

An audit of performance in the processing of macro-invertebrate samples in 1994. NRA Welsh Region

R.J.M. Gunn, BA

J.H. Blackburn, BSc

J.M. Winder, PhD

N.J. Grieve, BSc

J.F. Wright, PhD

K.L. Symes, HND

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National Rivers Authority, Welsh Region

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River Laboratory East Stoke WAREHAM Dorset

BH20 6BB

Tel: 0929 462314 Fax: 0929 462180

An audit of performance in the processing of macro-invertebrate samples in 1994. **NRA** Welsh Region

R.J.M. Gunn; J.H. Blackburn; J.M. Winder; N.J. Grieve; J.F. Wright; K.L. Symes

Project Leader:

Report Date:

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May 1995

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1. INTRODUCTION

In 1994 the sampling of aquatic macro-invertebrates for the biological assessment of river quality continued throughout the United Kingdom. This task was undertaken by the National Rivers Authority (NRA) in England and Wales, the River Purification Boards (RPBs) in Scotland and the Industrial Research & Technology Unit (IRTU) in Northern Ireland.

In view of the number of staff involved and the variability of sample processing techniques, it was recognised that an independent quality control exercise was necessary to promote a consistently high level of reliability. The IFE was contracted to undertake an audit of the sample sorting and identification performance of each NRA region, several RPBs and the IRTU. This report presents the results of 61 samples audited for NRA Welsh Region. The IFE was not required to perform any statistical analyses nor interpretation of the results of the audit.

Each organisation employed standard collection procedures, as used in the 1990 River Quality Survey, and the sampling strategy was therefore compatible with RIVPACS (River InVertebrate Prediction And Classification System), which has been developed by the Institute of Freshwater Ecology (IFE).

Samples were sorted by NRA, RPB and IRTU personnel for the families of macro-invertebrates included in the Biological Monitoring Working Party (BMWP) system. Taxa present were recorded on site data sheets. Sample processing and recording techniques varied from region to region.

2. SAMPLE SELECTION

Samples for audit were selected internally by each of the agencies being monitored. The biologists processing these samples had no prior knowledge of the samples to be audited.

The manner of sample selection, which biologists would be monitored and the number of audit samples from each season, were left to the discretion of the agency, within the limits of the total number of samples that IFE was contracted to audit.

3. SAMPLE PROCESSING

The normal protocol for NRA, RPB and IRTU biologists was to sort their samples within the laboratory and to select examples of each scoring taxon within the BMWP system. In most cases, the invertebrates were placed in a vial of preservative (4% formaldehyde solution or 70% industrial alcohol) and the BMWP taxa were listed on a data sheet. The vial of animals and the sorted material were then returned to the sample container and preservative added. Thus, each sample available to IFE for audit should have included:

- i) a list of the BMWP families found in the sample
- ii) a vial containing representatives from each family
- iii) the preserved sample

When these three elements were present, the sequence of operations at IFE was as follows:

- a) The remainder of the sample was sorted and the BMWP families listed
- b) The families contained within the vial were identified and listed
- c) A comparison was made between the NRA listing of families and those identified from the vial by IFE
- d) A comparison was made between the NRA listing of families and those found in the sample by IFE
- e) "Losses" or "gains" from the NRA listing of families were noted. In the case of "gains", each additional family was identified, where possible, to species level, in order to clarify any specific repetitive errors.

For a number of different reasons, some samples did not include a vial containing representative examples of the families listed on the data sheet. Others arrived with the vial damaged in transit such that the representative examples were no longer separated. For these samples, only operations a), d) and e) above were appropriate.

Several directives were issued to IFE relating to the treatment of BMWP taxa. Terrestrial representatives of BMWP scoring families, animals deemed to have been dead at the time of sampling, cast insect skins, pupal exuviae, empty mollusc shells and posterior ends of "living" specimens were to be excluded from the listing of families present. Chrysomelidae and Curculionidae, which appear in the BMWP list, were also to be excluded for the purposes of the audit. Trichopteran pupae, although not routinely identified by many biologists, were to be included in the listing of families.

4. REPORTING

The results of each sample audit were recorded on a standard report form (Table 1). For audit samples where a vial of animals was included, the comparison between the NRA listing and the taxa found in the vial by IFE was shown in box A of the report form. Discrepancies could be due to carelessness, misidentifications or errors in completing the NRA data sheet. Families not on the NRA listing but found by IFE in the remainder of the sample were entered in box B of the report form under "additional families". When the families listed as "losses" in section A of the report form were compared with the full list of families recorded in the sample by IFE, some apparent losses from the vial were offset by the presence of those families in the remainder of the sample. These taxa were therefore listed in the "losses" box of section A and the "gains" box of section B and were neither a net loss nor a net gain. In these cases, the families were marked with an asterisk in both boxes. Such errors are noted as "omissions" in the tables which summarise the results for each season (Tables 2, 3 and 4).

Species identifications, state of development (eg adult or larval coleopterans) and the presence of a single representative of a family within the remainder of the sample were recorded in the notes section of the report form. Where the NRA data sheet indicated that a family was noted and released at the site, this was recorded in the notes section but not included as a "loss", even though the family was not found in the vial.

For those samples in which the vial of animals was damaged or missing, box A of the report form was not applicable (N/a). Families not on the NRA list but present in the sample were listed in box B under "additional families" as before. Families recorded on the NRA list but not found by IFE were indicated on the left hand side of box B. If the vial of animals was retained by the NRA, entries in this box could include the sole representative of a family which was removed by the NRA, a family seen at the site which escaped or was released (without mention being made on the NRA data sheet), inaccurate identification, the wrong family box being ticked on the NRA data sheet or the family being present in the sample but missed by IFE.

Results of the audits of individual samples are presented in the Appendix.

| REC | SION | RIVER | | | | |
|--|--|---|----------------------------------|--|--|--|
| I | DATE | SITE | | | | |
| SOI | RTER | CODE | | | | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found | BMWP FAMILIES NOT FOUND BY IFE | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| В | in VIAL by IFE | BMWP FAMILIES NOT FOUND BY IFE | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | (This box is only completed when no vial is supplied with the sample) | | | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | |
| | | | | | | |

TABLE 2. The 18 spring samples audited for Welsh Region.

| River | Site | Sorter | Losses | Gains | Omissions |
|----------------|---------------------|--------|--------|-------|-----------|
| Rhymney | Pengam | PC | 1 | 0 | 0 |
| Colwyn | Beddgelert | RAC | 0 | 1 | 0 |
| Dwyryd | d/s Cynfal | JΒ | 0 | 4 | 0 |
| Twymyn | Bont Dolgadfan | RAC | 2 | 3 | 0 |
| Prysor | u/s Trawsfynydd STW | MDW | 0 | 0 | 0 |
| Afon Leri | Dolybont | JВ | 0 | 0 | 0 |
| Nant Alltwalis | d/s STW | KJ | 1 | 0 | 0 |
| Nant-y-Aber | Abertridwr | NS | 0 | 0 | 0 |
| Gledyr | Caerphilly | AT | 0 | 0 | 0 |
| Rhymney | Tirphil | AT | 0 | 1 | 0 |
| Afon Dyfi | B4404 Bridge | JB | 0 | 3 | 0 |
| Nantcol | Cwm Nantcol | JВ | 0 | 3 | 0 |
| Afon Glyn | Pont-y-Glyn | RAC | 0 | 1 | 0 |
| Dulas North | Glan Fechan | MW | 0 | 4 | 0 |
| Glas Lyn | Pont Croesor | MW | 0 | 1 | 0 |
| Dafen | d/s Road Bridge | KJ | 1 | 1 | 0 |
| Taf Bargoed | u/s Trelewis | MC | 1 | 3 | 0 |
| Maendy Tip | Site 2 | MC | 0 | 2 | 0 |

TABLE 3. The 36 summer samples audited for Welsh Region.

| River | Site | Sorter | Losses | Gains | Omissions |
|---------------------------|--------------------------------|--------|--------|-------|-----------|
| Norton Brook | u/s Norton STW | NS | 0 | 0 | 0 |
| Coldstone Brook | d/s Kingstone & Madley STW | AT | 0 | 1 | 0 |
| Coldstone Brook | u/s Kingstone & Madley STW | AT | 0 | 0. | 1 |
| Pant Brook | u/s Llanddewi Rhydderch STW | NS | 0 | 0 | 1 |
| Un-named Stream | u/s Pen-y-Stryt STW | JB | 0 | 2 | 0 |
| Un-named Stream | u/s St Asaph STW | JB | 0 | 3 | 0 |
| Un-named Stream | u/s Bryn Du STW | MW | 0 | 0 | 0 |
| Un-named Stream | u/s Llaniestyn STW | MDW | 0 | 0 | . 0 |
| Un-named Stream | u/s Henllan STW | RAC | 0 | 3 | 1 |
| Ceri | u/s Rhydlewis STW | MJ | 0 | 1 | 0 |
| Clydach | d/s Fforestgoch STW | DB | 0 | 1 | 0 |
| Cresswell Tributary | u/s Langdon STW | DB | 0 | 1 | 0 |
| Morgennau Tributary | u/s Boncath STW | AK/KJ | 0 | 1 . | 0 |
| Crymlyn Tributary | d/s Gas pipeline | KJ | 2 | 1 | 0 |
| Marlas | Carmel | MJ | 1 . | 1 | 0 |
| Nant-y-Wilcae | Raglan | PC | 0 | 0 | 0 |
| Howey Brook | Howey STW | PC | 0 . | 0 | 0 |
| Caled Frwid | u/s Bryn Refail STW | RAC | 0 | 0 | 0 |
| Afon Merddwr Tributary | u/s Glasfryn STW | RAC | 0 | 0 | 0 |
| Afon Aled | u/s Llansannan STW | ЛВ | 0 | 2 | 0 |
| Byr Brook | u/s Treuddyn STW | MW | 1 | 1 | 0 |
| Nant Comeliw Tributary | u/s Groes Bronallt STW | MW | 1 | 2 | 0 |
| Dulais | d/s Onllwyn Coal Washery | KJ | 0 | 5 | 0 |
| Dulais Tributary | Betws Bledrws | MJ | .0 | 1 | 0 |

| River | Site | Sorter | Losses | Gains | Omisions |
|-----------------|-------------------------------|--------|--------|-------|----------|
| Afon Tawe | d/s Llandovery CSO | AK | 1 | 3 | 0 |
| Duar | d/s Teifi Valley Fish Farm | MJ | 0 | 0 | 0 |
| Lliw | u/s BSC Bryngwyn | MJ | 0 | 0 | 0 |
| Neath | u/s Resolven STW | KJ | 0 | 2 | 0 |
| Lugg | d/s Boultibrook Fish Farm | NS | 0 | 1 | 0 |
| Nant Draethen | d/s Draethen Fish Farm 1 | PC | 0 | 0 | 0 |
| Nant Draethen | d/s Draethen Fish Farm 2 | PC | 0 | 0 | 0 |
| Nant Rhyd Halog | u/s Forest Wood Quarry | PC | 0 | 0 | 0 |
| Rhymney | Llechryd | NS | 0 | 0 | 0 |
| Rhymney | The Mill | AT | 0 | 1 | 0 |
| Rhymney | Ystrad Mynach | PC | 0 | 0 | 0 |
| Nant-y-Aber | Caerphilly | AT | 0 | 0 | 0 |
| | | | | , | |

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TABLE 4. The 7 autumn samples audited for Welsh Region.

| River | Site | Sorter | Losses | Gains | Omissions |
|-------------------|----------------------|--------|--------|-------|-----------|
| Soden | d/s Nanternis STW | KJ | 0 | 3 | 0 |
| Gorrey Fach | d/s Confluence | KJ | 1 | 1 | 0 |
| Camddwr Fach | u/s Swydd Fynnon STW | MJ | 0 | 2 | 0 |
| Cleddau Tributary | u/s Right Tributary | DB | 0 | 2 | 0 |
| Wyre | u/s Llangwyfron STW | KJ | 0 | 4 | 0 |
| Wyre Tributary | u/s Lledrod STW | MJ | 0 | 2 | 0 |
| Teifi | Pontrhydfendieiad | MJ | 0 | 0 | 0 |

APPENDIX

Results of individual sample audits

| REC | SION | Welsh | RIVER | Rhymney | | | |
|-----|---|---|---|---------|--|--|--|
| I | DATE | 26.4.94 | SITE | Pengan | 1 | | |
| SOE | RTER | PC | CODE | NRA08 | E250/01 | | |
| A | i) I | VIAL Eerences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | BMWP FAMILIES FOUND BY IFF 1 Leptoceridae | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 0 OMISSIONS 0 NOTES: 1 Specimen of Mystacides sp. was dead at time sample was taken. | | | | | | |

| REC | CION | Welsh | RIVER | Colwy | 2 |
|--|---|--|---|-------------|----------------------------------|
| 1 | DATE | 11.5.94 | SITE | Beddge | elert |
| SOI | RTER | RAC | CODE | NRA08 | N044 |
| | | | | | |
| A | | VIAL | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE |
| | Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found | | None | | None |
| | : | in VIAL by IFE | | * | · |
| _ ' | | | | | |
| В | | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE |
| | | SAMPLE | | | 1 Lepidostomatidae |
| | i) 1 (ii) 1 | Ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE | (This box is only completed when no vial is supplied with the sample) | | |
| | | | | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 | | | | | |
| Γ | | idestone birtur 1 | | | |
| | T Fel | pidostoma hirtum 1 onl | · Y | | |

| RE | GION Welsh | RIVER Dwyr | yđ | | | |
|---------|--|-------------------------------------|----------------------------------|--|--|--|
| j | DATE 16.5.94 | SITE d/s | Cynfal | | | |
| so | RTER JB | CODE NRAO | 8 N035 | | | |
| | | | | | | |
| A | VIAL | BMWP FAMILIES NOT FOUND BY IFE | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | None | None | | | |
| П | - | 1 | 1 | | | |
| В | | BMWP FAMILIES NOT FOUND BY IFE | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | SAMPLE | | 1 Hydrobiidae | | | |
| | Differences between: i) BMWP families listed | (This box is only completed when no | 2 Dytiscidae 3 Hydrophilidae | | | |
| | on sample data sheet | vial is supplied | 4 Tipulidae | | | |
| | and ii) BMWP families found | with the sample) | | | | |
| | in SAMPLE by IFE | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| * i* | Taxa recorded on data sheen sample (omissions) | t but absent from vial | l and found by I.F.E. | | | |
| | | | | | | |
| NC | NET LOSSES 0 NET GAINS 4 OMISSIONS 0 | | | | | |
| | 1 Potamopyrgus jenkinsi 1 only | | | | | |
| | 2 Oreodytes sanmarkii (adu 3 Hydraena gracilis (adult | | • | | | |
| | 4 Dicranota sp. 1 only | , L only | | | | |
| | | | | | | |
| | | | | | | |
| Ĺ | | | | | | |

| REGIO | ON Welsh | RIVER | Тwymyn | | | |
|--|--|---|--|--|--|--|
| DAT | TE 16.5.94 | SITE [| Bont Dolgadfan | | | |
| SORTE | ER RAC | CODE | NRA08 N015 | | | |
| i | VIAL Differences between: i) BMWP families listed on sample data sheet and i) BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFE 1 Oligochaeta 2 Asellidae | | | | |
| i | SAMPLE Differences between: 1) BMWP families listed on sample data sheet and 2) BMWP families found in SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is only completed when wial is supplied with the sample | FOUND BY IFE 3 Cordulegasteridae 4 Limnephilidae no 5 Goeridae d | | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 2 NET GAINS 3 OMISSIONS 0 NOTES: 2 Terrestrial Isopod in vial 3 Cordulegaster boltonii 1 only 4 Indet Limnephilid (juvenile) 1 only 5 Silo pallipes | | | | | | |

| REG1 | ION | Welsh | RIVER | Pryso | r | | |
|------|--|---|---|---------------|--|--|--|
| DA | ATE | 16.5.94 | SITE | u/s T | rawsfynydd STW | | |
| SORT | rer | MDW | CODE | NRA08 | N037 | | |
| | i) E | VIAL Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| | i) E .i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFF (This box is onl completed when vial is supplie with the sample | y no ad | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | |

| REG | GION Welsh | RIVER Afon | Leri | | | | |
|-----|--|---|--|--|--|--|--|
| Ι | DATE 11.5.94 | SITE Dolyl | bont | | | | |
| SOF | RTER JB | CODE NRAO | 3 N004 | | | | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | BMWP FAMILIES NOT FOUND BY IFE None | ADDITIONAL FAMILIES FOUND BY IFE None | | | | |
| В | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | EMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | ADDITIONAL FAMILIES FOUND BY IFE None | | | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | |

| REC | GION | Welsh | RIVER | Nant 1 | Alltwalis | |
|--|------|---|---|--------|----------------------------------|--|
| DATE 11.5.94 | | 11.5.94 | SITE | d/s Si | rw | |
| soi | RTER | ĸĵ | CODE | NRA08 | (B648/1A) | |
| A | | VIAL | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE | |
| | i) 1 | Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | 1 Psychomyiidae | | None | |
| В | | SAMPLE | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE | |
| | i) 1 | Ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE | (This box is only completed when no vial is supplied with the sample) | | None | |
| | | | · | | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 0 OMISSIONS 0 | | | | | | |
| NC | TES: | | | | | |
| | | · | | | | |

| REGION Welsh | | RIVER | Nant- | Nant-y-Aber | | |
|---|---|---|--|---|--|--|
| DATE | 27.4.94 | SITE | Abert | ridwr | | |
| RTER | NS | CODE | NRA08 | E259 | | |
| | | | | | | |
| | VIAL | l | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found | | None | | None | | |
| Ė | in VIAL by IFE | | | | | |
| | | | | | | |
| 3 | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| i) I | Serences between: SMWP families listed on sample data sheet and SMWP families found | (This box is only completed when no vial is supplied with the sample) | | None | | |
| | | et but absent fro | om vial | and found by I.F.E. | | |
| NET LOSSES 0 NET GAINS 0 OMISSIONS 0 | | | | | | |
| | | ordulegasteridae | "not in | vial". Not found by | | |
| | Diffi i) I ii) I iii) I Taxa a samp | DATE 27.4.94 VIAL Differences between: i) BMWP families listed on sample data sheet and in VIAL by IFE SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE Taxa recorded on data sheet sample (omissions) NET LOS | DATE 27.4.94 SITE VIAL BMWP FAMILIES FOUND BY IFF Differences between: i) BMWP families listed on sample data sheet and in VIAL by IFE Differences between: i) BMWP families found in VIAL by IFE CAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families listed on sample data sheet with the sample of the sample (omissions) Taxa recorded on data sheet but absent from sample (omissions) NET LOSSES 0 NET GAMPLES: Note on data sheet that Cordulegasteridae | VIAL VIAL Differences between: i) BMWP families listed on sample data sheet and in VIAL by IFE Differences between: i) BMWP families found in VIAL by IFE SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE Taxa recorded on data sheet but absent from vial a sample (omissions) NET LOSSES 0 NET GAINS ONES STEEN. | | |

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|--------------|--|---|---|--------|--|--|
| REGION Welsh | | Welsh | RIVER | Gledyr | | |
| I | DATE | 27.4.94 | SITE | Caerpl | hilly | |
| sor | RTER | ΑT | CODE | NRA08 | E256 | |
| A | i) H | VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found In VIAL by IFE | BMWP FAMILIES FOUND BY IF | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | |

| REC | SION | Welsh | RIVER | Rhymn | эу | |
|-----|--|---|---|--------|---|--|
| 1 | DATE | 26.4.94 | SITE | Tirph: | iı | |
| SOF | RTER | АТ | CODE | NRA08 | E350 | |
| A | i) F | VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found In VIAL by IFE | BMWP FAMILIES FOUND BY IFF None | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| В | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE 1 Glossiphoniidae | |
| | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Glossiphonia complanata 1 only | | | | | |

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|---|--|--|---|--------|----------------------------------|--|
| REGION Welsh | | Welsh | RIVER | Afon I | Afon Dyfi | |
| | DATE | 19.5.94 | SITE | B4404 | Bridge | |
| so | RTER | JB | CODE | NRA08 | N003 | |
| | | | | | | |
| A | | VIAL | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE | |
| | Differences between: i) BMWP families listed on sample data sheet and | | None | 1.00 | 1 Leuctridae | |
| | | BMWP families found in VIAL by IFE | | | | |
| _ | | | | | | |
| В | | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | |
| | SAMPLE Differences between: i) BMWP families listed on sample data sheet and | | (This box is only completed when no vial is supplied with the sample) | | 2 Planariidae 3 Caenidae | |
| | 1 ' | BMWP families found n SAMPLE by IFE | | | | |
| | | | | | | |
| | | recorded on data sheele (omissions) | et but absent fro | m vial | and found by I.F.E. | |
| N | OTES: | NET LOS | SSES 0 NET GA | INS 3 | OMISSIONS 0 | |
| 1 Leuctra inermis, L.moselyi 2 Crenobia alpina 3 Caenis rivulorum | | | | | | |
| | | | | | | |
| | | | | | | |

| REG | HON | Welsh | RIVER | Nantc | 01 | |
|----------|--|---|---|-------|---|--|
| Ι | ATE | 12.5.94 | SITE | Cwm N | antcol | |
| SOF | RTER | Ј В | CODE | NRA08 | N033 | |
| A | i) I | VIAL Serences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE 1 Lymnaeidae 2 Ephemerellidae 3 Hydrophilidae | |
| in NO | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 3 OMISSIONS 0 NOTES: 1 Lymnaea peregra 1 only 2 Ephemerella ignita 3 Hydraena gracilis (adults) | | | | | |

| REC | CION | Welsh | RIVER | Afon Glyn | | | |
|----------|--|---|---|-----------|---|--|--|
| I | ATE | 12.5.94 | SITE | Pont- | y-Glyn | | |
| SOF | RTER | RAC . | CODE | | | | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE BMWP FAMILIES NOT FOUND BY IFE None | | ADDITIONAL FAMILIES FOUND BY IFE None | | | | |
| В | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE 1 Ancylidae | | |
| in NO | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Ancylus fluviatilis 1 only | | | | | | |

| | | | - | | | |
|-----|--|---|---|---------------|--|--|
| RE | GION | Welsh | RIVER | Dulas | North | |
| 1 | DATE | 19.5.94 | SITE | Glan 1 | Fechan | |
| soi | RTER | MW | CODE | NRA08 | N009 | |
| A | i) 1 (| VIAL Ferences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | y no ed | ADDITIONAL FAMILIES FOUND BY IFE 1 Hydrophilidae 2 Elmidae 3 Tipulidae 4 Chironomidae | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 4 OMISSIONS 0 NOTES: 1 Hydraena gracilis (adult) 1 only 2 Esolus parallelepipedus (adult + larva) 3 Dicranota sp. 1 only 4 Indet Orthocladiinae, Diamesinae | | | | | |

| REGION Welsh | | Welsh | RIVER | Glas Lyn | | |
|--------------|---|---|---|----------|---|--|
| 1 | DATE | 11.5.94 | SITE | Pont (| Croesor | |
| soi | RTER | MW | CODE | NRA08 | N034 | |
| A | i) I (ii) F | VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | Y no | ADDITIONAL FAMILIES FOUND BY IFE 1 Hydroptilidae | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Ithytrichia lamellaris 1 only | | | | | |

| REGION Welsh | | RIVER Das | | Dafen | |
|--------------|---|--|--------|----------------------------------|--|
| 3 | DATE 17.5.94 | SITE | d/s Ro | oad bridge | |
| SOI | RTER KJ | CODE | NRA08 | W092 | |
| | | | | | |
| A | VIAL | BMWP FAMILIES FOUND BY IF | | ADDITIONAL FAMILIES FOUND BY IFE | |
| | Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | 1 Tipulidae | | None | |
| · | | | | 19-74-01-01 | |
| В | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | |
| | SAMPLE | , | | 2 Physidae | |
| | Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | (This box is only completed when no vial is supplied with the sample) | | 2 Physidae | |
| | Taxa recorded on data sheen sample (omissions) | et but absent fro | m vial | and found by I.F.E. | |
| | NET LOS | SSES 1 NET GA | ins 1 | OMISSIONS 0 | |
| | 1 Indet Dolichopodid in vi 2 Physa sp. (decalcified j | | | | |
| | | | | | |

| REG | GION | Welsh | RIVER | Taf B | argoed | |
|-----|---|---|--|-------|-----------------------------------|--|
| 1 | DATE | 2.3.94 | SITE | u/s T | relewis | |
| SOI | RTER | мс | CODE | | | |
| A | | VIAL | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | |
| | i) E | erences between: MWP families listed on sample data sheet and MWP families found on VIAL by IFE | 1 Lymnaeidae | | 2 Hydrobiidae | |
| В | | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | |
| | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | rences between: WP families listed sample data sheet and with the sample) WP families found (This box is only completed when no vial is supplied with the sample) | | 3 Leptophlebiidae 4 Perlodidae | |
| | , , | | <u> </u> | | <u> </u> | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 3 OMISSIONS 0 NOTES: 2 Potamopyrgus jenkinsi | | | | | |
| | 3 Par | aleptophlebia cincta perla grammatica 1 on | | | | |
| | | | | • | | |

| GION Welsh | RIVER Maend | y Tip Survey | | | |
|--|---|---|--|--|--|
| DATE 22.3.94 | SITE Site | 2 | | | |
| RTER MC | CODE | | | | |
| | • | | | | |
| VIAL | BMWP FAMILIES NOT FOUND BY IFE | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | None | None | | | |
| | BMWP FAMILIES NOT FOUND BY IFE | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | (This box is only completed when no vial is supplied with the sample) | 1 Ancylidae 2 Psychomyiidae | | | |
| | | | | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) | | | | | |
| NET LOS | SES 0 NET GAINS | 2 OMISSIONS 0 | | | |
| 1 Ancylus fluviatilis 2 Lype sp. 1 only | | | | | |
| | DATE 22.3.94 VIAL Differences between: i) BMWP families listed on sample data sheet and in VIAL by IFE SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE Taxa recorded on data sheet sample (omissions) NET LOS | DATE 22.3.94 SITE Site CODE VIAL Differences between: i) BMWP families listed on sample data sheet and in VIAL by IFE Differences between: i) BMWP families found in VIAL by IFE CAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE Taxa recorded on data sheet but absent from vial asample (omissions) NET LOSSES 0 NET GAINS TES: | | | |

To the substitute of the control of

| REG | CON | Welsh | RIVER | Norton | n Brook | | |
|-----|--|---|---|--------|---------------------------------------|--|--|
| I | ATE | 14.7.94 | SITE | u/s No | orton (Old) STW | | |
| SOF | RTER | NS | CODE | NRA08 | STWE154U/S | | |
| A | VIAL Differences between: | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| | ii) : | BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | | | | | |
| В | | | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) ; | SAMPLE ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE | (This box is only completed when no vial is supplied with the sample) | | None | | |
| | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 | | | | | | |
| NC | OTES: | | | | | | |

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and control to the control of the control and and the control of the control o

| REGION | | Welsh | RIVER | Colds | tone Brook | | |
|---|--|---|---|---------------|--|--|--|
| 1 | DATE | 26.7.94 | SITE | đ/s K | ingstone & Madley STW | | |
| SOI | RTER | АТ | CODE NRA08 | | STWE151D/S | | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | | BMWP FAMILIES NOT FOUND BY IFE None | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | Y no ed | ADDITIONAL FAMILIES FOUND BY IFE 1 Ephemerellidae | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Ephemerella ignita 1 only | | | | | | | |

| REGION | | Welsh | RIVER | Coldst | tone Brook | |
|--|--|---|---|--------|---|--|
| DATE | | 26.7.94 | SITE | u/s K | ingstone & Madley STW | |
| SORTER | | АT | CODE | NRA08 | STWE151U/S | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | | BMWP FAMILIES NOT FOUND BY IFE 1 Chironomidae* | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| | | | | | | |
| В | i) I | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE 2 Chironomidae* | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 1 NOTES: 2 Tanypodinae, Orthocladiinae, Tanytarsini | | | | | | |

THE PROPERTY OF THE PROPERTY O

| REGION | | Welsh | RIVER | Pant I | Brook |
|---|--|---|---|----------------|--|
| I | ATE | 4.7.94 | SITE | u/s L | landdewi Rhydderch STW |
| SOF | RTER | NS | CODE | NRA08 | STWE152U/S |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | | BMWP FAMILIES NOT FOUND BY IFE 1 Oligochaeta* | | ADDITIONAL FAMILIES FOUND BY IFE None |
| | | | | | |
| В | i) : | SAMPLE ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE | BMWP FAMILIES FOUND BY IFF (This box is onlongleted when vial is supplied with the sample) | Ly no ed | ADDITIONAL FAMILIES FOUND BY IFE 2 Oligochaeta* |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 1 NOTES: 2 Indet Tubificidae | | | | | |

| REC | GION | Welsh | RIVER | Un-naı | med Stream | |
|--|---|---|---|--------|---|--|
| DATE | | 29.7.94 | SITE | u/s P | en-y-Stryt STW | |
| SOF | RTER | ЈВ | CODE | NRA08 | (\$33) | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | | BMWP FAMILIES NOT FOUND BY IFE None | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE 1 Planariidae 2 Sphaeriidae | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES: 1 Polycelis felina 1 only 2 Pisidium sp. | | | | | | |

| RE | GION Welsh | RIVER | Un-nam | ed Stream | | |
|----|---|-------|----------------|---|--|--|
|] | DATE 1.8.94 | SITE | u/s St | .Asaph STW | | |
| so | RTER JB | CODE | NRA08 | (S39) | | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | III | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | | Ly no ed | ADDITIONAL FAMILIES FOUND BY IFE 1 Nemouridae 2 Elmidae 3 Leptoceridae | | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 3 OMISSIONS 0 NOTES: 1 Protonemura sp. (juvenile) 1 only 2 Elmis aenea, Limnius volckmari, Esolus parallelepipedus (adults + larvae) 3 Athripsodes sp. (pupa) 1 only | | | | | |

| REG | HON | Welsh | RIVER | Un-nar | med Stream | | |
|-----|--|---|---|--------|--|--|--|
| I | DATE | 27.7.94 | SITE | u/s B | ryn Du STW | | |
| SOF | RTER | MW | CODE | NRA08 | (S23) | | |
| A | i) P | VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found In VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | |

| REC | GION | Welsh | RIVER | Un-nai | med Stream | | |
|---------|--|---|---|---------|----------------------------------|--|--|
| I | DATE | 2.8.94 | SITE | u/s L | laniestyn STW | | |
| SOI | RTER | MDW | CODE | NRA08 | (S49) | | |
| A | · · · · · · · · · · · · · · · · · · · | VIAL | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) I (ii) I | erences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | None | | None | | |
| В | | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | (This box is onl completed when vial is supplie with the sample | no d | None | | |
| * in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) | | | | | | |
| NO | TES: | NET LOS | SSES 0 NET GA | INS 0 | O OMISSIONS 0 | | |
| | | | | | | | |

| REC | GION Welsh | RIVER | Un-nam | ed Stream | | | |
|-----|--|---|--------------|---|--|--|--|
| 1 | DATE 2.8.94 | SITE | u/s He | nllan STW | | | |
| SOI | RTER RAC | CODE | NRA08 | (\$67) | | | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFE 1 Dytiscidae* | | ADDITIONAL FAMILIES FOUND BY IFE 2 Sialidae | | | |
| В | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | y no đ | ADDITIONAL FAMILIES FOUND BY IFE 3 Leuctridae 4 Dytiscidae* 5 Rhyacophilidae | | | |
| NO | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 3 OMISSIONS 1 NOTES: 2 Sialis fuliginosa 3 Leuctra fusca 1 only 4 Oreodytes sanmarkii (adult) 1 only 5 Rhyacophila dorsalis (pupae) | | | | | | |

| REC | GION Welsh | RIVER | Ceri | | | |
|--|--|---|--------|---|--|--|
| 1 | DATE 5.8.94 | SITE | u/s Ri | ydlewis STW | | |
| son | RTER MJ | CODE | NRA08 | (B773/111D) | | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE 1 Planariidae | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: | | | | | | |

| RE | GION | Welsh | RIVER | Clyda | ch | | |
|-----|--|---|---|-------|--|--|--|
| 1 | DATE | 19.7.94 | SITE | đ/s F | forestgoch STW | | |
| SOI | RTER | DB | CODE | NRA08 | (B750/87C) | | |
| A | i) I | VIAL Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE 1 Lepidostomatidae | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: | | | | | | |

| REC | GION | Welsh | RIVER | Cress | well Tributary | | |
|-----|--|---|---|--------|---|--|--|
| I | DATE | 21.7.94 | SITE | u/s La | angdon STW | | |
| SOF | RTER | B | CODE | NRA08 | (B737/103D) | | |
| A | i) BM on ii) BM | VIAL rences between: WP families listed sample data sheet and WP families found VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) BM on ii) BM | SAMPLE rences between: WP families listed sample data sheet and WP families found SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE 1 Sphaeriidae | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Pisidium sp. | | | | | | |

| REC | ON | Welsh | RIVER | Morge | nnau Tributary | | |
|----------|--|---|---|--------------|---|--|--|
| I | DATE | 5.8.94 | SITE | u/s Bo | oncath STW | | |
| SOF | RTER | AK/KJ | CODE | NRA08 | (B766/62C) | | |
| A | i) F (ii) F | VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) F | SAMPLE Eerences between: BMWP families listed on sample data sheet and BMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | y no d | ADDITIONAL FAMILIES FOUND BY IFE 1 Glossiphoniidae | | |
| in NO | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Glossiphonia complanata 1 only | | | | | | |

| REC | GION | Welsh | RIVER | Cryml | yn Tributary | | |
|-----|--|--|--|----------------|---|--|--|
| 1 | DATE | 1.6.94 | SITE | đ/s G | as pipeline | | |
| SOF | RTER | кј | CODE | NRA08 | (B684/1A) | | |
| А | i) I (ii) I | VIAL Eerences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFF 1 Cordulegaster 2 Simuliidae | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) I (ii) I | SAMPLE Eerences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE | BMWP FAMILIES FOUND BY IFF (This box is onloompleted when vial is supplied with the sample) | Ly no ed | ADDITIONAL FAMILIES FOUND BY IFE 3 Hydrophilidae | | |
| | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 2 NET GAINS 1 OMISSIONS 0 NOTES: 3 Anacaena globulus (adult) 1 only | | | | | | |

| REC | GION Welsh | RIVER Ma | rlas | | | |
|--|---|---|----------------------------------|--|--|--|
| I | DATE 24.8.94 | SITE Ca | rme1 | | | |
| SOI | RTER MJ | CODE NR | A08 (B844/116D) | | | |
| A | VIAL | BMWP FAMILIES NOT | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | 1 Asellidae | None | | | |
| В | | BMWP FAMILIES NOT | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | (This box is only completed when no vial is supplied with the sample) | 2 Perlodidae | | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 1 OMISSIONS 0 | | | | | | |
| | 1 Terrestrial Isopod in vial 2 Indet Perlodid (juvenile) 1 only | | | | | |
| | • | | | | | |

| REGION Welsh | | Welsh | RIVER | Nant- | y-Wilcae | | |
|--------------|---|---|---|--------------|----------------------------------|--|--|
| 1 | DATE | 4.7.94 | SITE | Ragla | n | | |
| | | | . | · | | | |
| SOI | RTER | PC | CODE | NRA08 | STW E137 U/S | | |
| | | | | | | | |
| A | | VIAL | BMWP FAMILIES FOUND BY IF | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) I | ferences between: BMWP families listed on sample data sheet | None | | None | | |
| | | and BMWP families found in VIAL by IFE | | | | | |
| | | | | | | | |
| В | | | BMWP FAMILIES FOUND BY IF | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | | SAMPLE | | | | | |
| | Differences between: (This b i) BMWP families listed comple on sample data sheet vial i | | (This box is only completed when vial is supplied with the sample | no ed | None | | |
| | | | | | | | |
| * | Taxa | recorded on data shee | et but absent fro | om vial | and found by I.F.E. | | |
| | | ole (omissions) | | - | | | |
| | | | | <u> </u> | | | |
| NC | TES: | NET LOS | SSES 0 NET GA | AINS | O OMISSIONS 0 | | |
| | | | | | | | |
| | | | | | | | |
| - | | | | |] | | |

| REC | HON | Welsh | RIVER | Howey | Brook | | |
|-----|--|---|---|-------|--|--|--|
| r | ATE | 5.7.94 | SITE | Howey | STW | | |
| SOF | RTER | PC | CODE | NRA08 | STW E149 D/S | | |
| A | i) E | VIAL Eerences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) F (ii) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | |

| REC | SION | Welsh | RIVER | Caled | Frwid | | |
|-----|--|---|---|--------------|---------------------------------------|--|--|
| I | DATE | 2.8.94 | SITE | u/s B | ryn Refail STW | | |
| SOF | TER | RAC | CODE | | | | |
| | | | | | | | |
| A | | VIAL | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) F | erences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | None | | None | | |
| В | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | y no d | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | |
| | | | | | | | |

| REG | HOI | Welsh | RIVER | Afon | Merddwr Tributary | | |
|-----|--|---|---|--------------|--|--|--|
| r | ATE | 5.8.94 | SITE | u/s G | lasfryn STW | | |
| SOR | RTER | RAC | CODE | | | | |
| A | i) 1 (ii) 1 | VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | y no d | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | |

| REC | GION | Welsh | RIVER | Afon | Aled | | |
|----------|---|---|---|--------------|---|--|--|
| 1 | DATE | 2.8.94 | SITE | u/s L | lansannan STW | | |
| SOI | RTER | JВ | CODE | | | | |
| A | i) I (ii) I | VIAL Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | Y no đ | ADDITIONAL FAMILIES FOUND BY IFE 1 Gammaridae 2 Ephemerellidae | | |
| in NO | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES: 1 Gammarus pulex 2 Ephemerella ignita | | | | | | |

| REGIO | Welsh | RIVER | Byr B | rook | | |
|--|---|-----------------------|-------|---|--|--|
| DATI | 29.7.94 | SITE | u/s T | reuddyn STW | | |
| SORTE | R MW | CODE | | | | |
| VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | | FOUND BY IFE FOUND BY | | ADDITIONAL FAMILIES FOUND BY IFE 2 Limnephilidae | | |
| i) | SAMPLE fferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE | ı, – | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 1 OMISSIONS 0 2 Indet Limnephilid (juvenile) | | | | | | |

| RE | GION | Welsh | RIVER | Nant | Comeliw | | |
|----------|--|---|---|---------|---|--|--|
| 1 | DATE | 2.8.94 | SITE | u/s G | roes Bronallt STW | | |
| soi | RTER | MW | CODE | | | | |
| A | i) I | VIAL Serences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFF 1 Valvatidae | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | y no | ADDITIONAL FAMILIES FOUND BY IFE 2 Ephemerellidae 3 Hydropsychidae | | |
| in NO | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 2 OMISSIONS 0 NOTES: 1 Terrestrial snail (Euconulidae) in vial 2 Ephemerella ignita 3 Hydropsyche sp. (juveniles) | | | | | | |

| ~~ | GTOV Walsh | 7 | D-1-4 | |
|----------------|--|--------------------------------|---------|-----------------------------------|
| REGION Welsh | | RIVER | Dulais | |
| DATE 27.7.94 | | SITE | d/s Or | nllwyn Coal Washery |
| so | RTER KJ | CODE | NRA08 | D/S IND DIS |
| | | | | |
| A | VIAL | BMWP FAMILIES FOUND BY IF | | ADDITIONAL FAMILIES FOUND BY IFE |
| | Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found | None | | None |
| | in VIAL by IFE | | | · |
| _ | | | | |
| В | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE |
| | SAMPLE | | | 1 Sphaeriidae |
| | Differences between: | (This box is onl | | 2 Oligochaeta |
| | i) BMWP families listed on sample data sheet | completed when vial is supplie | | 3 Glossiphoniidae 4 Dytiscidae |
| | and | with the sample | | 5 Hydropsychidae |
| | ii) BMWP families found in SAMPLE by IFE | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | Taxa recorded on data sheen sample (omissions) | at but absent fro | om vial | and found by I.F.E. |
| | - | | | |
| N ^c | OTES: | SSES 0 NET GA | LINS 5 | omissions 0 |
| | 1 Pisidium sp. 1 only 2 Nais sp. 1 only 3 Glossiphonia complanata 4 Agabus sp. (larvae) 5 Hydropsyche sp. (pupa) 1 | | | |
| | Data sheet labelled 27.7.9 | 94, sample pot la | belled | 22.7.94 |

| REC | CION | Welsh | RIVER | Dulai | s Tributary | | |
|-----|--|---|---|----------|----------------------------------|--|--|
| I | DATE | 18.8.94 | SITE | u/s B | etws Bledrws | | |
| SOI | RTER | MJ | CODE | NRA08 | u/s STW | | |
| _ | | | | | | | |
| A | | VIAL | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) F | Terences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | None | | None | | |
| В | | · | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) F (ii) F | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | (This box is onl completed when vial is supplie with the sample | no ed | 1 Nemouridae | | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: | | | | | | |
| | | otonemura sp. (juvenil | e) 1 only | | | | |

| REC | ROI | Welsh | RIVER | Afon ! | Tawe | | |
|-----|--|---|---|---------------|---|--|--|
| I | DATE | 18.8.94 | SITE | u/s L | landovery CSO | | |
| sor | RTER | AK | CODE | NRA08 | cso | | |
| A | i) 1 | VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFF 1 Odontoceridae | <u> </u> | ADDITIONAL FAMILIES FOUND BY IFE 2 Limnephilidae | | |
| В | i) ; | SAMPLE ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | Y no ad | ADDITIONAL FAMILIES FOUND BY IFE 3 Lepidostomatidae 4 Sericostomatidae | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 3 OMISSIONS 0 NOTES: 2 Ecclisopteryx guttulata 3 Lasiocephala basalis 4 Sericostoma personatum 1 only | | | | | | |

| REG | SION Welsh | RIVER | Duar | |
|-----|--|---|--------|--|
| I | DATE 8.8.94 | SITE | đ/s Te | ifi Valley Fish Farm |
| SOF | RTER MJ | CODE | NRA08 | D/S IND DIS |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None |
| В | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE None |
| in | Taxa recorded on data sheen sample (omissions) NET LOS | | | - |

| | | Welsh | 7.7. | Lliw | | | |
|-----|--|---|---|-------|--|--|--|
| KEG | SION | MATRII | RIVER | DITA | | | |
| I | DATE | 25.8.94 | SITE | u/s B | SC Bryngwyn | | |
| SOF | RTER | мЈ | CODE | NRA08 | U/S IND | | |
| A | ii) 1 | VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IF | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| В | i) 1 | SAMPLE Ferences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | |

| REC | GION | Welsh | RIVER | Neath | | |
|-----|---|---|---|---------------|---|--|
| I | DATE | 22.7.94 | SITE | u/s Re | solven STW | |
| SOI | RTER | кј | CODE | NRA08 | U/S STW | |
| A | i) 1 (ii) 1 | VIAL Eerences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| В | Diffi i) 1 | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplied with the sample) | y no ed | ADDITIONAL FAMILIES FOUND BY IFE 1 Caenidae 2 Simuliidae | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES: 1 Caenis rivulorum 2 Simulium reptans | | | | | |

| REGI | ION | Welsh | RIVER | Lugg | | | |
|------|---|---|--|--------------|---|--|--|
| D# | ATE | 4.8.94 | SITE | d/s Bo | oultibrook Fish Farm | | |
| SORT | rer | NS | CODE | | | | |
| | i) E | VIAL Eerences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | BMWP FAMILIES FOUND BY IFE None | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | EMWP FAMILIES FOUND BY IFE (This box is only completed when yield is supplied with the sample | y no d | ADDITIONAL FAMILIES FOUND BY IFE 1 Erpobdellidae | | |
| мот | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Indet Erpobdellid (juvenile) 1 only | | | | | | |

| RE | GION | Welsh | RIVER | Nant I | Draethen |
|-----|--|--|---|--------|----------------------------------|
| 1 | DATE | 23.8.94 | SITE | d/s Di | raethen Fish Farm 1 |
| SOI | RTER | PC | CODE | | |
| | | | | | • |
| A | VIAL | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE |
| | i) I | Terences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE | None | | None |
| | | | | | |
| В | | | BMWP FAMILIES FOUND BY IFE | 4 | ADDITIONAL FAMILIES FOUND BY IFE |
| | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | | (This box is only completed when no vial is supplied with the sample) | | None |
| | | recorded on data shee | et but absent fro | m vial | and found by I.F.E. |
| NC | TES: | NET LOS | SES 0 NET GA | INS 0 | OMISSIONS 0 |
| | | | | | |
| | | | | | |

| REC | NOI | Welsh | RIVER | Nant 1 | Draethen |
|-----|--|--|---|----------|----------------------------------|
| I | ATE | 23.8.94 | SITE | d/s D | raethen Fish Farm 2 |
| SOF | RTER | PC | CODE | <u> </u> | |
| | | | | | |
| A | | VIAL | BMWP FAMILIES FOUND BY IF | | ADDITIONAL FAMILIES FOUND BY IFE |
| | i) 1 (ii) 1 | ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | None | | None |
| | | | l | | |
| В | | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE |
| | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | | (This box is only completed when no vial is supplied with the sample) | | None |
| | | | | | |
| in | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | |
| | | | | | |

| REC | GION | Welsh | RIVER | Nant l | Rhyd Halog | | |
|-----------|--|--|---|--------|----------------------------------|--|--|
| 1 | DATE | 24.8.94 | SITE | u/s Fo | orest Wood Quarry | | |
| SORTER PC | | PC | CODE | _ | · | | |
| A | VIAL | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) 1 (ii) 1 | erences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE | None | | None | | |
| В | | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) BMWP families listed con sample data sheet v | | (This box is only completed when no vial is supplied with the sample) | | None | | |
| | | | | | | | |
| | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) | | | | | | |
| NC | TES: | NET LOS | SSES 0 NET GA | INS 0 | OMISSIONS 0 | | |
| | | | | | | | |

| REGION Welsh | | Welsh | RIVER | Rhymn | ey | | | |
|--------------|--|--|---|-------|----------------------------------|--|--|--|
| 1 | DATE | 28.7.94 | SITE | Llech | ryd | | | |
| SORTER NS | | ns | CODE | NRA08 | E254 | | | |
| A | VIAL | | BMWP FAMILIES FOUND BY IFE | - | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | i) I (ii) I | Ferences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE | None | | None | | | |
| в | | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | | (This box is only completed when no vial is supplied with the sample) | | None | | | |
| | | | | | | | | |
| | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) | | | | | | | |
| | TES: | NET LOS | SSES 0 NET GA | INS 0 | OMISSIONS 0 | | | |
| | | | | | | | | |
| | | | | | | | | |

| RE | GION | ION Welsh RIVER Rhymney | | еу | |
|---------|--|-------------------------|---|--------|----------------------------------|
| 1 | DATE | 27.7.94 | SITE | The M | i11 |
| so | RTER | AT | CODE | NRA08 | E242 |
| | | | | | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | | BMWP FAMILIES FOUND BY IF | | ADDITIONAL FAMILIES FOUND BY IFE |
| | | | None | | None |
| П | | | | | |
| В | | GAMPI P | BMWP FAMILIES FOUND BY IFE | 1 | ADDITIONAL FAMILIES FOUND BY IFE |
| | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | | (This box is only completed when no vial is supplied with the sample) | | 1 Polycentropodidae |
| | | | | | |
| * i: | | recorded on data shee | et but absent fro | m vial | and found by I.F.E. |
| N | OTES: | NET LOS | SSES 0 NET GA | INS 1 | OMISSIONS 0 |
| | 1 Pol | ycentropus flavomacul | latus 1 only | | |
| | | | | | |
| | | | | | |

| RE | GION | Welsh | RIVER | Rhymne | эу | | | |
|-----------|--|--|---|--------|----------------------------------|--|--|--|
| 1 | DATE | 28.7.94 | SITE | Ystrac | i Mynach | | | |
| SORTER PC | | PC | CODE | NRA08 | E249 | | | |
| A | VIAL | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | i) I (ii) I | Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | None | | None | | | |
| В | | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | | |
| | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | | (This box is only completed when no vial is supplied with the sample) | | None | | | |
| | | | · | | | | | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 | | | | | | | |
| NC | OTES: | | • | | | | | |

| | | | | <u> </u> | |
|-----|--|---|---------|---------------------------------------|--|
| RE | GION Welsh | RIVER | Nant-y | /-Aber | |
| . 1 | DATE 28.7.94 | SITE | Caerph | nilly | |
| SOI | RTER AT | CODE | NRA08 | E258 | |
| A | VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | BMWP FAMILIES FOUND BY IFF | | ADDITIONAL FAMILIES FOUND BY IFE None | |
| В | SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | y no | ADDITIONAL FAMILIES FOUND BY IFE None | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: Leuctridae & Perlodidae ticked on data sheet and found by IFE in vial hence records accepted. However, no abundance categories allotted on data sheet and it appears that these families were excluded from the statistics for this site (18 taxa recorded instead of 20). | | | | |

| RE | SION | Welsh | RIVER | Soden | | | |
|-----|--|---|---|--------|---|--|--|
|) | DATE | 2.9.94 | SITE | d/s Na | anternis STW | | |
| SOI | RTER | ĸĴ | CODE | NRA08 | (B882/58C) | | |
| A | VIAL | | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) F | erences between: MWP families listed on sample data sheet and MWP families found on VIAL by IFE | None | | None | | |
| В | | | BMWP FAMILIES | NOT | ADDITIONAL FAMILIES | | |
| | i) E | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample) | | FOUND BY IFE 1 Lymnaeidae 2 Leptophlebiidae 3 Rhyacophilidae | | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 3 OMISSIONS 0 | | | | | | |
| | NOTES: 1 Lymnaea truncatula 1 only 2 Paraleptophlebia sp. (juveniles) 3 Rhyacophila dorsalis (pupa) 1 only | | | | | | |

| RE | GION | Welsh | RIVER | Gorre | y Fach | | |
|---------|--|--|-----------------------------------|--------|---------------------------------------|--|--|
| 1 | DATE | 13.10 94 | SITE | đ/s Co | onfluence | | |
| SO | RTER | кј | CODE | NRA08 | (B924/71C) | | |
| A | VIAL | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE | | 1 Sialidae | | 2 Baetidae | | |
| В | SAMPLE Differences between: | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | |
| | i) 1 (ii) 1 | BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE | | | | | |
| | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 1 OMISSIONS 0 | | | | | | |
| NO F | 2 Bae | etis rhodani | | | | | |

| REC | GION | Welsh | RIVER | Camddy | wr Fach | | |
|-----|--|--|---|--------|----------------------------------|--|--|
| I | DATE | 1.9.94 | SITE | u/s Sv | wydd Fynnon STW | | |
| SOF | SORTER MJ | | CODE | NRA08 | U/S STW | | |
| A | VIAL | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) 1 (ii) 1 | Gerences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE | None | | None | | |
| В | SAMPLE | | BMWP FAMILIES NOT FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE | | |
| | i) I | Serences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE | (This box is only completed when no vial is supplied with the sample) | | 1 Leuctridae 2 Leptoceridae | | |
| | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) | | | | | | |
| NC | TES: | NET LOS | SSES 0 NET GA | INS 2 | OMISSIONS 0 | | |
| | 1 Leuctra fusca 1 only 2 Athripsodes sp. (juvenile) 1 only | | | | | | |

| REGION Welsh RIVER Cleddau Tributa: | | au Tributary | | | | | | |
|-------------------------------------|--|---|---|--------------|--|--|--|--|
| 1 | DATE | 11.11.94 | SITE | u/s R | ight tributary | | | |
| soi | RTER | DB | CODE | | | | | |
| A | i) I | VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE | BMWP FAMILIES FOUND BY IFE | | ADDITIONAL FAMILIES FOUND BY IFE None | | | |
| В | i) I | SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE | BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample | y no đ | ADDITIONAL FAMILIES FOUND BY IFE 1 Ancylidae 2 Goeridae | | | |
| ir | * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 | | | | | | | |
| | 1 Ancylus fluviatilis 1 only 2 Silo pallipes 1 only Data sheet labelled 11.11.94, sample pot labelled 25.11.94 | | | | | | | |

| | | | _ | | |
|-----|-----------------------|-------------|---|----------|-----------------------|
| RE | GION Welsh | | RIVER | Wyre | |
| 1 | DATE 21.9.94 | | SITE | u/s L | langwyfron STW |
| | | | _ | | |
| SO | rter kj | | CODE | NRA08 | U/S STW |
| | | | | | |
| _ | | | | | |
| L. | | | | NOM | 1 3557575333 53477753 |
| A | | | BMWP FAMILIES | | ADDITIONAL FAMILIES |
| | VIAL | | FOUND BY IF | <u> </u> | FOUND BY IFE |
| | | | | | |
| | Differences between | : | None | | None |
| | i) BMWP families li | sted | - | | |
| | on sample data s | heet | | | |
| | and | | | | |
| | | _ | | | |
| | ii) BMWP families for | und | · | | • |
| | in VIAL by IFE | | · · | | · |
| | | | | | · |
| | | | | · | |
| _ | | , | ······································ | | |
| - l | | | BMWP FAMILIES | NOTE | ADDITIONAL DANIE THE |
| B | ļ · | | , | | ADDITIONAL FAMILIES |
| | | | FOUND BY IFE | S | FOUND BY IFE |
| | SAMPLE | | | | |
| | • | | • | , | 1 Gammaridae |
| | Differences between | : | (This box is on) | Lv | 2 Heptageniidae |
| | i) BMWP families li | hete | completed when | | 3 Leptoceridae |
| | on sample data si | | vial is supplie | | _ |
| | <u> </u> | Tear | | | 4 Lepidostomatidae |
| | and | | with the sample | ∍) | |
| | ii) BMWP families for | ınd | | | |
| | in SAMPLE by IFE | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
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| В | i) I | SAMPLE Ferences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE | n = | | ADDITIONAL FAMILIES FOUND BY IFE 1 Hydropsychidae 2 Lepidostomatidae | | | |
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| * Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES: | | | | | | | | |

