i>Mesovelgia furcata</i>		-, -, D	1	2
<i>Microvelia reticulata</i>		-, -, C	1	1
<i>Gerris lacustris</i>		-, -, D	1	1
<i>Nepa cinerea</i>		D, -, D	1	1
<i>Ilyocoris cimicoides</i>		D, D, C	1	1
<i>Notonecta glauca</i>		D, C, C	1	1
<i>Hespercorixa linnaei</i>		D, -, -	1	1
<i>Hespercorixa sahlbergi</i>		-, D, -	1	1
<i>Sigara dorsalis</i>		D, -, -	1	1
<i>Peltodytes caesus</i>	NS.	D, -, -	3	3
<i>Haliphus immaculatus</i>		-, -, D	2	1
<i>Haliphus ruficollis</i>		C, D, C	1	1
<i>Hydroporus planus</i>		-, D, -	1	1
<i>Hygrotus inaequalis</i>		-, D, D	1	1
<i>Hyphydrus ovatus</i>		-, D, -	1	1
<i>Anacaena globulus</i>		D, -, -	1	1
<i>Donacia semicuprea</i>		-, D, -	-	-
		SRS		29
		SQS		34
		SQI		1.17
		HQS		5.17

3.1.35. Sample station RP05 (EA5)

RP05 runs along the back of the seawall. It was sampled on 19 July, with all three samples being collected from the southern bank. Submerged vegetation was sparse here, but there was a little fine-leaved pondweed. Small duckweeds were abundant, and there was also frequent greater duckweed. Towards the western end of the ditch floating mats of water fern became increasingly prevalent. The south bank of the ditch was cattle grazed, and this had produced shallow, poached margins with mixed emergent vegetation amongst which reed sweet-grass, common reed, greater reedmace, yellow flag and celery-leaved buttercup *Ranunculus sceleratus* were conspicuous elements of the vegetation cover. The north bank was fenced, with a sparse hawthorn hedge running along it, and a dense band of tall emergent common reed along the margin.

Table 3.1.35. Invertebrates in sample station RP05, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>	-,-,D	-	-	-
<i>Bithynia tentaculata</i>	D,-,-	1	1	1
<i>Aplexa hypnorum</i>	-,-,C	1	2	2
<i>Physa</i> sp.	C,-,-	1	1	1
<i>Galba truncatula</i>	-,D,-	1	1	1
<i>Planorbis planorbis</i>	D,-,-	1	1	1
<i>Anisus leucostoma</i>	-,-,D	1	1	1
<i>Anisus vortex</i>	C,-,D	1	1	1
<i>Planorbarius corneus</i>	D,D,-	1	1	1
<i>Polycelis nigra</i>	D,-,-	-	-	-
<i>Gerris lacustris</i>	-,C,-	1	1	1
<i>Notonecta glauca</i>	D,C,D	1	1	1
<i>Hespercorixa linnaei</i>	D,-,-	1	1	1
<i>Hespercorixa sahlbergi</i>	D,D,-	1	1	1
<i>Gyrinus substriatus</i>	-,C,-	1	1	1
<i>Halipus ruficollis</i>	C,C,-	1	1	1
<i>Agabus sturmii</i>	-,,-,D	1	1	1
<i>Ilybius quadriguttatus</i>	-,,-,D	2	2	2
<i>Rhantus grapii</i>	D,-,-	2	2	2
<i>Dytiscus marginalis</i>	D,D,D	1	1	1
<i>Hydroporus angustatus</i>	C,D,C	1	1	1
<i>Hydroporus incognitus</i>	-,D,-	1	1	1
<i>Hydroporus palustris</i>	C,C,C	1	1	1
<i>Hydroporus tessellatus</i>	-,,-,D	1	1	1
<i>Hygrotus inaequalis</i>	C,C,C	1	1	1
<i>Helophorus brevipalpis</i>	D,D,-	1	1	1
<i>Anacaena limbata</i>	D,-,D	1	1	1
<i>Cymbiodyta marginella</i>	-,D,-	1	2	2
<i>Hydrobius fuscipes</i>	-,D,-	1	1	1
<i>Laccobius bipunctatus</i>	D,-,-	1	1	1
<i>Stenus boops</i>	D,-,-	-	-	-
<i>Stenus incrassatus</i>	-,,-,D	-	-	-
<i>Stenus juno</i>	-,,-,D	-	-	-
SRS 28	SQS 32	SQI 1.14	HQS 3.57	

3.1.36. Sample station RP06 (EA6)

RP06 is a very large main drain that was visited on 5 July 2012, with all three samples being collected from the east bank. Much of this ditch has deep, open water and no submerged vegetation was recorded in the three sample stations. At the shallower margins there were abundant floating leaves of frogbit. The ditch banks were ungrazed, and had a fringe of tall emergent reed sweet-grass, yellow flag, branched bur-reed, large sedges and arrowhead.

Table 3.1.36. Invertebrates in sample station RP06, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		C,C,-	1	1
<i>Physa</i> sp.		C,C,C	1	1
<i>Lymnaea stagnalis</i>		C,C,C	1	1
<i>Radix baltica</i>		-,D,C	1	1
<i>Planorbis planorbis</i>		D,-,-	1	1
<i>Anisus vortex</i>		B,B,C	1	1
<i>Hippeutis complanatus</i>		-, -,D	1	2
<i>Polycelis tenuis</i>		D,-,-	-	-
<i>Dendrocoelum lacteum</i>		-,D,-	-	-
<i>Brachytron pratense</i>		-,D,-	2	2
<i>Mesovelia furcata</i>		D,-,-	1	2
<i>Hydrometra stagnorum</i>		D,-,D	1	1
<i>Gerris lacustris</i>		-, -,D	1	1
<i>Gerris odontogaster</i>		D,-,-	1	1
<i>Nepa cinerea</i>		D,D,-	1	1
<i>Ilyocoris cimicoides</i>		D,-,-	1	1
<i>Notonecta glauca</i>		D,D,D	1	1
<i>Sigara dorsalis</i>		-,D,-	1	1
<i>Peltodytes caesus</i>	NS.	D,-,-	3	3
<i>Halipus immaculatus</i>		D,C,-	2	1
<i>Halipus ruficollis</i>		C,-,-	1	1
<i>Halipus sibiricus</i>		-,C,C	1	1
<i>Noterus clavicornis</i>		D,-,-	1	1
<i>Hydaticus transversalis</i>	NS.	D,-,-	3	3
<i>Graptodytes pictus</i>		D,-,-	2	2
<i>Hydroporus palustris</i>		C,-,-	1	1
<i>Porhydrus lineatus</i>		D,-,-	1	2
<i>Stictotarsus 22-pustulatus</i>		-,D,-	1	2
<i>Hyphydrus ovatus</i>		C,C,-	1	1
<i>Laccophilus hyalinus</i>		D,D,D	1	2
<i>Helophorus brevipalpis</i>		D,D,-	1	1
<i>Anacaena limbata</i>		D,D,-	1	1
<i>Donacia semicuprea</i>		D,D,-	-	-
<i>Tanysphyrus lemnae</i>		-, -,D	-	-
		SRS		30
		SQS		41
		SQI		1.37
		HQS		11.67

3.1.37. Sample station RP07 (IDB4)

RP07 was sampled on 29 July 2012, with all three samples being taken from the north bank. This was a steep-sided ditch, parts of which had been cleaned out very recently, and had little vegetation. Elsewhere, there was some submerged rigid hornwort and Canadian pondweed. Small duckweeds were locally dominant, and there was also some ivy-leaved and greater duckweed, plus occasional floating leaves of frogbit. Tall emergent vegetation was locally abundant, and was dominated by mixtures of branched bur-reed and common reed. Some sections of the south bank were being grazed by ponies.

Table 3.1.37. Invertebrates in sample station RP07, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		C,C,D	1	2
<i>Bithynia tentaculata</i>		C,C,C	1	1
<i>Physa</i> sp.		C,C,C	1	1
<i>Lymnaea palustris</i>		-,D,D	1	1
<i>Lymnaea stagnalis</i>		C,C,C	1	1
<i>Radix baltica</i>		C,-,-	1	1
<i>Planorbis planorbis</i>		-, -,D	1	1
<i>Anisus vortex</i>		C,C,-	1	1
<i>Planorbarius corneus</i>		C,B,C	1	1
<i>Theromyzon tessulatum</i>		D,-,D	1	1
<i>Hydrometra stagnorum</i>		D,-,-	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		D,-,-	1	1
<i>Notonecta glauca</i>		-,D,-	1	1
<i>Hespercorixa linnaei</i>		-,D,-	1	1
<i>Hespercorixa sahlbergi</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		D,-,-	1	1
<i>Sigara nigrolineata</i>		-, -,D	1	1
<i>Peltodytes caesus</i>	NS.	D,-,-	3	3
<i>Haliphus lineatocollis</i>		-, -,D	1	1
<i>Haliphus ruficollis</i>		D,-,-	1	1
<i>Noterus clavicornis</i>		D,-,-	1	1
<i>Agabus sturmii</i>		-,D,-	1	1
<i>Graptodytes pictus</i>		D,-,-	2	2
<i>Hydroporus angustatus</i>		-, -,D	1	1
<i>Hydroporus palustris</i>		-,D,D	1	1
<i>Hydroporus planus</i>		D,-,D	1	1
<i>Hydroporus pubescens</i>		D,-,-	1	1
<i>Porhydrus lineatus</i>		-,D,-	1	2
<i>Hyphydrus ovatus</i>		D,-,D	1	1
<i>Anacaena globulus</i>		-,D,-	1	1
<i>Anacaena limbata</i>		-,D,-	1	1
<i>Anacaena lutescens</i>		-,D,-	1	1
		SRS		33
		SQS		38
		SQI		1.15
		HQS		4.54

3.1.38. Sample station RP08 (IDB5)

RP08 was visited on 20 July 2012. All three samples were collected from the south bank. This was a shallow ditch, choked along much of its length with emergent vegetation that was dominated by mixtures of tall common reed and mid-height lesser water-parsnip. Lemnaceae were dominant in many places, with abundant small duckweeds, plus frequent greater duckweed and a little ivy-leaved duckweed. The south bank of the ditch was accessible to cattle, which had created shallow, poached margins. The north bank was fenced and ungrazed, with tall emergent common reed.

Table 3.1.38. Invertebrates in sample station RP08, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Potamopyrgus antipodarum</i>		-,B,C	-	-
<i>Physa</i> sp.		C,C,-	1	1
<i>Lymnaea stagnalis</i>		-,D,-	1	1
<i>Hydrometra stagnorum</i>		-, -,D	1	1
<i>Nepa cinerea</i>		-, -,D	1	1
<i>Ilyocoris cimicoides</i>		-,C,D	1	1
<i>Haliphus lineatocollis</i>		-,D,-	1	1
<i>Haliphus immaculatus</i>		-,D,-	2	1
<i>Haliphus ruficollis</i>		-,D,D	1	1
<i>Noterus clavicornis</i>		D,D,D	1	1
<i>Agabus sturmii</i>		D,D,-	1	1
<i>Agabus bipustulatus</i>		-,D,-	1	1
<i>Ilybius quadriguttatus</i>		D,C,D	2	2
<i>Rhantus suturalis</i>		-,D,-	2	2
<i>Hydroporus palustris</i>		-, -,D	1	1
<i>Hydroporus planus</i>		-,D,-	1	1
<i>Hydroporus pubescens</i>		-, -,D	1	1
<i>Hygrotus inaequalis</i>		D,D,C	1	1
<i>Anacaena limbata</i>		-,D,D	1	1
<i>Laccobius bipunctatus</i>		D,D,C	1	1
		SRS		19
		SQS		21
		SQI		1.10
		HQS		7.89

3.1.39. Sample station RP09 (IDB6)

This small ditch, which runs through an area of industrial estate and old brownfield land was sampled on 29 July. The first two samples were collected from the north bank and the last from the south. Vegetation cover along this ditch was very variable: with the western section having been cleared out very recently and having a sparsely vegetated and canalised channel (RP09A and RP09B), while the eastern half was shaded by scrub (RP09C) or completely infilled with common reed. Along the open sections, there was a little submerged rigid hornwort, fine-leaved pondweeds and water-starwort. Duckweeds were infrequent here, but in the shaded detritus ditch at the eastern end of the sample station they were dominant, with both small duckweeds and greater duckweed. At the latter site, there was tall emergent common reed and yellow flag under a canopy of dense scrub. In the eastern half of the ditch, emergent vegetation was sparse, consisting of scattered rafts of floating sweet-grass and some water horsetail and water-plantain. There was a little pony grazing on parts of the north bank.

Table 3.1.39. Invertebrates in sample station RP09, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		C,C,-	1	2
<i>Bithynia tentaculata</i>		C,C,-	1	1
<i>Physa</i> sp.		C,C,-	1	1
<i>Lymnaea palustris</i>		D,-,-	1	1
<i>Lymnaea stagnalis</i>		D,D,-	1	1
<i>Radix baltica</i>		C,-,-	1	1
<i>Planorbis planorbis</i>		C,C,-	1	1
<i>Anisus vortex</i>		C,C,-	1	1
<i>Gyraulus crista</i>		D,-,-	1	1
<i>Planorbarius corneus</i>		C,C,D	1	1
<i>Theromyzon tessulatum</i>		D,-,-	1	1
<i>Glossiphonia complanata</i>		D,-,-	1	1
<i>Erpobdella octoculata</i>		-,D,-	1	1
<i>Microvelia reticulata</i>		D,-,-	1	1
<i>Nepa cinerea</i>		D,-,-	1	1
<i>Ilyocoris cimicoides</i>		D,-,-	1	1
<i>Notonecta glauca</i>		D,D,-	1	1
<i>Plea minutissima</i>		D,-,-	1	1
<i>Hespercorixa sahlbergi</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		-,D,-	1	1
<i>Gyrinus substriatus</i>		C,C,-	1	1
<i>Peltodytes caesus</i>	NS.	D,D,-	3	3
<i>Haliphus lineatocollis</i>		D,C,-	1	1
<i>Haliphus immaculatus</i>		D,C,-	2	1
<i>Haliphus ruficollis</i>		C,-,-	1	1
<i>Haliphus sibiricus</i>		C,B,-	1	1
<i>Hygrobia hermanni</i>		D,-,-	1	2
<i>Agabus bipustulatus</i>		D,-,-	1	1
<i>Ilybius quadriguttatus</i>		-,D,-	2	2
<i>Hydaticus transversalis</i>	NS.	D,-,-	3	3
<i>Hydroglyphus geminus</i>		D,D,-	1	2

<i>Graptodytes pictus</i>	-,C,-	2	2
<i>Hydroporus angustatus</i>	-,D,-	1	1
<i>Hydroporus palustris</i>	-,D,D	1	1
<i>Hydroporus planus</i>	C,C,-	1	1
<i>Hydroporus pubescens</i>	D,D,-	1	1
<i>Hygrotus inaequalis</i>	D,-,-	1	1
<i>Helophorus brevipalpis</i>	D,D,-	1	1
<i>Anacaena limbata</i>	D,D,-	1	1
<i>Helochares lividus</i>	D,-,-	2	2
<i>Hydrobius fuscipes</i>	D,-,-	1	1
<i>Laccobius bipunctatus</i>	C,C,-	1	1
		SRS	42
		SQS	52
		SQI	1.24
		HQS	9.52

3.1.40. Sample station RP10 (IDB7)

Ditch RP10 was visited on 29 July 2012. All three samples were collected from the south bank. This was a botanically diverse ditch with an appreciable rate of flow that ran through ungrazed pasture land. There were dense beds of submerged water-starwort, rigid hornwort, fine-leaved pondweeds and Canadian pondweed.

Lemnaceae were scarce, but there was some small duckweeds and greater duckweed. Shallow water also had extensive rafts of floating frogbit leaves. There were diverse fringing bands of tall fen around the ditch margins, with emergent rushes, branched bur-reed, floating sweet-grass, common spike-rush, flowering rush *Butomus umbellatus* and water-plantain. Though not managed currently, both banks have clearly been cattle grazed in the past, and there were eroded 'bays' where stock have accessed the water's edge, creating some areas of shallow gently shelving margins.

Table 3.1.40. Invertebrates in sample station RP10, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Valvata cristata</i>		-,D,-	1	2
<i>Potamopyrgus antipodarum</i>		D,-,-	-	-
<i>Bithynia tentaculata</i>		C,-,-	1	1
<i>Physa</i> sp.		B,B,C	1	1
<i>Lymnaea palustris</i>		-,D,-	1	1
<i>Lymnaea stagnalis</i>		C,C,C	1	1
<i>Radix baltica</i>		C,-,C	1	1
<i>Anisus vortex</i>		B,C,C	1	1
<i>Bathymophalus contortus</i>		B,C,C	1	2
<i>Gyraulus albus</i>		D,-,D	1	2
<i>Hippeutis complanatus</i>		-,D,-	1	2
<i>Planorbarius corneus</i>		C,C,C	1	1
<i>Polycelis tenuis</i>		-,D,-	-	-
<i>Theromyzon tessulatum</i>		D,D,-	1	1
<i>Hemiclepsis marginata</i>		-, -,C	1	2
<i>Helobdella stagnalis</i>		D,-,-	1	1
<i>Erpobdella octoculata</i>		D,-,-	1	1
<i>Brachytron pratense</i>		-,D,-	2	2
<i>Gerris lacustris</i>		-, -,D	1	1
<i>Nepa cinerea</i>		-, -,D	1	1
<i>Ilyocoris cimicoides</i>		-,D,D	1	1
<i>Notonecta glauca</i>		D,D,D	1	1
<i>Hespercorixa sahlbergi</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		D,-,-	1	1
<i>Haliphus immaculatus</i>		C,D,-	2	1
<i>Noterus clavicornis</i>		D,-,-	1	1
<i>Graptodytes pictus</i>		-, -,D	2	2
<i>Hydroporus palustris</i>		D,-,-	1	1
<i>Hydroporus planus</i>		-,D,-	1	1
<i>Hydroporus pubescens</i>		-, -,D	1	1
<i>Hygrotus versicolor</i>		D,D,D	1	2
<i>Hyphydrus ovatus</i>		-,D,-	1	1
<i>Helophorus brevipalpis</i>		-,D,D	1	1
<i>Helophorus minutus</i>		-,D,-	1	1

<i>Anacaena globulus</i>	-,-,D	1	1
<i>Anacaena limbata</i>	-,D,D	1	1
<i>Elmis aenea</i>	-,D,-	1	1
<i>Stenus cicindeloides</i>	-,D,-	-	-
	SRS	35	
	SQS	43	
	SQI	1.23	
	HQS	4.29	

3.1.41. Sample station RP11 (IDB12)

This ditch was sampled on 19 July, with all samples being taken from the southern bank. Along its eastern half, this ditch was bordered by cereal fields, and the surveyor was unable to find an access point to this stretch. For this reason, all samples were taken along the western half, which ran through heavily pony-grazed pasture. Within the stretch of ditch sampled, the grazing regime had produced an excellent structure, with poached shallow-water margins and diverse vegetation. The channel of this ditch had not been cleared for some while, and as a consequence, it has become choked with diverse mid-height emergent vegetation, amongst which floating sweet-grass, lesser water-parsnip, tubular water-dropwort *Oenanthe fistulosa* and water-plantain were some of the main constituents. In the patches of open water between the stands of emergent vegetation, mats of small duckweeds, fat duckweed and greater duckweed were frequent, and there were also frequent floating leaves of frogbit and broad-leaved pondweed. The channel was too choked for there to be any submerged macrophytes.

Table 3.1.41. Invertebrates in sample station RP11, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		D,D,-	1	1
<i>Physa</i> sp.		C,D,D	1	1
<i>Radix baltica</i>		D,-,-	1	1
<i>Planorbis planorbis</i>		D,D,D	1	1
<i>Anisus vortex</i>		D,C,D	1	1
<i>Planorbarius corneus</i>		C,D,C	1	1
<i>Polycelis nigra</i>		-, -,D	-	-
<i>Theromyzon tessulatum</i>		-, -,D	1	1
<i>Glossiphonia complanata</i>		D,-,-	1	1
<i>Helobdella stagnalis</i>		-, -,D	1	1
<i>Erpobdella octoculata</i>		D,D,D	1	1
<i>Notonecta glauca</i>		D,-,-	1	1
<i>Haliphus ruficollis</i>		D,D,D	1	1
<i>Noterus clavicornis</i>		D,D,D	1	1
<i>Ilybius quadriguttatus</i>		D,D,-	2	2
<i>Liopterus haemorrhoidalis</i>		-,D,-	1	2
<i>Acilius sulcatus</i>		D,-,-	1	1
<i>Dytiscus dimidiatus</i>	NT.	-,D,-	1	4
<i>Hydaticus transversalis</i>	NS.	D,D,-	3	3
<i>Hydroporus angustatus</i>		D,D,D	1	1
<i>Hydroporus palustris</i>		C,C,D	1	1
<i>Hydroporus pubescens</i>		D,-,-	1	1
<i>Hygrotus inaequalis</i>		-, -,D	1	1
<i>Helophorus brevipalpis</i>		D,D,-	1	1
<i>Enochrus coarctatus</i>		D,-,-	2	2
<i>Enochrus testaceus</i>		D,D,-	1	2
<i>Helochares lividus</i>		-,D,D	2	2
<i>Hydrobius fuscipes</i>		D,D,-	1	1
<i>Laccobius bipunctatus</i>		D,C,-	1	1
<i>Scirtes hemisphaericus</i>		D,C,C	-	-
<i>Scirtes orbicularis</i>	Na.	-,D,C	-	-

<i>Stenus binotatus</i>	-,-,D	-	-
<i>Oplodontha viridula</i>	D,-,-	1	2
		SRS	29
		SQS	40
		SQI	1.38
		HQS	8.62

3.1.42. Sample station RP12 (IDB13)

This ditch was sampled on 18 July 2012. The first sample was taken from the north bank, and the two following from the south. This was a relatively small ditch that was fenced throughout its length, with quite steep banks and dense terrestrial vegetation on the banks. Locally, there were beds of submerged macrophytes dominated by horned and Canadian pondweed, plus some rigid hornwort. Lemnaceae were dominant locally, with both small duckweeds and greater duckweed recorded. There were also good quantities of floating broad-leaved pondweed and frogbit leaves. In some areas, the ditch had been colonised by stands of tall emergent common reed, branched bur-reed, reed sweet-grass and yellow flag, and there were also sparse emergent shoots of water horsetail in a few places.

Table 3.1.42. Invertebrates in sample station RP12, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		C,C,C	1	1
<i>Aplexa hypnorum</i>		D,-,-	1	2
<i>Physa</i> sp.		C,C,D	1	1
<i>Lymnaea stagnalis</i>		D,C,C	1	1
<i>Radix baltica</i>		D,C,C	1	1
<i>Planorbis planorbis</i>		C,-,-	1	1
<i>Anisus vortex</i>		-,D,D	1	1
<i>Planorbarius corneus</i>		D,C,C	1	1
<i>Polycelis tenuis</i>		C,-,-	-	-
<i>Erpobdella octoculata</i>		C,-,D	1	1
<i>Gerris lacustris</i>		D,D,-	1	1
<i>Ilyocoris cimicoides</i>		D,-,-	1	1
<i>Notonecta glauca</i>		D,-,-	1	1
<i>Hespercorixa linnaei</i>		-,D,-	1	1
<i>Sigara dorsalis</i>		-,C,D	1	1
<i>Peltodytes caesus</i>	NS.	-, -,D	3	3
<i>Haliphus ruficollis</i>		C,C,C	1	1
<i>Noterus clavicornis</i>		-, -,D	1	1
<i>Agabus sturmii</i>		-,D,-	1	1
<i>Agabus bipustulatus</i>		-,D,-	1	1
<i>Agabus nebulosus</i>		D,-,-	1	1
<i>Ilybius quadriguttatus</i>		D,D,-	2	2
<i>Rhantus grapii</i>		D,-,-	2	2
<i>Graptodytes pictus</i>		D,D,-	2	2
<i>Hydroporus angustatus</i>		D,-,-	1	1
<i>Hyphydrus ovatus</i>		-,D,-	1	1
<i>Anacaena globulus</i>		D,-,D	1	1
<i>Anacaena limbata</i>		D,D,-	1	1
<i>Hydrobius fuscipes</i>		-,D,-	1	1
<i>Laccobius bipunctatus</i>		C,-,-	1	1
<i>Scirtes orbicularis</i>	Na.	D,-,-	-	-
<i>Stenus binotatus</i>		D,-,-	-	-
<i>Donacia semicuprea</i>		-,C,-	-	-
<i>Donacia versicolore</i>		-, -,D	-	-
SRS 36	SQS 43	SQI 1.19	HQS 6.94	

3.1.43. Sample station RP13 (IDB14)

The sample here was collected on 18 July 2012, with the first two samples being collected from the south bank of the reen, and the last from the north. This ditch appeared to be in good condition, with light cattle trampling on both banks. This had produced shallow, poached margins with diverse mid-height emergent vegetation that included floating sweet-grass, branched bur-reed, reed canary-grass, watercress, yellow flag and water-plantain. All sample sites had dense beds of submerged macrophytes, with curled, horned and Canadian pondweed being recorded. Small duckweeds and greater duckweed were only present at low cover, and there were also a few floating frogbit leaves in the marginal zone.

Table 3.1.43. Invertebrates in sample station RP13, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		C,C,C	1	1
<i>Physa</i> sp.		B,B,B	1	1
<i>Lymnaea stagnalis</i>		D,D,D	1	1
<i>Radix baltica</i>		-,C,C	1	1
<i>Planorbis planorbis</i>		C,C,C	1	1
<i>Anisus vortex</i>		B,B,B	1	1
<i>Planorbarius corneus</i>		D,D,C	1	1
<i>Dugesia lugubris</i>		-, -,D	-	-
<i>Theromyzon tessulatum</i>		-, -,D	1	1
<i>Erpobdella octoculata</i>		D, -, -	1	1
<i>Hydrometra stagnorum</i>		D, -, -	1	1
<i>Microvelia reticulata</i>		-, -,D	1	1
<i>Gerris lacustris</i>		D,D,-	1	1
<i>Nepa cinerea</i>		-,D,-	1	1
<i>Ilyocoris cimicoides</i>		-, -,C	1	1
<i>Notonecta glauca</i>		D,D,-	1	1
<i>Hespercorixa sahlbergi</i>		D, -, -	1	1
<i>Sigara dorsalis</i>		-,D,C	1	1
<i>Gyrinus substriatus</i>		-,D,-	1	1
<i>Haliphus lineatocollis</i>		-,C,-	1	1
<i>Haliphus immaculatus</i>		D,D,-	2	1
<i>Haliphus ruficollis</i>		D,D,C	1	1
<i>Haliphus sibiricus</i>		C,D,-	1	1
<i>Noterus clavicornis</i>		-,D,D	1	1
<i>Agabus bipustulatus</i>		-,D,-	1	1
<i>Ilybius quadriguttatus</i>		D, -, -	2	2
<i>Dytiscus marginalis</i>		D, -, -	1	1
<i>Hydroporus palustris</i>		-,D,D	1	1
<i>Helophorus brevipalpis</i>		D,D,D	1	1
<i>Anacaena globulus</i>		-,D,D	1	1
<i>Anacaena limbata</i>		-,D,D	1	1
<i>Hydrobius fuscipes</i>		-,D,D	1	1
<i>Laccobius bipunctatus</i>		-,D,D	1	1
<i>Coelostoma orbiculare</i>		-, -,D	1	2
<i>Stenus similis</i>		D,D,-	-	-
<i>Stenus binotatus</i>		-,D,-	-	-

<i>Stenus boops</i>	-,D,-	-	-
<i>Donacia marginata</i>	-,D,-	-	-
<i>Hypera pollux</i>	-,D,-	-	-
		SRS	33
		SQS	35
		SQI	1.06
		HQS	3.03

3.1.44. Sample station RP14 (IDB46)

Ditch RP14 was surveyed on 28 and 29 July 2012. The first sample was collected from the north-eastern side of the ditch, and the remaining two from the south-eastern side. This was a small, rather unprepossessing ditch that had become heavily choked with emergent tall fen, common reed being the dominant species, though large sedges, branched bur-reed and purple loosestrife were also present more locally. Only in the first sample was there a little submerged rigid hornwort, and this site also had some ivy-leaved duckweed and a few plants of frogbit. Elsewhere, those areas of open water that existed had a dense mat of small duckweeds and greater duckweed blanketing the surface. The northern half of threen had cattle grazed margins, but to the south adjacent land use was mostly silage production and a large caravan park, and here the ditch was shaded by tall emergent growth of common reed.

Table 3.1.44. Invertebrates in sample station RP14, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons.		Marsh fidelity	Status score
	Status	Abundance		
<i>Valvata cristata</i>		C,-,-	1	2
<i>Bithynia tentaculata</i>		C,-,-	1	1
<i>Physa</i> sp.		C,-,D	1	1
<i>Lymnaea stagnalis</i>		D,-,D	1	1
<i>Radix baltica</i>		-, -,D	1	1
<i>Planorbis planorbis</i>		D,D,-	1	1
<i>Anisus vortex</i>		C,-,-	1	1
<i>Planorbarius corneus</i>		D,D,D	1	1
<i>Polycelis nigra</i>		-, -,D	-	-
<i>Dugesia lugubris</i>		-, -,D	-	-
<i>Helobdella stagnalis</i>		D,-,-	1	1
<i>Erpobdella octoculata</i>		D,-,D	1	1
<i>Notonecta glauca</i>		D,-,-	1	1
<i>Hespercorixa sahlbergi</i>		C,-,-	1	1
<i>Halipus ruficollis</i>		C,-,-	1	1
<i>Noterus clavicornis</i>		D,-,-	1	1
<i>Graptodytes pictus</i>		D,-,-	2	2
<i>Hydroporus angustatus</i>		D,D,D	1	1
<i>Hydroporus palustris</i>		D,D,D	1	1
<i>Hydroporus planus</i>		D,-,-	1	1
<i>Hygrotus inaequalis</i>		C,D,-	1	1
<i>Anacaena limbata</i>		-, -,D	1	1
<i>Laccobius bipunctatus</i>		D,-,-	1	1
			SRS	21
			SQS	23
			SQI	1.09
			HQS	2.38

3.1.45. Sample station RP15 (IDB47)

This ditch was sampled on 19 July 2012. The first sample was collected from the north bank of the reed and the following two from the south. A striking feature of the vegetation here was the abundance of submerged Canadian pondweed, with a little water-starwort also present. Lemnaceae were locally abundant, with small duckweeds, ivy-leaved and greater duckweed all present. There were also frequent floating leaves of broad-leaved pondweed and frogbit. Ditch margins had an emergent fringe of common reed, large sedges, floating sweet-grass and branched bur-reed. Much of the surrounding land was given over to hay/silage production, with some of the fields being relatively herb-rich and unimproved in character. A good part of the reed was shaded by a hedge with outgrown trees on one bank.

Table 3.1.45. Invertebrates in sample station RP15, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		-,C,C	1	1
<i>Physa</i> sp.		C,C,C	1	1
<i>Lymnaea stagnalis</i>		C,C,C	1	1
<i>Radix baltica</i>		D,C,C	1	1
<i>Planorbis planorbis</i>		D,D,B	1	1
<i>Anisus vortex</i>		C,C,C	1	1
<i>Gyraulus albus</i>		C,-,-	1	2
<i>Planorbarius corneus</i>		D,C,C	1	1
<i>Theromyzon tessulatum</i>		-,D,-	1	1
<i>Erpobdella octoculata</i>		D,D,D	1	1
<i>Hydrometra stagnorum</i>		D,-,-	1	1
<i>Microvelia reticulata</i>		C,-,-	1	1
<i>Gerris lacustris</i>		D,D,-	1	1
<i>Ilyocoris cimicoides</i>		-, -,D	1	1
<i>Notonecta glauca</i>		D,-,D	1	1
<i>Sigara dorsalis</i>		D,D,D	1	1
<i>Sigara falleni</i>		-,D,-	1	1
<i>Gyrinus substriatus</i>		-,C,C	1	1
<i>Peltodytes caesus</i>	NS.	-,D,C	3	3
<i>Haliphus lineatocollis</i>		-, -,D	1	1
<i>Haliphus immaculatus</i>		-, -,C	2	1
<i>Haliphus ruficollis</i>		C,C,B	1	1
<i>Haliphus sibiricus</i>		-,D,-	1	1
<i>Noterus clavicornis</i>		-, -,D	1	1
<i>Ilybius quadriguttatus</i>		-, -,D	2	2
<i>Colymbetes fuscus</i>		-, -,D	1	1
<i>Graptodytes pictus</i>		-, -,D	2	2
<i>Hydroporus angustatus</i>		-, -,D	1	1
<i>Hyphydrus ovatus</i>		D,-,D	1	1
<i>Laccophilus hyalinus</i>		D,-,-	1	2
<i>Helophorus obscurus</i>		D,-,-	1	1
<i>Anacaena limbata</i>		D,-,-	1	1
<i>Hydrobius fuscipes</i>		-,D,-	1	1
<i>Laccobius bipunctatus</i>		-, -,C	1	1
<i>Donacia simplex</i>		-,D,-	-	-

SRS	34
SQS	40
SQI	1.18
HQS	7.35

3.1.46. Sample station RP16 (IDB49)

Ditch RP16 was surveyed on 5 July 2012, the first sample being taken from the south bank and the following two from the north. The quality of the habitat along this ditch was consistently high, with much of its length having cattle poached banks that have produced shallow margins with diverse mid-height emergent vegetation amongst which lesser water-parsnip, floating sweet-grass, common reed, large sedges, branched bur-reed, tubular water-dropwort and water-plantain were conspicuous. The ditch had not been cleared for some time, and in most places the channel was colonised throughout with the species outlined above. Between the emergents, small patches of water had a sparse cover of small duckweeds, plus greater duckweed, ivy-leaved duckweed and floating leaves of frogbit. In a few places where there were larger patches of open water, submerged beds of Canadian pondweed were noted.

Table 3.1.46. Invertebrates in sample station RP16, Gwent Levels, Rumney and Peterstone SSSI

Species	Cons. Status	Abundance	Marsh fidelity	Status score
<i>Bithynia tentaculata</i>		C,C,C	1	1
<i>Physa</i> sp.		B,A,A	1	1
<i>Lymnaea stagnalis</i>		C,D,D	1	1
<i>Radix baltica</i>		C,C,C	1	1
<i>Anisus vortex</i>		-,D,D	1	1
<i>Planorbarius corneus</i>		-,C,-	1	1
<i>Polycelis nigra</i>		D,-,D	-	-
<i>Dugesia lugubris</i>		D,-,D	-	-
<i>Dendrocoelum lacteum</i>		-, -,D	-	-
<i>Theromyzon tessulatum</i>		D,-,-	1	1
<i>Glossiphonia complanata</i>		D,-,-	1	1
<i>Glossiphonia heteroclita</i>		D,-,-	1	2
<i>Helobdella stagnalis</i>		-,D,-	1	1
<i>Erpobdella octoculata</i>		D,D,C	1	1
<i>Mesovelgia furcata</i>		D,-,-	1	2
<i>Microvelia reticulata</i>		-,D,C	1	1
<i>Gerris lacustris</i>		-,D,-	1	1
<i>Nepa cinerea</i>		D,-,D	1	1
<i>Ilyocoris cimicoides</i>		C,-,C	1	1
<i>Notonecta glauca</i>		D,D,-	1	1
<i>Hespercorixa sahlbergi</i>		-,D,D	1	1
<i>Sigara dorsalis</i>		C,-,-	1	1
<i>Peltodytes caesus</i>	NS.	C,-,-	3	3
<i>Haliphus lineatocollis</i>		-, -,D	1	1
<i>Haliphus immaculatus</i>		C,D,-	2	1
<i>Haliphus ruficollis</i>		C,C,C	1	1
<i>Haliphus sibiricus</i>		D,-,-	1	1
<i>Noterus clavicornis</i>		C,-,-	1	1
<i>Agabus bipustulatus</i>		-,D,D	1	1
<i>Ilybius quadriguttatus</i>		D,D,-	2	2
<i>Liopterus haemorrhoidalis</i>		D,D,C	1	2
<i>Dytiscus marginalis</i>		-,D,-	1	1
<i>Hydroporus angustatus</i>		C,D,-	1	1
<i>Hydroporus palustris</i>		D,-,-	1	1

<i>Hygrotus inaequalis</i>		-,-,D	1	1
<i>Odacantha melanura</i>	Nb.	-,-,D	-	-
<i>Helophorus aequalis</i>		-,D,-	1	1
<i>Helophorus brevipalpis</i>		C,C,D	1	1
<i>Anacaena limbata</i>		-,D,-	1	1
<i>Enochrus testaceus</i>		-,-,D	1	2
<i>Hydrobius fuscipes</i>		-,-,D	1	1
<i>Laccobius bipunctatus</i>		D,D,D	1	1
<i>Scirtes hemisphaericus</i>		-,D,C	-	-
<i>Silis ruficollis</i>	Nb.	-,D,-	-	-
<i>Stenus cicindeloides</i>		-,D,-	-	-
<i>Stenus binotatus</i>		-,D,-	-	-
<i>Plateumaris sericea</i>		-,D,D	-	-
<i>Donacia marginata</i>		D,-,-	-	-
<i>Prasocuris phellandrii</i>		-, -,D	-	-
<i>Hypera pollux</i>		-,D,-	-	-
<i>Oplodontha viridula</i>		D,D,D	1	2
			SRS	39
			SQS	47
			SQI	1.20
			HQS	5.13

4 DISCUSSION

In 2007, an assessment of the ditch invertebrate fauna was undertaken on sites in the Somerset and Gwent Levels (Drake, 2007). In the latter area this study collected samples from the Wentlooge and Caldicott SSSIs, using the same methodology employed during this study. The Gwent samples collected by Drake (ibid.) were disappointing, with the quality of the aquatic invertebrate fauna appearing to have declined since the detailed invertebrate survey of the Gwent Levels undertaken by the Nature Conservancy Council in the early 1980s (Drake, Foster & Palmer, 1984). Following this, Common Standards Monitoring exercises were undertaken on the Whitson SSSI in 2009 (Boyce, 2010), and in 2011 on the Redwick & Llandevenuey and St. Brides SsSSI (Boyce, 2012), using the same methodology as has been employed in 2012. The data collected from the seven SsSSI between 2009 and 2012 has produced figures for species richness and species and habitat quality that are significantly lower than those from Drake's 2007 Caldicott and Wentlooge data. A summary of all this data can be found in Table 4.1 below. The full metrics from which the summary in Table 4.1 is derived can be found in Table A1.1 of Appendix 1.

Table 4.1. Summary of invertebrate monitoring data collected on Gwent Levels, 2007-2012

SSSI	FS	SRS	SQS	SQI	HQS
Caldicott/Wentlooge 2007	6	40/42.50	-	1.40/1.60	-
Whitson 2009	3	33.5/31.50	38/37.75	1.36/1.34	5.27/5.20
Redwick & Llandevenuey 2011	4	32/32.00	37/38.78	1.40/1.38	4.55/4.66
St. Brides 2011	4	33/31.00	38/36.40	1.27/1.40	6.52/6.46
Magor & Undy 2012	1	26.5/25.29	32/30.29	1.18/1.20	2.62/3.11
Nash & Goldcliff 2012	2.5	31/31.50	36.5/38.17	1.20/1.20	4.84/5.29
Newport Wetlands 2012	5	31.5/32.25	41/42.75	1.33/1.32	10.46/10.33
Rumney & Peterstone 2012	3	30/30.19	36.5/36.06	1.17/1.19	5.52/6.03

Notes on Table 4.1.

FS = median faithful species of sample stations in Gwent Levels SsSSI

SRS = median/mean species richness of sample stations in Gwent Levels SsSSI

SQS = median/mean species quality score of sample stations in Gwent Levels SsSSI

SQI = median/mean species quality index of sample stations in Gwent Levels SsSSI

HQS = median/mean habitat quality score of sample stations in Gwent Levels SsSSI

The sampling methodology allows for the inclusion of a wider range of aquatic invertebrate groups than has been used in the 2009, 2011 and 2012 monitoring programmes. It is therefore likely that the inclusion of additional taxa, such as the mayflies (Ephemeroptera), stoneflies (Plecoptera) and caddisflies (Trichoptera) has resulted in the higher species richness figures of the 2007 Caldicott and Wentlooge work. However, the presence of these groups within the samples is very unlikely to explain the lower species and habitat quality scores of the CSM samples collected between 2009 and 2012. Indeed, their inclusion would be more likely to reduce species and habitat quality scores, as the vast majority are common species that show no marked affinity to grazing marsh habitats. The great majority of aquatic invertebrates with high conservation status, and/or high fidelity to grazing marsh habitats, are included within the taxa sampled in 2009 and 2011. Of these groups, the water beetles are easily the most important single group.

Overall, Table 4.1 demonstrates that the richness and quality of the aquatic invertebrate fauna recorded in 2012 is broadly comparable with that of the Whitson, Redwick & Llandevenuey and St. Brides SsSSI monitored in 2009 and 2011, but these are all of consistently lower quality than the aquatic invertebrate assemblage recorded by Drake from Caldicott and Wentlooge in 2007. Drake had previously commented that his samples from the latter sites were very disappointing

and that he believed that the invertebrate interest of these sites had declined since the early 1980s. Given that the figures achieved in 2009, 2011 and 2012 are still lower, it suggests that the decline in invertebrate interest posited by Drake may be continuing.

Of particular concern in 2012 were the very low species richness and quality scores recorded on the Magor & Undy SSSI. Taken as a whole, the 14 samples taken here scored significantly lower for both invertebrate species richness and quality than any other SsSSI looked at during the CSM exercise on the Gwent Levels. For the most part, the reens on Magor & Undy were deeply cut down below the level of the surrounding land, and fenced on both sides. As a consequence, they lacked the shallow margins created by the activities of cattle where they have access to the water's edge, and in some cases where this condition pertained the water was also being heavily shaded by rank terrestrial vegetation on the steep bank sides. Such conditions preclude the development of a range of shallow water niches, with bare poached areas and scattered clumps of emergent vegetation, which are of very high value for aquatic invertebrates.

On a more positive note, the 2012 samples from the Newport Wetlands SSSI collectively had the highest quality scores of all those looked at during the CSM study, despite the limited sampling effort relative to the other Gwent Levels SsSSI. The majority of the sample sites looked at on the Newport wetlands had cattle trampled margins with mixed-height emergent vegetation and patches of bare substrate around their margins. In the five field ditches looked at here, the existing ditches have been widened with the specific aim of creating shallow muddy margins for wading birds. Taken together, the ditch widening and cattle grazing regime have created high quality habitat for an exceptional aquatic and wetland invertebrate assemblage that includes a number of species of high conservation status.

Drake cited the excessive abundance of least duckweed *Lemna minuta*, a recent colonist that is native to north and central America, as the most important negative factor. The most significant negative impact *Lemna* is likely to have is in shading out growth of the submerged macrophyte vegetation that is so important for many of the scarcer grazing marsh invertebrates. On the Somerset Levels it is thought that increasing dominance of duckweeds, including *L. minuta*, relates to increased eutrophication caused by run-off from the intensively farmed catchment. Leaving aside the indirect impacts it has in promoting excessive growth of algae and duckweeds, eutrophication is in itself deleterious to the survival of many of the more stenotopic invertebrate species, which require more mesotrophic water chemistry in order to survive. On the Whitson sites, dominant duckweed growth was very widely encountered in the ditches sampled. Dominant *Lemna* was also present on some of the other SSSIs, though in general, duckweed abundance was lower in the 2011 and 2012 samples than it had been at Whitson. It is thought that this relates primarily to the earlier sampling dates in the two latter years of the study, with duckweed cover not having had a chance to build up to such an extent in these years.

The presence of a thick, choking mat of *Lemna* also makes it much more difficult to sample the invertebrate fauna effectively. Firstly, the duckweed fills the net very quickly, which means that a much smaller sample of the ditch can be netted than in a site where there is little or no duckweed. Small and/or delicate invertebrate species, which may be unable to escape from the piles of duckweed when the net contents are spread over a plastic sheet may also be easily missed, as they are trapped inside the duckweed mats. Invertebrates are also difficult to see in the sample that is put into a tray of shallow water, because of the continuous layer of floating duckweed that covers the water surface. It is therefore quite possible that the generally poor quality of samples in duckweed dominated sample stations may relate to the significantly impaired sampling efficiency in such sites. Note that the presence of excessive *Lemna* also arrests the development of diverse late-successional habitats, as the continuous thick mat of duckweed prevents establishment of beds of submerged macrophytes, and hence is likely to

impact on the richness of the aquatic invertebrate fauna known to be associated with such habitats.

A further negative factor is the very regular ditch clearance work that takes place across much of the Gwent Levels, resulting in a dearth of the late-successional habitats with abundant submerged and emergent aquatic vegetation that are the richest ditch habitat for aquatic invertebrates. It also results in steep-sided banks, without the shallow water margins favoured by many invertebrate species.

5 REFERENCES

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APPENDIX 1: - INVERTEBRATE SCORES AND INDICES CALCULATED FOR GWENT LEVELS SSSIs USING THE VERSION 4 METRICS OF PALMER ET. AL. (2010)

Table A1.1 below presents the metrics for the invertebrate monitoring at the four SSSIs studied in 2012, plus the Redwick & Llandeveyney and St. Brides SSSIs in 2011 (Boyce, 2012), and the Whitson SSSI monitoring work undertaken in 2009 (Boyce, 2010).

Table A1.1. Summary of invertebrate monitoring, Redwick & Llandeveyney, St. Brides and Whitson SSSIs using version 4 indices in Palmer et. al. (2010)

Sample station	SRS	SQS	SQI	HQS
MU01	25	33	1.32	8.00
MU02	16	18	1.12	6.25
MU03	14	17	1.21	0
MU04	28	34	1.21	3.57
MU05	28	35	1.25	3.57
MU06	33	39	1.18	4.54
MU07	26	29	1.11	1.92
MU08	22	24	1.09	0
MU09	15	22	1.47	3.33
MU10	21	25	1.19	0
MU11	27	31	1.15	0
MU12	40	49	1.22	5.00
MU13	31	35	1.13	1.61
MU14	28	33	1.18	1.79
NG01	25	27	1.08	0
NG02	41	57	1.39	7.32
NG03	28	34	1.21	1.79
NG04	32	40	1.25	7.81
NG05	30	37	1.23	6.67
NG06	36	46	1.28	6.94
NG07	30	36	1.20	5.00
NG08	34	38	1.12	4.41
NG09	42	54	1.28	9.52
NG10	24	28	1.17	4.17
NG11	24	27	1.12	4.17
NG12	32	34	1.06	4.69
NW01	33	40	1.21	7.58
NW02	30	42	1.40	11.67
NWFD01-03	39	53	1.34	12.82
NWFD04-05	27	36	1.33	9.26
RL01	40	55	1.38	8.75
RL02	41	53	1.29	8.54
RL03	21	23	1.10	1.00
RL04	31	37	1.19	3.23
RL05	37	45	1.22	6.76
RL06	22	23	1.05	1.00
RL07	33	39	1.18	4.55
RL08	32	37	1.16	3.12
RL09	30	37	1.23	5.00
RP01	30	34	1.13	3.33
RP02	28	35	1.25	7.14
RP03	17	19	1.12	5.88
RP04	29	34	1.17	5.17
RP05	28	32	1.14	3.57
RP06	30	41	1.37	11.67

RP07	33	38	1.15	4.54
RP08	19	21	1.10	7.89
RP09	42	52	1.24	9.52
RP10	35	43	1.23	4.29
RP11	29	40	1.38	8.62
RP12	36	43	1.19	6.94
RP13	33	35	1.06	3.03
RP14	21	23	1.09	2.38
RP15	34	40	1.18	7.35
RP16	39	47	1.20	5.13
SB01	36	45	1.25	9.25
SB02	31	34	1.10	3.23
SB03	33	38	1.15	6.06
SB04	33	40	1.21	7.58
SB05	34	38	1.12	5.88
SB06	36	47	1.31	8.33
SB07	20	23	1.15	2.38
SB08	31	42	1.35	11.29
SB09	23	26	1.13	2.17
SB10	21	25	1.19	7.14
SB11	23	25	1.09	6.52
SB12	26	28	1.08	5.77
SB13	39	52	1.33	9.00
SB14	34	38	1.12	7.35
SB15	40	45	1.13	5.00
WH1	35	41	1.17	5.71
WH2	27	32	1.19	5.55
WH3	38	50	1.32	7.89
WH4	20	24	1.20	5.00
WH5	34	42	1.24	9.72
WH6	34	42	1.24	5.71
WH7	43	53	1.23	3.48
WH8	30	35	1.17	1.56
WH9	27	33	1.22	3.57
WH10	38	46	1.21	3.85
WH11	18	21	1.17	2.38
WH12	27	34	1.26	8.00

Notes on Table A1.1:

Sample station = sample station codes, 'RL' and 'SB' codes are as for the main report, 'WH' codes refer to 12 sample stations established on the Whitson SSSI in 2009 (Boyce, 2010);

SRS = Species richness score, calculated by summing number of qualifying species in Table 2;

SQS = Species Quality Score, calculated by summing conservation status scores for all qualifying species in Table 2;

SQI = Species Quality Index, calculated by dividing SQS by SRS;

HQS = Habitat Quality Score, calculated by summing marsh fidelity scores for all qualifying species in Table 2, then dividing this number by SRS.

APPENDIX 2: PHOTOGRAPHS OF SUB-SAMPLE PLOTS



Figure A2.1. Sub-sample MU01A



Figure A2.2. Sub-sample MU01B



Figure A2.3. Sub-sample MU01C



Figure A2.4. Sub-sample MU02A



Figure A2.5. Sub-sample MU02B



Figure A2.6. Sub-sample MU02C



Figure A2.7. Sub-sample MU03A



Figure A2.8. Sub-sample MU03B



Figure A2.9. Sub-sample MU03C



Figure A2.10. Sub-sample MU04A



Figure A2.11. Sub-sample MU04B



Figure A2.12. Sub-sample MU04C



Figure A2.13. Sub-sample MU05A



Figure A2.14. Sub-sample MU05B



Figure A2.15. Sub-sample MU05C



Figure A2.16. Sub-sample MU06A



Figure A2.17. Sub-sample MU06B



Figure A2.18. Sub-sample MU06C



Figure A2.19. Sub-sample MU07A



Figure A2.20. Sub-sample MU07B



Figure A2.21. Sub-sample MU07C



Figure A2.22. Sub-sample MU08A



Figure A2.23. Sub-sample MU08B



Figure A2.24. Sub-sample MU08C



Figure A2.25. Sub-sample MU09A



Figure A2.26. Sub-sample MU09B



Figure A2.27. Sub-sample MU09C



Figure A2.28. Sub-sample MU10A



Figure A2.29. Sub-sample MU10B



Figure A2.30. Sub-sample MU10C



Figure A2.31. Sub-sample MU11A



Figure A2.32. Sub-sample MU11B



Figure A2.33. Sub-sample MU11C



Figure A2.34. Sub-sample MU12A



Figure A2.35. Sub-sample MU12B



Figure A2.36. Sub-sample MU12C



Figure A2.37. Sub-sample MU13A



Figure A2.38. Sub-sample MU13B



Figure A2.39. Sub-sample MU13C



Figure A2.40. Sub-sample MU14A



Figure A2.41. Sub-sample MU14B



Figure A2.42. Sub-sample MU14C



Figure A2.43. Sub-sample NG01A



Figure A2.44. Sub-sample NG01B



Figure A2.45. Sub-sample NG01C



Figure A2.46. Sub-sample NG02A



Figure A2.47. Sub-sample NG02B



Figure A2.48. Sub-sample NG02C



Figure A2.49. Sub-sample NG03A



Figure A2.50. Sub-sample NG03B



Figure A2.51. Sub-sample NG03C



Figure A2.52. Sub-sample NG04A



Figure A2.53. Sub-sample NG04B



Figure A2.54. Sub-sample NG04C



Figure A2.55. Sub-sample NG05A



Figure A2.56. Sub-sample NG05B



Figure A2.57. Sub-sample NG05C



Figure A2.58. Sub-sample NG06A



Figure A2.59. Sub-sample NG06B



Figure A2.60. Sub-sample NG06C



Figure A2.61. Sub-sample NG07A



Figure A2.62. Sub-sample NG07B



Figure A2.63. Sub-sample NG07C



Figure A2.64. Sub-sample NG08A



Figure A2.65. Sub-sample NG08B



Figure A2.66. Sub-sample NG08C



Figure A2.67. Sub-sample NG09A



Figure A2.68. Sub-sample NG09B



Figure A2.69. Sub-sample NG09C



Figure A2.70. Sub-sample NG10A



Figure A2.71. Sub-sample NG10B



Figure A2.72. Sub-sample NG10C



Figure A2.73. Sub-sample NG11A



Figure A2.74. Sub-sample NG11B



Figure A2.75. Sub-sample NG11C



Figure A2.76. Sub-sample NG12A



Figure A2.77. Sub-sample NG12B



Figure A2.78. Sub-sample NG12C



Figure A2.79. Sub-sample NW01A



Figure A2.80. Sub-sample NW01B



Figure A2.81. Sub-sample NW01C



Figure A2.82. Sub-sample NW02A



Figure A2.83. Sub-sample NW02B



Figure A2.84. Sub-sample NW02C



Figure A2.85. Sub-sample NWFD01



Figure A2.86. Sub-sample NWFD02



Figure A2.87. Sub-sample NWFD03



Figure A2.88. Sub-sample NWFD04



Figure A2.89. Sub-sample NWFD05



Figure A2.90. Sub-sample RP01A



Figure A2.91. Sub-sample RP01B



Figure A2.92. Sub-sample RP01C



Figure A2.93. Sub-sample RP02A



Figure A2.94. Sub-sample RP02B



Figure A2.95. Sub-sample RP02C



Figure A2.96. Sub-sample RP03A



Figure A2.97. Sub-sample RP03B



Figure A2.98. Sub-sample RP03C



Figure A2.99. Sub-sample RP04A



Figure A2.100. Sub-sample RP04B



Figure A2.101. Sub-sample RP04C



Figure A2.102. Sub-sample RP05A



Figure A2.103. Sub-sample RP05B



Figure A2.104. Sub-sample RP05C



Figure A2.105. Sub-sample RP06A



Figure A2.106. Sub-sample RP06B



Figure A2.107. Sub-sample RP06C



Figure A2.108. Sub-sample RP07A



Figure A2.109. Sub-sample RP07B



Figure A2.110. Sub-sample RP07C



Figure A2.111. Sub-sample RP08A



Figure A2.112. Sub-sample RP08B



Figure A2.113. Sub-sample RP08C



Figure A2.114. Sub-sample RP09A



Figure A2.115. Sub-sample RP09B



Figure A2.116. Sub-sample RP09C



Figure A2.117. Sub-sample RP10A



Figure A2.118. Sub-sample RP10B



Figure A2.119. Sub-sample RP10C



Figure A2.120. Sub-sample RP11A



Figure A2.121. Sub-sample RP11B



Figure A2.122. Sub-sample RP11C



Figure A2.123. Sub-sample RP12A



Figure A2.124. Sub-sample RP12B



Figure A2.125. Sub-sample RP12C



Figure A2.126. Sub-sample RP13A



Figure A2.127. Sub-sample RP13B



Figure A2.128. Sub-sample RP13C



Figure A2.129. Sub-sample RP14A



Figure A2.130. Sub-sample RP14B



Figure A2.131. Sub-sample RP14C



Figure A2.132. Sub-sample RP15A



Figure A2.133. Sub-sample RP15B



Figure A2.134. Sub-sample RP15C



Figure A2.135. Sub-sample RP16A



Figure A2.136. Sub-sample RP16B



Figure A2.137. Sub-sample RP16C

APPENDIX 3: - BLANK HABITAT RECORDING FORM

Date:								Site Name:															
Unit No:								Weather Conditions:															
Recording sheet No:								Surveyors:															
Recent management of bank/ditch								Casting / Clearing / Weeding															
Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Habitat Assessment																							
Inaccessible (F/N/D)																							
Ditch Veg Type (up to 3 > 50% area)																							
Margin Assessment – Margin begins when substrate boggy underfoot																							
Margin veg type																							
Poaching outside of margin?																							
Shading by trees/scrub /hedge(0/1/2)																							
Grapnel Used ?																							
Macrophyte Assessment																							
Submerged Plants	Record whether None, Some (up to 100g) or Lots (100-500g+)																						
N, S, L																							
Submerged Plants	Record presence of all taxa. For fine leaved pondweeds collect voucher specimens for identification.																						
Cera dem																							
Pota cri																							
Pota pec																							
Pota tri																							
Pot ber																							
Pot pus																							
Pot obt																							
Pota fine leaved sp																							
Myri spi																							
Myri ver																							
Elodea sp*																							
Zann pal																							
Chara spp																							
Floating Plants	Record presence of all taxa.																						
Hydr mor																							
Lem gib																							
Lem mno																							
Lem tri																							
Lem mno/mnu																							
Lem mnu*																							
Spir pol																							
Wolf arr																							
Azol fil*																							
Riccia fluitans																							
Floating-lf Plants	Record presence of all taxa.																						
Call sp.																							
Pota nat																							
Sagittaria sag																							
Dominant Emergents	Record up to <i>three</i> dominant emergents																						
Phragmites																							
Special plants	Record presence of any additional sp of note																						
Oenanthe aquatica																							
Oenanthe fistulosa																							
Cera submersum																							
Ranunc baudotii																							
Ranunc circinatus																							

Notes – section for notes to be written on each sample point (saves scribbling)

Sample No	
1	
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