

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

NRA Northumbria & Yorkshire Region

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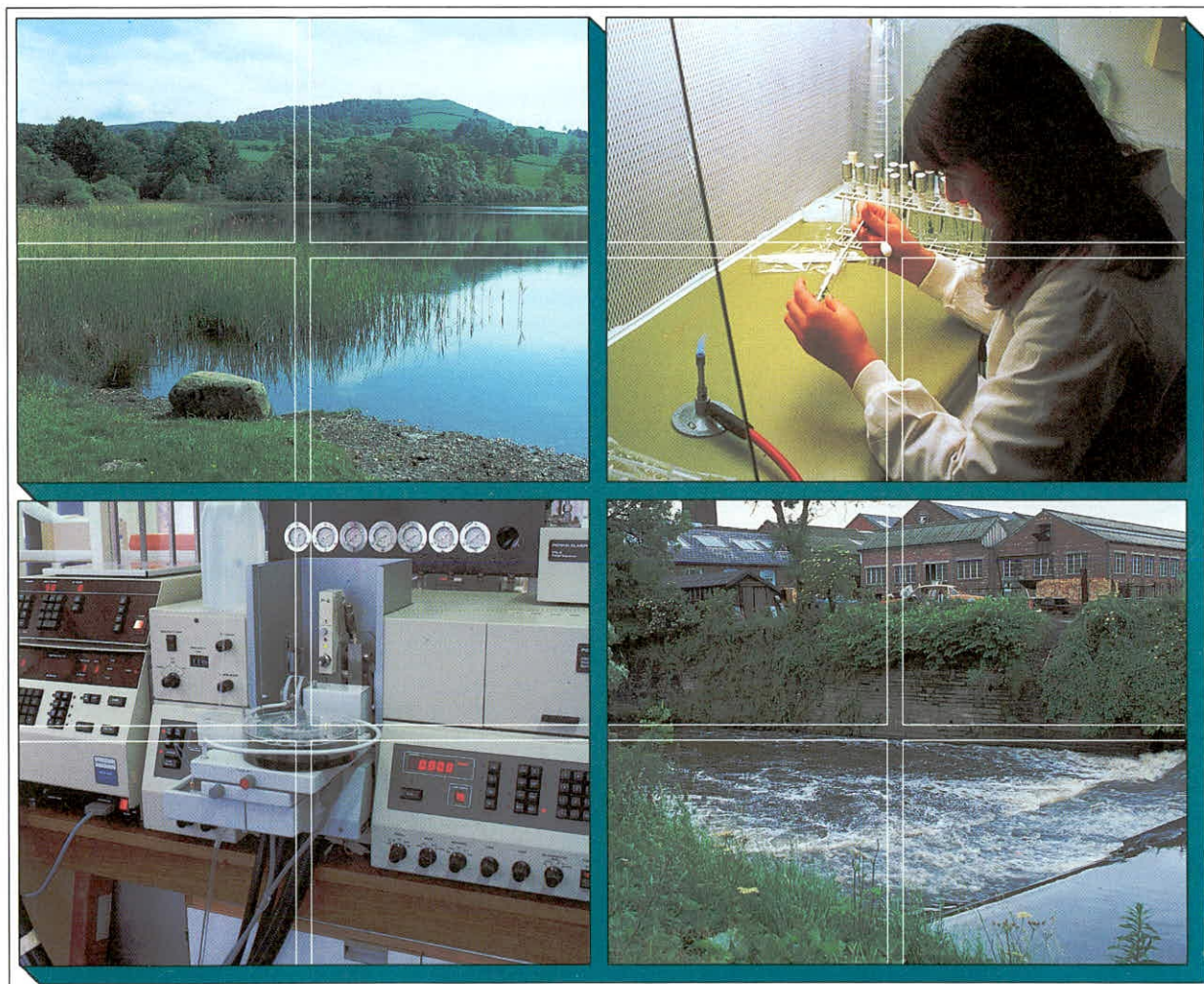
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Report To:

National Rivers Authority,
Northumbria & Yorkshire Region

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NRA Northumbria & Yorkshire Region

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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 54 samples audited for NRA Northumbria & Yorkshire 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.

TABLE 1. The IFE Report form

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	<input type="text"/>	RIVER	<input type="text"/>
DATE	<input type="text"/>	SITE	<input type="text"/>
SORTER	<input type="text"/>	CODE	<input type="text"/>

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		

B	SAMPLE	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

NET GAINS

OMISSIONS

NOTES:

TABLE 2. The 30 spring samples audited for Northumbria & Yorkshire Region.

River	Site	Sorter	Losses	Gains	Omissions
Warks Burn	B6320 Bridge	VW	0	0	0
Westerhope Burn	Westerhope	JH/VW	0	0	0
Wear	Bradley Hall	FC	0	1	0
Derwent	Allenford	FC	0	0	0
Burnhope Burn	u/s Edmund Bridge	VC	0	0	0
Pocklington Beck	Pocklington Wood	NL	0	1	0
Skerne	Travellers Rest	EA	0	3	0
Skerne	d/s Hurworth Burn Res.	EA	0	1	0
Tutt	Boroughbridge	JL	0	2	0
Mickle Ing Beck	u/s R. Wharfe	LG	0	0	0
Skerne	Cleveland Street	EA	0	1	0
Fenay Beck	d/s Footbridge	LFM	0	0	0
Knole Beck	Old Moor Bridge	LFM	0	0	0
Bradford Beck	Shipley	LBS	0	0	0
Porter	Endcliffe Park	JB	0	1	0
Pitty Beck	Leventhorpe Mill	VH	0	1	0
Porter	d/s Forge Dam	JB	0	2	0
Calder	Sowerby Bridge	VH	0	3	1
Croxdale	Croxdale House	FC	1	0	0
Mere Burn	Acklington	EC	0	4	0
Hull	Wilfholme	MR	1	2	0
Ella Dyke/Arram Beck	Arram	MW	0	1	1
West Beck	Bottoms	MR	0	2	0
Tarset Burn	Redmire	FC	1	2	1
Middlehope Burn	Westgate	JH	0	0	0
Coquet	Shaperton	FC	0	1	0
Catraw Burn	Stannington	FC	1	2	1
Wear	VS Gauwless	FC	0	4	0
Rede	W. Woodburn	VW	0	1	0
Twyzell Burn	B6313 Bridge	FC/EC	0	1	0

TABLE 3. The 9 summer samples audited for Northumbria & Yorkshire Region.

River	Site	Sorter	Losses	Gains	Omissions
Worth	d/s Providence Lane	RJJ	0	1	0
Aire	u/s Cononley Beck	RJJ	2	1	0
Dalton Beck	u/s Pollution source	EA	0	1	0
Wiske	Little Smeaton	FN	0	3	0
Ure	Boroughbridge	JC	0	2	0
Skell	Borage Bridge	JC	0	2	0
Collingham Beck	Collingham	LG	0	1	0
Greatham Beck	Greatham Bridge	EA	0	0	0
Wiske	East Harsley	FN	0	2	0

TABLE 4. The 15 autumn samples audited for Northumbria & Yorkshire Region

River	Site	Sorter	Losses	Gains	Omissions
Harden Beck	Harden	LBS	0	2	0
Lune	B6277 Bridge	EA	0	0	0
Wharfe	Hubberholme	FN	0	5	0
Swale	Hudswell	FN	0	5	0
Wiske	Kirby Wiske	JC	0	1	0
Little Don	Deepcar	JB	1	3	0
Burn	Masham	JC	1	2	0
Selby Dam	Selby	EA	0	0	0
Tees	Old Mine	EA	0	0	0
Clayton Beck	u/s Pitty Beck	VH	1	1	0
Fordyke Stream	Wawne	RJJ	2	3	0
Barmston Main Drain	Lissett	LM	0	1	0
West Beck	Corpslanding	LM	0	3	1
Mill Beck	Ellerker	RJJ	1	2	0
Old Howe	Foston	LM	0	4	0

APPENDIX

Results of individual sample audits

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Warks Burn
DATE	16.3.94	SITE	B6320 Bridge
SORTER	VW	CODE	21870

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

B	SAMPLE	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)	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

NOTES:

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Westerhope Burn
DATE	11.4.94	SITE	Westerhope
SORTER	JH/VW	CODE	22790

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

B	SAMPLE	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)	None

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Wear
DATE	19.4.94	SITE	Bradley Hall
SORTER	FC	CODE	22160

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	1 Tipulidae

B	SAMPLE	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)	None

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Dicranota sp.

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Derwent
DATE	25.4.94	SITE	Allenford
SORTER	FC	CODE	21380

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

B	SAMPLE	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)	None

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Burnhope Burn
DATE	22.4.94	SITE	u/s Edmund Bridge
SORTER	VC	CODE	21490

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

B	SAMPLE	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)	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

NOTES:

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EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Pocklington Beck
DATE	9.5.94	SITE	Pocklington Wood
SORTER	NL	CODE	

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

B	SAMPLE	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)	1 Glossiphoniidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Glossiphonia complanata 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Skerne
DATE	23.5.94	SITE	Traveller's Rest
SORTER	EA	CODE	

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

B	SAMPLE	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)	1 Planariidae 2 Planorbidae 3 Hydrophilidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

- 1 Polycelis nigra/tenuis
- 2 Bathyomphalus contortus 1 only
- 3 Hydraena gracilis (adult) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Skerne
DATE	19.5.94	SITE	d/s Hurworth Burn Reservoir
SORTER	EA	CODE	NRA10 5233

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

B	SAMPLE	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)	1 Hydrophilidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Anacaena globulus (adult) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Tutt
DATE	24.5.94	SITE	Boroughbridge
SORTER	JL	CODE	NRA10 0312

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

B	SAMPLE	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)	1 Asellidae 2 Baetidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Asellus aquaticus 1 only
2 Baetis vernus 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Mickle Ing Beck
DATE	16.3.94	SITE	u/s R.Wharfe
SORTER	LG	CODE	NRA10 2045

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

B	SAMPLE	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)	None

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Skerne
DATE	23.5.94	SITE	Cleveland Street
SORTER	EA	CODE	

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

B	SAMPLE	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)	1 Hydropsychidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Hydropsyche pellucidula 1 only

NRA have recorded Coenagrion scitulum on data sheet. This species is very rare and only recorded from Essex, last recorded in 1953. The specimen in the vial was Ischnura elegans

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Fenay Beck
DATE	11.5.94	SITE	d/s Footbridge
SORTER	LFM	CODE	NRA10 0149

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

B	SAMPLE	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)	None

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Knole Beck
DATE	17.2.94	SITE	Old Moor Bridge
SORTER	LFM	CODE	NRA10 0457

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

B	SAMPLE	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)	None

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Bradford Beck
DATE	17.3.94	SITE	Shipley
SORTER	LBS	CODE	NRA10 0047

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

B	SAMPLE	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)	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

NOTES:

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EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Porter
DATE	19.4.94	SITE	Endcliffe Park
SORTER	JB	CODE	NRA10 0241

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

B	SAMPLE	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)	1 Taeniopterygidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Brachyptera risi 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Pitty Beck
DATE	8.4.94	SITE	Leventhorpe Mill
SORTER	VH	CODE	NRA10 2205

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

B	SAMPLE	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)	1 Elmidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Elmis aenea (larva) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Porter
DATE	19.4.94	SITE	d/s Forge Dam
SORTER	JB	CODE	NRA10 2344

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

B	SAMPLE	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)	1 Polycentropodidae 2 Beraeidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Plectrocnemia sp. (juveniles)
2 Beraea maurus (pupa) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Calder
DATE	15.4.94	SITE	Sowerby Bridge
SORTER	VH	CODE	NRA10 2253

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 Asellidae*	None

B	SAMPLE	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)	2 Hydrobiidae 3 Asellidae* 4 Nemouridae 5 Hydropsychidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

2 Potamopyrgus jenkinsi 1 only
3 Asellus aquaticus
4 Nemoura cambrica, Amphinemura sulciicollis
5 Hydropsyche instabilis, Diplectrona felix

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Croxdale
DATE	10.5.94	SITE	Croxdale House
SORTER	FC	CODE	NRA02 2420

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 Simuliidae	None

B	SAMPLE	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)	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

NOTES:

1 Empty pupal skin in vial

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Mere Burn
DATE	13.4.94	SITE	Acklington
SORTER	EC	CODE	NRA02 0540

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

B	SAMPLE	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)	1 Planariidae 2 Baetidae 3 Leuctridae 4 Goeridae

* 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 Polycelis felina 1 only
- 2 Baetis rhodani 1 only
- 3 Leuctra nigra
- 4 Silo pallipes 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Hull
DATE	3.5.94	SITE	Wilfholme
SORTER	MR	CODE	NRA10 0911

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 Elmidae	2 Hydrophilidae

B	SAMPLE	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)	3 Dendrocoelidae

* 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:

2 Hydraena riparia (adult)
3 Dendrocoelum lacteum

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Ella Dyke/Arram Beck
DATE	13.5.94	SITE	Arram
SORTER	MW	CODE	

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 Planorbidae*	None

B	SAMPLE	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)	2 Planorbidae* 3 Simuliidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

2 Gyraulius albus
3 Simulium ornatum group

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	West Beck
DATE	31.5.94	SITE	Bottoms
SORTER	MR	CODE	NRA10 0331

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

B	SAMPLE	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)	1 Planorbidae 2 Lepidostomatidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Anisus vortex
2 Lepidostoma hirtum 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Tarset Burn
DATE	28.4.94	SITE	Redmire
SORTER	FC	CODE	NRA02 2030

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 Elmidae* 2 Limnephilidae	3 Hydrophilidae

B	SAMPLE	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)	4 Elmidae* 5 Leptoceridae

* 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

1

NOTES:

3 *Hydraena gracilis* (adults)
4 *Elmis aenea*, *Limnius volckmari*, *Oulimnius tuberculatus* (adults + larvae)
5 *Ceraclea annulicornis*, *Athripsodes bilineatus*

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Middlehope Burn
DATE	11.4.94	SITE	Westgate
SORTER	JH	CODE	NRA02 2810

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

B	SAMPLE	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)	None

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Coquet
DATE	25.4.94	SITE	Shaperton
SORTER	FC	CODE	NRA02 0470

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

B	SAMPLE	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)	1 Perlidae

* 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 *Perla bipunctata*, *Dinocras cephalotes*

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Catraw Burn
DATE	27.4.94	SITE	Stannington
SORTER	FC	CODE	NRA02 1000

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 Planorbidae 2 Hydrophilidae* None

B	SAMPLE	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) 3 Leptophlebiidae 4 Taeniopterygidae 5 Hydrophilidae*

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Terrestrial snail in vial
 2,5 Terrestrial beetle Aphodius sp. (Scarabeidae) in vial, Hydraena gracilis (adults) in sample
 3 Habrophlebia fusca 1 only
 4 Brachyptera risi 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Wear
DATE	8.4.94	SITE	Vs Gauwless
SORTER	FC	CODE	NRA02 2140

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

B	SAMPLE	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)	1 Caenidae 2 Haliplidae 3 Leptoceridae 4 Lepidostomatidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

- | |
|--|
| 1 Caenis rivulorum
2 Haliphus sp. (larva) 1 only
3 Athripsodes sp.
4 Lepidostoma hirtum |
|--|

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Rede
DATE	25.3.94	SITE	W Woodburn
SORTER	VW	CODE	NRA02 1900

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

B	SAMPLE	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)	1 Scirtidae

* 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 Elodes sp. (larva) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Twyzell Burn
DATE	19.5.94	SITE	B6313 Bridge
SORTER	FC/EC	CODE	NRA02 2250

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

B	SAMPLE	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)	1 Hydropsychidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Hydropsyche siltalai 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Worth
DATE	20.7.94	SITE	d/s Providence Lane
SORTER	RJJ	CODE	NRA10 2213

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

B	SAMPLE	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)	1 Rhyacophilidae

* 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 Rhyacophila dorsalis (pupa) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Aire
DATE	30.6.94	SITE	u/s Cononley Beck
SORTER	RJJ	CODE	NRA10 0005

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	ADDITIONAL FAMILIES FOUND BY IFE
		1 Planorbidae 2 Limnephilidae	3 Hydropsychidae

B	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	ADDITIONAL FAMILIES FOUND 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

2

NET GAINS

1

OMISSIONS

0

NOTES:

1 Empty shell in vial
3 Hydropsyche sp. (pupae)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Dalton Beck
DATE	31.8.94	SITE	u/s pollution source
SORTER	EA	CODE	

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

B	SAMPLE	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)	1 Nemouridae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Indet Nemourid (juvenile) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Wiske
DATE	20.7.94	SITE	Little Smeaton
SORTER	FN	CODE	

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

B	SAMPLE	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)	1 Piscicolidae 2 Gerridae 3 Hydrophilidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 *Piscicola geometra* 1 only
2 *Gerris* sp. (nymph) 1 only
3 *Helophorus brevipalpis* (adult) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Ure
DATE	14.6.94	SITE	Boroughbridge
SORTER	JC	CODE	NRA10 0323

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

B	SAMPLE	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)	1 Dendrocoelidae 2 Goeridae

* 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 Dendrocoelum lacteum 1 only
2 Goera pilosa (pupae)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Skell
DATE	20.6.94	SITE	d/s of SSO, Borage Bridge
SORTER	JC	CODE	

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

B	SAMPLE	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)	1 Leptophlebiidae 2 Hydroptilidae

* 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 Habrophlebia fusca
2 Hydroptila sp. (pupae)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Collingham Beck
DATE	16.6.94	SITE	Collingham
SORTER	LG	CODE	NRA10 0077

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

B	SAMPLE	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)	1 Sphaeriidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Pisidium sp. 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Greatham Beck
DATE	31.8.94	SITE	Greatham Bridge
SORTER	EA	CODE	

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

B	SAMPLE	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)	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

NOTES:

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EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Wiske
DATE	20.7.94	SITE	East Harsley
SORTER	FN	CODE	

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

B	SAMPLE	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)	1 Hydrophilidae 2 Simuliidae

* 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 Helophorus brevipalpis (adults)
2 Simulium ornatum group 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Harden Beck
DATE	13.10.94	SITE	Harden
SORTER	LBS	CODE	NRA10 0169

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

B	SAMPLE	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)	1 Leptophlebiidae 2 Hydroptilidae

* 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 Paraleptophlebia sp. 1 only
2 Hydroptila sp. (pupa) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Lune
DATE	27.10.94	SITE	B6277 Bridge
SORTER	EA	CODE	NRA10 3950

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

B	SAMPLE	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)	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

NOTES:

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EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Wharfe
DATE	26.9.94	SITE	Hubberholme
SORTER	FN	CODE	NRA10 0336

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

B	SAMPLE	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)	1 Ephemerellidae 2 Perlodidae 3 Hydrophilidae 4 Rhyacophilidae 5 Psychomyiidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES

0

NET GAINS

5

OMISSIONS

0

NOTES:

1 Ephemerella ignita 1 only
2 Isoperla grammatica 1 only
3 Hydraena gracilis (adult) 1 only
4 Rhyacophila sp. (juvenile) 1 only
5 Tinodes waeneri 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Swale
DATE	12.10.94	SITE	Hudswell
SORTER	FN	CODE	

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

B	SAMPLE	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)	1 Planariidae 2 Leuctridae 3 Perlodidae 4 Leptoceridae 5 Simuliidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES

0

NET GAINS

5

OMISSIONS

0

NOTES:

- 1 Polycelis sp. (damaged specimen) 1 only
- 2 Leuctra fusca 1 only
- 3 Isoperla grammatica 1 only
- 4 Athripsodes albifrons
- 5 Simulium ornatum group, S.variegatum (pupae)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Wiske
DATE	29.9.94	SITE	Kirby Wiske
SORTER	JC	CODE	

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

B	SAMPLE	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)	1 Hydroptilidae

* 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 Hydroptila sp.

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Little Don
DATE	24.10.94	SITE	Deepcar
SORTER	JB	CODE	NRA10 0198

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 Hydrobiidae	None

B	SAMPLE	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)	2 Ancyliidae 3 Baetidae 4 Leuctridae

* 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:

- 1 Empty shells in vial and sample
- 2 Ancyliis fluviatilis 1 only
- 3 Baetis rhodani 1 only
- 4 Leuctra sp. (juvenile) 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Burn
DATE	12.10.94	SITE	Masham
SORTER	JC	CODE	NRA10 0053

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 Caenidae	None

B	SAMPLE	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)	2 Chloroperlidae 3 Gyrinidae

* 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:

2 Chloroperla torrentium
3 Orectochilus villosus (larvae)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Selby Dam
DATE	13.10.94	SITE	Selby
SORTER	EA	CODE	NRA10 0263

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

B	SAMPLE	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)	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

NOTES:

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EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Tees
DATE	27.10.94	SITE	Old Mine
SORTER	EA	CODE	NRA10 3050

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

B	SAMPLE	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)	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

NOTES:

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EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Clayton Beck
DATE	20.10.94	SITE	u/s Pitty Beck
SORTER	VH	CODE	NRA10 2277

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	ADDITIONAL FAMILIES FOUND BY IFE
		1 Leuctridae	None

B	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	ADDITIONAL FAMILIES FOUND BY IFE
		(This box is only completed when no vial is supplied with the sample)	2 Hydrophilidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Abdomen only in vial. IFE instructed not to include posterior ends of specimens for purposes of audit.
2 Hydraena gracilis (adults)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Fordyke Stream
DATE	9.11.94	SITE	Wawne
SORTER	RJJ	CODE	NRA10 0150

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 Valvatidae 2 Hydrobiidae	None

B	SAMPLE	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)	3 Baetidae 4 Coenagriidae 5 Leptoceridae

* 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:

1,2 Empty shells in vial and sample
3 Cloeon simile 1 only
4 Ischnura elegans
5 Athripsodes aterrimus 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Barmston Main Drain
DATE	7.11.94	SITE	Lissett
SORTER	LM	CODE	

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

B	SAMPLE	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)	1 Planariidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

1 Polycelis nigra/tenuis

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	West Beck
DATE	27.10.94	SITE	Corpslanding
SORTER	LM	CODE	NRA10 0330

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 Planariidae*	2 Dendrocoelidae

B	SAMPLE	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)	3 Planariidae* 4 Valvatidae 5 Caenidae

* 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 Dendrocoelum lacteum
3 Polycelis nigra/tenuis
4 Valvata piscinalis
5 Caenis horaria 1 only

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Mill Beck
DATE	8.11.94	SITE	Ellerker
SORTER	RJJ	CODE	NRA10 0213

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	ADDITIONAL FAMILIES FOUND BY IFE
		1 Hydrophilidae	2 Planorbidae

B	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	ADDITIONAL FAMILIES FOUND BY IFE
		(This box is only completed when no vial is supplied with the sample)	3 Dendrocoelidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

- | |
|---|
| 1 Terrestrial Lacewing larva (Hemerobiidae) in vial
2 Bathyomphalus contortus in vial, Anisus vortex and Gyraulus albus in sample
3 Dendrocoelum lacteum 1 only |
|---|

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION	N'umbria & Yorks	RIVER	Old Howe
DATE	7.11.94	SITE	Foston
SORTER	LM	CODE	NRA10 0233

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

B	SAMPLE	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)	1 Valvatidae 2 Hydrobiidae 3 Baetidae 4 Limnephilidae

* Taxa recorded on data sheet but absent from vial and found by I.F.E.
in sample (omissions)

NET LOSSES NET GAINS OMISSIONS

NOTES:

- 1 Valvata cristata 1 only
- 2 Bithynia leachii 1 only
- 3 Cloeon dipterum 1 only
- 4 Indet Limnephilid (juvenile) 1 only

